Mixtec plant nomenclature and classification

by

Alejandro de Ávila

A dissertation submitted in partial satisfaction
of the requirements for the degree of
Doctor in Philosophy
in
Anthropology
in the
Graduate Division
of the
University of California, Berkeley

Committee in charge:
Professor Overton Brent Berlin, Chair
Professor Laura Nader
Professor Leanne Hinton

Fall 2010
Abstract

Mixtec plant nomenclature and classification

by

Alejandro de Ávila

Doctor of Philosophy in Anthropology

University of California, Berkeley

Professor Overton Brent Berlin, Chair

Ñuu Savi (‘Sacred Rain’s collectivity’), the Mixtec people of southern Mexico, had created some of the most complex polities in the continent at the time of European contact. Five hundred years later, they remain cohesive, culturally distinct communities, as increasing numbers of individuals and families migrate to northern Mexico and the US for work in the agricultural and service sectors. In 2005, the Mexican Federal Government reported there were more than 446,000 speakers of Tu’un Savi (‘Sacred Rain’s word,’ the Mixtec languages) five years of age and older, 322,000 of them still living in 1551 settlements within their historic homeland; an additional 100,000 to 200,000 are estimated to reside in the US.

The term Mixtec, derived from the Náhuatl mixte:cah (‘cloud-people’), has been considered by different authors to encompass between 12 and 52 mutually unintelligible languages, in addition to numerous dialects. According to the Summer Institute of Linguistics’ Ethnologue, it is the second most diversified group of languages in the Americas, after Zapotec. The Instituto Nacional de Lenguas Indígenas, however, recognizes 81 variants of Mixtec, making it the most diversified language group in Mexico following official criteria. The internal variation of Mixtec and its geographic proximity to three related groups (Cuicatec, Triqui and Amuzgo, members of the same lineage in a progressively earlier sequence of branching episodes), provide fertile ground for diachronic inquiry into various lexical and grammatical traits of these languages, which are part of the Otomanguean phylum.

The Mixtec territory can be portrayed as an intricate mosaic in its geology and vegetation. It boasts one of the richest floras in Mexico, itself one of the most diverse areas of the planet in biological terms. Furthermore, the Mixteca (the local name for the region in Spanish) is notable for a high incidence of endemic species of vascular plants and terrestrial vertebrates, which reflect long series of climatic and ecological changes in the area’s natural history. It is part of a larger region of Otomanguean speech where a characteristic stone-working technology has been documented by archaeologists, in conjunction with the early development of plant domestication and agriculture. Natural complexity and cultural history thus converge to enhance the interest of the Mixtecan languages for ethnobotanical study.

This dissertation presents the results of several years of research on the names and uses of plants in Mixtec communities in the states of Oaxaca, Puebla and Guerrero. Extensive
information is provided on plant terminology, backed in part by herbarium specimens collected in the field by the author. The Mixtec languages make use of a productive system of noun markers, in some cases matched by pronominal clitics, to label various plant categories. Adscription to these groupings appears to be determined by use, edibility and symbolic significance, as much as by life form affiliations that reflect adaptive design, such as woody plants, leafy herbs, vines and grasses. Categories labeled by class terms appear consistently in all the Mixtec languages that have been documented to date. The dissertation reviews the botanical nomenclature recorded by linguists and naturalists throughout the Mixteca since the 16th century.
# TABLE OF CONTENTS

1. Introduction: natural history and cultural chronology of the Mixtec region 1  
1.1 Geological history 1  
1.2 Climate 6  
1.3 Flora and vegetation 6  
1.4 Language diversity and Otomanguean prehistory 9  
1.5 Mixtec language history 15  
1.6 Archaeology and history 19  
1.7 The modern period 23  

2. History and theory of ethnobiological classification and nomenclature 28  
2.1 Francisco del Paso and Franz Boas 29  
2.2 Conklin and Lévi-Strauss 31  
2.3 Brent Berlin’s principles of categorization 33  
2.4 Berlin’s general principles of nomenclature 40  
2.5 Recapitulation 43  

3. Semantic classification in Mixtec grammar and lexical morphology 46  
3.1 Noun classifiers 46  
3.2 Mixtec orthography 49  
3.3 Phonology 51  
3.4 Morphophonemics 53  
3.5 Morphology 55  
3.6 Contraction processes 58  
3.7 The pronouns 59  
3.8 Mixtec classifiers 63  
3.9 Innovation and loss of the classifiers 70  

4. A corpus of Mixtec plant lexicon 73  
4.1 The sources of information 74  
4.2 Dialectal geography of the sources 84  
4.3 The plants marked tun/-tnu/-nu- 87  
4.3.1 Cognate sets and individual terms with initial <a> 91  
4.3.2 Cognate sets and individual terms with initial <ch> 91
4.3.3 Cognate sets and individual terms with initial <d> 93
4.3.4 Cognate sets and individual terms with initial <i> 94
4.3.5 Cognate sets and individual terms with initial <j> 96
4.3.6 Cognate sets and individual terms with initial <k> 96
4.3.7 Cognate sets and individual terms with initial <l> 100
4.3.8 Cognate sets and individual terms with initial <m> 100
4.3.9 Cognate sets and individual terms with initial <n> 100
4.3.10 Cognate sets and individual terms with initial <nd> 102
4.3.11 Cognate sets and individual terms with initial <ñ> 110
4.3.12 Cognate sets and individual terms with initial <o> 113
4.3.13 Cognate sets and individual terms with initial <p> 113
4.3.14 Cognate sets and individual terms with initial <r> 113
4.3.15 Cognate sets and individual terms with initial <s> 113
4.3.16 Cognate sets and individual terms with initial <t> 115
4.3.17 Cognate sets and individual terms with initial <ts> 124
4.3.18 Cognate sets and individual terms with initial <v> 124
4.3.19 Cognate sets and individual terms with initial <w> 126
4.3.20 Cognate sets and individual terms with initial <x> 126
4.3.21 Cognate sets and individual terms with initial <y> 128

4.4 The plants labeled yuku 135
4.5 Plants labeled ita 153
4.6 The plants labeled yuva and nduva 167
4.7 Other labeled groupings 187
  4.7.1 Thorny plants 187
  4.7.2 Grasses 189
  4.7.3 Brooms – switches – shrubs 190
  4.7.4 Soap plants 191
  4.7.5 Tuberous roots 192
  4.7.6 Agaves and plants that resemble them 194
  4.7.7 Vines 196
4.8 Unaffiliated plants 198
4.9 The main crops
  4.9.1 Maize
  4.9.2 Beans
  4.9.3 Squashes

5. Conclusion: the geography of quelites and flowers
  5.1 Spatial distribution of the yuva and nduva class terms
  5.2 Botanical class terms in other Mesoamerican languages
Acknowledgments

I am indebted to numerous kind people who have generously shared their knowledge with me during my field work in Oaxaca, Puebla and Guerrero. I cite their names in section 4.1 of this dissertation, listed by communities. I am grateful to Celso Flores Romero and Sergio Méndez, who instructed me in Coicoyán and San Miguel Tlacotepec Mixtec with great patience. The members of Ve’e Tu’un Savi heard my original proposal for documentation of the Mixtec plant lexicon and made helpful observations; I especially thank Juan Julián Caballero and Ubaldo López García for their encouragement and friendship. Many colleagues have offered the results of their own field research to me with great kindness; I would like to express my gratitude to Esther Katz, Priscilla C. Small, Susan J. Huggins, Anna Piestrzynska, Jonathan Amith, Michael W. Swanton and Sebastian van Doesburg. Alfredo Saynes Vásquez provided Latin binomials for many of the plants I collected in Coicoyán and Jicayán; Silvia Salas Morales, Emily J. Lott and Abisáí García Mendoza have helped me identify the voucher specimens we have gathered subsequently. Salvador Maldonado Paz assisted me in the transcription of field notes, and Javier Ríos Medina prepared the topographic map of the Mixtec region presented in chapters 1 and 4. Óscar Mingüer Vargas helped me convert the manuscript into the format of a dissertation. My research has been supported at different stages by the Consejo Nacional de Ciencia y Tecnología (CONACYT), the Missouri Botanical Garden, the New York Botanical Garden, the World Wildlife Fund, the Instituto Tecnológico de Oaxaca (ITO), the American Philosophical Society, and the Jardín Etnobotánico de Oaxaca.
1. Introduction: natural history and cultural chronology of the Mixtec region

Ñuu Savi (‘Sacred Rain’s collectivity’), the Mixtec people, had created some of the most refined polities in the American Continent at the time of European contact [1.]. Five hundred years later, they remain cohesive, culturally distinct communities, as increasing numbers of individuals and families migrate to northern Mexico and the United States for work in the agricultural and service sectors. In 2005, the Mexican Federal Government reported there were more than 446,000 speakers of Tu’un Savi (‘Sacred Rain’s word,’ the Mixtec languages) 5 years of age and older in the country, 322,000 of them still living in 1551 settlements within their historic homeland (INALI, 2005); an additional 100,000 to 200,000 are estimated to reside outside of Mexico.

The Mixtec people have occupied historically an area of approximately 45,000 square kilometers in southern Mexico. Their territory extends for about 260 kilometers south to north, from the Pacific coast to the Balsas trough in southern Puebla State, and for approximately 175 kilometers east to west, from the Cuicatlán Canyon and the Oaxaca Valley to the mountains of eastern Guerrero State (Spores, 2007: 5). The Mixtec area, a very heterogeneous geographical unit, has been conventionally divided into three regions. The Mixteca Alta, an area that lies mostly above 1600 meters in altitude, designates the districts of Coixtlahuaca, Teposcolula, Tlaxiaco, Nochixtlán, the northern part of Putla and the westernmost portions of the Etla and Zaachila districts in the State of Oaxaca. Sustaining the densest human population, the Mixteca Alta has played a central role in regional history since the formative period.

The Mixteca Baja, where the average altitude is about 1600 meters (Ortiz Pérez et al.: 46), covers the district of Acatlán and the western section of the district of Tepexi in southwestern Puebla, and the districts of Huajuapan, Silacayoapan and Juxtlahuaca in Oaxaca. On grounds of linguistic affinity, the Mixtec communities in the districts of Morelos (Tlapa), Allende (Ayutla), Altamirano (San Luis Acatlán) and Abasolo (Ometepec) in eastern Guerrero have been linked to the Mixteca Baja, although their lands stretch over mountain ranges as high as those of the Mixteca Alta and reach down close to sea level on the Pacific coast. Finally, the Mixteca de la Costa, largely below 800 meters in altitude, encompasses the district of Jamiltepec, the western part of Juquila and the southern portion of Putla in Oaxaca.

The landscapes of the Mixtec territory are quite rugged and consist of a complex mosaic of geological formations dating to different periods within the morphotectonic province called the Sierra Madre del Sur (Ferrusquía Villafranca, 1998: 60), which extends from the Mexican Transvolcanic Belt south to the Pacific Ocean, and from the Isthmus of Tehuantepec to southwestern Jalisco. Three physiographic subprovinces are recognized within the eastern Sierra Madre del Sur, where the Mixtec territory is situated: the Pacific coastal plain, the Balsas trough and the Oaxaca-Puebla highlands. The latter, which constitute the most complex subprovince, are divided in turn into two zones within our region of interest: the Mixtec-Zapotec sierras and the Tehuacán-Cuicatlán rift valley. For the most part, the Pacific coastal plain is a narrow strip (approximately 20 kilometers from south to north) where rivers do not form significant alluvial depositions, since the sea currents close to the shore disperse sediments rapidly. The continental platform is equally narrow along the coast.
The Balsas trough is an east-to-west depression that forms the watershed of the Balsas river, ranging mostly between 200 and 1000 meters in altitude; in its easternmost section, occupied partly by Mixtec communities, it is composed of plateaus that surpass 1000 meters above sea level. The western portion of the Mixtec-Zapotec sierras comprises a high plateau that descends gradually north towards the Balsas trough; the remainder of the zone is formed by mountain ranges that exceed 2000 meters. The Tehuacán-Cuicatlán zone is a long and narrow rift valley, i.e., a graben that is delimited by parallel faults, in a south-southeast to north-northwest direction. The valley is part of the Papaloapan watershed, which drains into the Gulf of Mexico. Figure 1 illustrates the physiography of the Mixtec territory.

1.1 Geological history

The Sierra Madre del Sur boasts the most complex geology in Mexico, and its history remains largely speculative (Ferrusquía Villafranca, *idem*: 63). Ortiz Pérez et al. (2004) characterize the major geomorphological features which distinguish five areas within Mixtec territory (here underlined), largely coincident with Ferrusquía’s subprovinces and zones. The Balsas trough to the northwest has a relatively gentle topography, with 75% of the terrain showing slopes of less than 12°. It morphology is dominated by plateaus formed by metamorphic rocks of Paleozoic age in a general pattern of stepped north-to-south blocks. Mixtec presence in this area has been largely limited to the headwaters, the lower areas of the basin being occupied historically by Tlapanec people (Kaufman, 1990: 98), and more recently by Nahuatl speakers intruding from the north.

The mountains and valleys of western Oaxaca feature an intricate relief and diverse structure, characterized by a pattern of ranges that converge towards cusps in the south, with igneous, metamorphic and sedimentary rocks of varying age. Unlike the areas of the Sierra Madre to the west and east, where the mountains relate to the subduction zones and the relief ascends step-wise fashion towards the interior of the continent, here the mountains form linear, parallel ranges, rotated clockwise. The south to north orientation of the Mixteca Alta ranges, in contrast to the east to west axis of the Balsas trough and the general pattern of the Sierra Madre from Chiapas to Jalisco, remains a puzzle. About 25% of the slopes in the area range between 6° and 12°, and 6.5% exceed 30°. The geological history of this region is particularly relevant to the cultural development of the Mixtec people since it occupies a major portion of their territory, where human settlement reached the greatest density, and where large areas of the exposed substrate are highly prone to erosion because of their peculiar mineral composition. Soil retention has been a concern for Mixtec agriculturalists throughout the region and motivated the construction of terraces since the mid to late Classic period, about 500 to 900 AD (Spores, 2007: 75-76).

The Tehuacán-Cuicatlán rift bears evidence of having been an endorheic basin which developed its current drainage into the Gulf of Mexico in the Tertiary, in the process capturing flows from the eastern escarpment of the Mixteca Alta. The faults that flank the graben bear witness of recent tectonic activity. Slopes exceeding 30° occupy 3% of the area. Approximately 70% of it lies below 1000 meters in altitude; the warm climate and the potential for irrigation allow the alluvial soils of the lower canyon to produce tropical fruits and two to three crops of maize and other annual species. Mixtec communities settled the
Figure 1: Physiography of the Mixtec territory; altitude contour lines are marked at 500 meter intervals; dotted lines represent state boundaries (based on INEGI, n.d.)
western slopes of the graben, and a sizable group traversed the canyon to settle in the eastern drainage, establishing a string of Mixtec outposts wedged in between the Cuicatec and Mazatec peoples. The Cuicatlán rift has played a significant role in regional trade and the formation of polities since early times (Spencer, 1982).

Ortiz Pérez et al. (op cit: 51) distinguish the mountains and valleys of western Oaxaca from the *Sierra Madre del Sur*, proper, which they characterize as a range that runs parallel to the coast. It reaches lower altitudes than the highlands further north, as none of its summits within Mixtec territory exceed 2000 meters. It is traversed only by the Atoyac-Verde river; all other watersheds are autochthonous. Its slopes drop precipitously, with 22% of the area in the 6° to 12° range, 24% in the 12° to 18° bracket, and 29% in the 18° to 30° range. In the Mixtec region, the *Sierra Madre* contains metamorphic rocks of the Paleozoic and intrusive igneous materials of later periods. This area has been largely devoid of human occupation until recently, probably due to its extremely rugged topography. Compared to the narrow strip further east, Pacific coastal plain shows a softer relief in western Oaxaca and eastern Guerrero, with rolling hills, plains and some lagoons. It is largely covered by metamorphic rocks of the Cretaceous period and intrusive igneous materials, with some localized limestone outcroppings. The colonization of the coastal plain by Mixtec speakers appears to represent a relatively recent migration from the highlands (Josserand et al., 1984: 154).

Centeno García (2004) relates the mineral formations in the highlands of Oaxaca to the early geological history of the American Continent. Most of the Mixteca Baja and the western part of the Mixteca Alta are part of the tectonostratigraphic terrain called precisely the Mixtec Terrain. Tectonostratigraphic terrains are fragments of newly formed or ancient crust that breaks off from other continents and becomes attached to a different land mass. Consequently, these terrains bear witness to a geological history that is distinct from that of neighboring territories. The eastern rim of the Mixteca Alta and the Cuicatlán rift are part of a second tectonostratigraphic terrain, designated the Zapotec Terrain. This area is characterized by the presence of rocks belonging to the Oaxacan Complex, a metamorphic unit of great variation formed at great depths within the terrestrial crust, subjected to high pressures and temperatures, which has been dated at 1113 to 940 million years ago (Centeno García, idem: 32).

Rocks in the Oaxacan Complex, of sedimentary and igneous origin, are believed to have been deformed and metamorphized about 900 million years ago, in an event that was probably associated with the Grenville orogeny, which gave rise to the supercontinent Rodinia. The Oaxacan Complex is thought to have been part of a large continental block which has been called Oaxaquia. The tectonic evolution of the Oaxaquia block has been linked to prorerozoic Gondwanan rocks of South America, which apparently accrued to the North American land mass in the late Paleozoic, during the formation of Pangea. The earliest rocks in the Mixtec terrain, on the other hand, belong to the Acatlán Complex, composed of igneous and sedimentary minerals that present varying degrees of metamorphism. Although the age of that event has not been defined with any precision, the evolution of the Acatlán Complex is considered to be a key process to understand the geological history of North America. These rocks, which appear to have been formed in a marine environment at great depth, seem to have been deformed by the collision of two continents (Centeno García, idem: 33).
A complex series of events have been reconstructed to explain the development of the Zapotec Terrain and the neighboring Mixtec Terrain that would gave rise to most of the Mixteca Alta and the Mixteca Baja. In the Precambrian, when all continental masses were joined in Rodinia, the Zapotec Terrain was part of northern South America and belonged to the Grenville mountain chain. In the early Paleozoic, some 530 million years ago, Laurentia (the continental mass that would become North America) was separated from the blocks that formed Gondwana, among them the South American land mass. Oaxaquia, including the Zapotec Terrain, remained on its northeastern margin and began to erode, parts of it becoming submerged by the sea. The Tiñú (a Mixtec toponym) Formation, a sedimentary deposition of Ordovician age that overlies the Oaxacan Complex in the Nochixtlán Valley in the eastern Mixteca Alta, bears abundant marine fossils of species that have been found in formations of matching antiquity in South America, but not to the north. This is the evidence indicating that the Zapotec terrain was adjacent to South America 490 million years ago.

At the same time that the Zapotec Terrain was becoming submerged, the oceanic crust began to take shape which would become deformed and pleated into the Mixtec Terrain. In the mid Paleozoic, about 370 million years ago, the margin of Laurentia collided with northern Gondwana; the marine rocks of the Mixtec Terrain appear to have become trapped in that collision and were hence deformed, emerging as large mountains (Centeno García, idem: 37). In the late Paleozoic, some 255 million years ago, almost all continental land masses drew together again, forming the supercontinent Pangea. It was at that time that the Oaxaquia block joined the territory that would become northern Mexico, while the Zapotec and Mixtec terrains were covered by shallow seas. During the early Mesozoic, Pangea broke apart gradually to form the Atlantic Ocean, including the Gulf of Mexico. On the Pacific side, an arch of volcanoes arose which would shape the Xolapa Terrain, which underlies the coastal plain today. At the end of the Cretaceous in the late Mesozoic, the push of the Pacific plate in the active subduction zone along the early coast caused the marine and continental rocks of earlier periods to be deformed and pleated, giving rise to mountains as part of the Laramide orogeny, which would continue into the early Cenozoic.

In the last 65 million years, two local tectonic events have shaped the landscapes of southern Mexico. Early on in the Cenozoic, the Xolapa Terrain, as well as the Chortis Block in Central America, moved southwards by means of large faults with lateral displacement. This process brought about the formation of valleys and mountains by blocks controlled by faults. As the Chortis Block migrated south, subduction began along the coast of the Pacific, originating the emergence of volcanoes toward the interior and a new system of south to north faulting. About nine million years ago, the terrestrial connection between South and North America began to build up, an event that would be completed 3.5 million years ago and would have profound consequences for the composition of the modern flora and fauna of Mexico (Halffter et al., 2008: 68). Biological diversity in Oaxaca and adjacent regions has been enhanced by the strategic location of the territory at the confluence of the Neotropical and Nearctic biogeographic provinces (Espinosa Organista et al., 2008: 57; Rzedowski, 1993: 134).
1.2 Climate

Although the geology of the Cenozoic remains poorly documented in the region, events during that period shaped the landscapes we see today, uplifting the major mountain ranges and setting the stage for great climatic and vegetational diversity. The Sierra Madre del Sur and the mountain ranges facing the Gulf of Mexico, both originated by major faults, cast moisture shadows that give rise to contrasting climates, from humid types on the leeward side of the mountains to arid climates in the interior. The interaction between topography and precipitation patterns is particularly marked in the Cuicatlán Canyon, which is the driest area in Mesoamerica, and also in the Balsas trough. In the absence of the tectonic shifts of the Cenozoic, the landscape of southern Mexico would be quite flat and uniform in its climate, similar to the Yucatan (Centeno Garcia, op cit: 39). It would probably resemble the Peninsular Maya region in its cultural and linguistic homogeneity, as well.

The climatic zones of the Mixtec region are as varied as its geomorphology (Trejo, 2004). The type Aw (warm subhumid) climate is found in the coastal lowlands. Types BS1(h’)w (warm semi-arid) and (A)C(w) (semi-warm subhumid) occur in most of the Balsas basin. BSO(h’)w (warm arid) characterizes the Cuicatlán Canyon. BS1kw (temperate semi-arid) is present at mid altitudes in the northern Mixteca. C(w) (temperate subhumid) prevails over most of the Mixtec-Zapotec sierras above 2000 meters, with Cb’(w) (semi-cold subhumid) at the highest altitudes. C(m) (temperate humid) and (A)C(m) (semi-warm humid) occur at mid altitudes on the slopes facing the Pacific in the Putla, Juxtlahuaca and Metlatónoc areas. Lastly, Am (warm humid) climate is found in small areas where oceanic moisture condenses faster at the foot of the higher sierras.

Geologic events during the Cenozoic period have thus been major determinants shaping the landscapes and climates in which the cultural history of the peoples of Southern Mexico has unfolded. In the case of the Mixtecs and their neighbors, it is relevant to examine the earlier geological history of the region, as well, to shed light on the evolution of the local flora, determined partly by the distinct mineral formations and the soil types that have developed from them. The ancient history of the land is also germane to the physical and chemical limitations to indigenous agriculture that characterize the Mixteca, which have largely determined its demographic dynamics and migration patterns (Stuart & Kearney, 1981; Escárcega & Varese, 2004; Stephen, 2007). The peculiar geology of the region has rooted Mixtec communities in their unique and diverse landscapes emotionally (Geurds, 2007; López García, 2007), and has perhaps conditioned their aesthetic sense. Mixtec manufactures are considered among the most sophisticated art in Mesoamerica and have been traded widely since antiquity (Spores, 1997; de Ávila, in press, b).

1.3 Flora and vegetation

The complex geomorphological and climatic mosaic of the Mixtec territory is mirrored in its vegetation. Rzedowski (1978) and Challenger & Soberón (2008) provide an overview of the major vegetation types found in southern Mexico. Torres Colín (2004) discusses the plant communities present in the State of Oaxaca in greater detail, generating a vegetation map based on the 2000-2001 National Forestry Inventory. The Mixteca Baja was originally
covered primarily by tropical deciduous forests in the low-lying areas of the Balsas trough, with various types of *matorral* (scrubby vegetation) and some oak woodlands and oak forests at higher elevations. Intensely grazed, secondary vegetation is evident in most landscapes in the region, and areas amenable to irrigated and rain-fed agriculture were cleared long ago.

The original vegetation of large areas of the Mixteca Alta consisted of various pine-oak associations, with gallery forests dominated by Montezuma cypress (*Taxodium mucronatum* Ten.) along the streams and rivers, and fir forests at higher altitudes. Juniper woodlands and *Brahea* palm thickets occur in drier areas, especially on limestone formations. The latter type of vegetation is also found in the Mixteca Baja and the upper slopes of the Cuicatlán Canyon. The Mixteca Alta has been extensively deforested since early times, and large tracts of dense, low stature pine growth represent secondary vegetation on eroded soils. There are wide expanses of grassland in the Coixtlahuaca and Nochixtlán districts that constitute the southernmost extension of the semiarid North American *graminetum* (Rzedowski, 1978: 233), although these may also be anthropogenic in origin.

The Cuicatlán Canyon, deeply carved by the affluents of the Papaloapan river and overcast by the rain shadow of the mountains facing the Gulf of Mexico, is covered by distinctive, relatively undisturbed vegetation. Xerophytic scrub, which represents again the southern end of the distribution of an ecosystem that extends over a sizable portion of western North America, occurs in the driest sections of the rift valley. A complex assortment of tropical deciduous communities, dominated by columnar cacti, covers large areas on the lower slopes. At mid altitudes, a distinctive type of evergreen scrub is found that has been designated *Mexical* and which has elucidated the evolution of chaparral vegetation under Mediterranean climates in California, Chile, the shores of the Mediterranean Sea, South Africa and Australia (Valiente Banuet *et al*., 1998). The aridity of the canyon prevented the spread of shifting agriculture into this region, sparing most of the original plant cover. Mixtec communities occupy comparatively moist areas on the higher slopes to the west and northeast of the Cuicatec people, speakers of a Mixtecan language who developed intensive irrigation agriculture in the bottomlands.

The forests of the *Sierra Madre del Sur* along the Juquila-Putla-Juxtlahuaca-Metlatónoc transect represent the least studied component of the vegetation in Mixtec territory. Atmospheric moisture from the Pacific ocean condensing on the south facing escarpment of the Sierra allow the development of isolated patches of cloud forest, as well as humid oak and pine associations at higher altitudes, and tropical montane forest on the lower slopes. Large areas have been devoted to coffee production since the late 19th century, while others have been cleared for slash and burn *milpa* agriculture. Drier slopes harbor tropical pine woodlands and *Curatella-Byrsonima* savannas that seem to have developed after human perturbation. The Pacific coastal plain presents a mixture of tropical subdeciduous forests and *Atelea* palm groves, with tropical deciduous forests developing on substrates with rapid drainage. Mangrove swamps and aquatic vegetation occur in the coastal lagoons. Shifting agriculture has cleared extensive areas on the plains and piedmont, with commercial cattle production and some perennial cash crops such as mangos and copra depleting further land. The Mixtec coast in western Oaxaca and eastern Guerrero is among the most heavily deforested areas of the Pacific lowlands in Mexico (Salas Morales *et al*., 1991-1999).
The diverse vegetation of the Mixteca is correlated with a rich flora, noted for a high incidence of endemic species. Large areas of the region remain to be surveyed by botanists. There is no current estimate of the floral diversity of the entire Mixtec territory, but the totals that have been projected for the Mixteca Alta, the Tehuacán-Cuicatlán Valley, the Balsas basin and the State of Oaxaca can serve as a reference. 1550 species of seed plants had been reported by the early 1990s for the areas above 2000 meters in altitude in the districts of Coixtlahuaca, Teposcolula, Tlaxiaco and Nochixtlán, as well as the mountainous portions of Juxtlahuaca, Huajuapan and Etla, and the southern part of the municipality of Caltepec in Puebla (García Mendoza et al., 1994). 97 of these taxa, 6% of the total, were found to be narrowly endemic to the Mixteca Alta, as defined by the authors, including a monotypic genus in the iris family, while three other endemic genera barely extend into neighboring regions. Agaves, composites, salvias and stonecrops in the genera *Echeveria* and *Sedum* figure prominently among the most diverse taxa with a higher prevalence of endemism in the region. The list of species and the number of endemic taxa that have been identified have increased since that publication. Recent work at the archaeological site of Yucundaá by Teposcolula, a major landmark on the main road that traverses the Mixtec territory from north to south, in an anthropogenic landscape that continues to be disturbed heavily by nearby human settlement, led to the discovery of four new species of angiosperms, presumably endemic to the Mixteca Alta (García Mendoza & Franco, 2007; García Mendoza, 2009, personal communication).

The plant communities of the Tehuacán-Cuicatlán Valley are so distinct that the area is considered a floristic province of its own (Rzedowski, 1978), the subject of an ongoing series of monographs that are being published family by family (Medina Lemos, 2010). The editorial committee for the project has defined the region to include the eastern flank of the Mixteca Alta as well as the western escarpments of the Sierra Cuicateca and Sierra Mazateca, in addition to a large area in southern Puebla well beyond the Mixtec territory. The vascular plants that have been documented in the region surpass 2500 species, with an especially high incidence of endemism approaching 10%. The area is notable for the diversity of arborescent cacti, among other groups. More than 4400 species have been recorded in the Balsas basin to the west (Fernández Nava et al., 1998), but the literature does not quantify the number of endemic taxa. The Balsas drainage is the center of diversity of the genus *Bursera*, of considerable significance in Mesoamerican cultural history; over 40 species of *copales* and *cuajotes*, local names for trees and shrubs in that group, are known from this region.

Oaxaca is acknowledged to boast the most diverse flora and fauna in Mexico (Flores & Gerez, 1994). The list of plants recorded so far in the State, backed by herbarium specimens, reaches 9347 species, including 459 mosses (García Mendoza, in press); the total number of vascular plants has been anticipated conservatively at 9000 species, above the estimates for the neighboring states of Chiapas and Veracruz (Rzedowski, 1998: 134). Table 1 presents the estimated floral diversity for various regions in Mexico and for the country as a whole. Close to 500 species of plants, excluding the major crops, have been documented to be utilized traditionally in Oaxaca, and an additional 2300 useful species are estimated to be present in the State (Caballero et al., 2004: 542).
### Table 1: Number of species of vascular plants recorded for the Mixteca Alta (excluding ferns and their allies), the Tehuacán-Cuicatlán Valley, the Balsas basin and the State of Oaxaca, compared to adjacent regions of Mexico. Information drawn from García Mendoza (1994, 2004 & in press), Medina Lemus (2010), Méndez Larios et al. (2004), Fernández Nava et al. (1998), Castillo Campos et al. (2005), and Villaseñor (2003).

<table>
<thead>
<tr>
<th>Region</th>
<th>Total Species</th>
<th>Endemic Species</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixteca Alta</td>
<td>1550</td>
<td>97</td>
<td>6.3%</td>
</tr>
<tr>
<td>Tehuacán-Cuicatlán</td>
<td>2521</td>
<td>207</td>
<td>8.2%</td>
</tr>
<tr>
<td>Balsas basin</td>
<td>4442</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oaxaca</td>
<td>8888</td>
<td>677</td>
<td>7.6%</td>
</tr>
<tr>
<td>Chiapas</td>
<td>8248</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veracruz</td>
<td>7998</td>
<td>131</td>
<td>1.6%</td>
</tr>
<tr>
<td>MEXICO</td>
<td>22,351</td>
<td>12,740</td>
<td>57%</td>
</tr>
</tbody>
</table>

#### 1.4 Language diversity and Otomanguean prehistory

The geographical pattern of enhanced biological diversity in the highlands of southern Mexico that is evident in table 1 correlates quite closely with the cultural diversity of the region, as quantified by the number of languages spoken there historically and at present. The State of Oaxaca and the adjacent areas of southern Puebla and eastern Guerrero constitute the region of greatest linguistic complexity in the Americas, as noted by McQuown (1955: 501): “In one small portion of the area, in Mexico just north of the Isthmus of Tehuantepec, one finds a diversity of linguistic type hard to match on an entire continent in the Old World.” Languages belonging to five distinct families are spoken there: Otomanguean, Mixe-Zoquean, Uto-Aztecan, Oaxacan Chontal and Huave (Campbell, 1997). Two of these linguistic phyla are represented in Mixtec territory, Otomanguean and Uto-Aztecan [2.].

The Otomanguean family is the most diversified and also the most distinct group of languages in Mesoamerica. A number of phonological features distinguish them from the other linguistic lineages in the region: 1) all Otomanguean languages show phonemic tone, which varies from two to five level tones, and most have gliding tones as well; 2) phonemic vowel nasalization is widespread in the family; 3) open syllables are the norm, and most languages have only CV [consonant-vowel] syllables, except when they are closed with a glottal stop [CV’]; 4) syllable clusters that can occur at the beginning of a syllable are limited, usually to sibilant-C, C-y or C-w, nasal-C, and C-h or C-’; 5) most languages lack labial consonants, although some have developed them from */kʷ/ (Campbell, 1997: 157). The phonological inventory of Proto-Otomanguean reconstructed by Rensch (1977) consists of /t, k, kʷ, ’, s, n, y, w, h; i, e, a, u; four tones/. More recently, Kaufman (1990: 99-100) postulated a much more extensive Otomanguean phonemic system: /t, c, k, kʷ, ’, [θ], s, x, xʷ, h, l, r, m, n, w, y; i, e, a, o, u; combinations [ia], [ea], [ai], [au]; tones (two or three)/ [3.].
The Mixtec languages exhibit all the major phonological traits that characterize the family. The sound system that has been reconstructed for Proto-Mixtec lacks bilabial stops (Bradley & Josserand, 1982), and all contemporary variants that have been documented show open syllables, with the exception of Ayutla Mixtec, where CV’ occurs at couplet-final position (Hills, 1990). Nasalization and complex tonal patterns, including tone perturbation (sandhi) are found throughout the Mixteca. In terms of their phonology, the varied forms of Mixtec can be viewed as typical Otomanguean languages. The unique traits of this family led them to be considered to be different from other American indigenous languages (Campbell, *op cit*). In his initial efforts to define “Amerind” as a language phylum encompassing most languages in the New World, Greenberg (1960: 791) considered Otomanguean as a possible exception to the genetic unity he postulated [4.]

Following the criteria of classification of the *Instituto Nacional de Lenguas Indígenas* (a research and policy institution of the Federal Government of Mexico), the variants of Mixtec represent the most diversified group of languages spoken in Mexico today (INALI, 2007). INALI recognizes officially the existence of 81 variants of Mixtec, a larger number than the case of Zapotec, Náhuatl or any other language group spoken in the country. By these criteria, the Mixtec lineage contributes 42% of the regional (Oaxaca, southern Puebla and eastern Guerrero) linguistic diversity, and 22% of the national total. A variant is defined by the INALI as “a form of speech which presents structural and lexical differences compared to other variants of the same grouping, and which implies for its users a certain sociolinguistic identity, differentiated from the identities of the speakers of other variants.”

The institution’s publications do not elaborate on the methodology for distinguishing one variant from another, but INALI’s policy statements emphasize the commitment of the Mexican Federal Administration to grant them the juridical status of languages: “In conformity with advances in the studies on the linguistic reality of our country and in order to prevent linguistic discrimination, the INALI considers that linguistic variants must be treated as languages, at least in the areas of education, the impartment and administration of justice, and health, as well as in matters or procedures of public nature, and to gain full access to government management, services, and public information.” (INALI, 2007: quote from the introductory statement, translated by Alejandro de Ávila).

Other sources disagree with INALI’s catalog in assessing the number and relative ranking of the variants of Mixtec with regards to other language groups, but they acknowledge nevertheless that it is one of the most diversified lineages in the Americas. The Ethnologue (Lewis, 2009) lists 52 Mixtec languages, making it the second most prolific grouping in the continent, after Zapotec and ahead of Quechua. Table 2 lists the number of languages spoken in Oaxaca and neighboring regions according to the Ethnologue. By these criteria, the 52 Mixtec languages represent 30% of the regional diversity and 18% of the national total. The researchers affiliated with the Summer Institute of Linguistics who have compiled the Ethnologue usually take a level of 80% or less of mutual intelligibility as a threshold to differentiate a dialect from a language, considering that 20% of incomprehension is sufficient to cause disruption of the ability to communicate. The SIL has developed a methodology to assess the degree of intelligibility between related languages (Casad, 1974; Egland, 1978). Lewis (2009) quotes extensive estimates for the level of comprehension between most Mixtec languages listed in the Ethnologue, which range from 8% to over 80%.
Table 2: Number of Mesoamerican languages currently spoken in Oaxaca and adjacent regions, based on the lists published by Lewis (2009). Indoeuropean languages such as Spanish and Plautdietsch, and Caribbean languages such as Garifuna, are excluded here. The last column sums the number of linguistic families represented in each region, according to Campbell (1997).

<table>
<thead>
<tr>
<th>region</th>
<th>languages</th>
<th>families</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEXICO</td>
<td>285</td>
<td>11</td>
</tr>
<tr>
<td>Oaxaca</td>
<td>157</td>
<td>5</td>
</tr>
<tr>
<td>Puebla</td>
<td>28</td>
<td>3</td>
</tr>
<tr>
<td>Guerrero</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>Veracruz</td>
<td>22</td>
<td>5</td>
</tr>
<tr>
<td>Chiapas</td>
<td>24</td>
<td>3</td>
</tr>
<tr>
<td>GUATEMALA</td>
<td>53</td>
<td>2</td>
</tr>
</tbody>
</table>

Other specialists question these estimates of language variation in the Americas, considering the classification procedure of the SIL to be “somewhat generous” (Campbell, 1997: 3). Kaufman (1989, cited by Smith-Stark, 2003: 26) uses more restrictive criteria to differentiate languages from dialects: discussing the variation within Zapotec, he distinguishes various “emergent languages” that share only 10 to 40% of intelligibility, “dialectal groups” with 50 to 65%, “dialects” with 65 to 80%, and “varieties” with 80 a 100% mutual comprehension. Table 3 presents the number of languages recognized by Kaufman (1989 & 2001). Although the regional sums are considerably lower than the totals that can be added up from the data presented in the Ethnologue or in INALI’s Catálogo, the geographical pattern remains constant, with the region west of the Isthmus showing greater diversity. Following Kaufman’s criteria, Josserand’s (1983: 457) “more than twelve mutually unintelligible” Mixtec languages would represent at least 20% of the regional total, a result that is fairly consistent with the estimate based on Lewis (2009).

Kaufman (1990: 94-97; 2001: 83-85) has reconstructed the sequence of differentiation in the Otomanguean family, which includes the Mixtec languages, as illustrated in figure 2. He finds evidence for an initial division of Proto-Otomangu into two lineages about 6000 years ago. Each lineage would split in turn into two branches: around 4700 years ago, the western lineage would give rise to the Tlapanec-Manguean branch and the Otopamean-Chinantec branch, while the eastern lineage would beget the Popolocan-Zapotecan branch and the Amuzgo-Mixtecan branch at about the same time. The Tlapanec-Manguean branch would diverge some 4000 years before present into the Tlapanec-Sutiaba group and the Chiapanec-Mangue group. Sutiaba (a language formerly spoken in western Nicaragua, which became extinct in the early 20th century), separated from Tlapanec (present today in eastern Guerrero, just west of Mixtec territory) as recently as 800 years ago.
Figure 2: Diversification of the Otomanguean family, based on Kaufman (1990 & 2001); Mixtec data based on Josserand (1983)

chat: Chatino  zapot: Zapotec  matl: Matlatzinca  tlah: Tlahuica  choch: Chocholete
<table>
<thead>
<tr>
<th>region</th>
<th>languages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oaxaca</td>
<td>43 [55]</td>
</tr>
<tr>
<td>Puebla</td>
<td>9 [10]</td>
</tr>
<tr>
<td>Guerrero</td>
<td>6 [8]</td>
</tr>
<tr>
<td>Veracruz</td>
<td>11</td>
</tr>
<tr>
<td>Chiapas</td>
<td>17</td>
</tr>
<tr>
<td>Guatemala</td>
<td>32</td>
</tr>
</tbody>
</table>

Table 3: Number of Mesoamerican languages recorded historically in Oaxaca and adjacent regions, based on Kaufman’s classification (2001). The author includes languages that became extinct after the European invasion but were sufficiently well documented to determine their genetic affiliation. The numbers between brackets take into account the 18 Zapotec “emergent languages” previously recognized by Kaufman (1989), as well as the minimum number of Mixtec languages estimated by Josserand (1983) to be spoken in Oaxaca, Puebla and Guerrero. Kaufman (2001) regards only 12 Zapotec languages and 3 Mixtec “language areas”.

Chiapanec (which was spoken in Central Chiapas and became extinct in the mid 20th century), would differentiate approximately 1300 years ago from Mangue (a series of dialects formerly spoken along the Pacific coast of Central America from the Gulf of Fonseca to the Nicoya Peninsula, which disappeared in the 19th century). Proto-Chinantec, whose descendants are still spoken today in northern Oaxaca, separated from the Otopamean branch about 4000 years B.P.; the latter would differentiate some 400 years later into a southern group, composed of Matlatzinca, Tlahuica (Ocuiltec), Mazahua and the Otomi languages, all of which are still present in Central Mexico, and a northern group, composed of Chichimec-Jonaz of northern Guanajuato and the Pame languages of Hidalgo and San Luis Potosi. It is likely that this group included other members which became extinct after 1521 without being documented.

In the eastern subdivision of Otomanguean, Kaufman estimates that the diversification of the Popolocan-Zapotecan branch represents 35 centuries of divergence. Within that branch, he considers that the variation in the Popolocan group reflects some 2400 years of language evolution, with the initial separation of the Mazatec lineage, followed about 1200 years later by Ixcatec, and 400 years hence, by the divergence of the four Popoloca and Chochoilete “emergent languages”. Variation in the Zapotecan group he estimates to reflect likewise some 2400 years of divergence, with Proto-Chatino splitting off first, followed about 1000 years later by the diversification of the Zapotec languages.

Although Suárez (1983) and other authors have classified Amuzgo as an independent branch within the family, Kaufman places the separation of Proto-Amuzgo from the Mixtecan group around 4000 years B.P., approximately five centuries after the eastern Otomanguean lineage bifurcated to give origin to the Popolocan-Zapotecan and Amuzgo-Mixtecan branches. The Mixtecan group includes Trique, Cuicatec and Mixtec. The three Trique variants, which Kaufman (2001: 84) regards as “emergent languages,” constitute the most divergent lineage,
as Proto-Trique is estimated to have split off 3700 years ago, followed by Proto-Cuicatec 1200 years later. Kaufman (1990: 95-98) estimates a horizon of 15 centuries for the diversification of the Mixtec languages and believes that the lineage expanded from the Alta into the Baja only in the last 1000 to 1500 years. Josserand (1983: 450), however, calculated that their time depth approaches 2500 years [5.], a considerably longer period than the interval of divergence of the Romance languages.

The branching pattern of the Otomanguean languages has significant implications in Mesoamerican history since they are considered to be the most diversified family in the region (Campbell, 1997: 157). Their historical distribution extends from the northern boundary of the cultural region (Pame languages in San Luis Potosi) to its southern extreme (Mangue in Costa Rica) [6.]. The nuclear Otomanguean territory in the highlands of Central Mexico and Oaxaca matches quite closely the geographic range of an assemblage of archaeological traits correlated with the earliest development of agriculture documented in the continent. Winter, Gaxiola and Hernández (1984: 72) noted that the present-day distribution of Otomanguean speakers is “roughly coterminous” with the Tehuacán tradition, whose diagnostic features were defined by MacNeish (1967: 243) to include “true manos and metates, stone bowls, Coxcatlán, Tilapa, and Garyito points, crude and fine blades, gouges, and the use of pit houses,” in association with “an embryonic agriculture founded on corn, beans and squash.” MacNeish located this archaeological assemblage in an area that ran from the highlands of Querétaro and Hidalgo to Oaxaca, dating it between 5000 and 2300 BC.

Winter et al. (op cit) believed that the dates and some of the defining traits of the Tehuacán tradition needed to be modified, but endorsed the basic concept advanced by MacNeish, noting that it was consistent with the findings of preceramic occupation at Guílã Naquitz in the Valley of Oaxaca, Texcal Cave in Puebla and Zohapilco in the Basin of Mexico. They emphasized, furthermore, that the Tehuacán tradition differed from contemporaneous archaeological assemblages to the north: the Cochise and Desert Cultures in the southwestern US, the Big Bend tradition in Texas, and the Abasolo complex in Nuevo León and Tamaulipas. Sites on the Pacific and Gulf coasts of Mexico, and similarly dated remains east of the Isthmus of Tehuantepec, yielded no evidence of agricultural production and bore little resemblance to the characteristic features of the Tehuacán tradition (Winter et al., idem: 74). Except for the intrusion of Nahuatl into the Basin of Mexico and surrounding areas around 500 AD (Kaufman, 2001: 88), the close fit in the distribution of the Otomanguean languages with the archaeological evidence for early agriculture led Winter et al. (op cit: 72) to infer that the bearers of the Tehuacán tradition spoke Proto-Otomangue. This notion appears to be bolstered by the territorial and demographic expansion of the Otomangueans, which remain the indigenous family with the largest number of speakers in Mexico today (over two million people, based on the population estimates for individual languages provided by INALI, 2005, and Lewis, 2008). Their remarkable linguistic diversification may also reflect their role as early plant propagators, in the same fashion that the rise of agriculture has been correlated with the proliferation and branching out of the Austroasiatic and Melanesians in Southeast Asia and Melanesia (Pawley & Ross, 1993; Gray & Jordan, 2000), the Niger-Congo family in Subsaharan Africa (Ehret & Posnansky, 1982), and the Indoeuropeans in the Middle East, India and Europe (Renfrew, 1996; Gray & Atkinson, 2003).
The early Otomanguean peoples seem the likeliest candidates for the initial development of Mesoamerican civilization. If linguistic diversification reflects a more intensive role in agricultural innovation, as has been proposed by the sources quoted above, the southern Otomangueans in general, and the Mixtecan and Zapotecan branches in particular, would appear to have been most directly involved in plant domestication. Archaeological evidence for agricultural origins published since Winter, Gaxiola and Hernández’ 1984 work is consistent with this hypothesis: the site of Guila Naquitz in Oaxaca has yielded the earliest macroscopic remains of cultivated plants discovered so far in the Americas (Flannery, 1986), including a teosinte-maize intermediate that is approximately 7000 years old (Piperno & Flannery, 2001; Benz, 2001), and squash seeds that were grown about 10,000 years before present (Smith, 1997). The extraordinary variety of the Mixtec languages and their neighbors may bear the imprint of that early involvement with horticulture.

1.5 Mixtec language history

Longacre (1957), Mak & Longacre (1960), Longacre & Millon (1961) and Bradley & Josserand (1982) delved into the early history of Mixtec based on internal evidence drawn from the variants spoken today. Longacre reconstructed the phonological system and a series of lexical items of Proto-Mixtecan, using data from five Mixtec communities, along with Cuicatec, Trique and Amuzgo. He did not attempt to reconstruct Proto-Mixtec forms specifically, but used prototypical Mixtec terms which he generalized from the dialectal variants at hand. Most of his reconstructions are limited to the final syllables of the original couplets of Proto-Mixtecan. Since he included Amuzgo in his data set, Longacre’s results should be regarded as a reconstruction of Proto-Amuzgo-Mixtecan, if Kaufman’s (1990 & 2001) placement of Proto-Amuzgo’s divergence at the earliest stage of the Mixtecan branch of Otomanguean holds true.

Bradley & Josserand (1982) presented an inventory of eight consonants, two semivowels and six vowels in Proto-Mixtec: /k/, t, k, “d, s, x, n, w, l, y, i, u, a, o/. They also reconstructed simultaneous prosodic features of glottalization, nasalization and tone for vowel nuclei. They posed four vowel paradigms { V : V’ : V’’ ; i.e., vowels were plain, nasalized, checked, and checked-nasalized. The glottal stop is thus included within the vowel nucleus, and the result is “a very regular set of couplet canons, described by the formula (C)V(‘)(C)V(‘), where parentheses indicate optional constituents.” (Josserand, 1983: 240). Bradley & Josserand (op cit) also characterized a morphophonemic process of nasalization that was regressive from nasalized vowels, which only occurred in final syllables, and both progressive and regressive nasalization from the nasal consonant */n/. A second morphophonemic development they discussed was the reduction of couplets to CV roots in Proto-Mixtec, a process that is recurrent in Mixtec plant nomenclature today.

The general validity of Bradley and Josserand’s (1982) reconstructions was confirmed by the extensive data sets analyzed by Josserand in her doctoral dissertation (1983). She used a questionnaire of 188 lexical items to survey the Mixtec dialects spoken in 122 communities in western and northern Oaxaca, southern Puebla, and eastern Guerrero. Her survey included at least one town, Cuiapan in the Valley of Oaxaca, where the language has become extinct since her study. She did not find any case where the speech was identical to that of another
community. Her data base allowed her to trace a detailed sequence of phonological changes in Mixtec language history, and to reconstruct the Proto-Mixtec form of the 188 terms, including some plant names. Based on shared phonological innovations as well as lexical isoglosses, Josserand drew a complex map [8.] showing how her 122 communities clustered into 12 dialect areas (figure 3). Her work has been the basis for all subsequent research into Mixtec linguistic variation, and her map has been reproduced in later publications (Bradley & Hollenbach, 1988: 3).

Josserand, Jansen & Romero (1984: 151-154) related five major dialect areas to geographical features, noting that they “correspond roughly to valley and river systems”: 1) the Central and Eastern Mixteca Alta, centered in the Nochixtlán Valley (part of the Atoyac-Verde watershed through the Río Grande); 2) the Western Mixteca Alta, focused on the Achiutla-Tlaxiaco area (draining into the Verde by means of the Río Hondo); 3) the Northern Mixteca Baja, centered in the communities around Acatlán de Osorio, which are part of the Balsas basin by way of the Acatlán river; 4) the Southern Mixteca Baja, with the Juxtlahuaca-Mixtepec area as the focus (which drains into the Balsas through the Río Mixteco); and 5) the Coastal Mixteca, occupying the narrow coastal plain of western Oaxaca, which drains into the Pacific through the Verde and a number of smaller rivers.

Josserand et al. (idem: 151) noted that the Nochixtlán Valley, the largest expanse of relatively level terrain in the entire Mixtec territory, is “a key area for understanding the dynamics of the prehistoric Mixtecs.” As a dialect area, they found that it is paradoxically the most homogeneous region in some aspects, “because it is a bounded, well-integrated area”, and at other times the most diverse area, “because of the greater time-depth of the settlements in the valley.” In the Western Mixteca Alta they found the dialect boundaries to coincide with the ridges separating the many narrow and long valleys, with the dialects grouping into “larger units parallel to the hydraulic systems.” They also found the coastal dialects in Oaxaca to be much more uniform than any other area, and proposed that this region was colonized in “two major population movements” by 900 to 1000 AD; they found, furthermore, the coastal dialects to be related most closely to the variant spoken today in San Juan Mixtepec (district of Juxtlahuaca), where they surmised the migration to have originated (Josserand et al., 1984: 154).

Five phonological innovations serve to define and characterize the major dialect areas: 1. The Proto-Mixtec voiceless alveolar plosive /*t/ became /tn/ before nasalized vowels, a sound change that appears to have arisen in the Nochixtlán Valley and spread throughout the Eastern, Central and Western Mixteca Alta. It did not reach the Mixteca Baja except for the northern area around Acatlán [9.], which was presumably colonized by speakers from the Nochixtlán Valley (Josserand et al., idem: 155). The authors regard this to have been an early innovation which serves as a diagnostic feature that defines the central region of the Mixteca and distinguishes it from the periphery. They interpret its absence in Mixteca Baja dialects as an indication that there was a distinct population in the Mixtepec-Juxtlahuaca area at the time the change came about which did not participate in the innovation. Coastal Mixtec dialects lack /tn̥/ since they are thought to originate in the same area.
Figure 3: Mixtec dialect areas according to Josserand (1983)
2. The Proto-Mixtec voiceless alveolar sibilant /*s/ became the fronted and voiced /ð/, transcribed as <d> by Josserand, written as <dz> in the Colonial literature, and simply as <d> in the practical orthography of Ve’e Tu’un Savi (2007). Like the previous, this change appears to have arisen in the eastern Mixteca Alta and to have spread north to the Acatlán area [10.], but it did not affect the dialects of the western Alta nor the central Baja and the Coast.

3. The Proto-Mixtec voiceless palato-alveolar fricative /*ʃ/ became the fronted affricate /tʃ/, transcribed as <ch>. This pronunciation change characterizes the speech of San Juan Mixtepec and the coastal dialects that are thought to have derived from it. Josserand et al. (idem: 156) note that this change obstructed intelligibility with other dialects which developed the same sound from a different source (explained below): “a stronger barrier to communication now emphasized the independence of the Mixtepec-Juxtlahuaca area.”

4. Before front vowels, the Proto-Mixtec voiceless alveolar plosive /*t/ became palatalized as /tʲ/, transcribed as <ty>, in some areas. In other areas, it became palatalized and affricated as /tʃ/. The development /ti/ > /tʃi/ is found throughout the Mixteca, except the Coast. The parallel shift /te/ > /tʃe/, in contrast, is restricted to one area of the eastern Mixteca Alta and Cuilapan in the Valley of Oaxaca; presumably that town was settled by Mixtec speakers from the northeastern Nochixtlán district, where that phonological innovation is centered [11.]. The palatalization of /*t/ to /tʲ/ was restricted to San Juan Mixtepec and what Josserand et al. (idem: 158) believe to have been a second wave of migration to the coast, settling to the east of the area that had been colonized earlier.

5. The Proto-Mixtec mid vowel /i/ became /i/. This change is common to most of the Mixteca except the eastern Alta and the eastern Coast, where the original /i/ has been retained. Josserand et al. (idem: 159) believe this change to represent a relatively late phonological development, apparently ongoing in the 16th century, and perhaps influenced by the impact of a language with 4 or 5 vowels, such as Náhuatl, “whose speakers were making incursions into Mixtec territory before the Spanish Conquest.” The authors also note that the retention of the old 6-vowel system on the eastern Coast coincides approximately with the boundary of the Tututepec polity, a well documented “empire” that stretched eastward along the Pacific coast as far as the Chontal area in the vicinity of Tehuantepec, but which did not subjugate the western coastal Mixtec communities of Jicayán and Pinotepa (Spores, 2007: 140).

Some of the phonological and lexical variation in the dialects spoken today probably reflects the political history and rigid socioeconomic stratification of the Mixtec people before 1521. Josserand (op cit: 469) noted that Mixtec was “almost certainly” triglossic during the Postclassic period (from approximately 900 to 1521 AD): 1) a local dialect, which varied from one cacicazgo to the next (the city states that characterized Mixtec political organization), was spoken by the majority of the population in everyday life; 2) a “commercial standard” (probably the dialect of Teposcolula) was the means of trade and appears to have been intelligible throughout the Mixteca; and 3) a court language called i’ya was used among the aristocracy and by the commoners when addressing members of the elite. Although she did not elaborate on this observation, the merchants’ lingua franca and the language of the nobility probably played a role in the complex pattern of partial
phonological and lexical convergence evident across Mixtec territory in otherwise distinct dialects.

1.6 Archaeology and history

Ronald Spores, the eminent archaeologist and ethnohistorian who has worked in the Mixteca since the 1960s, has written extensive and insightful accounts of state formation and social stratification in the region (Spores, 1967, 1984 & 2007). Thanks to his ongoing research and the work of his students and collaborators, the cultural history of the Mixteca Alta and part of the Baja has been documented in greater depth than most areas of Mesoamerica. Evidence of early human presence in Mixtec territory is scanty prior to the first agricultural settlements. A stone projectile point of the Coxcatlán type was found at Yucuñudahui-Yucunoo, and a fragment of the same type appeared at Yucuita (Flannery & Spores, 1983). These meager remains are the sole testimony of hunters and gatherers in the Nochixtlán Valley around 7000 BC. Several caves and rock shelters have been investigated in the Mixteca Alta, but none has provided any evidence of human occupation during the preceramic period so far. The site of Yuzanú, which was believed to date to the archaic period at the time it was excavated, came out close to the age of the first agricultural settlements in the Nochixtlán Valley, about 2000 BC, upon radiocarbon dating (Spores, 2007: 11).

The absence of preceramic vestiges in the sites that have been excavated in the Mixteca so far is disappointing because the region must have played a role in the domestication and early dispersal of cultivated plants. The people who inhabited the area between 10,000 and 3000 years before present, whatever language they spoke, were strategically situated at the headwaters of the Balsas, Verde and Papaloapan drainages, where the most important discoveries have been made on the origin of agriculture in the Western Hemisphere. In the central Balsas basin, recent work at the site of Xihuatoxtla (Piperno et al., 2009; Ranere et al., 2009) has yielded starch grain and phytolith residues from ground and chopped stone tools, as well as phytoliths from associated sediments, which attest to the domestication of maize and squash by 8700 years B.P.

Ranere et al. (idem : figs. 4 & 5) note the resemblance of their lithic remains to the milling stones and chipped points found in the Tehuacán Valley and at Guilá Naquitz, whose distinctive features are diagnostic of the Tehuacán tradition according to MacNeish (1967) and Winter et al. (1984). Based on molecular evidence, a type of teosinte classified as Zea mays ssp. parviglumis Iltis & Doebley has been identified as the wild ancestor of cultivated maize (Doebley, 2004). Since that particular teosinte is common in the central region of the State of Guerrero, the Balsas basin has been proposed as the area where maize was domesticated. If that hypothesis holds true, the Mixteca Baja and the Alta would have been the most direct route of dispersal to the Verde and Papaloapan watersheds, where early maize is also attested.

The rock shelter of Guilá Naquitz in the Valley of Oaxaca, which is part of the Atoyac-Verde drainage, has produced the earliest macroscopic evidence of plant domestication in the American continent discovered so far, as cited earlier (Flannery, 1986; Smith, 1997; Piperno & Flannery, 2001; Benz, 2001). Although the local population does not appear to have been
sampled yet for genetic analysis, *Zea mays* ssp. *parviglumis* occurs naturally in the central Verde watershed (Chávez Rendón et al., 1997-2010) and may have been the source of the cultivated variety that was excavated at Guilá Naquitz. Furthermore, a study that genotyped a large sample of maize varieties cultivated by indigenous peoples throughout the continent, from eastern Canada to the South Cone, produced conclusive evidence for a single domestication event; only the cultivars from highland Oaxaca were found to contain the basal sequences in the resulting cladogram (Matsuoka et al., 2002: fig.2). If the mid Atoyac-Verde basin is indeed the area where teosinte was bred into maize, the people inhabiting the eastern Mixteca Alta would have been among the earliest recipients of the crop, given their location in the highlands of that watershed.

The Tehuacán Valley, which drains into the Papaloapan, was thought to harbor the earliest evidence of agriculture in Mesoamerica after MacNeish (1967) and his team excavated the cave of Coxcatlán and other sites nearby. Small cobs that were found in the caves were believed to represent the most primitive types of maize that had been preserved in the archaeological record. Subsequent dating of some of the plant materials using accelerator mass spectrometry revealed a considerably later time frame than had been reported by MacNeish (Long et al., 1989; Fritz, 1995). Nevertheless, the Tehuacán Valley still retains some of the earliest records for a number of species domesticated in Mesoamerica besides maize and squash, and the upper Papaloapan basin was probably part of the core area where agriculture first developed. Massive evidence of early irrigation works in the Valley attests to intensive food production since the Preclassic period. In historical times, Mixtec populations on the western flank of the Cuicatlán Canyon linked the Tehuacán Valley with the areas further south and west in the Verde and Balsas basins.

Winter et al. (1984) attempted to correlate the archaeological evidence of changes in the mode of subsistence and settlement patterns at different time periods with the linguistic differentiation of Proto-Mixtecan and other Otomanguean lineages as dated by glottochronology, placing perhaps too much credence on the reliability of the method. As mentioned above, they associated the emergence of the Tehuacán tradition with the initial expansion and branching out of the language family by 6400 BC. They also noted that this date corresponds to a period when the reliance on agricultural food increased from 5% to 14%, as estimated by MacNeish in the Tehuacán Valley. They surmised that this dietary shift would have led to increased sedentarism as well as population growth, both of which would have promoted language diversification (Winter et al., 1984: 74). The findings at Guilá Naquitz (Smith, 1997) and Xihuatoxtla (Piperno et al., 2009) would seem to call for a backward revision of the dates associated with incipient agriculture which would break the synchronicity with the initial phase of Otomanguean linguistic differentiation proposed by Winter and his collaborators. However, it now seems tenable to propose that the time depth calculated by lexicostatistics has been underestimated. New language dating techniques might move the base of the Otomanguean family tree back closer to the horizon where the first evidence for plant domestication is attested archaeologically [12.].

Winter and his collaborators (*op cit*) correlated the Tlapapen, Chiapanec-Mangue, Popolocan, Zapotecan, Amuzgo and Mixtecan branches splitting off before 1500 BC with an increase in food production, which MacNeish had estimated to entail a reliance on agriculture for 23% of the diet, and further population growth. Moreover, the settlement pattern in the Tehuacán...
Valley at this time showed typically “a clustering of sites into three or four groups, suggesting a tendency toward territorial definition” (Winter et al., idem: 77). This pattern involved a single, relatively permanent settlement, with some additional temporary and seasonal camps within the group’s territory. Following the glottochronological dates, by 1500 BC the various Otomanguean groups would have been isolated long enough for the major branches of the family to have become distinct. Proto-Trique and Proto-Cuicatec-Mixtec may have also separated before people began to live in permanent settlements in the highlands (Winter et al., idem: 78).

By 1350 BC, four or five hamlets had appeared in the Nochixtlán Valley (Spores, 2007: 13). The settlements occupied areas of two to three hectares next to the most fertile alluvial soils along the streams, which were being cultivated. The entire population in the valley does not appear to have exceeded 1000 individuals in the period between 1300 and 500 AC, the “agricultural village stage.” Very early pottery already bears traces of contact with other regions in Mesoamerica. From 1000 to 750 BC, figurines and vessel surface decorations show the influence of the Olmec style, which is evident in other areas of Oaxaca, Puebla, Guerrero and the Gulf Coast at that time. The tendency towards linguistic differentiation emphasized by Winter et al. (op cit) under growing populations and increasingly sedentary habits must have been offset by extensive interregional language contact, as indicated by the ceramics. The same authors comment on the close similarities in the manufactures from the Valley of Oaxaca to the Mixteca Alta, the Cuicatlán Canyon, the Tehuacán Valley and all the way north to the Basin of Mexico.

Shortly after the first planned urban center in Mesoamerica was founded around 600 BC at Monte Albán, the first cities develop in the Mixteca. The best known sites are Huamelulpan, Monte Negro and Yucuita in the Alta and Diquiyú in the Baja. Social stratification becomes evident in the archaeological remains from these sites, characterized by large civic and religious buildings, stones carved with calendric and historical inscriptions (Cruz Castillo, 2007), and populations of several thousand people. Institutionalized warfare developed early in this period, witnessed by trophy skulls at Huamelulpan, defensive walls at Yucuita, and the construction of Monte Negro as a mountaintop stronghold. While no single center dominated the Mixteca, they shared a number of traits that included certain pottery types, large stone platforms built with monolithic corners, and inlaid teeth among men of high status (Winter et al., op cit: 86).

The “urban center stage,” from 600 BC to around 700 AD, includes the periods conventionally known by Mesoamericanists as the late Preclassic and the Classic. Winter et al. (idem: 84-87) distinguish two periods of linguistic diversification during that stage, the first one at 600-400 BC, when the early cities were forming, and the second period at around 600 AD, when the cities of the Classic era collapsed. They see distinct languages and ethnicities emerging in specific geographic areas, including Mixtec and Cuicatec, among other southern Otomanguean languages. Marked differences in the archaeological remains of the Mixteca Alta and the Cuicatlán Canyon first appear in the 600-200 BC period: “It is likely that both the linguistic separation and the ethnic distinctions [between Mixtec and Cuicatec] were brought about by the formation of early urban centers.” The development of the Cuicatec polity has been associated with the growth of irrigation in the Canyon (Hopkins, J., 1984).
In the case of the Mixtec people, the Classic period saw the construction of extensive terraces on the slopes of hills and mountains throughout the Alta and Baja around 500 AD. Spores (2007: 42) has documented archaeological terraces in a vast area that extends from Ixtayutla, Putla and Chicahuaxtla in the Sierra Madre del Sur to the upper Balsas basin in southern Puebla, and from the districts of Coixtlahuaca and Nochixtlán that border the Cuicatlán rift to the mountains of eastern Guerrero. Called koo-yyu in Mixtec and lama-bordo in Spanish, this system of soil and water management allowed the people to overcome major limiting factors to agriculture in the region: steep inclines, shallow soils, nutrient deficiencies, rapid desiccation. Erosion was controlled to some extent, at the same time that moisture was retained in the colluvia that built up along the rock contenions.

Winter et al. (op cit: 88-89) relate the internal diversification of Mixtec, which they place around 500 AD, to the great upheaval that prevailed at the end of the Classic period and brought the demise of most cities. They see the conflicts of that period isolating groups from each another. In the Mixteca Alta, there is evidence for warfare in the establishment of hilltop settlements and the ritual burial of men with their weapons, of which the stone tips have been preserved. In the Nochixtlán Valley, the authors point to the shift from Yucuita, the major city of earlier periods, to defensible mountaintop urban centers at Yucunudahui, Cerro Jazmín and Jaltepec; they interpret the development of the three sites as an indication of political fragmentation, presumably accompanied by linguistic differentiation. In the Mixteca Baja, Cerro de las Minas near present day Huajuapan emerged as a city built on a defensible hilltop, as well. Spores (2007) adds Tequixtepec, Huajolotipac and Silacayoapan-Patlanala to the list in the Mixteca Baja, with numerous additional sites in the Alta. A fragmented geopolitical landscape would carry on into the following stage.

Winter and his collaborators (idem: 91-94) define the final period of the pre-Columbian era as the stage of city-states, from 700 to 1521, roughly the same epoch generally called the Postclassic by Mesoamericanists. The history of this period is documented by indigenous manuscripts (“codices”) on paper, cloth and deer hide; the largest surviving corpus of pre-Hispanic portable literature in the Americas was created by Mixtec scribes. Additional information is provided by some 16th century Spanish sources such as the Relaciones Geográficas, where colonial administrators interviewed community elders with a questionnaire in hand, attempting to gain insights on the natural resources (including useful plants), social organization and religious practices of the indigenous peoples before European contact (Acuña, 1984). Both types of documents bear witness to numerous cacicazgos or señoríos in the Mixteca, politically autonomous divisions governed by “royal lineages.”

The city-state stage is thought to have accentuated the linguistic diversification of Mixtec. Class endogamy maintained the cohesiveness of the aristocracy (Spores, 1974); rulers claimed descent from the mythical birth of Mixtec dynasties at the sacred tree of Apoala, in the eastern Alta. Social distance was observed strictly between tai to’o, the elite; tai ñuu, the free, land-working commoners; tai situ ndayu or terrazgueros, the bonded, landless peasants; the serfs, and the slaves. Rigid social differentiation leading to diminished spatial mobility among the lower classes is posited to have enhanced the linguistic diversification of Mixtec (Winter et al., op cit: 94).
The Postclassic is regarded as a period of florescence for the Mixtec people, when “a cultural revolution” brought about “the great convergence of philosophy, religion, politics, technology and aesthetic sensitivity which gave rise to the ‘Mixtec art’ of the codices, the polychrome pottery, the bones finely engraved with figures and texts, the polished gemstones, and the most impressive jewelry…” (Spores, 2007: 47). The region became the focus of a new style of art, called Mixteca-Puebla by archaeologists, that spread throughout Mesoamerica, reaching as far as Nicoya in Costa Rica to the south (Stevenson Day, 1994) and Guasave (northern Sinaloa) to the north (Williams, ca. 2005). Other nemes (Durham, 1991) besides some elements of style and iconography may have appeared and spread out of the Mixteca, as well.

The late Postclassic and early colonial history of the Mixtec people have been studied by a devoted group of scholars who rival the Mayanists in their depth of expertise. Maarten Jansen, Aurora Gabina Pérez Jiménez (native speaker of Chalcatongo Mixtec) and Ubaldo López García (native speaker of Apoala Mixtec), among others, have interpreted the early manuscripts and have translated their ideograms into a coherent narrative based on their firsthand knowledge of the language. Prominent Mixtec epigraphists have also included Alfonso Caso, Mary Elizabeth Smith, Nancy Troike, Bruce Byland and John Pohl. Ángeles Romero Frizzi, Ronald Spores, Kevin Terraciano and others have worked through the copious materials, primarily on the Mixteca Alta, in the 16th century archives at Teposcolula and Oaxaca. The history of the region during the late colonial period and the 19th century has been the subject for comprehensive research as well, most notably the monograph by Rodolfo Pastor (1987). The work of the Mixtecanists has allowed Ñuu Ñusavi (Ñuu Ñudzahui in the historic orthography of the Alta) to become one of the areas with the greatest density of archaeological and historical scholarship in the Western Hemisphere.

1.7 The modern period

The previous remark does not hold true for the life of the Mixtec people in their homeland during the 20th and 21st centuries. Transnational migration has garnered much attention recently (Nagengast & Kearney, 1990; Kearney, 1995; Kearney, 2000; Escárcega & Varese, 2004; Stephen, 2007), but the ethnographies remain scanty, considering the geographic size, demographic significance and rapid change in the Mixteca. Only three relatively brief studies and a lengthier monograph stand out: 1) Ravicz (1965) documented the settlement patterns, kinship systems and civil-religious cargos in five communities, Jamiltepec on the Coast, Juxtlahuaca in the Baja, Jocotipac in the northeastern Alta, and Coatzospan and Cuyamecalco in the Mixtec wedge between Cuicatecs and Mazatecs, a 270 page publication. 2) Romney & Romney (1966) wrote a 146 page description of the barrio of Santo Domingo in Juxtlahuaca, one of six-case studies across the world to compare child rearing and subsequent personality differences cross-culturally. 3) Butterworth (1975) focused on communal responses to population loss due to migration in Tilantongo, in the Nochixtlán district, a 230 page book. 4) Monaghan (1995), perhaps the best informed informed and most empathetic ethnographer to work among the Mixtec, lived almost three years in Santiago Nuyoó, in the Sierra Madre del Sur in southern Tlaxiaco district, producing a 400 page narrative that weaves together domestic life, ritual, community duty and collective ownership of the land. The author gained a working knowledge of the local variant of Mixtec and recorded extensive commentary,
story-telling and formal speech in the language. Except for Monaghan’s work, and compared to Mixtec archaeology and history, scholars have not been greatly interested in the fate of the surviving communities, perhaps deterred by the proverbial poverty of the people. Very little has been published on the Ñuu Savi in Puebla and Guerrero, mostly by themselves (Mendivil Salgado, 2008; Tno’o savi mixtli, 1985). The ethnobotanical literature on those regions and the rest of the Mixteca will be reviewed in the fourth section of this dissertation.

Language change during the colonial and modern periods has not received adequate attention, either. Josserand, Jansen & Romero Frizzi (1984) studied a large body of 16th, 17th and 18th century documents written in Mixtec, mostly at the Judiciary Archive in Teposcolula and the National Archives (AGN) in Mexico City. The majority of the wills, deeds, and bills of sale originated in the districts of Teposcolula, Tlaxiaco, Nochixtlán and Coixtlahuaca in the Alta, with only a few documents from the Baja. The cabildo (town government) officials seem to have written down the local dialect as a matter of principle: “Apparently the Spanish administrators did not attempt to unify the Mixtec language, and they did not impose the use of the Teposcolula dialect for legal documents…” (Josserand et al., idem: 145). In spite of the obstacles imposed by the early orthography based on Spanish, the authors found, where they expected, many of the phonological features diagnostic of contemporary dialect regions: e.g., /x/ in the Tlaxiaco area in correspondence with /ʃ/ in the eastern Alta.

The same authors suggest that the “Social changes related to the Conquest, and later to the Independence movement, began the decline and disintegration of the Mixtec region as a political and cultural unity, and doubtless these changes have also influenced the linguistic diversification.” (Josserand et al., idem: 162). Laying aside our doubts as to what extent the Mixteca was ever unified politically or culturally, the extreme demographic collapse after 1521 (Cook & Borah, 1963) must have surely had an impact on dialect differentiation throughout Mesoamerica. However, in the case of Mixtec and its relatives, this question does not appear to have been posed as a research topic so far. The dynamics of rapid language loss in favor of Spanish in many areas of the Mixteca from the 19th century to the present have not been addressed, either. The Ethnologue (Lewis, 2009) lists at least one highly threatened variant, San Mateo Sindihui Mixtec in the southern Nochixtlán district, estimated to have had only 140 “older adult” speakers in 1990. Tejupan Mixtec has one speaker left (Michael Swanton, 2010, personal communication). Others variants have disappeared recently, such as Cuilapan Mixtec in the Valley of Oaxaca, mentioned earlier.

The lone topic in recent Mixtec history that has received considerable attention is soil management. The complex geological formations of the region have given rise to soils that tend to be alkaline, with a pH range of 6.8 to 8.7, with limited organic matter and pronounced deficiencies of certain mineral nutrients. Three quarters of the land in the western Alta and southern Baja (an area that has been designated a high priority for environmental conservation because of its biological diversity) have shallow lithic leptosols, underlain by hard rock or a continuously cemented layer, while the remainder are of eutric regosol type, developed from unconsolidated materials with a moderate to high susceptibility to erosion (Arriaga et al., 2000). In the Mixteca as a whole, 83% of the land is considered to show light to moderate soil deterioration, and 17% to be severely eroded (SEMARNAT, 2005). A recent recommendation (exhorto) by the national legislature to the federal and state governments,
urging them to take immediate actions, concludes: “If one takes into account that, in addition to the [intrinsic] soil and water factors that have been indicated above, a series of erroneous agricultural and forestry policies have been applied for a long time in the Mixteca, which far from encouraging the conservation of the natural resources, have promoted deforestation, overgrazing and changes in the use of the land, it will become clear why this region is considered to be an area of ecological disaster.” (Comisión de Medio Ambiente, 2007; translated by A. de Ávila).

Behind this “ecological disaster” hides a history of early insertion of the Mixtec people into the world economy. To uncover it, it is useful to review the sequence of alluvial depositions in the Río Verde basin. Analyzing sedimentary and archaeological evidence, Joyce & Mueller (1997) and Kraft (2010) have documented a series of episodes of soil deterioration in the Nochixtlán Valley in the pre-Columbian period, in spite of koo – yuu terracing. A first pulse of anthropogenic erosion took place about 1560 to 1390 BC, a period which matches the archaeological evidence for the establishment of the first sedentary villages. The sedimentary record suggests land was being cleared as population grew in the valley. A second erosive phase, dated around 110 to 200 AD, coincides with the remains of the first urban states, agricultural intensification and expansion into the piedmont. The third pulse occurred about 980 to 1180 AD, for which a demographic correlate is still debated in the transition from the early to the late Postclassic. After 1521, erosion decreased and the pattern of sedimentation reverted, as the population decreased and the impact of agriculture was reduced.

The particular vulnerability to erosion of a specific formation in the Nochixtlán Valley is well understood thanks to the perceptive fieldwork of Ferrusquía (1976) and other geologists based at the National Autonomous University of Mexico (UNAM). A new and severe cycle of erosion seems to have started sometime in the 19th century. After the massive epidemics following the Spanish conquest had subsided, population density began to increase again in the 1700s, but its environmental impact appears to have been lessened by the economic specialization of the Mixteca Alta for the export market, producing mainly silk in the 16th century (de María y Campos & Castelló, 1990) and increasingly greater volumes of cochineal in the 17th through the early 19th centuries (Donkin, 1977; Marichal, 2006). Genetic evidence indicates this insect may have been domesticated in Mexico (Ramírez Puebla et al., 2010), as were its plant hosts, two species of Opuntia cacti (Bravo Hollis, 1978; Pimienta Barrios & Muñoz Urias, 1995). Mexica tribute lists (Móhar Betancourt, 1987) indicate the provinces of Coixtlahuaca, Tlaxiaco and Cuilapan were the center of production in the 1400s; the Mixteca Alta may have been the homeland of the cochineal cactus grove as an agro-ecosystem.

The scarlet dyestuff became the most valuable agricultural product in world trade because of its unique properties (Butler, 2005). The colonial administration and the Catholic church promoted the cactus orchards. In 1523, only two years after the fall of Tenochtitlan, Hernán Cortés received a letter from the court of Charles V in Spain requesting information on grana, the old Latin-based name for a related insect dye from the Mediterranean (de Herrera y Tordesillas, ca. 1600, cited by Donkin, 1977: 23). The royal bureaucracy’s expectations for profit would be amply fulfilled, and Dominican parish priests sought to convince more villagers in Oaxaca to grow the cacti to increase production of the dye (Dávila Padilla, 1625,
cited by Donkin, 1977: 24). In no other enterprise were good relations between the imperial apparatus and its indigenous subjects so critical: production lay entirely in their hands. Successful cultivation of the plant host and its insect parasite relied on the Mixtec and Zapotec communities’ intimate knowledge of their natural environment.

Cochineal serves to explain the exceptionally high rate of communal land tenure in the Mixteca and other parts of Oaxaca to this day. The proportion of collective to private property in the State is estimated at 4:1, and more than five million hectares are still under communal regime: “…in Oaxaca it is two and a half times larger than the ejido surface, which is an atypical case…” (de Gortari, 1997: 11; translated by A. de Ávila). The agrarian landscape in our region is not typical of Latin America because the viceroyal administrators enforced the rights of the indigenous communities over their fields, forests and streams in order to bolster the self sufficiency of individual households. Their “spare” labor was critical to maintain the nopal cactus groves and tend to the precious insects: “The fact that the main product of the local economy remained in indigenous hands prevented their lands from being affected massively, as it happened in other parts of the country. This allowed the majority of the communities to conserve the ownership of the land, which was the only way to guarantee the supply of native cochineal.” (Sánchez Silva, 2001: 17, translated by A. de Ávila).

“Mixtec” cochineal was deemed to be the best colorant and demanded the highest prices; a multilingual trade compendium published in Hamburg in the early 1800s recorded the commercial names for the finest grade in French - cochenille mestéque, Italian - cocciniglia Misteccia, and Spanish - cochinilla mesteca (Nemnich, 1821). The Relaciones Geográficas of 1777-1778 describe the lavish lifestyles in the dye-producing regions, where people clothed themselves with fabrics imported from Europe and China, and wore “some little jewels which the Spaniards use” (Esparza, 1994: 173). The insect made Oaxaca affluent, and the human population appears to have increased by the same degree. Colonial accounts emphasize how the profits from the dyestuff, which was shipped to Europe and Asia, led some communities to diminish their reliance on subsistence agriculture, buying maize instead of growing it (de Ávila, 2005).

Competition from Guatemala in the early 1800s, and the breakdown of demand in the world market after synthetic dyes were developed in Europe at mid-century brought poverty to the Mixteca, after three centuries of bonanza. President Benito Juárez (1848) wrote that the cochineal trade, where profits were so easy to make, had stifled the growth of an entrepreneurial spirit in Oaxaca (Sánchez Silva, 2001: 18). An inflated population, perhaps beyond the carrying capacity of the thin rocky soils, must have turned back to subsistence agriculture, with disastrous results. The problem was probably compounded by the growth of the travelling haciendas of goat-herders, which roamed throughout the Mixteca and the Tehuacán-Cuicatlán rift in a yearly cycle of grazing to fatten hundreds of thousands of animals; a huge slaughter took place at the beginning of the dry season, when the meat was salted for the domestic market and the hides were exported (Mouat, 1980; Dehouve, 2004).

Mountain slope agriculture and overgrazing deteriorated Mixtec soils rapidly in a fourth cycle of erosion, still ongoing. Its severity has motivated some of the most extensive interdisciplinary research on rural involution in Mexico (Martínez Calleja, et al., 1986; Contreras Hinojosa et al., 2005) and its relationship to northward migration (Stuart &
Kearney, 1981), aggravated by the North American Free Trade Agreement (Ríos Ruiz, 2009). Cochoapa el Grande, which has the largest concentration of monolingual speakers of Mixtec, has just been declared (November 16, 2010) to be the poorest municipality in Mexico by the 61st Federal Legislature: it has been estimated that 74% of its population endures “food poverty,” as defined by the Mexican Government (Méndez & Garduño, 2010). The neighboring municipalities of Coicoýán de las Flores in Oaxaca and Metlatónoc in Guerrero, also overwhelmingly Mixtec in their population, have held that status in previous years. The United Nations Development Program (UNDP) has calculated that the Human Development Index for that region varies between 0.44 and 0.49, comparable to Sub-Saharan Africa (Muñoz, 2006). It is in this context of impoverishment, ethnocidal state policies, and fast cultural change that a good part of the information reported in the following chapters has been gathered.

To summarize this introduction, high ecological diversity and a complex history of social and linguistic differentiation in the Mixteca have shaped a fertile setting to examine the relationship between ethnobiological nomenclature and classification in a diachronic perspective, which is the theme of this dissertation.
Knowledge of nature was not an emphasis in early anthropological inquiry. The first ethnographers brought with them to the field rather limited skills to understand the ecological webs in which the people they studied were enmeshed. Extensive bodies of information about the environment, a science that is communicated and recreated continuously by non-industrial communities throughout the world, and is critical to their day to day subsistence, went largely unnoticed. A comment by Malinowski (1925: 44) has come to epitomize that disregard for the depth of local knowledge systems: “The road from the wilderness to the savage’s belly and consequently to his mind is very short. For him the world is an indiscriminate background against which there stand out the useful, primarily the edible, species, whether of plants or animals.”

Such insensitive treatment of one of the most complex fields of collectively curated information among human societies contrasts sharply with the breadth of interest held by the precursors of ethnographic research during the European “age of exploration.” In the case of Mesoamerica, the leading figure in early cross-cultural observation was Bernardino de Sahagún (ca. 1499-1590), a Franciscan monk who had studied at the university in Salamanca, arrived in Mexico in 1529, and promptly learned Náhuatl. In addition to numerous theological works in that language, Sahagún (1577-1579) wrote over a period of three decades three bilingual versions of a monumental treatise on the life and history of the people of Central Mexico before the European invasion. Sahagún prefigured modern ethnography in his methodology as well as his themes of interest, for he interviewed knowledgeable elders in their own language, and he recorded their names and the circumstances under which he had obtained the information. Furthermore, he wrote down how he had revised and corrected his account as his worked progressed (Ballán, 1991). His theological writings largely forgotten, Sahagún is viewed today as the preeminent pioneer of anthropology in Mexico and beyond (León Portilla, 1999).

The seventh of the twelve books that comprise his magnum opus deals with the astronomical knowledge of the Mexihtli (inhabitants of Tenochtitlan and Tlatelolco, which became Mexico City), and the eleventh book treats “the properties of animals, birds, fish, trees, herbs, flowers, metals, and stones, and about colors.” Sahagún transcribed in that book detailed descriptions of numerous kinds of plants, some of which are still known in Mexican Spanish by cognates of the Náhuatl names he recorded for them. He also wrote down how various species were used, and what the people believed about them. More than a treatise on natural history, the eleventh book can be read as the first ethnobiological study of a non-Western society. Sahagún’s linkage to this modern academic field is not restricted to the “General history of the things of New Spain,” however. He was affiliated with the College of Santa Cruz at Tlatelolco, where he taught Latin. The College was established in 1536 by order of Charles V to educate indigenous young noblemen. Sahagún trained a number of disciples there who would collaborate with him in his research on the language and the culture of the Mexihtli.

The College at Tlatelolco produced the first herbal in the Americas. The Libellus de medicinalibus indorum herbis, known today as Codex de la Cruz Badiano, was drafted by
indigenous **tlahcuilome** (picture book scribes) under the direction of the physician Martín de la Cruz, who practiced at the school. The College had engaged his services after an epidemic in the city had killed many of the students (Guerrini, 2009: 21), one of the endless plagues provoked by the introduction of pathogens to which Native Americans had no resistance. Francisco de Mendoza, son of the first viceroy of New Spain, commissioned the herbal and chose the indigenous physician who would prepare it. Mendoza may have intended for the manuscript to support his application for a license from the emperor to export medicinal herbs and spices from Mexico to Europe (Viesca Treviño, 1992: 58–62). A less malicious interpretation holds that the booklet may have been produced in the hopes that the king would see it and be so moved as to renew the funding for the College, which had been suspended (Aranda *et al*., 2003: 13). Both motives would explain the haste with which it was drafted in 1552, just in time to reach the fleet that would take it from Veracruz to Spain. The directions how to use the plants, provided by Martín de la Cruz in Náhuatl, were translated into Latin by Juan Badiano, who had learned it at the College and must have been taught by Sahagún.

2.1 Francisco del Paso and Franz Boas

Three hundred years later, the information recorded by Sahagún, de la Cruz and Badiano, along with the materials on Mexican medicinal plants gathered later by Francisco Hernández, physician to the court of Phillip II, enabled Francisco del Paso y Troncoso (1886) to elucidate what he called “botany among the Nahua.” A former medical student who had become interested in Mexican antiquities and linguistics, it was del Paso who published and publicized Sahagún’s manuscripts, which had been shelved away for centuries in Madrid and Florence. Analyzing the etymology of hundreds of plant names that had been transcribed in the 16th century, del Paso reconstructed the major categories of Mexico botanical classification and how they were organized hierarchically. He also showed how a primary, un-analyzable term that designated a prototypical species could be polysemous, becoming the label for the larger class that encompassed it. His insightful observations sketched out the basic principles of biological nomenclature followed by many languages around the world.

Del Paso’s work, “…perhaps one of the most detailed and objective reports of its kind for the time of writing…” (Berlin, Breedlove & Raven, 1973: 236-237) would be appreciated anew in the late 20th century and would receive comments of praise, emphasizing the breadth of its focus in contrast to the utilitarian (i.e., medicinal) slant of the *Libellus*: “In a classic study… Paso y Trancoso [sic]… presents a much more detailed appreciation of plant life ‘for its own sake’ than the Badianus herbal would lead one to suspect.” (Atran, 1990: 20).

Del Paso’s contribution to the study of non-Western science appears to have been largely ignored within his lifetime. One of the figures who does not appear to have read his ethnobotanical paper was Franz Boas, who worked in Mexico in 1912, four years before del Paso passed away. In January and February of that year, Boas recorded Pochuteco, a language that was dying out on the coast of Oaxaca. He had come across a short vocabulary list from that area in a library in Mexico City, and had realized it was a close relative of Náhuatl. Boas worked with the last few speakers left in Pochutla, comparing the phonology and the lexicon of the language with the “classic” forms from the Valley of Mexico. He
intended to publish his results in the Anales del Museo Nacional de México, which del Paso had directed briefly and where he had published his paper.

Boas wrote that he left Pochutla towards the end of February “when no more could be obtained from the few individuals who know part of the language.” The vocabulary he put together includes the most meager plant terminology: the generic terms for ‘tree,’ ‘leaf,’ ‘flower,’ ‘grass,’ and ‘reed,’ some of the main crops, and a single specific name: pochút, ‘kapok’ (Boas, 1917-1920: 24-44). It is likely that he would have obtained a much richer lexicon, no matter how feeble his elderly consultants, had he pursued the topic – if only to document further the phonological contrasts between Pochuteco and Classical Náhuatl that had motivated his research trip to the coast. It seems improbable that he would have neglected to explore this semantic field if he had read del Paso’s paper and had realized the level of taxonomic sophistication encoded in Náhuatl plant nomenclature. The terms for local animals and plants that were quite likely borrowed from Pochuteco and survive to this day in regional Spanish are a tell-tale sign of what Boas must have missed (de Ávila, 2004: 219).

Boas’ background in post-Kantian philosophy shaped his theoretical contributions to anthropology and linguistics (Foley, 1997: 106): “The German post-Kantians of the nineteenth century were strongly influenced by the ideas of the Romantics, and, as such, were much taken with racial differences and cultural diversity. This created tension with Kant’s postulation of universal, innate mental categories. They resolved this conflict when they introduced a degree of relativism into the theory: the nature of the categories were [sic] to some degree informed by the individual’s experience in the world.” Foley notes that post-Kantian relativism did not contradict the doctrine of the psychic unity of mankind: “…the categories given to humans at birth are identical for all; the diversity of human mental categories is due to the molding effect of experience upon these given categories.” For Boas, classification was the mechanism by which experience molds those innate categories: “…from the infinite flux of sensible experience we abstract common and related elements and assign these to the same category of thought, typically labelled linguistically.” (Foley, idem: 107).

Boas, and Sapir and Whorf after him, emphasized the social and conventional nature of category formation, an “unconscious” process for Boas: classifications were thought to be habitual within a particular cultural and linguistic system. Whorf, for one, worked on Náhuatl linguistics in Mexico in the 1930s and became interested in botany, learning “the English and Latin names for thousands of plants and trees.” This appears to have been a lasting interest of his: “…on his trip to Mexico in 1930 he took copious notes on Mexican flora, and as late as 1936 we find him filling several pages of one of his linguistic notebooks with a ‘quiz’ on botanical terminology and curiosities.” (Carroll, 1956: 6). It is tempting to speculate how Whorf may have pursued his interest in plants in combination with his passion for Uto-Aztecan and Mayan linguistics and epigraphy had he not died prematurely in 1941.

The relativistic position espoused by Boas and his successors does not appear to have inspired much ethnographic research into environmental knowledge. Anthropologists in the first half of the 20th century seem to have felt the topic was not a high priority; if any given society had so much leeway to build a classification system, shaped by its particular collective experiences, there must be inordinate variety in the way different peoples
categorize and name nature: “...a culture consists of many semantic domains organized around numerous features of meaning, and no two cultures share the same set of semantic domains or features of meaning, nor do they share the same methods of organizing these features...” (Tyler, 1969: 11). Lexical data on various languages were gathered actively, but little reflection seems to have been given, in a comparative vein, to the categories that may underlay the nomenclature. In a parallel development, evolutionist thinking appears to have stifled the study of non-Western classification systems in the European sociological tradition: *la pensée des primítiives*, “the mind of the primitives,” was perceived to be as undifferentiated as their social structures (Durkheim & Mauss, 1901-1902; cited by Taller de Tradición Oral & Beaucage, 1987: 32) [13.].

2.2 Conklin and Lévi-Strauss

The reaction against that state of affairs in ethnology would be voiced forcefully by a distinguished intellectual heir of Mauss and Durkheim’s, an anthropologist who had given the title “The elementary structures of kinship” to his doctoral dissertation, in analogy with Durkheim’s “The elementary forms of religious life.” Claude Lévi-Strauss began *La Pensée Sauvage* with a comment on biological nomenclature in “primitive” languages: “For a long time, we have indulged in citing those languages which lack terms to express concepts such as ‘tree’ or ‘animal,’ even if they have all the words that are necessary for a detailed inventory of the species and varieties... The words oak, beech, birch, etc., are no less abstract than the term ‘tree,’ and, given two languages, one of which should have only this term and the other one should be devoid of it, at the same time that is should possess several scores or hundreds of words to designate the species and the varieties, it would be the latter, and not the first language, which would be, from this point of view, the richest one in concepts.” (Lévi-Strauss, 1964: 11-13, translated by A. de Ávila).

Plant nomenclature figured prominently throughout the book: the cover for the first edition of *La Pensée Sauvage* featured a plant of the genus *Viola*, since the title played a pun with ‘wild pansy’ in French. The Science of the Concrete, the opening chapter of The Savage Mind, went on to cite with admiration example after example of the extraordinary ability of local communities everywhere to recognize and codify with precision the diversity of life. Lévi-Strauss observed with irony how Malinowki’s contemptuous comment was levied in reverse by indigenous people towards market economies, seeing how they destroy stable systems that balance the multiple use of natural resources, in their reckless pursuit of profit based on the exploitation of a few species. The author quoted extensive comments by several ethnographers, amazed at the precision with which “Even a child can often identify the species of a tree based on a minuscule fragment of wood...” (Lévi-Strauss, *idem*: 17), and similar feats of classification. The longest quote was devoted to the field diary of Harold Conklin, working among the Hanunóo of Mindoro island in the Philippines in the early 1950s, who narrated his experience trekking through the rain forest one day with his consultant Langba, observing how he collected plants he would use later and discussing with him how the vegetation along their path had changed over the last few decades.

Conklin (1954) documented the nomenclature and classification of 1879 botanical folk taxa (groupings of organisms at any level of inclusiveness) among the Hanunóo. Two decades
later he would surpass his own achievement, recording 2131 plant terms among the Ifugao of Luzón, also in the Philippines (Conklin, 1980). His careful research produced the most extensive ecological ethnographies of any group of people in the world, which have served as guideposts in comparing and explaining differences in the ethnobotanical repertoires across geographical areas and modes of subsistence (Berlin, 1992: 98; Ellen, 1999: 99). Lévi-Strauss was evidently impressed with Conklin’s work and used it extensively in developing his own interpretive framework of classificatory behavior.

In the fifth chapter of The Savage Mind, by the title “Categories, elements, species, numbers,” Lévi-Strauss grappled with Boas’ unresolved questions on the nature of mythical thought. In 1914, Boas had come to the conclusion that “the essential problem” was to know why the stories concerning humans “manifested such a great and constant preference for animals, celestial bodies and other personified natural phenomena” (Boas, 1940: 490). Lévi-Strauss portrayed the issue as “the last residue of the intellectual reflections on totemism,” which had preoccupied Durkheim, Freud and other predecessors of anthropology so intently; he argued that the heterogeneous beliefs and customs that were arbitrarily labeled ‘totemism’ did not rest on the idea of a substantive relationship between social groups or cultural domains, but “are akin to other beliefs and practices, directly or indirectly linked to classificatory schemes that allow the natural and social universe to be perceived in the form of an organized totality.” (Lévi-Strauss, op cit.: 198).

Discerning the classification of animals and plants as it relates to the theoretical paradigms of social structure, Lévi-Strauss proposed that the diversity of species around us gives human beings the “most intuitive image” at our disposal, the most direct manifestation we can perceive, of the ultimate discontinuity of what is real: “it is the palpable expression of an objective codification” (Lévi-Strauss, idem: 201). The notion of the species, he went on, provides us with a mode of apprehension of an entity given by nature; “the activity of the spirit, and social life itself, do not do anything but take it in, in order to apply it to the creation of new taxonomies.” In his view, the fascination that totemism had exerted on the minds of ethnologists was but a specific instance of “this fascination which the notion of species has exercised on men everywhere.”

Lévi-Strauss contrasted the conceptual framework of the natural sciences, which parcel live beings into “kingdoms,” with ethnobiological knowledge: “the societies which we call primitive cannot conceive that there might be a trench between the various levels of classification.” To develop this counterpoint, he cited Conklin’s comments on the naming and ordering of chili peppers among the Hanunóo, a species originally domesticated in Mesoamerica which is widely cultivated and has become naturalized in the Phillipines: “The Hanunóo... divide the universe into beings which can or cannot be named. The named beings are differentiated into things or into persons and animals. When a Hanunóo pronounces the word ‘plant,’ s/he excludes the possibility that the thing that s/he is talking about is a rock or a manufactured object. The class ‘herbaceous plant’ excludes, in turn, other kinds of plants, such as ‘woody plant,’ etc. Among the herbaceous plants, the utterance ‘pepper plant’ makes a distinction in relationship to ‘rice plant,’ etc. ‘Domestic pepper’ excludes ‘wild pepper,’ and ‘domestic chili pepper’ excludes ‘domestic green pepper.’ Lastly, ‘cat penis’ expresses that it is an individual plant that has nothing to do with the other five varieties or taxa distinguished by this indigenous culture within the group of domestic peppers.” (Lévi-
Strauss, 1964: 202). Figure 4 illustrates this hierarchical organization of concepts, based on a diagram in The Savage Mind drawn from Conklin’s field data.

Conklin drew quantitative conclusions from the data he had gathered in Mindoro that would highlight significant parallels and differences in indigenous plant nomenclature and classification compared to Linnean systematics: “…the Hanunóo distinguish types which cannot be confused with the botanical notion of species…but which share with it, nevertheless, a trait in common: the types are mutually exclusive. The names of each of the 1625 types consist of lexical elements which vary in number from 1 to 5…The binomial form is the most frequent…The resemblance between the classification of the Hanunóo and botanical science diminish rapidly when we approach the higher and most inclusive categories.” (Conklin, 1954: 116-117 & 162, translated by A. de Ávila). He noted, furthermore, that 500 to 600 of the plant “types” were edible, and 406 were only used medicinally. The 1625 terminal taxa, grouped in indigenous classification into 890 larger categories, corresponded to 650 genera and close to 1100 species by the criteria of Western botany.

Conklin later adjusted his total count to more than 1800 taxa recognized by the Hanunóo, representing less than 1300 species in Linnean taxonomy. Lévi-Strauss laid stress on this disparity, which reflects indigenous peoples’ ability to recognize subtle differences between plants. He also noted that the total recorded by Conklin seems to represent about the maximum sum of items that can be committed to memory, citing a similar figure of plant species guarded by angels in Rabbinic philosophy: “2000 appears to correspond well, as an order of magnitude, to some kind of threshold in the vicinity of which are located the memory capacity and the power of definition of ethnozoologies and ethnobotanies grounded in oral tradition. It would be interesting to know if this threshold has any significant properties from the point of view of information theory.” (Lévi-Strauss, op cit: 225). The idea of a memory threshold would be taken up by subsequent authors, after considerable downward revision in the average number of taxa (Berlin, 1992; Ellen, 1999).

2.3 Brent Berlin’s principles of categorization

Hunn (2008: 16) has expressed succinctly how the fieldwork begun in the Philippines would impact the field: “Harold Conklin’s meticulous analysis of Hanunóo ethnobotanical systematics set a very high standard for ethnobiological ethnography. But Conklin was adverse to broad generalization.” It was the research begun in the 1960s by Brent Berlin and his colleagues in Southern Mexico which would lead to a general theory of ethnobiological classification. They worked in Tenejapa, a Tzeltal Maya township in the central highlands of Chiapas, whose territory covers a substantial altitudinal and ecological gradient. Studying in great depth the names that Tzeltal men give to plants and how they sort them when asked to group those names, Berlin would make explicit the relationships of opposition and inclusion that seem to organize plant terminology into a coherent tree-like structure, much like the classificatory scheme that Conklin had sketched out for chili peppers among the Hanunóo, where the stepped cascade of dichotomies had caught the attention of Lévi-Strauss so cogently.
Figure 4: Hanunóo classification of a chili pepper plant, from Lévi-Strauss (1964: 204), based on Conklin (1954).
Berlin, Breedlove and Raven (1966, 1968, 1973) published a series of papers on ethnobiological classification that would culminate in a landmark study of Tenejapa ethnobotany (1974), where the set of principles laid out earlier would be illustrated plant group by plant group in a full-fledged, municipality-wide flora. After subsequent field work among the Aguaruna and Huambisa of Amazonian Peru, mainly on their knowledge of vertebrate animals, Berlin (1992) would revise and refine his general principles of ethnobiological categorization. Since this enunciation will be the basis for our discussion of Mixtec plant nomenclature and classification, it will be quoted here in full. Berlin prefaces his presentation by drawing a distinction between the “psychological conceptualization” of living beings and the “linguistic reflections” of that underlying conceptual structure: “This is a difficult issue to deal with in that our best entry into a society’s system of classification is through language; ethnobiological classification is most easily recognized through the linguistic web of ethnobiological nomenclature.” (Berlin, 1992: 20). He resolved, nevertheless, to formulate the principles that relate to the categorization of plants and animals separately from the principles for naming them. It is noteworthy, he comments, that the principles be quite few, “inasmuch as their applicability is claimed to be totally general”:

1. Traditional societies residing in a local habitat exhibit a system of ethnobiological classification for a smaller portion of the actual plant and animal species found in the same area. This subset is comprised of the most salient plant and animal species in that local habitat, where salience can be understood as a function of biological distinctiveness.

The first principle generalizes into a formal statement the repeated observation that in any given territory, only a fraction of the species that are present are distinguished conceptually by local people. Lévi-Strauss’ (1964: 224) comment, suggesting that indigenous naturalists recognize a higher number of taxa overall than Linnean biologists (at least within the 2000 items threshold), has not held true. Berlin (op cit: 21) notes, furthermore, that “it is theoretically possible to predict which species of plants and animals, of the thousands that may be present, will be given conceptual recognition in the folk system.” He considers that the perceptual distinctiveness of a given taxon is “a function of both its evolutionary divergence and its internal phenotypic variation.” Species that are more variable in appearance are presumably less distinctive.

2. The categorization of plant and animal taxa into a general system of ethnobiological classification is based primarily on observed morphological and behavioral affinities and differences among the recognized taxa.

The second principle asserts that the overriding factor organizing any indigenous system of classification will be “people’s cognitive assessments of the gross perceptual resemblances observed among classes of organisms.” While admitting that other organizing principles may be at work, such as the “economic significance as food” or the “symbolic salience in ritual” of a given species, “these features relating to the cultural evaluation of biological taxa are secondary in almost all systems for which we have complete descriptions.” (Berlin, idem: 21).
3. Recognized plant and animal taxa are grouped into ever more inclusive groups to form a hierarchic (taxonomic) structure comprised of a small number of taxonomic ranks.

The third principle implies that Western and “traditional” are structured alike, in so far as the degree of affinity between organisms is expressed hierarchically, “a reflection of the empirical fact that biological taxa exhibit varying degrees of inclusiveness”; human observers everywhere, Berlin holds, are able to recognize “this inherent structure.” He concedes that other logical relationships may be at work in the conceptual organization of plants and animals, citing Hunn and French’s (1984) work that highlights the relationship of coordination in the classification of plants in Sahaptin, a Penutian group of languages in the Plateau region of Northwestern North America. However, Berlin considers that such cases are rare and “do not supplant the notion of natural taxonomy.”

4. Recognized ethnobiological taxa are taxonomically distributed as members of six mutually exclusive ethnobiological ranks comparable in content to the ranks of Western zoology and botany. Taxa of each rank share similar degrees of internal variation as well as being separated from each other by comparably sized perceptual gaps. The six ranks, in descending order of taxonomic inclusiveness, are the kingdom, life-form, intermediate, generic, specific, and varietal.

The fourth principle entails the assumption that taxa at any given rank are conceived by local people to represent “comparably sized portions of ethnobiological reality;” the decreasing resemblance between groups of plants and animals in any particular territory, which will very rarely contain the full set of species descended from a given evolutionary lineage, “is not psychologically perceived as a continuum.” Figure 5 reproduces Berlin’s (idem: 23) diagram depicting the structural relationships of the five major ethnobiological ranks (excluding the varietal level for the sake of clarity). A telescoped representation has substituted the tree-like graphics, akin to Lévi-Strauss’ diagram in figure 4, presented by Berlin, Breedlove & Raven in their paper on the same topic, published in 1973.

5. Across all folk systems of ethnobiological classification, taxa of each rank exhibit systematic similarities in their relative numbers and biological content.

a. The most numerous taxa in folk biological taxonomies will be taxa of generic rank. In both ethnobotanical and ethnozoological systems of classification, the number of folk generics reaches an upper limit at about five hundred to six hundred taxa in systems typical of tropical horticulturalists. Roughly 80 percent of folk generic taxa in typical folk systems are monotypic and include no taxa of lesser rank. While most folk generics are taxonomically included in taxa of life-form rank, a small number is conceptually unaffiliated due to morphological uniqueness or, in some cases, economic importance. Generic taxa are among the first taxa learned by children as they acquire their society’s system of biological classification.

b. Taxa of the life-form rank mark a small number of highly distinctive morphotypes based on the recognition of the strong correlation of gross morphological
structure and ecological adaptation. Life-form taxa are broadly polytypic and incorporate the majority of taxa of lesser rank.

c. Taxa of intermediate rank are found most commonly as members of life-form taxa, and are comprised of small numbers of folk generics that show marked perceptual similarities with one another. Data are inadequate to indicate the relative numbers of such taxa in actual systems of ethnobiological classification.

d. Taxa of the rank of folk species partition folk generic taxa into two or more members; in those systems where they occur, folk varietals further subdivide folk species. Subgeneric taxa are less numerous than folk generics in all systems examined to date. There is some evidence to suggest that the recognition of subgeneric taxa is loosely associated with a society’s form of subsistence. The conceptual recognition of subgeneric taxa appears to be motivated in part by cultural considerations, in that a major proportion refer to domesticated species of plants and animals. There is some evidence that foraging societies have poorly developed or lack entirely taxa of specific rank. No foraging society will exhibit taxa of varietal rank.

e. The rank of kingdom is unique in that it includes but a single member. Taxonomically, the kingdom incorporates all taxa of lesser rank. For ethnobotanical classification, the kingdom corresponds approximately to the biological taxon Plantae; in ethnozoology the corresponding biological taxon is Animalia.

The generic rank is the core of the classification scheme for Berlin, who cites A.J. Cain (1956) extensively on its status in Western taxonomy: “…the genus as the smallest ‘kind’ of plant or animal that can be recognized without close study… The species was a subdivision of it, often requiring expert examination both before it could be recognized and before it could be named… [The genus possesses] some characteristic peculiar to it… which will instantly serve to distinguish it from all others in the natural order.” (Berlin, op cit: 60). To emphasize the point, he cites Linnaeus himself (1751): “many people who can perceive a genus cannot define it” (Berlin, idem: 61)

It is at this level, according to his framework of analysis, that the largest number of taxa is to be found in any indigenous science of nature. “The concepts represented by generic taxa are ones that elude linguistic definition” (Berlin, idem: 61); “they are ostensively defined terms for perceptually salient foci in the natural world.” (Foley, 1997: 119). The words that name them are expected to be the most frequently used biological terms in the native language, the most easily elicited from speakers in the context of an interview, and the earliest to be learned by children (Foley, idem: 116). Wierzbicka (1985) paraphrases the relationship of inclusion between generic taxa and life-forms as “a kind of:” a cypress is a kind of tree. The relationship between generic taxa, on the other hand, is one of contrast: each of the different kinds of organisms denoted by the label for the life-form is in opposition with every other member of the same category. Unlike a life-form taxon like vine, the membership of a generic taxon like ivy is relatively homogeneous and approximates the composition of a
Figure 5: Schematic representation of taxa at the five primary ethnobiological ranks; relative position conveys degree of affinity, where closer proximity indicates greater similarity. Based on Berlin, 1992: 23
Linnean genus, i.e., a phylogenetically defined grouping with a number of attributes in common.

Groupings at Berlin’s life-form rank often join together rather heterogeneous taxa, as the oft cited category as in the Kalam language of the New Guinea highlands illustrates: the label covers frogs, small marsupials and rodents (Bulmer, 1974). Groupings such as as led Randall and Hunn (1984) to argue that these taxa are artificial and “biologically arbitrary;” contrary to the “folk genus,” they claim that there is no perceptual discontinuity motivating the recognition of the “life-form:” it does not encode a clearly discernable focus in the natural world. Berlin (op cit: 189) disagrees, arguing that “Life-form taxa form rather large groupings of perceptually similar folk genera. Such taxa appear to be based on a small number of biological characters.” He qualifies this statement, however, by adding that “life forms represent folk biological taxa that cut across recognized scientific natural categories.”

6. Taxa of generic and subgeneric rank exhibit a specifiable internal structure where some members of a taxon, x, are thought of as being more prototypical of that taxon than others (i.e., are the best examples of the taxon). Taxa of intermediate and life-form rank may also show prototypicality effects. Prototypicality may be due to a number of factors, the most important of which appear to be taxonomic distinctiveness (as inferred from the scientific classification of the organisms in any local habitat), frequency of occurrence, and cultural importance (i.e., salience).

The sixth principle ventures a bold claim about the composition of taxa, allowing cultural criteria to influence the development of prototypes. Berlin quotes Max Black on natural kinds and Wallace Chafe on semantic structure to bolster his reliance on prototype theory. Perhaps more germanely, he cites the type concept of Linnean taxonomy, where the definition of a species is contingent on the designation of a biological specimen that embodies the diagnostic traits that are declared to distinguish it from other taxa of the same rank. Berlin, Breedlove and Raven (1974: 56) had described similar properties of plant categories in Tenejapa: “some plant [species] are clearly seen as focal members of a category… other plants may be within the boundaries of the category… but still not be seen as the best examples of the category in question.”

Atran (1990), Gelman and Coley (1991), and Wierzbicka (1992) concur with Berlin’s position of innate, universal constraints on the classification of plants and animals, but question his use of prototype theory to characterize taxa, especially at the generic rank. They argue that folk genera, like their Linnean counterparts, are bounded by clear lines, not the fuzzy borders that prototype theory predicts. In their view, a genus contrasts with a life-form in having a “hidden underlying ‘nature’ manifested in the sensible properties of the category” (Foley, 1997: 120). When people classify living beings, the argument goes, they presume that this hidden nature is present to the same extent in all members of the category; if this is so, it implies that the boundary of the class is sharp, and prototype theory is refuted. This “underlying nature” is held responsible for the characteristic appearance and behavior of an organism, and serves to assign it to a particular genus. Atran notes that the presumption of a unique hidden nature allows English speakers to fit the juvenile form tadpole to the taxon frog. This presumed underlying nature causes live beings to develop in a set way and to display specific traits, and it is perceived to be passed on when they reproduce. The hidden
nature of organisms distinguishes them perceptually from human artifacts: “This discontinuity between natural entities and artificial ones created by human culture and technology is a universal focus of human cognition, and as such, is the basic organizational principle of ethnobiological classification... because the underlying nature is passed by reproduction, we may safely infer non-obvious, but pervasive similarities between genetically related living beings... It is processes of inference like these which are the basis of all systems of classification of living beings, ethnobiological or modern scientific.” (Foley, idem: 121).

7. Of those taxa recognized in any system of ethnobiological classification, a substantial majority corresponds closely in content to taxa recognized independently by Western botany and zoology. In comparison with taxa of other ranks, those of the rank of life-form show the lowest degree of correspondence in their biological content with recognized taxa of Western biology, taxa of subgeneric rank greater correspondence, and taxa of generic rank the highest correspondence. Taxa of intermediate rank correspond rather closely with portions of taxa recognized by Western science at the rank of family. For the higher vascular plants and larger vertebrate animals, generic taxa often approximate in their content the genera and species of Western scientific biology. For the smaller vascular plants, lower cryptogams, smaller vertebrates, and many invertebrates, the correspondence of folk generic taxa more closely approximates scientific taxa of the ranks of family, order, or class.

The last principle of classification makes again a strong assertion, predicting that indigenous observers and academically trained taxonomists will categorize the plants and animals found in any particular “restricted habitat” in highly similar fashion. Berlin accepts Hull’s (1970: 45) postulate that “there are indefinitely many ways of describing the patterns of variation in nature, and in each way there are indefinitely many patterns to be recognized,” but believes that “the empirical comparative data between Western scientific and folk systems of biological classification, as well as among the folk systems themselves, point to a single, preferred ordering that is primary and fundamental in humans’ appreciation of nature’s plan...” (Berlin, op cit: 26). He concludes the discussion quoting Gilmour and Walters (1964): in the classification of living beings, “one way is more natural than any other.”

2.4 Berlin’s general principles of nomenclature

In academic biology, the naming of taxa has become “essentially legalistic, pedantic, and tedious. Many systematists treat nomenclatural problems as a necessary evil” (Berlin, op cit: 26). In his classical “Principles of animal taxonomy,” George Gaylord Simpson (1961: 34) remarked that Linnean nomenclature is arbitrary at heart, merely providing labels for taxa, “a way for writing and talking” about living beings, which “has no scientific interest in itself.” Other scholars would disagree, realizing that the process of naming in Western biology is a fruitful area of inquiry in the “reflexive” sociology of science (Ashmore, 1989). In any case, the study of “folk” names for plants and animals, as opposed to Western scientific terminology, is a topic of great interest, insofar as “…ethnobiological nomenclature represents a natural system of naming that reveals much about the way people conceptualize the living things in their environment” (Berlin, op cit: 26).
Berlin’s principles of ethnobiological nomenclature make two very strong claims: that “the formal linguistic structure of plant and animal names is basically similar in all languages,” and that “the linguistic properties of …[those] names may indicate much about the cognitive status of the taxa to which they refer.” (Berlin, *idem*: 26). The growing literature on the topic suggests to him “a much closer, nonarbitrary assignment of plant and animal names to their respective referents than had heretofore been suspected” (Berlin, *idem*: 27). It seems likely, he believes, that perceptually salient features in the morphology and behavior of organisms will be encoded directly in the names that are used to refer to those species. He proposes, furthermore, that this iconic assignment of names to plants and animals has adaptive significance because it will facilitate learning, remembering and using them, “thus reducing the cognitive effort required of peoples of nonliterate traditions who must control rather sizable ethnobiological vocabularies” (Berlin, *idem*: 27). Before actually formulating the principles of nomenclature, he underscores a caveat: “while a name is an unambiguous indicator of the existence of some particular taxon, absence of a label does not necessarily imply the absence of a category.”

1. Intermediate taxa and the taxon marking ‘plant’ or ‘animal’ at the rank of kingdom are generally not named in systems of ethnobiological classification. Some small number of taxa of life-form rank may also be covert, that is, unnamed.

The first principle of nomenclature generalizes the finding across many languages that the ‘kingdom,’ most taxa at the ‘intermediate’ rank and some ‘life-forms’ are usually distinct in lacking a label. Berlin adds an empirical observation here, noting that in those cases where usually covert taxa such as the ‘kingdom’ are named, those terms are commonly polysemous, and cites as an example the Hanunóo käyuh that appears in figure 4 on page 34 of this chapter, which can have the specific sense of ‘tree’ or the general sense of ‘plant.’ Berlin believes that such dual usage points to the prevalence of prototypicality in higher-order categories, as spelled out in the sixth principle of classification.

2. In ethnobiological lexicons, the names for plant and animal taxa are of two basic structural types that can be referred to as **primary** and **secondary plant and animal names**. Each structural type can be distinguished on the basis of linguistic, semantic, and taxonomic properties.

   a. Linguistically, **primary plant and animal names** may be simple (e.g., louse, frog, oak) or complex (e.g., skunk cabbage, forget-me-not, catfish). In contrast, **secondary plant and animal names** (exemplified by words such as sugar maple, large-mouthed bass, and Stellar’s jay) are always linguistically complex.

   b. Semantic and taxonomic criteria show linguistically complex primary names to be of two structural types, **productive** and **unproductive**. Productive forms include a constituent that labels a taxon superordinate to the form in question (e.g. catfish, bluebird, bullfrog). In contrast, none of the constituents of unproductive forms marks a category superordinate to the form in question (e.g., prairie dog is not a ‘kind of dog,’ silverfish is not a ‘kind of fish,’ buckeye is not a ‘kind of eye’).

   c. Secondary plant and animal names are linguistically complex expressions, one of whose constituents indicates a category superordinate to the form in question (e.g., red oak, fox terrier). However, secondary forms differ from primary
productive expressions in that the former occur, with predictable exceptions, only in contrast sets whose members share a constituent that labels the taxon that immediately includes them.

The second principle of nomenclature benefits from the notion of contrast set proposed by Conklin (1962) and Frake (1962), and given formal definition by Kay (1971): two taxa are members of the same contrast set if they are immediately included in the same superordinate taxon (e.g., bald cypress and Montezuma cypress are members of the contrast set cypress. Following Berlin, to ascertain the structural type of a taxon’s name it is necessary to understand which contrast set it is part of. For example, bristlecone pine is a ‘secondary’ plant name since pine is also the label for the category that immediately dominates this taxon, and since bristlecone pine occurs in a contrast set whose members are also labeled by the name pine, like pinyon pine, loblolly pine, lodgepole pine, etc. In contrast, complex primary names such as buttercup tree or Saint John’s wort designate taxa in contrast sets where at least some members are labeled by simple primary names, such as kapok and mahogany (kinds of ‘tree’) or fennel and sage (kinds of ‘herb’) [14.]. As Berlin notes, simple primary names may be expanded into compound terms like ‘kapok tree,’ and secondary names like ‘bristlecone pine’ may be shortened to ‘bristlecone,’ but complex primary names like ‘buttercup tree’ cannot be abbreviated as ‘buttercup: “the full form… is obligatory as the taxon’s habitual label” (Berlin, op cit: 29).

3. Generic taxa, and those life-form and intermediate taxa that are labeled, are generally labeled by primary plant and animal names, while, with specifiable and notable exceptions, subgeneric taxa are labeled by secondary names.

The third principle states that the rank of a taxon predicts how it gets named. “Folk biological life forms” like ‘tree’ and ‘vine’ are marked by primary names, which also label generic taxa like cypress, pine, oak, etc. Subgeneric taxa are usually designated by secondary names, such as bald cypress and pinyon pine. According to Berlin, “These expressions are structurally identical to binomials of standard scientific nomenclature, which are comprised of a generic appellation and a specific epithet” (Berlin, idem: 29).

4. Under certain conditions, subgeneric taxa will be labeled by primary plant and animal names. The empirical data indicate two widespread conditions that can be readily understood in terms of general principles of ethnobiological classification.

a. A subgeneric taxon, x, may be labeled with a primary name when x is thought of as the prototype of the genus. In these cases, the primary name used to designate the prototypical taxon will be polysemous with the name of the superordinate generic taxon. Nonetheless, in situations of discourse where the prototypical subgeneric taxa must be unambiguously distinguished from other congeneric taxa, the prototypical taxon will be named by a secondary name containing a modifying expression that might be most appropriately glossed as ‘genuine,’ ‘real,’ ‘original,’ or ‘ideal-type.’

b. A subgeneric taxon, y, may be labeled with a primary name when y is a plant or animal species of major cultural importance. In such cases the name used to
designate the subgeneric taxon will be linguistically distinct from the label of its superordinate.

The exceptions to the third principle, i.e., the application of primary names to subgeneric taxa, can be explained in part, Berlin claims, by the operation of “additional abbreviation rules” based on prototypicality and cultural significance. The fourth principle spells out the conditions in which that abbreviation occurs. When one of the subgeneric taxa of a ‘folk genus’ is considered to be prototypical, the primary name used to label it is polysemous with that of the superordinate generic, in most cases. The second context in which this process occurs is “when the biological species involved are imbued with high cultural importance” (Berlin, idem: 30).

5. Names for plants and animals commonly allude metaphorically to some typical morphological, behavioral, ecological, or qualitative characteristic feature of their referents.

The fifth and last principle of nomenclature points to the iconic, non-arbitrary nature of many plant and animal names: “Primary names of all subtypes [i.e., simple, productive complex, and unproductive complex], which on first analysis might appear to be semantically opaque, often reveal metaphorical associations of the name with its referent” (Berlin, idem: 31). Such associations are most obvious in the case of animal names, where onomatopoeia and sound symbolism often shape the ethnozoological lexicon, but “morphological features are often focused on… in ethnobotanical vocabulary,” as well. Complex primary names are frequently based on analogy with a generic name that labels “a conceptually related taxon,” a process that Berlin calls generic name extension. He provides the following examples from Tenejapa Tzeltal, which involve species to be brought up again in later sections of this dissertation:

\[
\begin{align*}
\text{k’ewex} & \quad \text{‘custard apple,’ Annona cherimola Mill., a delectable fruit} \\
\text{k’ewex max} & \quad \text{‘monkey’s k’ewex,’ Annona reticulata L., a less desirable fruit} \\
\text{ch’aben} & \quad \text{‘a small herb,’ Crotalaria longirostrata Hook. & Arn., an edible herb} \\
\text{ch’aben ch’o} & \quad \text{‘rat’s ch’aben, Crotalaria maypurensis Kunth} \\
\end{align*}
\]

2.5 Recapitulation

Berlin begins his book (1992) discussing the utilitarian and intellectualist approaches within the discipline. He expresses words of admiration for Lévi-Strauss’ challenge to the Malinowskian point of view in The Savage Mind, but feels that the credibility of the Frenchman’s argument about people having an “intellectual need” to classify nature, as a manifestation of our “demand for order,” depends largely on the beauty of his argument and rests “in the main” unsupported. Berlin follows a line of reasoning that is close to Lévi-Strauss’ position but which differs in its interpretation: “…the striking similarities in both structure and content of systems of biological classification in traditional societies from many distinct parts of the world are most plausibly accounted for on the basis of human beings’ inescapable and largely unconscious appreciation of the inherent structure of biological reality.” (Berlin, idem: 8). The stress is on the universality of such categorization: “When
human beings function as ethnobiologists… they do not construct order, they discern it …groups of plants and animals present themselves to the human observer as a series of discontinuities whose structure and content are seen by all human beings essentially the same ways, perceptual givens that are largely immune from the variable cultural determinants found in other areas of human experience” (Berlin, 1992: 8-9). This emphasis reiterates an earlier comment by Conklin (1962): “the presence of hierarchically arranged… folk taxonomies is probably universal.”

If the tendency to classify plants and animals the same way is ubiquitous, it suggests strongly that the perception of natural classes is mediated by neurological processes shared by all members of the our species: “…human beings are drawn by some kind of innate curiosity to those groupings of plants and animals that represent the most distinctive chunks of biological reality. This human curiosity about the world is no doubt adaptive, in the broadest sense, but the mass of evidence presented here strongly suggests that people are not simply curious about those parts of the world of nature that might be of some direct utilitarian value to them.” (Berlin, 1992: 290). An innate pattern-recognizing ability is also endorsed by Atran (1990, ix-xi): “More likely, there are a variety of fairly well-articulated modes of human thinking – inherently differentiated components of human nature acquired over millions of years of biological and cognitive evolution… [exemplified by] the quasi-automatic character evident in the acquisition of such ordinary forms of knowledge as linguistic competence, spatial appreciation, facial recognition, color perception or the apprehension of living kinds… the cognitive ‘givens’ of our species.”

Berlin and Atran’s “universal cognitive schema common to all and only folkbiological taxonomies…” was surely influenced and reinforced by the formulation of Chomsky’s (1968) universal grammar, which postulates that an innate set of linguistic principles are shared by all humans. In the parallel formulations of generative grammar and ethnobiological theory there is perhaps an echo of the inspiration that Saussurean linguistics provided for Lévi-Strauss’ structural thought, with its focus on binary oppositions. The notion of a genetically programmed language logic has had a profound impact on scholarship beyond linguistics and has surely facilitated the wider acceptance of developments in cognitive anthropology, such as Berlin’s ethnobiology. Moreover, strong evidence for semantic domain-specific neural processing has been forthcoming in the last three decades. Although Berlin does not cite the clinical literature, his innatist stance on the perception of nature has been bolstered by a series of studies showing how lesions to a particular area of the temporal lobe of the brain result in cognitive deficits manifested in the inability to recognize and name plants and animals, specifically (Warrington & Shallice, 1984; Silveri & Gainotti, 1988; Hillis & Caramazza, 1991; Caramazza & Shelton, 1998; Yoon, 2009: 146-160).

Converging lines of evidence have thus boosted the intellectual authority of the framework of analysis developed by Berlin, and have called the attention of a broader audience in the cognitive disciplines. In his popular book “The language instinct,” Pinker (1994: 422-426) devotes a couple of paragraph to the topic: “The anthropologists Brent Berlin and Scott Atran have studied folk taxonomies of flora and fauna. They have found that, universally, people group local plants and animals into kinds that correspond to the genus level in the Linnaean classification system of professional biology… Since most locales contain a single species from any genus [a comment that betrays ignorance on ecology], these folk categories usually
correspond to species as well. People also classify kinds into higher-level life-forms, like tree, grass, moss, quadruped, bird, fish, and insect. Most of the life-form categories of animals coincide with the biologist’s level of class. Folk classifications, like professional biologist’s classifications, are strictly hierarchical: every plant or animal belongs to one and only one genus; every genus belongs to only one life-form; every life-form is either a plant or an animal; plants and animals are living things, and every object is either a living thing or not. All this gives people’s intuitive biological concepts a logical structure that is different from the one that organizes their other concepts, such as human-made artifacts… Intuitive biology is, of course, very different from what professors of biology do in their laboratories. But professional biology may have intuitive biology at its foundations. Folk taxonomy was obviously the predecessor to Linnaean taxonomy, and even today, professional taxonomists rarely contradict indigenous tribes when they classify the local species.” Such a portrayal, it will be argued in the sections that follow, fails to convey the diversity in the way people codify information about the living world in their languages, and does not adequately express differences of opinion among anthropologists about how that variation is to be modeled theoretically and accounted for.
3. Semantic classification in Mixtec grammar and lexical morphology

“Hablando de los Angeles es mejor var del ya, como de grandes señores, pues lo son, y de los demonios del si, por su baxez, como esta dicho en otras relaciones y es ympropio nombralos por el te que es para los animales irracionales.”

“Speaking about the angels it is better to use the ya, as of great lords, since they are so, and of demons the si for their lowliness, as has been said in other accounts, and it is improper to name them by the te, which is for irrational animals.”
(Antonio de los Reyes, 1593: 19)

In additional to the interest they hold because of their internal differentiation and the ecological heterogeneity of the territory they occupy, the Mixtec languages are exceptionally relevant to the study of natural nomenclature and categorization because they feature a system of semantic classification that is manifested in a set of grammatical and lexical categories, with some variation across dialect areas. Before dwelling on the particularities of Mixtec, a general discussion of classifiers will provide a frame of reference to characterize its semantic markers and examine how they differ from one variant to another.

3.1 Noun classifiers

Grinevald (2000), following Allan (1977), has studied classifiers as a morphosyntactic category that is present in some languages of the world and which is distinct from other nominal classification systems of a more grammatical (gender-noun classes) or more lexical nature (measure terms, class terms). Classifiers differ from purely lexical systems of categorization in marking classes of nouns beyond the noun word itself, i.e., in independent morphemes or in affixes on other elements of the clause. On the other hand, they differ from noun class-gender systems “in their incomplete grammaticalization, in remaining of a lexical nature and in having a discursive use within specific syntactic configurations” (Grinevald, 2000: 61). Whereas noun-class systems classify all nouns into a “smallish” number of classes, classifiers do not classify all nouns, and the number of categories they mark is “largish.”

Grinevald (idem: 64) distinguishes Mixtec and a few other languages in the world as having noun classifiers, which are realized as “free morphemes standing in a noun phrase, next to the noun itself or within the boundaries of the noun phrase with other determiners of the noun.” Crucially, they occur independently of quantification and are thereby distinct from numeral classifiers, which are found frequently in languages around the Pacific (Gil, 2005), including a number of Mayan groups (Tzeltal, Tzotzil, Ch’ol, Tabasco Chontal, Chuj, Akatek, Jakaltek and Yucatec, among others). Grinevald’s typology also sets apart the classifiers found in Mixtec from genitive classifiers, prevalent in many Oceanian and South American languages, and from verbal classifiers, found in some North American and Australian languages. Noun
classifiers have been largely ignored as a distinct type: “In fact the original motivation for working out this typology was to give it a place in the context of other recognized classifier types and to define its characteristics with respect to that of the other – better-known – systems. It is not a very common type, and the documented instances are still few” (Grinevald, op cit: 65). Besides Mixtec (based on de Leon, 1986), Grinevald cites only Jakaltek and Akatek in the Kanjobalan branch of the Mayan family in Mesoamerica, and Yidiny in Australia, as languages that show this rare kind. Significantly, the distribution of all four types of classifiers remains strongly centered in the circum-Pacific region, a pattern that was noticed first by Berlin (1968).

Jakaltek noun classifiers fulfill “two basic but probably related” syntactic functions, as determiners of the noun, and as independent third-person pronouns, which explains their omnipresence in the language. Craig (1986: 264) recorded the following examples; the first phrase in every pair illustrates their function as noun determiners, while the second illustrates their function as pronouns:

(1) Xil naj xuwan no’ lab’a.
saw CL(man) John CL(animal) snake
‘John saw the snake’

Xil naj no’.
saw CL(man) CL(animal)
‘He (man, non-kin) saw it (animal).’

(2) Kaj te’ tahnaj ix pij.
red CL(plant) ripe tomato
‘The ripe tomato is red.’

Kaj te’.
red CL(plant)
‘It (plant) is red.’

Grinevald (op cit: 65, 80) considers noun classifiers in the Kanjobalan languages to be “the most syntacticized classifiers of this type” to have been recorded and notes that they form “a closed set that encompasses both animate and inanimate nouns.” She does not comment on their comparable status in Mixtec, as will be discussed below. In Australia, noun classifiers appear “in a more incipient, less grammaticalized stage,” as illustrated by the following example from Yidiny (Dixon, 1982), which involves a classifier that seems to be specific for edible plants:

Mayi imirr bama-al yaburu-Ngu julaal
CL(vegetable)-absolutive yam-abs CL(person)-ergative girl-erg dig-past
‘The girl dug up the yam’

In support of her classification of classifiers, Grinevald (idem: 71-73) argues that the different morphosyntactic types correspond to different semantic categorization principles. She cites an unpublished survey of languages that possess classifiers, where the results
supported a semantic-morphosyntactic correlation: noun classifiers matched her “material/essence” semantic cluster closely (with the category examples ‘animal,’ ‘rock,’ ‘man’), whereas numeral classifiers were correlated most strongly with the “physical” cluster (category examples ‘round,’ ‘long rigid,’ ‘flat flexible’), and genitive classifiers matched quite tightly the “functional” cluster (e.g., ‘edible,’ ‘drinkable,’ ‘transport’). Verbal classifiers were not considered one of the “major” types of classifiers. After presenting the results of the survey, however, she warns the reader that “the whole enterprise of assigning semantic values to classifiers is a delicate endeavour, highly suspect of Eurocentric bias [!] and with expected theoretical and methodological shortcomings” (Grinevald, *idem*: 74).

Grinevald discusses the function of the different types of classifiers with more self-assurance. Earlier treatments of the topic had focused on classifiers as markers of a process of individuation in languages where classifiable nouns are essentially concept nouns. The contrast between Spanish *tres muebles* and English *three furnitures* exemplifies the individuating role of a measure term like ‘pieces.’ In addition to their function as individuation markers, classifiers play an important discursive role in many languages as referent tracking devices. In some cases, “classifiers are found essentially in anaphoric constructions.” The functions of classifiers raise questions about the four types distinguished on morphosyntactic grounds: “If they all contribute to the process of individuation of concept nouns, how is it that the different types… appear to do it preferentially through different semantic categorization principles?” (Grinevald, *idem*: 76). She proposes that the three “major” types of classifiers are “different operators which correspond to different modes of individuation manifested by their different semantics: noun classifiers and their predominantly material/essence semantics are operators of quality…”

In her subsequent discussion on the possible motivations for matching their “operator” functions with the semantic classification principles of the three types of classifiers, Grinevald elaborates on the discursive roles of the noun classifiers, which include “that of providing a morphological mark of referentiality and highlighting, and that of providing an overt means for keeping track of referents.” She introduces the notion of semantic bleaching to argue that various languages achieve this anaphoric function by means of “generally semantically very bleached pronominal forms which provide minimum information on the referent, such as gender and number.” In their anaphoric role, noun classifiers “are also like bleached versions of the basic-level nouns they stand for.” They have more semantic content than usual pronouns since the classifiers are generally derived from generic nouns, “but they also respect the condition of minimal information, choosing in this case the semantic feature of material/essence characteristic of superordinate nouns (as in animals, plants and trees, liquids, etc.)” (Grinevald, *idem*: 79).

Looking at her typology in a diachronic perspective, Grinevald considers that classifiers seem to be “secondary grammatical systems which are derived from existing lexical material and syntactic constructions;” she finds evidence for longer and shorter histories of different sets of classifiers, “and varying degrees of dynamism built into them.” Sino-Tibetan languages, for example, are thought to have developed numeral classifiers from compounding constructions through the use of class terms (defined below). The Kanjobalan languages “must have developed noun classifiers for social interaction first, using the existing Mayan patterns of use of epithets and kinship terms, before expanding the system to the
classification of concrete objects” (Grinevald, idem: 83). An advanced degree of grammaticalization is considered a feature of older systems, like the fused numeral classifiers of Akatek, which coexist with a newer set [15.]. The “easily recognizable noun origin” indicates a more recent development in the case of the Jakaltek noun classifiers, which have become frozen, however: the system was still productive at the time of European contact, so that metal and glass objects introduced by the Spaniards were incorporated into the ‘rock’ class, and the ‘maize’ category was extended to cover wheat and the foods made from it. “But the system seems to have ceased to be active in modern times since it does not accommodate… the more recent objects of daily use in the culture which are made of unfamiliar materials, such as bottled drinks like beer and coca-cola or objects made of plastic or nylon” (Grinevald, idem: 85). In the case of Mixtec, some variants retain productive noun classifiers across all semantic fields, whereas in other geographic areas the system has become “fossilized” (de Leon, 1980).

In contrast with noun classifiers, Grinevald (idem: 59) describes “class terms” as “classifying morphemes which participate in the lexicogenesis of a language.” Although they are easy to identify, their classificatory function being transparent, rarely are they treated adequately in language monographs beyond a few illustrative examples: “The difference between derivational morphemes and class terms that are used in compounding processes is not always worked out, and both have been labelled ‘classifiers’ at times. Class terms are classifying morphemes of clear lexical origin and show varying degrees of productivity in the lexicon of a language. One of the most common semantic domains of class terms is that of the plant world where languages specify the difference between trees and fruits by a compounding process: X-fruit/round vs X-tree/long-rigid.” The English equivalent of such class terms would be morphemes like -berry (as in strawberry, blueberry, raspberry, etc.) and tree (as in apple tree, banana tree, palm tree, etc.).

The Mixtec plant lexicon involves both noun classifiers and class terms, as will be documented in the next chapters of this dissertation, following Grinevald’s analytic framework. Before describing and providing some examples of both types of morphemes in Mixtec, a general discussion of the orthography, phonology and morphology of these languages is in order.

3.2 Mixtec orthography

The transcription of all Mixtec terms in this dissertation adheres to the orthographic conventions established by the Academy for the Mixtec Language (Ve’e Tu’un Savi, 2007: 39-42). In some instances, the Academy provides new graphemes for phonemes found in certain dialects. Chayuco Mixtec, for example, contrasts the voiceless dental fricative /ʃ/ (transcribed by Pensinger, 1974, as <z>, e.g. zaa, ‘bird’) with the voiceless alveolar fricative /s/ (Chayuco Mixtec saa, ‘noisily’). The Academy transcribes the voiceless dental fricative as <dj>, while the voiced dental fricative /ð/ is transcribed as <d> (e.g., Peñoles Mixtec dita, ‘tortilla’). The Academy does not distinguish /ʒ/ from /ʃ/, both of which are found in Mixtec, although they may not be contrastive; they are transcribed as <y>. Where the orthography recommended by the Academy differs significantly from the transcription in the original source, I have added the latter between brackets at the end of each entry, especially in those
cases where there is uncertainty on how to interpret the latter’s spelling (as in de Alvarado’s 1593 transcriptions of Tamazulapan Mixtec, and in some terms recorded in Alcozauca by Alejandro Casas & Juan Luis Viveros, published in Casas, Viveros & Caballero, 1994). I have taken the same provision in the instances where the Academy has not yet provided clear guidelines on how to write certain phonemes found in some dialects, e.g., the preaspirated nasals of Yosondúa Mixtec, as in yuNnu, ‘tree’ (Farris, 1992: 128), which I have transcribed as <jn>. /dz/ occurs in Chigmecatitlán Mixtec, where I transcribe it as <dz>, a grapheme that has not been sanctioned by the Academy.

Nasalized vowels are marked with an <n> at the end of the syllable. Segment-initial /n/ and /ñ/ cause the following vowels to be nasalized, which are therefore not marked with a final <n>; progressive and retrogressive nasalization affects long vowels as well as vowel clusters, but does not extend beyond glottal stops (Ve’e Tu’un Savi, 2007: 44-46). According to Katz (1990), Yosotato Mixtec shows the sequence /VntV/ in some terms, which represents a prenasalized stop, but which in the Academy’s orthography would be interpreted as a nasalized vowel followed by the voiceless alveodental stop. To distinguish these instances, I underline the <n>, as in ita kinta (Salvia spp.).

Regarding tonal contrasts, which are prevalent in all Mixtecan languages, the Academy states the following: “… se ha decidido comenzar con los tonos básicos, que son: a) tono bajo  b) tono medio  c) tono alto. El tono bajo se marcará con un guión debajo de la vocal… El tono medio no se marcará. El tono alto se representará con el acento latino sobre la vocal…” (“… it has been decided to begin with the basic tones, which are: a) low tone  b) medium tone  c) high tone. The low tone will be marked with a dash underneath the vowel… The medium tone will not be marked. The high tone will be represented with the Latin accent above the vowel…”) (Ve’e Tu’un Savi, 2007: 43). In practice, however, tones are rarely marked in the materials written by members of the Academy: “… los acuerdos son de no aplicar los tonos en la escritura en un primer momento…” (“… the agreement has been, not to apply the tones in writing during the initial phase…”). Tone perturbation or sandhi, pervasive in most Mixtec dialects, is a major factor explaining the reticence of authors to mark tones. Gabriel Caballero’s Diccionario (2008) notes tonal distinctions only occasionally, using tildes.

When tone levels are marked in the phrases and isolated terms that I cite, especially from the vocabularies produced by the Summer Institute of Linguistics, I transcribe them following the conventions of the Academy, i.e., I underline low-tone vowels, mark high tone with acute accents and leave the mid-tone unmarked. Xochapa Mixtec, however, requires a more elaborate tonal notation system to distinguish “almost low tone, more or less equivalent to musical note re”, marked with a grave accent (e.g., <ù>), from “low tone, more or less equivalent to musical note do”, marked by underlining the vowel (e.g., <u> ) (Stark, Johnson & González, 2003: 100-101). In addition, these authors mark ascending (e.g., <ù>) and descending (e.g., <û>) contour tones. Similarly, Small (1990) and Kuiper (2003) use the circumflex accent ^ to mark high-low glides.
3.3 Phonology

As mentioned in the introduction, the Mixtec languages are characterized by a set of oral and nasal vowels; the close central unrounded vowel /i/, which Josserand (1983) reconstructs as part of the vowel system of Proto-Mixtec, occurs today only in some dialect areas:

<table>
<thead>
<tr>
<th>oral</th>
<th>nasal</th>
</tr>
</thead>
<tbody>
<tr>
<td>high</td>
<td>i i u</td>
</tr>
<tr>
<td>mid</td>
<td>e o</td>
</tr>
<tr>
<td>low</td>
<td>a</td>
</tr>
</tbody>
</table>

The orthography for the vowels established by Ve’e Tu’un Savi (2007: 39) is presented in the following table:

<table>
<thead>
<tr>
<th>oral</th>
<th>nasal</th>
</tr>
</thead>
<tbody>
<tr>
<td>high</td>
<td>i i u</td>
</tr>
<tr>
<td>mid</td>
<td>e o</td>
</tr>
<tr>
<td>low</td>
<td>a</td>
</tr>
</tbody>
</table>

When vowels follow a nasal consonant, i.e. <nV, ŃV>, they undergo “nasalization by progressive assimilation” (Ve’e Tu’un Savi idem: 44-45) and are therefore not marked orthographically with a final <-n>, as in the following examples:

- nuu /nũũ/ ‘face’
- Ńũũ /nũũ/ ‘salt’

Macaulay (1996: 18) remarks that the oral mid vowels /e/, /o/, and especially their nasal counterparts /ẽ/, /õ/, occur “much less frequently than the other vowels” in Chalcatongo Mixtec, an observation that can be generalized to other variants that have been documented. Ve’e Tu’un Savi (2007) as well as de Leon (1980) and Josserand (1983) treat glottalization as a vowel feature, but Macaulay (1996) argues for a root-based analysis of glottal stops, as will be explained below.

Macaulay (idem: 18-19) notes that the consonant inventories of Chalcatongo Mixtec and other variants contain some striking asymmetries. The first one concerns frequency: some of the phonemes, e.g., /mb/ and /ŋg/, have an extremely limited distribution, as will become evident in a quick perusal of any portion of the lexicon, such as plant names. A second asymmetry “has to do with the pattern (or lack thereof) in voicing and prenasalization of segments.” Chalcatongo Mixtec has voiced prenasalized stops /nd/ and /ŋn/, but /b/ is only occasionally realized as /mb/; “in all of the other dialects of Mixtec with which I am familiar, voicing entails prenasalization” (Macaulay, idem: 19). The match between voiceless and prenasalized voiced consonants becomes apparent in the following table, compiled from the phonological inventories of variants which represent different dialect areas as defined by Josserand (1983): Diuxi Mixtec (Kuiper & Oram, 1991) - Eastern Alta; Silacayoapan Mixtec (Shields, 1988) - Southern Baja; Alacatlazala Mixtec (Zylstra, 1991) - Guerrero; San Juan Colorado Mixtec (Campbell et al., 1986) - Coast; Chalcatongo Mixtec (Macaulay, op cit) -
Western Alta. Segments in parentheses only occur in some dialects; phonemes that have been recorded in only one variant are not included.

<table>
<thead>
<tr>
<th>stops</th>
<th>[-voice]</th>
<th>[+prenas]</th>
<th>[+voice]</th>
<th>(p)</th>
<th>t</th>
<th>ts</th>
<th>k</th>
<th>k^w</th>
<th>?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mb</td>
<td>b</td>
<td></td>
<td>nd</td>
<td>(ts)</td>
<td></td>
<td>k</td>
<td>(ng)</td>
<td>(γ)</td>
</tr>
</tbody>
</table>

| fricatives | [-voice] | [+prenas] | [+voice] | (θ) | s | ʃ | (x) |   |   |
|            |          | (δ)       |          |     | (nʒ) | (ʒ) |   |   |   |

| affricates | [-voice] | [+prenas] | (tʒ) | (ntʒ) |   |   |   |   |   |

| approximants | j |   |   |   |   |   |   |   |   |

| nasals    | m | n | ŋ |   |   |   |   |   |   |

| lateral   | l |   |   |   |   |   |   |   |   |

| flap       | r |   |   |   |   |   |   |   |   |

| glide      |   |   |   |   |   |   |   | (w) |   |

The corresponding orthographic conventions, as established by Ve’e Tu’un Savi (2007: 40-42), would be the following:

<table>
<thead>
<tr>
<th>stops</th>
<th>[-voice]</th>
<th>[+prenas]</th>
<th>[+voice]</th>
<th>p</th>
<th>t</th>
<th>ts</th>
<th>k</th>
<th>ku</th>
<th>*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mb</td>
<td>v</td>
<td></td>
<td>nd</td>
<td></td>
<td></td>
<td>ng</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| fricatives | [-voice] | [+prenas] | [+voice] | dj | s | x | j |   |   |
|            |          | d         |          | ndy|   |   | y |   |   |

| affricates | [-voice] | [+prenas] | (ch) | (nch) |   |   |   |   |   |

| approximants | y |   |   |   |   |   |   |   |   |

| nasals    | m | n | ŋ |   |   |   |   |   |   |

| lateral   | l |   |   |   |   |   |   |   |   |

| flap       | r |   |   |   |   |   |   |   |   |

| glide      |   |   |   |   |   |   |   | w  |   |
3.4 Morphophonemics

Macaulay (op cit: 26) analyzes the syllable structure of Mixtec to be restricted to V and CV. Rare instances of consonant clusters, CCV, in Chalcatongo and elsewhere, consist of /s/ plus some other segment and are derived from an earlier CVCV form, as illustrated by the modern term for ‘cattle’:

- **idu ndiki** [‘deer’ + ‘horn’] (attested as: **idzu ndequi**; de Alvarado, 1593)
- **djindiki** (**zindiqui**: Chayuco Mixtec, Pensinger, 1974)
- **sndikį** (Chalcatongo Mixtec, Macaulay, 1996)

In all variants of Mixtec, words are minimally disyllabic, a pattern described in the literature as the “couplet,” with four possible combinations of vowels and consonants, illustrated by the following examples drawn from Coicoyán Mixtec (Flores & de Ávila, 1996):

- **VV**: iin ‘one’
- **CVV**: koo ‘snake’
- **CVCV**: kivi ‘day’
- **VCV**: ini ‘interior’

The couplet is subject to affixation and cliticization, leading to words of more than two syllables; “however, virtually all longer forms can be analyzed as polymorphemic – if not synchronically, then diachronically” (Macaulay, op cit: 27). The distribution of the glottal stop can be understood best in the context of the canonical structure of the Mixtec couplet. Josserand (1983) identified only two dialects (Ayutla and Zacatepec), in her sample of 122 communities, where a glottal stop can be found at the end of a word. Elsewhere, this feature occurs only in word-medial position, either intervocically or preceding a voiced consonant, as exemplified by the following terms from Coicoyán Mixtec, which form a set of minimal pairs with the previous couplets:

- **V’V**: i’in ‘temazcal sweat bath’
- **CV’V**: ko’o ‘dish, plate’
- **CV’CV**: ki’vi ‘to enter’
- **V’CV**: i’ni ‘hot’

Interpretation of the glottal stop as a vowel feature, rather than a consonant, allows us to retain the open syllable model, which is the typical pattern in the Otomanguan family, as mentioned in the introduction. However, a simple vocalic explanation fails to account for the restriction of glottal stops to initial syllables in almost all Mixtec variants. Macaulay (1996: 28-29) proposes a root-based analysis, i.e., she treats glottalization as a feature of the couplet: in the targeted lexical entries, a rule that would associate the constricted glottis to “the timing slot corresponding to the left-most vowel of the couplet” would account for forms like ko’o; “typological evidence indicates that it is not unusual for glottalization to be restricted to a specific position in a root, and, furthermore, that the initial syllable is a very common locus,” a phenomenon motivated by the inherent prosodic prominence of root-initial position, so that prosodic features like glottal closure are likely to appear there. In Mixtec, surface (C)V’V roots are “underlied by” (C)VV and behave like them under the rules that determine tone
sandhi, an observation that is consistent with Macaulay’s interpretation. Most significantly for our discussion of classifiers, Macaulay’s analysis correctly predicts that /ʔ/ does not appear in affixes or clitics, since only roots (i.e., couplets) can be marked for glottalization.

The glosses for ‘cattle’ and the minimal pairs cited above involving checked and unchecked vowels all hint at another interesting trait of the Mixtec languages: a strong tendency toward vowel harmony within the couplet. Macaulay (1996: 29-32) quantified how many times the oral and nasalized vowels co-occur in a sample of 693 roots in the Chalcatongo dialect. The resulting data show that, without exception, the two vowels in a couplet must both be oral or nasal, which seems to be the general pattern for most Mixtec variants, although Ayutla (separated from other Mixtec communities by a large expanse of Tlapanec speakers) is again an exception, allowing either one or both to be nasalized. Furthermore, both vowels are identical (i.e., /[C]a[C]a/ or /[C]e[C]e/, etc.) in 57% of the Chalcatongo sample: “Such tendencies... are manifestations of... a marked preference for having a single specification for any given feature in each Mixtec couplet.”

Although Macaulay does not make any allusion to such a pattern in her data, it appears that the tendency towards vowel harmony is also manifested in the frequency with which the high vowels (/i/, /ĩ/, /u/, and their nasal counterparts) co-occur in a couplet. A reexamination of the numbers presented in her tables (Macaulay, idem: 30-31), indicates that 84 of the roots show high vowels in harmony, which represent an additional 12% of her sample, for a total of 69% of the 693 couplets. 259 of the roots (37% of the total) present high vowels exclusively, in either complete (e.g., /[C]ũ/[C]ũ/) or partial harmony (e.g., /[C]i/[C]u/). The mid and low vowels occur together very rarely, according to her data. In the plant lexicon of several dialects there appears to be a tendency for some semantically related and culturally very salient roots to show high vowels, which reiterate this strong tendency for harmony (de Ávila, 1993; additional examples obtained from Caballero, 2008):

- nuni / nii / ndixi / itu / viu ‘shelled maize’ / ‘ear of maize’ / ‘tender maize on the cob’ / ‘milpa maize field’ / ‘maize seedlings’
- nduchi / ndichi / (yuku) xichi ‘beans’ / ‘string beans’ / ‘bean plant’
- ikin / tikin / tinduyu ‘squash’ / ‘squash seeds’ / ‘chilacayote squash’
- ndikin ‘amaranth seeds’
- kindi ‘chía,’ formerly an important crop

The replication of /i/ and /u/ in these sets of couplets appears to reflect the tendency for harmony documented by Macaulay, but their lack of mid and low vowels may involve sound symbolism (Berlin, 1992: 232-255). High vowels in the terminology relating to the main crops of the Ñuu Savi people perhaps reflects a long standing attitude of reverence and endearment for their staples. The vocabularies of several Mixtec variants attest to the absence of /a/, /e/ and /o/ in diminutives and terms of affection (unmarked entries quoted from Caballero, 2008):

- xutu ‘son or child, vocative of love for boys, used for greeting and good-bye’
- li‘i / xi‘i ‘girl, vocative of love for girls and young women’
- lulu / lulu / lundi / lutyi / luu ‘small’
- ndyi‘i ‘small ones, plural form of lu’lu’ (Chayuco Mixtec, Pensinger, 1974)
lú’lu / lí’li ‘small, little’ (San Juan Colorado Mixtec, Campbell et al., 1986)
luu ‘pretty, beautiful;’ lúlú: ‘baby’ (San Miguel el Grande, Dyk & Stoudt, 1973)
luchi ‘small’ (Dinixi Mixtec, Kuiper & Oram, 1991)
lū’ndi ‘small’ (Coatzospan Mixtec, Small, 1990)
luvi ‘pretty, beautiful’ (Xochapa Mixtec, Stark et al., 2003)
livi / luvi ‘pretty, beautiful, precious’ (Cuatzoquitengo, Casiano Franco, 2008)
lulu ‘small’ (Ayutla Mixtec, Hills, 1990)

A fixed tone sequence, however, do not seem to be involved in this instance of sound symbolism. All variants of Mixtec, like all Otomanguean languages, use pitch phonemically. Tonal patterns differ from one dialect area to another, and can distinguish the speech of neighboring communities. Most variants appear to have three levels of phonemic tone, and it is common to find “contour” shifts in the two vowels of a (C)VV couplet, analyzed as a sequence of two level tones (Macaulay, op cit: 32). Dyk & Stoudt (1973) provide the following examples from San Miguel el Grande:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>chaa</td>
<td>‘man’</td>
</tr>
<tr>
<td>cháa</td>
<td>‘write’ (realis)</td>
</tr>
<tr>
<td>cha</td>
<td>‘write’ (potential)</td>
</tr>
<tr>
<td>chaa</td>
<td>‘arrive’ (realis)</td>
</tr>
<tr>
<td>cha</td>
<td>‘arrive’ (potential)</td>
</tr>
</tbody>
</table>

Tone perturbation (sandhi) rules operate in the majority of dialects, with the apparent exception of San Juan Mixtepec Mixtec (Josserand, 1983: 203-204). Different classes of terms can be distinguished within a given variant based on tone interaction, i.e., the groups are based on how their constituents affect or are affected by the tonal pattern of preceding and succeeding morphemes in an utterance (Alexander, 1980). The following examples from the dialect of Santa María Jicaltepec (Bradley, 1970) illustrate tone perturbation:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Wachí kwánu.</td>
<td>come=Ø squirrel ‘The squirrel is coming.’</td>
</tr>
<tr>
<td>úná kwánu</td>
<td>eight squirrel ‘eight squirrels’</td>
</tr>
</tbody>
</table>

Mixtec was one of the first group of languages where tone sandhi were described, and the literature on the topic is extensive (Pike, 1945b, 1946, 1948; Mak, 1950, 1953, 1958; Overholt, 1961; Pankratz & Pike, 1967; Daly, 1973b, 1978; Pike & Small, 1974; Pike & Wistrand, 1974; Pike & Oram, 1976; Dürr, 1987; Hinton et al., 1991; Buckley, 1991; Meacham, 1991; Macaulay, op cit: 32-41).

3.5 Morphology

Two categories of elements may be added to the basic couplet: “ordinary” (inflectional and derivational) affixes and “phrasal” affixes (Macaulay, op cit: 13) [16]. Both types are always monosyllabic, or composed of a single consonant. The inflectional affixes are verbal prefixes, and case marking and other types of nominal inflection are absent from Mixtec. The lexicon of the different dialect areas attests to varying degrees of productivity of the derivational affixes: in some variants, like Chalcatongo, derivation has become fossilized, including
aspect markers on verbs and classifiers on nouns, whereas in other areas the process continues to generate new lexicon, as documented by de Leon (1980). The phrasal affixes are elements which are bound, but which attach to phrases, rather than to words: they are “morphological entities (affixlike) in terms of dependence, but syntactic entities (wordlike) in terms of placement” (Macaulay, op cit: 14). Derivational affixes will be discussed extensively in the next sections; the following examples from Coicoyán Mixtec (Flores & de Ávila, 1996) and Chalcatongo illustrate inflectional affixes, such as the prefix that marks the completive aspect, and phrasal affixes like the negative marker:

Kuni=ra tanda’a=ra.  
want=3MAS marry=3MAS  
‘He wants to get married.’

Ko=kuni=ña tanda’a=ña.  
NEG= want=3FEM marry=3FEM  
‘She does not want to get married.’

...tí=ní-tánda’a=rí... (Macaulay, op cit.: 203)  
NEG=CP-marry=1  
‘I didn’t marry’

Ko=ní-kúvi=Ø kachiũu=Ø ava. (Flores & de Ávila, 1996)  
NEG=CP-be:able=Ø work=Ø a:year:ago  
‘A year ago, I couldn't work.’

Tu=ká-ku síi íní=ro. (Macaulay, op cit: 120)  
NEG=PL-COP happy insides=2  
‘You all don’t feel happy.’

In addition to affixation, morphological distinctions in the verb stem characterize all dialects (Macaulay, idem: 44). The most common contrast is between realis and potential aspect. A few verbs have a stative stem, also, and the verbs of motion have additional aspectual forms (Chalcatongo Mixtec has distinct stems for potential, imperative, progressive, and habitual aspects for those verbs). The stems may be differentiated segmentally and/or by tone, as in the examples from San Miguel el Grande quoted above. In a few cases, the realis form may be substituted by an entirely separate root in the potential aspect. Segmental, tonal and suppletive differentiation of verb stems are illustrated by the following examples from Chalcatongo (Macaulay, idem: 45-52), where the first form is the realis, the second one, the potential, and the third, when present, the stative:

jasú / kásu / ndasú ‘close, cover’
jítú / kútú ‘work in the fields’ ['to work the soil’ may be a more accurate gloss]
kaku / kákú ‘be born’
jí‘i / kuu ‘die’
Transitivity and causative action can also be encoded in the morphology of the verb stem:

- **ndáji / chúngdáji** ‘wet’ (adjective) / ‘soak’ (transitive verb) (Macaulay, *idem*: 54)
- **se’é / chise’è** ‘hidden’ (adj) / ‘hide’ (transitive) (Coatzoquitengo; Casiano, 2008)
- **va’a / savá’a** ‘good’ (adj) / ‘make’ (transitive) (Flores & de Ávila, 1996)
- **tángan / s’táan** ‘action of an earthquake’ / ‘to cause one’ (Dyk & Stoudt, 1971)
- **tsákú / jávákú** ‘cry’ / ‘cause to cry’ (San Juan Colorado; Campbell *et al.*, 1986)

The bound morpheme **sa-/s-/ja-** in last three examples is related historically to the verb **sá’a/ja’a** and its cognates, glossed as ‘to do,’ ‘to make’ (Macaulay, *op cit.*: 59). Other prefixes that attach to the verb stem codify the inchoative, the deontic mood and the completive aspect, and plural, temporal, and repetitive actions.

The prefix **ja-** and its cognates derive nouns from adjectives, “specifying an individual with the relevant characteristic,” as in ‘the tall one’ (Macaulay, *idem*: 65). In Chalcatongo Mixtec, **ja-** is clearly related to the phrasal affix **ja=** which marks subordinate classes. Macaulay illustrates the productive use of the nominalizer with the following example:

```
Sa’ma=rí kú ja-kwa’á.
clothes=1 COP NOM-red
‘My clothes are the red ones.’
```

In the different dialects there are several nouns derived from adjectives by this prefix, where the meaning has become conventionalized:

- **níní / sa-níní** ‘important’ / ‘the main thing’ (Chayuco, Pensinger, 1974)
- **vixi / tsá-vixí** ‘sweet’ / ‘candy’ (San Juan Colorado, Campbell *et al.*, 1986)
- **vixin / ja-vixin** ‘sweet’ / ‘fruit’ (Chalcatongo, Macaulay, *idem*)

Although a general term for ‘fruit’ is derived through the nominalization of the adjective ‘sweet’ in Chalcatongo and some other variants, this mechanism does not appear to generate any further plant terminology. On the other hand, lexicalized noun phrase + noun phrase (NP) constructions with stereotyped meanings are quite common in Mixtec and are the most common way that botanical terminology is created, as will be illustrated in the following chapter. Some examples from other semantic domains:

- **ve’e kaa** house + metal ‘jail’ (Cuatzoquitengo; Casiano Franco, 2008)
- **nduchi núu=yóo** bean + face=1PL ‘the eyes’ (Dyk & Stoudt, 1971)
- **nduchi iní=yóo** bean + inside=1PL ‘the kidneys’ (Dyk & Stoudt, *idem*)
- **tuká’nú íñi** greatness + inner:body ‘the act of forgiving’ (Campbell *et al.*, 1986)
- **Iya Sí’i** holy + female ‘the Virgin Mary’ (Coicoyan Mixtec; de Ávila, 1986)

The facility with which new terms are coined by the operation of nominalizing prefixes and through NP + NP constructions is probably one of the factors explaining why Mixtec shows such a low incidence of borrowed vocabulary from Náhuatl and from Spanish, compared to
other Mesoamerican languages. The plant lexicon is no exception, presenting very few loanwords.

3.6 Contraction processes

The first noun in NP + NP constructions is frequently reduced to a single syllable in many dialects of Mixtec, affected by the contraction rules which govern fast delivery. The strict canonical requirement on all roots, “that they must be of at least two syllables – is obscured, however, by a strong tendency to abbreviate forms with identical vowels in rapid speech, often resulting in monosyllabic surface forms” (Macaulay, op cit: 41). Three rules operate under the conditions of fast utterance:

(1) the glottal feature is omitted: \((C)V_i'V_i > (C)V_iV_i\)
(2) a vowel is deleted: \((C)V_iV_i > (C)V_i\)
(3) the initial syllable is omitted: \(C_jV_iC_kV_i > C_kV_i\)

Macaulay notes that the third rule, while still productive in Chalcatongo, operates much less frequently than the first two, which are attested very often. She cites the following examples:

- \(\text{va' a} > \text{vaa}\) (‘good’) by the operation of (1)
- \(\text{vaa} > \text{va}\) (‘good’) by the operation of (2)
- \(\text{kiti} > \text{ti}\) (‘animal’) by the operation of (3)

Diuxi Mixtec bears evidence of an additional set of rules, which omit the final syllable in a couplet \((4) C_jV_iC_kV_i > C_jV_i\) and then delete the vowel of the remaining CV root \((5) C_jV_i > C_j\), as can be inferred from the following examples provided by Kuiper and Oram (1991: 334-342), together with Josserand’s (1983: 479-484) reconstructed form for ‘man’ in Proto-Mixtec:

- \(*\text{teye} > \text{tëyi}^\text{i}\) ‘man’ [17.]
- \(\text{tëyi}^\text{i} > \text{të}\) 3MAS, woman speaking [by the operation of (4)]
- \(\text{të} > \text{t}^-\) alternate form of 3MAS [by the operation of (5)]
- \(\text{t-véte}\) 3MAS-untruthful ‘liar’
- \(\text{t-lé'va}\) 3MAS-toothless ‘gossiper’ [!]

Diuxi Mixtec offers two further examples of root reduction from full nouns to pronominal forms which will be relevant to our discussion of classifiers in the realm of plants, starting again with Josserand’s Proto-Mixtec reconstruction:

- \(*\text{yutü} > \text{yutnu}\) ‘tree/wood’
- \(\text{yutnu} > \text{tnu}\) 3rd person singular affix for trees [by the operation of (3)]
- \(\text{ítâ} > \text{tâ}\) 3rd personal singular affix for flowers [by the operation of (3)]

The conversion of the full term for flowers to a noun classifier and a pronominal clitic seems to be restricted to the variant spoken in Diuxi and Tilantongo, whereas the classifier for trees
and wooden objects is widespread in the Mixtec languages, taking the shape tun / tun’ / tnu / tu / ton / to / nu / t- / ch-. Rapid speech contraction seems to account for part of the variation in this series, but an additional process of de-nasalization has taken place in some dialects. Since Mixtec shows a strong tendency towards vowel harmony, and both vowels in a couplet are either oral or nasal in dialects like Chalcatongo (Macaulay, op cit: 29), the presence or absence of a nasal vowel in the classifier seems to condition the vocal quality of the compounded element in some cases and adds to the variation in Mixtec plant names when the terms are cognates, as the following examples seem to illustrate:

- tuxi  *Barkleyanthus salicifolius*, Compositae (Coicoyán; de Ávila, 1986)
- toxí *el sumiate* (Coatzoquitengo; Casiano Franco, 2008)
- tonyuxin: *zomiate, Barkleyanthus salicifolius* (Chinango, Flora Medicinal, n.d.)

To close the discussion of couplet abbreviation and the development of classifiers, Macaulay makes an important observation on how the reduced particles are to be analyzed in their grammatical and syntactic functions: “It is clear that contraction is the historical mechanism by which many full words have been reduced to affixes and clitics, but a synchronic description must take note of the fact that affixes and clitics cannot be replaced in a given utterance by their corresponding full forms” (Macaulay, idem: 43).

3.7 The pronouns

Before describing the full series of Mixtec classifiers, it is useful to present the pronominal system. The pronouns are fairly regular across dialects with regards to their syntactic distribution, but present considerable variation in the non-deictic traits they codify, which mark social and cultural categories. In the dialects that have been studied, they form two sets, one of unbound forms and another of affixed forms. The unbound set is composed of full couplets; in the following example from Chalcatongo, the second column shows the matching clitics (Macaulay, idem: 81):

| 1st person familiar | ru’u       | =rí  |
| 1st person respectful | na’a      | =na  |
| plural (inclusive) | yó’ó      | =yó  |
| 2nd person familiar | ro’ó       | =ro  |
| 2nd person respectful | ni’í      | =ní  |

In this dialect there is only one plural pronoun, the first person inclusive; for the other persons, the plural is marked by adding the appropriate prefix to the verbal stem. For the third person, there are no free pronouns, but rather “full nouns with generic reference,” which correspond to the clitic forms:
3rd person masculine  chaa ‘man’  =de
feminine  ña’a ‘woman’  =ña
respectful: older  to’q ‘older person’  =to
younger, deceased, etc.  zii ‘male’  =yi
deity  í’a / íya ‘god’  =ya
animal  kiti ‘animal’  =ti
unmarked  =Ø

Macaulay’s “unmarked” category is labeled as the “inanimate” by Farris (1992) in his monograph on the Yosondúa dialect, spoken in a municipality adjacent to Chalcatongo. Other Mixtec languages do mark an inanimate category with a specific affix, as the following examples from Coicoyán Mixtec illustrate (Flores & de Ávila, 1996):

**Naxa nani=an?**
How name=3INA [INA: inanimate]
‘What is its [plant] name?’

**Naxa nani=tun?**
How name=3TRE [TRE: tree, wood]
‘What is its [tree] name?’

**Naxa nani=ri?**
How name=3ANI [ANI: animal/round object]
‘What is its [round fruit] name?’

Most interesting for the study of the classifiers are the dialects which use a set of independent, unbound pronouns which incorporate the third person clitics. Diuxi Mixtec has two series of “compound free pronouns,” one of which is formed by “combining the specifier mee with reduced poststressed” forms, and the second one involves “the indeterminate element a-”, apparently an older formation restricted to the subject of verbs in focus position (Kuiper & Oram, 1991: 343-344):

1st person familiar  mee-r  aru
respectful  mee da  adai
plural (inclusive)  mee ro  aro

2nd person familiar  
man speaking  mee-n  ando
woman sp.  mee un  ayo
respectful  mee-ń  andIX
This elaborate system is reminiscent of 16th century Teposcolula Mixtec recorded by de los Reyes and de Alvarado, which used different sets of pronouns for the first and second person to distinguish formal, familiar and generalized contexts of communication. The pronominal sets marked gender (of the speaker, listener and referent), social position (of the speaker and the listener) and age (of the listener). Coicoyán Mixtec has an equivalent set of the first series of compound pronouns in Diuixi, but does not make the familiar/respect and men's/women’s speech distinctions. It does, however, contrast first person plural inclusive and exclusive forms, as well as second person singular and plural, distinctions that are also made by the bound clitics (Flores & de Ávila, 1996):

<table>
<thead>
<tr>
<th>3rd person masculine</th>
<th>man sp.</th>
<th>mee şi / mee-s</th>
<th>ase</th>
</tr>
</thead>
<tbody>
<tr>
<td>woman sp.</td>
<td>mee te</td>
<td>ate</td>
<td></td>
</tr>
<tr>
<td>feminine</td>
<td>mee ña</td>
<td>aña</td>
<td></td>
</tr>
<tr>
<td>deity</td>
<td>mee íá</td>
<td>aya</td>
<td></td>
</tr>
<tr>
<td>animal</td>
<td>mee ti</td>
<td>ətì / əkit</td>
<td></td>
</tr>
<tr>
<td>tree/wood</td>
<td>mee tnu</td>
<td>ətnu</td>
<td></td>
</tr>
<tr>
<td>liquid</td>
<td>mee te</td>
<td>ənte</td>
<td></td>
</tr>
<tr>
<td>flower</td>
<td>mee tá</td>
<td>atâ</td>
<td></td>
</tr>
<tr>
<td>unspecified</td>
<td>mee i</td>
<td>adjîch</td>
<td></td>
</tr>
</tbody>
</table>

These examples from Coicoyán serve to illustrate changes in the basic word order in Mixtec, which is Verb-Subject-Object (VSO), a frequent pattern in Mesoamerica, characterized as a language area or Sprachbund by the absence of verb-final word order (Campbell, Kaufman & Smith-Stark, 1986). An unbound pronoun, however, can precede the verb to emphasize the subject, whereas focus on the object is achieved by placing the unbound form after the verb. The affixed forms always appear following the verb; they are monosyllabic clitics which are grammatically independent but phonologically bound to the lexeme or phrase. The unbound forms as well as the affixed pronouns can act as the subject, direct object or indirect object in a phrase, and their function is only distinguished syntactically. The indirect object generally precedes the direct object. There is a restriction of co-occurrence so that the pronominal affix...
never occurs with the unbound form with the same function in the same phrase, as shown by
the following examples from Díuxi Mixtec (cited by de Leon, 1980: 45):

N-gidatátná=té=ña. CP-cure=3MAS=3FEM ‘He cured her.’ [woman speaking]
Meete n-gidatátna=ña. 3MAS CP-cure=3FEM ‘He cured her.’ [ws]
Meete n-gidatátna meñeña. 3MAS CP-cure 3FEM ‘He cured her.’ [ws]

The affixed forms also occur in nominal syntagms with the function of possessive pronouns,
as illustrated by Shields (1988: 372) in Silacayoapan Mixtec:

kóchí lo’o jana=ñá [18.]
pig  small:SG domestic:animal/spherical:object=3FEM ‘her little pig’
kíti jana=da
animal  domestic:animal/spherical:object=3MAS ‘his domestic animals’
chikí jana=i
cactus:fruit  domestic:animal/spherical:object=1SG ‘my [Opuntia] cactus fruit’
tikwá jana=na
orange  domestic:animal/spherical object=3PL ‘their orange’

The pronominal clitics function as objects in prepositional constructions, as well (Coicoyán
Mixtec; Flores & de Ávila, idem):

Vaxi=Ø xu’un xi’in.
  come=Ø  money with=1SG ‘I’ve got money with me.’

Kuni=yu ka’an=yu tu’un nda’vi xi’i=ndo.
  want=1SG speak=1SG word poor  with=2PL ‘I want to speak Mixtec with you all.’

Na-kaa ka’a=na xi’i=ndo.
  CLA:COL-there speak-3PL with-2PL [CLA: classifier; COL: collective] ‘Those people will speak with you all.’

In the last example, the demonstrative na-kaa could be interpreted as a compound of the
pronominal clitic for the third person human plural, which has the same shape, plus the
locative. However, two further examples indicate that this is indeed a classifier, rather than
the pronominal affix, which has a different form for 3MAS in Coicoyán:
**Tia-kaa ka’an=Ø tu’un sa’an.**
CLA:MAS-there speak=Ø word non:indigenous
‘That man is speaking Spanish.’

**Xi’=in xixi=ra**
with=1SG eat=3MA
‘He is eating with me.’

The correspondence between the classifier and the pronominal clitic in the subject position in these elicitation examples of the type of occurrence that led de Leon (1980) to pose that Mixtec noun classification derived historically from pronoun categorization. Table 4 presents the pronominal affixes (“poststressed pronouns”) and the corresponding noun classifiers (“prestressed forms”) that have been recorded in eleven variants of Mixtec, as well as in two other Mixtecan languages, Pápalo Cuicatec and Copala Trique, to offer a comparative perspective.

### 3.8 Mixtec classifiers

Grinevald (2000) refers to the work of Lourdes de Leon when she cites Mixtec as one of the few languages where true noun classifiers have been documented. De Leon based her analysis of semantic classification in Mixtec on the relationship between pronouns and “noun markers”: “[the third person pronouns] establish a series of semantic classes which correspond, in many cases, to the semantic classes established by the noun markers... This correlation is interesting, as it shows the characteristics of systems of noun classification. While the semantic marker indicates the class in co-occurrence with the noun, the pronoun indicates it by substitution.” (De Leon, 1980: 49, translated by A. de Ávila). She drew the following chart to represent the semantic classes established by the third person pronouns:

![Classifier Chart](chart.png)
<table>
<thead>
<tr>
<th>TAM</th>
<th>MAS</th>
<th>FEM</th>
<th>CHI</th>
<th>DEC</th>
<th>DEI</th>
<th>ANI</th>
<th>TRE</th>
<th>LIQ</th>
<th>INA</th>
<th>COL</th>
<th>DIM</th>
<th>GEN</th>
<th>UN</th>
<th>RE</th>
<th>PL</th>
<th>FL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ye, ta</td>
<td>ŋa, ndo</td>
<td>ŋa</td>
<td>si</td>
<td>ŋu</td>
<td>ya</td>
<td>te, ti</td>
<td>tnu</td>
<td>tnu</td>
<td>ta</td>
<td>to *</td>
<td>to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DUX</td>
<td>se/tê, t.-a</td>
<td>ŋa</td>
<td>ŋa</td>
<td>ya, ia</td>
<td>tê, kit - t, ti</td>
<td>tnu</td>
<td>tnu</td>
<td>nte</td>
<td>te</td>
<td>xá, x-</td>
<td>dich i</td>
<td>ta</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCO</td>
<td>de</td>
<td>ŋa</td>
<td>ya</td>
<td>(ti) ti</td>
<td>(tu) tu</td>
<td>de</td>
<td>jin</td>
<td>ja</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHA</td>
<td>cha a</td>
<td>ŋa'an</td>
<td>ŋa</td>
<td>(yii) yi</td>
<td>(yii) yi</td>
<td>iya, i'a ya</td>
<td>kit</td>
<td>ti</td>
<td>(nu)</td>
<td>Ø</td>
<td>to'o</td>
<td>to</td>
<td>jara</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YSN</td>
<td>ra da</td>
<td>ŋa</td>
<td>ŋa</td>
<td>ya</td>
<td>ti</td>
<td>(nu)</td>
<td>ja</td>
<td>yì, i</td>
<td>jara</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OSP</td>
<td>na/chénu na/chi</td>
<td>tánü, tâ tün</td>
<td>kit</td>
<td>ti</td>
<td>(t-, ch-)</td>
<td></td>
<td>ë</td>
<td>xta/ňa</td>
<td>xta/ňa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XYA</td>
<td>te te</td>
<td>ŋa</td>
<td>ŋa</td>
<td>ya</td>
<td>ya</td>
<td>si</td>
<td>si</td>
<td>nu, tu</td>
<td>te</td>
<td>te</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAC</td>
<td>ta da</td>
<td>ŋá</td>
<td>ŋá</td>
<td>tî, ndi rí</td>
<td>tó</td>
<td>tó</td>
<td>ńa</td>
<td>ńa</td>
<td>a</td>
<td>a</td>
<td>na</td>
<td>na</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALA</td>
<td>ta ra</td>
<td>ŋá</td>
<td>ŋá</td>
<td>tî</td>
<td>rî</td>
<td>ton</td>
<td>nó</td>
<td>tâ ra</td>
<td>ńa</td>
<td>ńa</td>
<td>a</td>
<td>ńa/ Œ</td>
<td>a/chi</td>
<td>ńya</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AYU</td>
<td>te ra</td>
<td>ŋa</td>
<td>a'</td>
<td>tî</td>
<td>rî'</td>
<td>tun</td>
<td>nu'</td>
<td>tya'</td>
<td>ra'</td>
<td>ńa</td>
<td>a</td>
<td>ńa/ Œ</td>
<td>a/chi</td>
<td>ńya</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JAM</td>
<td>râ ra</td>
<td>ŋa</td>
<td>ŋa</td>
<td>(ti) ti</td>
<td>(tu) tun</td>
<td>cha</td>
<td>chi</td>
<td>ńu</td>
<td>ńu</td>
<td>kwé</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUI</td>
<td>sá tá</td>
<td>ti</td>
<td>(yi)</td>
<td>Ø</td>
<td>*</td>
<td>ya</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRI*</td>
<td>zoh</td>
<td>zii</td>
<td>nii</td>
<td>zhoh</td>
<td>(r-)</td>
<td>yoh</td>
<td>ze</td>
<td>nii</td>
<td>zii</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4: Noun classifiers and third person singular pronominal affixes in the Mixtecan languages

For each set, the first row is composed of what the authors affiliated with the Summer Institute of Linguistics distinguish as the "prestressed" forms, which can occur as noun classifiers. The second row consists of the "poststressed" forms, which correspond to pronominal clitics in verb conjugation and noun possession. "Prestressed pronouns" written in parentheses are reported to occur only "in frozen forms."

Pronominal categories:
MAS: masculine (* indicates man speaking/woman speaking distinction)
FEM: feminine
CHI: child
DEC: deceased
DEI: deity
ANI: animal, fruit/round (* indicates fruit/round not specified)
TRE: tree, wood
LIQ: liquid
INA: inanimate
COL: collective
DIM: diminutive
GEN: generic/general
UN: unspecified/indefinite (* human unspecified is marked in Cuicatec by fused low tone with optional glottal stop)
RE: respect (* indicates masculine/feminine distinction; b indicates general adult/distinguished man distinction; * used for "lords")
PL: human plural
FL: flower

Languages/variants:
TAM: 16th century Tamazulapan and Teposcolula (Eastern Alta) (de León, 1980)
DUX: Diuxi-Tilantongo (Eastern Alta) (Kuiper & Oram, 1991)
OCO: Santo Tomás Ocotepec (Western Alta) (Alexander, 1988)
CHA: Chalcatongo (Western Alta) (Macaulay, 1996)
YOS: Yosondúa (Western Alta) (Farris, 1992)
OSP: Coatzospan (Northern Alta) (Small, 1990)
XYA: Xayacatlán (Northern Baja) (de León, 1980)
LAC: Silacayoapan (Southern Baja) (Shields, 1988)
ALA: Alacatlatzala (Guerrero) (Zylstra, 1991)
AYU: Ayutla (Guerrero/Southern Baja) (Hills, 1990)
JAM: Jamiltepec (Coast) (Johnson, 1988)
CUI: Cuicatec from Concepción Pápalo (Bradley, 1991) In addition to the forms listed here, Concepción Pápalo Cuicatec has a prestressed locative pronoun
TRI: Trique from Copala (Hollenbach, 1992) (* the two forms of Copala Trique third person pronouns are phrase-final vs. non-phrase-final) In addition to the forms listed here, Copala Trique has two forms for the non-phrase-final locative pronoun
De Leon proposes that the classification codified by the third person pronouns preceded the development of noun markers, and that it was the pronouns which provided the semantic basis for the classification of nouns: “We could say that long before this semantic classification operated by means of markers in some dialects, it was already indicated by the third person pronouns. Indeed, there exists a classification by substitution in many dialects which have not developed the system of semantic classification of nouns by means of semantic markers” (De Leon, idem: 49). This notion of a classification by substitution seems to have motivated Macaulay to underscore that “a synchronic description must take note of the fact that affixes and clitics cannot be replaced in a given utterance by their corresponding full forms” (Macaulay, op cit.: 43), a point that she elaborates further: “The syntax of the full forms and that of the clitic forms is quite different... and so the clitic forms cannot be the result of synchronic contraction of the full forms, but must instead be regarded as invariant phrasal affixes.” (Macaulay, idem: 80).

De Leon emphasizes the fact that “in the dialects with semantic classifiers,” the “classifiers or derivative prefixes” mark the same semantic categories “established” by the third person pronouns. It is this semantic and morphological correlation between pronouns and classifiers, she points out, which characterizes Mixtec vis-à-vis other Mesoamerican languages that feature some forms of semantic classification, such as the numeral classifiers in the Mayan family. However, it is not clear that there are any Mixtec dialects which lack noun markers altogether; the “derivative prefixes” are no longer productive in some Mixteca Alta and coastal variants, yet there appear to be at least traces of noun classification in all dialects. Contrary to de León’s supposition, it may be that noun derivation offered a model for the pronominal categories of Mixtec; it seems significant in this regard that other Otomanguean languages bear evidence of nominal categories.

De Leon herself (op cit) quotes a personal communication from the late expert on Mesoamerican linguistics, Jorge Suárez, indicating that labeled noun classes are common in the Otomanguean family: “In Chinantec there are classifiers that mark round objects and persons. In Trique, the classifiers occur in possessive constructions. In Chocho, the classifier is used as an anaphoric. In Huave [believed at that time to be a member of the family] we find the presence of numeral classifiers. In Chichimec there is productive noun classification for plants and animals. In Amuzgo there are classifiers for plants and animals, as occurs also in some variants of Zapotec. What happens in these languages, generally, is that the classification is not productive but has fossilized. We find, therefore, classes of nouns marked morphologically, but which the speaker is unable to discern. In Zapotec, Mazatec, Tlapanec, Trique... and in some variants of Mixtec the classification has become fossilized.” (de Leon, idem: 95). The languages cited by Suárez represent all branches of the Otomanguean family except for Chiapanec-Mangue. If this commentary were to be substantiated, it may provide evidence to propose that Proto-Otomanguean used class terms, and possibly even noun classifiers in Grinevald’s sense. However, as will be shown in the fifth chapter of this dissertation, some of Suárez’ claims need to be evaluated with caution.

Unlike previous authors who had written on Mixtec, de Leon considers demonstratives to constitute a separate group from the third person pronouns. She notes that the former are not bound to nouns or verbs like the latter, but occur independently, with a syntactic distribution similar to that of the noun. They result from the combination of one of the semantic markers
that classify nouns followed by a deictic of place, indicating the degree of proximity to the
speaker, whereas “...in those dialects that lack semantic markers, the demonstratives are
formed by the combination of the third person clitic plus the deictic of place...” (de Leon,
*idem*: 52). She does not provide examples of the latter, but the demonstratives documented
by Bradley (1970:50) in Jicaltepec fit her description; the first column shows the affixed third
person forms “indifferent to distance,” the second column the proximal forms, and the last
column the distal equivalents:

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS</td>
<td>rá</td>
<td>ráyá</td>
<td>rákán</td>
<td></td>
</tr>
<tr>
<td>FEM</td>
<td>ña</td>
<td>ñaya</td>
<td>ñakan</td>
<td></td>
</tr>
<tr>
<td>COL</td>
<td>ní</td>
<td>níyá</td>
<td>níkán</td>
<td></td>
</tr>
<tr>
<td>DEI</td>
<td>yá</td>
<td>-----</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>ANI</td>
<td>ri</td>
<td>riya</td>
<td>rikan</td>
<td></td>
</tr>
<tr>
<td>INA</td>
<td>chí</td>
<td>chíyá</td>
<td>chíkán</td>
<td></td>
</tr>
<tr>
<td>DIM</td>
<td>we</td>
<td>weya</td>
<td>wekan</td>
<td></td>
</tr>
<tr>
<td>COMMON</td>
<td>run</td>
<td>ruya</td>
<td>rukan</td>
<td></td>
</tr>
</tbody>
</table>

Coatzoquitengo Mixtec, in contrast, builds a full set of demonstratives not on the pronominal
clitics but on the corresponding “semantic markers” (de Leon, *op cit*: 52); here the first
column shows the independent noun, the second column the “marker,” the third column the
proximal demonstrative, the fourth column the distal equivalent, and the fifth column the
corresponding pronominal affix (recorded by Casiano Franco, 2008):

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS</td>
<td>taa</td>
<td>ta-</td>
<td>tay’o</td>
<td>takáa</td>
<td>ra</td>
</tr>
<tr>
<td>FEM</td>
<td>ñá’a</td>
<td>ñá-</td>
<td>ñay’o</td>
<td>ñákáa</td>
<td>ñá</td>
</tr>
<tr>
<td>ANI</td>
<td>kiti</td>
<td>ti-</td>
<td>tiy’o</td>
<td>tikáa</td>
<td>rí</td>
</tr>
<tr>
<td>TRE</td>
<td>itun</td>
<td>tun-</td>
<td>tyy’o</td>
<td>tükáa</td>
<td>tó/tún</td>
</tr>
<tr>
<td>LIQ</td>
<td>nduta</td>
<td>ta-</td>
<td>tay’o</td>
<td>takáa</td>
<td>rá</td>
</tr>
<tr>
<td>INA</td>
<td>ñá’a</td>
<td>ña-</td>
<td>ñay’o</td>
<td>ñákáa</td>
<td>ñá</td>
</tr>
</tbody>
</table>

De Leon (*op cit*: 53) adds a series of examples relating compound nouns, labeled by what she
calls semantic markers, with the corresponding demonstratives in Coatzoquitengo:

- *kití yo’o* > *tiy’o* ‘this animal’ > ‘this one’
- *tikimi yo’o* > *tiy’o* ‘this star’ > ‘this one’
- *tikava yo’o* > *tiy’o* ‘this *Spondias* fruit’ > ‘this one’
- *ituye’e yo’o* > *tyu’o* ‘this door’ > ‘this one’
- *túavion kaá* > *túkaá* ‘that airplane’ > ‘that one’
- *viko kaá* > *ñakaá* ‘that cloud’ > ‘that one’

Casiano Franco (*op cit*: 127) provides an especially insightful illustration of how the
semantic marker can become detached from the locative to function as a lexical item that
fulfills all the characteristics defined by Grinevald (2000) for a noun classifier, i.e., “free
morphemes standing in a noun phrase, next to the noun itself or within the boundaries of the
noun phrase with other determiners of the noun”:
El mueble que viene allá es su carro de Pedro.

‘The vehicle coming over there is Pedro’s car.’ (Casiano Franco, *op cit*; 127) [19.]

To account for the development of the semantic markers, and in spite of her initial proposal that noun classification derived historically from pronominal categories, de Leon discusses the lexicalization of NP + NP constructions in somewhat different terms than Macaulay’s analysis. De Leon finds complex lexemes composed of two nouns, a noun and an adjective, a noun plus a verb, and a noun and a numeral, quoting examples from Jicaltepec:

**yo’o kaa** vine/rope + metal ‘wire’
**kiti ndee** animal + strong ‘mule’
**kivi uñi** day + three ‘Wednesday’

Once formed, the tri- or tetrasyllabic forms will tend to be reduced by “morphophonemic pressures of the system” and by “pressures of intensity.” The first or second syllable (and there is no discussion of what phonological or morphosyntactic factors may condition which syllable is chosen) of the first term in the compound will be lost, resulting in a tri- or bisyllabic form:

**yo’o kaa** > **yokaa**
**kibi uñi** > **ki uñi**

Through this process emerges a third type of lexical forms, morphologically distinct from the compound nouns which gave rise to it, where the first syllable (remnant of the first term of the compound) becomes a derivative prefix, functioning as a semantic marker:

**yutu ndoko** tree + custard apple > **tundoko** ‘custard-apple tree, *Annona* sp.’

De Leon notes that in some areas, such as Santa María Yucuhiti in the Mixteca Alta, the two phases of the process can be found in the speech of a single community; the elders will use the full compound more frequently, and the younger people will prefer the reduced form, specially in informal situations. Only the abbreviated forms occur in other dialects, even though the speakers are capable of reconstructing the original tetra-syllabic terms in some instances. In the case of plant nomenclature, it seems significant that the earliest source (de Alvarado, 1593) cites full compounds much more frequently than the contemporary vocabularies:

**yutnu yaa** / **yutnu yata** roble ‘oak’
**yutnu nuu** *aceiba arbol* ‘kapok’
**yutnu nda’ya** *durazno el árbol* ‘peach tree’
**tnunda’ya** *cerezo el arbol* ‘[Mexican] cherry tree’
**tnuyu’ndu** madroño ‘madrone’

In the dialects where prefix derivation remains productive, de Leon continues, the prefixes form a paradigm with noun-marking functions; they will attach to nouns, adjectives and
stative verbs to derive new lexicon: “In this way, as the paradigm of derivative prefixes... is formed, a process of noun classification will begin” (de Leon, op cit.: 60). The productivity of the prefixes is most evident in the coinage of Mixtec terms for technological innovations:

**tobixi** CLA:LIQ + sweet ‘soda pop’ (Silacayoapan)
**tundachi** CLA:TRE + to:fly ‘airplane’ (Coatzoquitengo)

Following de Leon’s argument, in some dialects (especially in the Mixteca Baja) the system goes one step further: the prefixes lose their derivational role and become semantic classifiers with “functions of actualization”: “el prefijo derivativo pierde sus funciones y funge como un clasificador semántico sustantival con funciones de actualización” (de Leon, idem: 60). This newly acquired function as a noun classifier is more highly developed, she observes, in certain semantic categories (masculine, feminine, deities and woody objects), and is especially evident in the incorporation of Spanish loan-words:

- **Xita=Ø kuRosita**. sing=Ø CLA:FEM-Rosita ‘Rosita sings’ (Xayacatlán)
- **nudanchiko** CLA:TRE–to:cool [?] ‘refrigerator’ (Xayacatlán)
- **sipapaya** CLA:ANI–papaya ‘papaya fruit’ (Micaltepec)
- **tukaru** CLA:TRE–car ‘car’ (Coatzoquitengo)
- **tumakinakiku** CLA:TRE–machine–sew ‘sewing machine’ (Coatzoquitengo)

De Leon highlights the correlation between the derivative prefixes/noun classifiers and the third person/demonstrative pronouns as the most salient feature of semantic classification in Mixtec. Although she observes that both the classifiers and the pronouns originate ultimately in the same nouns, she does not account for the differences between them in any given dialect. It is evident from the Coatzoquitengo sets cited above that the pronoun and the corresponding classifier are both derived from the same syllable of the source noun, yet pronoun and classifier often differ in their initial consonant. In addition, the two can vary tonally. In this dialect, the classifiers are clearly closer to the nouns than are the pronouns: it is the initial consonant and pitch level of the latter that tends to differ, as can be seen in the same forms quoted earlier (de Leon, op cit: 52; the first column shows the independent noun, the second column the classifier, the third column the proximal demonstrative, the fourth column the distal equivalent, and the fifth column the corresponding pronominal affix recorded by native speaker Vicente Casiano Franco, 2008):

<table>
<thead>
<tr>
<th></th>
<th>taa</th>
<th>ta-</th>
<th>tayo’o</th>
<th>takáa</th>
<th>ra</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS</td>
<td>ŋá’a</td>
<td>ŋá-</td>
<td>ŋáyō’o</td>
<td>ŋákáa</td>
<td>ŋá</td>
</tr>
<tr>
<td>FEM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANI</td>
<td>kiti</td>
<td>ti-</td>
<td>tiyō’o</td>
<td>tikáa</td>
<td>rí</td>
</tr>
<tr>
<td>TRE</td>
<td>itun</td>
<td>tun-</td>
<td>tūyō’o</td>
<td>tūkáa</td>
<td>tú/tún</td>
</tr>
<tr>
<td>LIQ</td>
<td>nduta</td>
<td>ta-</td>
<td>tayō’o</td>
<td>takáa</td>
<td>rá</td>
</tr>
<tr>
<td>INA</td>
<td>ŋá’a</td>
<td>ŋa-</td>
<td>ŋayō’o</td>
<td>ŋákáa</td>
<td>ŋa</td>
</tr>
</tbody>
</table>

The fact that the forms of the classifiers are closer to the source nouns than the pronominal clitics seems to lend support to de Leon’s supposition that the third person pronouns developed prior to the classifiers and provided a semantic blueprint for noun categorization. However, if noun-compound formation and prefix-derivation both remain productive, parallel processes, as appears to be the case in some Mixtec dialects, the closeness in form...
between the nouns and the classifiers could be the result of sound changes conditioned by the
canonical couplet, which may not affect monosyllabic morphemes such as the pronouns. If
that were the case, the notion that noun classifiers are a relatively recent development in
Mixtec might be weakened.

3.9 Innovation and loss of the classifiers

Plant nomenclature in Diuxi reveals evidence which suggests that noun markers and
pronominal affixes have developed simultaneously, rather than sequentially as proposed by
de Leon. Table 4 indicates that this variant of Mixtec is the only one documented so far to
mark the category ‘flower’ with a specific “poststressed pronoun,” -ta, as well as a
“prestressed form,” tâ. Kuiper (2003: 8) records an instance of the use of the pronominal
affix:

Ita yodo     nani=Ø  ita   ya’a   chi     yodo=ta     nuu   yutnu.
flower + be:on:top name=Ø  flower here because be:on:top=3FL face tree
Las plantas llamadas ita yódo yútnú se llaman asi porque trepan los árboles.

Diuxi also happens to be the only dialect recorded to date that shows a contracted noun
marker derived from ita, which becomes fused to couplets to designate specific species of
plants (Kuiper, idem):

tavió ‘a kind of flower’
tayídì ‘a kind of flower’
tnúta’ú  colorín, pipal  [Erythrina sp., LEGUMINOSAE]
tnútavé’yu  dedalera  [probably Penstemon sp., PLANTAGINACEAE]
tnútayátu  tronadora  [Tecoma stans (L.) Juss. ex Kunth, BIGNONIACEAE]
tnútayúxi  un tipo de árbol, literalmente ‘el árbol de la flor del mal de ojo’
    ‘a type of tree, literally ‘the tree of the flower of the evil eye’

It is possible that ta represents an old classifier, like tnu/tun/nu (‘tree, wood’) and ti/ti/si
(‘animal, round object’), that used to be more widespread in Mixtec and happens to be
retained in Diuxi and Tilantongo. It seems more likely, however, that this is a local
innovation; had it been shared more widely earlier, we would expect to find traces of its
former presence in the plant names that have been recorded in other variants of Mixtec, yet
none seem to be forthcoming [20.]. The 16th century grammar and dictionary on
Tamazulapan/Teposcolula Mixtec (de los Reyes, 1593; de Alvarado, 1593), geographically
and linguistically close to Tilantongo, did not record a floral pronoun nor an abbreviated
lexical marker for that category. Furthermore, ta- only occurs in some names in Diuxi, while
others show the full form ita, like the ita yodo cited above. In fact, the majority of plant
designations transcribed by Kuiper (2003) that involve the flower marker use the full term. It
seems that this dialect made a parallel innovation sometime in the past, introducing a new
category into its pronominal system and its botanical nomenclature, except the reduction of
the nominal maker into a monosyllabic form did not go very far.
Blossoms do have a special status in the semantic classes that are marked in other variants of Mixtec. In San Jerónimo Xayacatlán, a northern Mixteca Baja variant, noun phrases involving flowers are marked with the pronominal clitic –\textit{ya}, derived from the morpheme \textit{yaa}, which de Leon glosses as ‘whiteness or purity’; the same affix marks statements about the sun, the rain, the wind, saints and priests (de Leon, 1980: 152-153):

\begin{itemize}
  \item \textit{[yaanchi] Nikana=ya.} [the sun] rise=3DEI ‘It [the sun] is rising.’
  \item \textit{[yadavi] Vaxi=ya.} [rain] come=3DEI ‘It will rain.’
  \item \textit{Ita ku=ya.} flower be=3DEI ‘It is a flower.’
\end{itemize}

Flowers have had extraordinary ritual significance in Mesoamerica since antiquity, attested lexically (Hill, 1992), philologically (Garibay, 1964-1967; Leon Portilla, 1994) and ethnographically (Hunn, 2008: 198-223).

Future fieldwork in other dialects in the eastern and northern Mixteca Alta will hopefully clarify the particular history of the floral pronoun/marker, which might shed light on de Leon’s hypothesis about the development of noun classification in these languages. She observed that the presence of classifiers serves to demarcate two main zones within the Mixteca: “We note a major dialectal division between HM and CM on the one hand, and LM on the other. It seems that dialects showing gender and fossilized classification are located in HM and CM in contrast to dialects in LM that show classifiers. In spite of the fact that third person pronouns broadly draw the same categories, it is in those dialects with classifiers that semantic extensions have occurred.” (de Leon, 1986: 17; HM refers to the Mixteca Alta, CM to the coastal region, and LM to the Mixteca Baja).

By “fossilization,” de Leon referred specifically to the process whereby tri-syllabic forms, composed of a “semantic marker” plus a noun, become contracted even further to conform to the couplet, as the morphemic canon of Mixtec. The reduced bi-syllabic forms “will have all the morphological as well as semantic characteristics of simple lexical units; because of the phonological changes that they have undergone, it is difficult to determine the meaning and the form of the compound lexeme from which they originate” (de Leon, 1980: 62). She noted repeatedly that fossilized forms are frequent in Mixteca Alta and coastal dialects, “where the system of semantic classification is not very productive”:

\begin{itemize}
  \item *\textit{kiti yuku} > *\textit{tiyuku} > *\textit{tyuku} > \textit{chuku} ‘fly’ (Ocotepec, Mixteca Alta)
  \item *\textit{kiti yaka} > *\textit{tiyaka} > *\textit{tyaka} > \textit{chaka} ‘fish’ (Jamiltepec, coastal region)
\end{itemize}

In the following sections it will be pointed out that progressive palatalization from \textit{ti}- into \textit{ch}-, and perhaps a parallel process from \textit{yu}- into \textit{i}-, is attested by some plant names in Mixteca Baja dialects, as well.

Macaulay (1996: 67) elaborates on the fossilized classifiers and provides further examples: “The process of erosion of one of the syllables of the classifying noun has been carried to a state of complete fossilization or even loss in this dialect, and the result is a set of trisyllabic (or in some cases, disyllabic), synchronically monomorphic lexical items... what remains of the classifiers in Chalcateongo Mixtec can no longer even be called prefixes.” To illustrate this process, she cites cognate sets from three dialects that witness the initial, intermediate
and final stages of palatalization that obscure the original classifier. For each set, the first form comes from Chayuco, a coastal dialect where the prefix has not fused with the initial \(<\gamma>\) of the primary lexeme that follows; the second form is from San Miguel el Grande, which preserves the full tri-syllabic compound along with the abbreviated form; and the third column shows the current form in Chalcatongo, which has lost the full tri-syllables:

<table>
<thead>
<tr>
<th>tyiyoko</th>
<th>tiyóko / chókó</th>
<th>chókó</th>
<th>‘ant’</th>
</tr>
</thead>
<tbody>
<tr>
<td>tyiyúkú</td>
<td>tiyuku / chuku</td>
<td>chuku</td>
<td>‘louse’</td>
</tr>
</tbody>
</table>

The coexistence of both the full and the reduced forms in some dialects lends credence to a philosophical comment made by de Leon in the only paper that she appears to have published on Mixtec classifiers (1986: 17): “Mixtec is an example of a classifier system in transition. Partial fossilization in some classes and productivity in others illustrates this transition. However, it is not obvious that such a transitional stage will lead to a stable or definite end point. I suspect that the system will remain as it is: that productivity and fossilization coexist within the same system may simply reflect the fact that the language community itself exists in a changing social and cultural system that exhibits an analogous contradiction.” Such a compelling reflection is unfortunately not followed by a discussion of how the particular social and cultural dynamics of the Mixtec people, in their transition from a subsistence economy to the globalized labor market, might condition linguistic change.

In summary, Mixtec noun markers and pronominal affixes have interested linguists because they represent a rare type of classificatory system that remains poorly documented, in contrast to numeral classifiers and other types. In the Mixtec dialects that have been studied so far, the classifiers can be characterized by four basic traits: 1) they are derived from a set of generic nouns; 2) they occur with many (but not all) nouns “in a determiner-like function”; 3) their corresponding third person pronominal affixes “perform deictic and anaphoric functions”; and 4) “they show connections with social and spatial deixis” (de Leon, idem: 6-7). Furthermore, “this uncommon type of classifier system constitutes a particularly interesting case of grammaticalization which fills the gap in the continuum from lexical noun categorization to morphological noun classification.” (Craig, 1986). To relate that fundamentally linguistic theoretical interest to the topic of this dissertation, this chapter has shown how the pervasive tendency of the Mixtec languages to denote semantic categories has provided speakers with specific class terms like ita, and noun markers like tnu/tun/nu, to generate plant names readily, as the following sections will illustrate. Moreover, the correspondence of the pronominal categories and the noun classifiers, whether they be productive or frozen in a given dialect today, has historically offered Mixtec speakers a template, it seems, to extend the languages’ idiosyncratic principles of classification at large to a specific domain like the plant world. The Mixtec people are not alone in the region, however, in their fascination with nominal categories: “The Popolocan languages… use coreferential pronouns which are synchronically and/or diachronically related to a set of lexical classifiers. These classifiers are prefixed to nouns (but not all nouns) indicating the semantic class of the referent, such as ‘animate,’ ‘flower,’ ‘tree,’ ‘child,’ ‘male person,’ or ‘female person.’ Most of them double as autonomous nouns with a similar semantic value.” (Veerman-Leichsenring, 2001: 337). It is probably not fortuitous that plant nomenclature in the Popolocan languages shows close parallels to Mixtec botanical lexicon, as will be discussed in the fifth chapter.
4. A corpus of Mixtec plant lexicon

This chapter presents the botanical terminology that I have been able to gather in various Mixtec languages, including historical sources as well as contemporary reports. I include all the published records that I have been able to find, as well as unpublished materials provided by colleagues and data from my own research. Figure 6 locates the communities for which I have obtained information on the topographic map of the Mixteca presented in the introduction. The following list identifies each locality on the map by means of an acronym, with the corresponding altitude above sea level in meters (INEGI, 2010), and the dominant types of primary vegetation that have been reported for the area according to the system of classification of Rzedowski (1978), complemented by Valiente Banuet et al. (1998):

**ALA:** Alacatlatzala, municipality of Malinaltepec, Guerrero: 2182 m asl, pine-oak forest

**APO:** Santiago Apoala, district of Nochixtlán, Oaxaca: 2009 m asl, oak forest, mexical

**AYU:** Ayutla de los Libres, Guerrero: 384 m asl, tropical subdeciduous forest

**CHA:** Chalcatongo de Hidalgo, district of Tlaxiaco, Oaxaca: 2455 m asl, pine-oak forest

**CHY:** San Agustín Chayuco, district of Jamiltepec, Oaxaca: 250 m asl, tropical subdeciduous forest, tropical montane forest

**CGM:** Santa María Chigmecatitlán, district of Tepeji de Rodríguez, Puebla: 1507 m asl, tropical deciduous forest

**COI:** Coicoyán de las Flores, district of Juxtlahuaca, Oaxaca: 2041 m asl, pine-oak forest, cloud forest [21]

**CTZ:** Cuatzoquitengo, municipality of Malinaltepec, Guerrero: 2087 m asl, pine-oak forest

**DAA:** San Pedro Tidaá, district of Nochixtlán, Oaxaca: 2322 m asl, pine-oak forest, fir forest

**DUX:** San Juan Duixi, district of Nochixtlán, Oaxaca: 2329 m asl, pine-oak forest

**HUI:** San Antonio Huitepec, district of Zaachila, Oaxaca: 2306 m asl, pine-oak forest

**JAM:** Santiago Jamiltepec, Oaxaca: 434 m asl, tropical subdeciduous forest

**JIC:** Jicayán de Tovar, municipality of Tlacoachistlahuaca, Guerrero: 731 m asl, tropical subdeciduous forest, tropical pine woodland

**LAC:** Silacayoapan, Oaxaca: 1640 m asl, oak forest, tropical deciduous forest

**MIC:** El Rosario Micaltepec, municipality of Petlalcingo, district of Acatlán de Osorio, Puebla: 1446 m asl, tropical deciduous forest, xerophytic scrub

**MXT:** San Juan Mixtepec, district of Juxtlahuaca, Oaxaca: 2122 m asl, pine-oak forest, tropical deciduous forest

**NGO:** Santa Catarina Chinango, municipality of San Pedro y San Pablo Tequisixtepec, district of Huajuapan, Oaxaca: 1813 m asl, oak forest, tropical deciduous forest

**NUX:** Santo Domingo Nuxáa, district of Nochixtlán, Oaxaca: 1900 m asl, pine-oak forest

**OCO:** Santo Tomás Ocotepec, district of Tlaxiaco, Oaxaca: 2123 m asl, pine-oak forest
OSP: San Juan Coatzospan, district of Teotitlán, Oaxaca: 1778 m asl, cloud forest, tropical montane forest
PEÑ: Santa María Peñoles, district of Etila, Oaxaca: 2038 m asl, pine-oak forest
PIN: Pinotepa Nacional, district of Jamiltepec, Oaxaca: 205 m asl, tropical subdeciduous forest
SJC: San Juan Colorado, district of Jamiltepec, Oaxaca: 420 m asl, tropical subdeciduous forest
SMG: San Miguel el Grande, district of Tlaxiaco, Oaxaca: 2476 m asl, pine-oak forest
SOT: San Pedro Yosotato, municipality of Santiago Nuyoó, district of Tlaxiaco, Oaxaca: 1835 m asl, cloud forest, pine-oak forest, tropical montane forest
TAM: Tamazulapan del Progreso, district of Tepozcolula, Oaxaca: 2021 m asl, mexical, oak woodland, tropical deciduous forest, xerophytic scrub [22.]
TIL: Santiago Tilantongo, district of Nochixtlán, Oaxaca: 2158 m asl, pine-oak forest
TON: Santo Domingo Tonahuixtla, municipality of San Jerónimo Xayacatlán, district of Acatlán de Osorio, Puebla: 1320 m asl, tropical deciduous forest
XOC: Xochapa, municipality of Alcozauca, Guerrero: 1456 m asl, pine-oak forest, tropical deciduous forest
XYA: San Jerónimo Xayacatlán, district of Acatlán de Osorio, Puebla: 1300 m asl; tropical deciduous forest
YLX: Yoloxóchitl, municipality of San Luis Acatlán, Guerrero: 595 m asl, tropical subdeciduous forest
YSN: Santiago Yosondúa, district of Tlaxiaco, Oaxaca: 2194 m asl; pine-oak forest, tropical montane forest
ZAU: Alcozauca, Guerrero: 1387 m asl, tropical deciduous forest, pine-oak forest
ZOL: San Juan Tamazola, district of Nochixtlán, Oaxaca: 2078 m asl, pine-oak forest

4.1 The sources of information

Before reviewing the ethnobotanical information gathered in these communities, it will be helpful to discuss the professional training of the various authors, their degree of familiarity with the local language, and the orthographic conventions followed in each source, including some historical documents and recent publications that do not specify where the data were obtained:

ACÑ: Acuña, René, historian who edited the 16th-century Relaciones Geográficas of Oaxaca published in 1984, which cite some Mixtec plant names, especially of species that were used medicinally, listing their Náhuatl equivalents in lieu of Spanish glosses. The transcriptions are often dubious, partly due to the challenges of the paleography, but mostly because of the lack of familiarity of the colonial scribes with Mixtec phonology. The information was gathered in a number of towns in the Mixteca Baja, the Mixteca Alta, the Valley of Oaxaca (at that time inhabited by several Mixtec-speaking communities) and the coast in present-day Oaxaca state and adjacent areas of Guerrero.
Figure 6: Communities represented in this study
ALA: Zylstra, Carol F., linguist affiliated with the Summer Institute of Linguistics (SIL) who worked in Alacatlatzala. The dialect spoken there is reported by Zylstra to be mutually intelligible with Cuatzoquitengo Mixtec, documented by Casiano Franco (2008). Zylstra (1991) published a syntactic sketch of that variant, which includes a few plant names glossed in English. Her transcriptions mark the surface tones, i.e., the phonemic pitch levels after the operation of sandhi rules.

APO: López García, Ubaldo, native speaker of Apoala Mixtec, founding member of Ve’e Tu’un Savi, the Academy of the Mixtec Language. Trained initially as an educator, he has studied ethnohistory and linguistics. His doctoral dissertation presented at the University of Leiden in the Netherlands in 2007 and published in 2010 examines the rich and eloquent ceremonial speeches of civic and religious cargo HOLDERS in Apoala. Recording and translating this extensive body of oral tradition, he has documented a number of plants that have utilitarian and symbolic significance in the ritual life of Apoala. Maestro Ubaldo uses the orthographic conventions of the Academy, and marks tones only rarely. The plant species are glossed in regional Spanish.

AYU: Hills, Robert A., linguist affiliated with the SIL who worked in Ayutla de los Libres, Guerrero. Published (1990) a syntactic sketch of that language, characterized by phonological and morphosyntactic features that are not found in other Mixtec variants, such as word-final glottal stops and an especially elaborate system of verbal, nominal, numerical, general and sentential markers. Hills marks underlying tonal patterns (prior to the operation of sandhi rules) on all the terms he cites. His study includes a few plant terms, glossed in English; additional materials from Tepango, a community in the municipality of Ayutla, were recorded by de Leon (1980).

CAB: Caballero Morales, Gabriel: Native speaker of Huitepec Mixtec, trained in linguistics at the Master’s level at the Centro de Investigaciones y Estudios Superiores en Antropología Social (CIESAS); currently holds a research appointment at the Universidad Tecnológica de la Mixteca (UTM) in Huajuapan, Oaxaca. He has compiled an 800-page dictionary with ca. 17,500 entries, published in 2008, based on a questionnaire prepared in 2001 which was filled out by bilingual teachers in 49 communities in Oaxaca, 3 in Puebla and 11 in Guerrero. Caballero records considerable phonological and lexical variation across the Mixtec region for various specific terms; unfortunately, he does not cite the provenience of any given form. He follows the orthographic conventions of the Academy of the Mixtec Language, with some modifications: 1) he does not distinguish the voiceless palatal affricate /tʃ/ from the voiceless alveopalatal stop /t/, transcribing both as <ty>; 2) he records few instances of the voiceless dental fricative /s/ transcribed by the Academia as <dj>, found in some Mixtec dialects; 3) he transcribes as <ndr> and <xr> the retroflex allophones of /nd/ and /ʃ/ found in some varieties. Like the Academy, he does not distinguish /s/ from /y/, both of which are found in Mixtec, although they may not be contrastive; they are transcribed as <y>. Caballero registers tones in very few cases. I have corrected typographic and orthographic errors in the Spanish glosses of his dictionary, as I have also done in the materials I cite from SIL vocabularies. The plant terms recorded in the dictionary are glossed in Spanish; no Latin binomials are quoted.
CHA: Swanton, Michael W., linguist affiliated with the Francisco de Burgoa Library, Centro Cultural Santo Domingo & Universidad Autónoma Benito Juárez de Oaxaca. He has published extensively on the phonology, grammar and philology of the Popolocan languages and is currently conducting research on Ixcatec and on Chalcatongo Mixtec. He has shared with me (2010) the entries relating to plants in the unpublished dictionary he has compiled of that Mixtec variant. Most of the species are described briefly, or glossed in regional Spanish. Swanton marks surface tone in that data base. Some additional plant terms from Chalcatongo were obtained from Macaulay (1996), who included a short vocabulary in her study of the grammar of that dialect.

CHY: Pensinger, Brenda J., linguist affiliated with the SIL who worked in Chayuco (Jamiltepec district, Oaxaca), and published a 150-page dictionary using a Spanish-based orthography that includes some botanical terms, glossed in Spanish. She marks tones “only in the cases where confusion would be created between various words if they were not indicated” (Pensinger, 1974: 138).

CGM: Ordaz Peregrina, Nazario Ignacio, Vicente Jerónimo Palacios Mexican and Martiniano Beltrán Méndez, native speakers of Chigmecatitlán Mixtec. Don Nazario was born in 1927, don Vicente in 1928, and Martiniano in 1960. They were interviewed by Sebastian van Doesburg, Michael W. Swanton and A. de Ávila on July 25, 2009, in Santa María Chigmecatitlán. Historical narrative, grammatical paradigms, place names and plant lexicon were recorded digitally and transcribed. Swanton is studying the phonological traits of this Mixtec variant, including underlying tones and sandhi rules; surface tones have been marked tentatively, pending further analysis. Plant identifications were mostly based on Spanish vernacular names, corroborated in some cases with live plants observed nearby. Botanical voucher specimens collected in Chigmecatitlán were identified at the National Herbarium of Mexico (MEXU–UNAM), and are kept in the herbarium of the Jardín Etnobotánico de Oaxaca.

COI: Flores Romero, Celso, Trinidad Oliveros Reyes (deceased) and Rodrigo Tenorio, native speakers of Coicoyán Mixtec. Celso was born around 1960, don Trini ca. 1930, and Rodrigo around 1950. A. de Ávila worked with them on extended visits to Coicoyán from 1986 to 1990. Over 600 plant vouchers were collected in the fields and forests around the town, representing different species for the most part, with three or more duplicate specimens when possible. These collections were usually made in the company of Celso or don Trini, both fluent in Spanish; other specimens were gathered with Rodrigo, who is less bilingual. All three collaborators provided Mixtec names for the plants they knew. Some additional names were offered by the late don Telésforo González Melo (born around 1920), monolingual in Mixtec, his wife Patricia Guzmán (born around 1930 and conversant in Spanish), and their daughter Fidelia and son Juan, both bilingual and born in the 1960s. Further information and plant collections were gathered by Celso from 1990 to 1992, interviewing several individuals in Mixtec. The names and uses of plants were recorded on magnetophonic tape, when feasible, and transcribed in Mixtec and Spanish; tones were not marked. All the plant specimens were deposited in the herbarium of the Instituto Tecnológico de Oaxaca (ITO), where A. de Ávila worked at the time; the institution had covered part of the research expenses. A good part of the collections were identified according to Linnean taxonomy by Alfredo Saynes Vásquez; other specimens were determined at MEXU–UNAM.
the University Herbarium of UC Berkeley, the California Academy of Sciences, the Missouri Botanical Garden, and the New York Botanical Garden, where duplicates were sent.
Unfortunately, the original collections, including many specimens for which no duplicates had been collected, appear to have been singled out for destruction by the person in charge of the herbarium at ITO. That herbarium was closed sometime before 2006, and the collections were handed over to the Centro Interdisciplinario de Investigación para el Desarrollo Integral Regional (CIIDIR) Oaxaca. All the specimens collected in Coicoyán, however, were missing by then (Remedios Aguilar Santelises, Director of the CIIDIR Herbarium, 2007, personal communication).

CTZ: Casiano Franco, Vicente Paulino, native speaker of Cuatzoquitengo Mixtec, founding member of the Academy of the Mixtec Language. He published privately a 200-page dictionary of his native dialect in 2008, following the orthographic conventions of the Academy. He records some forms that vary in the neighboring dialects of Cahuatache, Metlatónoc, Ocoapa, San Cristóbal and Zacatipa. Tones are marked in all entries, which provide an example of the use of each lexical item, with a translation. The plants in the dictionary are glossed in regional Spanish.

DAA: Flora Medicinal Mixteca de San Pedro Tidaá, Nochixtlán, Oaxaca (n.d.), a collection of 28 plants described in Mixtec and Spanish, elaborating on their use as remedies. The report was published on line, undated, as part of the UNAM digital library on the traditional medicine of Mexico. Six sabedores (‘knowledgeable persons,’ four women and two men), aided by a Mixtec translator, gave information to four researchers who recorded and drew the plants. The names and descriptions were written down using most of the Academy’s orthographic conventions; tones were not marked. Two botanists collaborated in the project, which was advised by Nereyda Antonio Barrera, biologist working at the Instituto Nacional Indigenista (INI) in the city of Oaxaca from the 1990s to ca. 2006. Most of the plants are identified by Latin binomials.

DUX: Kuiper, Albertha H., linguist affiliated with the SIL working in San Juan Diuxi. Published a 50-page “encyclopedic dictionary” of plants and fungi with their Mixtec names, some regional Spanish equivalents and occasional Latin binomials in 2003. A few plants and fungi are illustrated by rudimentary line drawings. Tones are marked on the isolated terms but not in the accompanying Mixtec texts that describe some of the plants’ uses and distinguishing features. Some of the species identifications in Latin are dubious, in addition to their orthographic errors. Kuiper and her colleague Joy Oram published a syntactic sketch of the Diuxi dialect of Diuxi-Tilantongo Mixtec in 1991. Oram marks the basic tones in the sections she wrote, while Kuiper uses a different notation system, marking the surface tones.

HUI: Julián Caballero, Juan, ethnolinguist with a Master’s degree affiliated with the Centro de Investigaciones y Estudios Superiores en Antropología Social (CIESAS) in Oaxaca. Juan Julián is a native speaker of San Antonio Huitepec Mixtec who has shared with me (2010) information on plant names that he knows from his childhood.

JAM: Johnson, Audrey F., linguist affiliated with the SIL who worked in Jamiltepec, Oaxaca, and published (1988) a syntactic sketch of that dialect, including some plant names
glossed in English. Johnson marks the “basic tones,” i.e. the underlying pattern before tone perturbation takes place.

JIC: **López, Santiago**, speaker of Jicayán de Tovar Mixtec. Don Santiago was born around 1940. A. de Ávila worked with him on three extended visits to Jicayán between 1986 and 1990. Over 100 plant vouchers were collected in the fields and forests around the community, most of them representing different plant species, with three or more duplicate specimens when feasible. These collections were usually made in the company of don Santiago, who speaks only Mixtec, and don Trini Oliveros or Celso Flores from Coicoyán, who translated for us. Don Santiago provided the names and information on the uses of the plants he knew. Some species were identified or confirmed by his wife, doña Josefa Gómez. The names were transcribed in Mixtec; tones were not marked. Information on the uses of the plants was recorded in Spanish. All the plant specimens were deposited in the herbarium of the ITO, and were identified taxonomically together with the materials from Coicoyán. They suffered the same fate, as described above.

JOS: **Josserand, Judy Kathryn**, linguistic anthropologist who surveyed lexical data from 122 Mixtec communities to reconstruct their linguistic history for her doctoral dissertation (1983). Examining cognate sets from throughout the Mixtec region, Josserand was able to reconstruct 188 Proto-Mixtec terms, including some plant terminology, which I have cited in her original phonetic transcription. The only feature I have modified are the nasal vowels, which she writes with a cedilla and which I transcribe in agreement with the International Phonetic Alphabet (e.g., <ã>). Josserand’s work defined the dialectal areas of Mixtec and the sequence of phonological changes that distinguish the numerous contemporary variants spoken across the Mixteca. Her analysis dwells most extensively on the evolution of the vowels. Her survey data did not include tones; consequently, she did not attempt to reconstruct the tone system of Proto-Mixtec.

KAP: **Kaplan, Lawrence**, a biologist who conducted research in Jamiltepec and nearby Jicaltepec, Oaxaca, as a Fellow of the Chicago Natural History Museum in 1954-1955. The Mixtec plant names he recorded were published by Maximino Martínez (1979) together with their Linnean equivalents, without citing the source beyond the note “Kaplan”. His wife Lucille published a paper on *naguales* and *tonas* in Coastal Oaxaca in 1956 (<www.mexicauprising.net/tonahawal.pdf>), where she mentions his institutional affiliation. Presumably the plant specimens he collected were deposited and identified there. She also notes that their Mixtec terms were transcribed according to Howard Classen of the Summer Institute of Linguistics.

LAC: **Shields, Jäna K.**, a linguist affiliated with the SIL who worked in Silacayoapan, Oaxaca, and published (1988) a syntactic sketch of that variant of Mixtec, including a few botanical terms glossed in English. She marks surface tones, i.e., the tonal patterns after the operation of sandhi rules.

MIC: **Gil Guadalupe, Clemencia Eva, Eulalia Díaz González, Genaro Teófilo Cruz, Salvador Martínez Cruz and Gonzalo Cruz Paz**, native speakers of Micaltepec Mixtec. Doña Clemencia was born in 1938, doña Eulalia in 1944, don Teófilo in 1945, Salvador in 1952,
don Gonzalo in 1934. They were interviewed by Sebastian van Doesburg, Michael W. Swanton and A. de Ávila on July 28, 2009, in El Rosario Micaltepec. Grammatical paradigms, place names and plant lexicon were recorded digitally and transcribed. Swanton is studying the phonological traits of this Mixtec variant, including underlying tones and sandhi rules; surface tones have been marked tentatively, pending further analysis. Plant identifications were mostly based on Spanish vernacular names, corroborated in some cases with live plants observed nearby. Botanical voucher specimens collected in El Rosario were identified at SERO (herbarium at Sociedad para el Estudio de los Recursos Bióticos de Oaxaca, A.C.), and are kept in the herbarium of the Jardín Etnobotánico de Oaxaca.

MXT: Reyes Santiago, Panuncio Jerónimo, native speaker of San Juan Mixtepec Mixtec who undertook a floristic and phytogeographic study of that municipality from 1988 to 1993 for his undergraduate thesis in biology at the Escuela Nacional de Estudios Profesionales (ENEP), Iztacala campus, UNAM. Although his project did not involve ethnobotanical observations, Reyes recorded over 160 plant names in Mixtec, representing species of all the major vegetation types in the municipality, ranging from tropical deciduous forest to various types of pine-oak forest, secondary grasslands and riparian vegetation. The Linnean plant identifications are based on voucher specimens deposited at the MEXU herbarium. He transcribes Mixtec using an orthography based largely on Spanish. Reyes occasionally marks a vowel with an acute accent, but it is not clear whether he intends to represent high tone or syllabic stress. As a native speaker, he distinguishes intervocalic glottal stops and nasal vowels more consistently than other authors who were not trained as linguists.

NGO: Flora Medicinal Mixteca de Chinango, Oaxaca, n.d., a bilingual Mixtec-Spanish description of 31 medicinal plants and their uses in Santa Catarina Chinango. The report was published online, undated, as part of the UNAM digital library on the traditional medicine of Mexico. Eight sabedores (‘knowledgeable persons,’ four women and four men) provided the information to Lorenzo Hernández Ocampo, who wrote it down and drew the plants. The Mixtec names and descriptive glosses were transcribed using the Academy’s orthography, for the most part; high tone is marked occasionally. The plants were provided with Latin binomials by four botanists, including Maestro Miguel Ángel Martínez Alfaro of the Botanical Garden at UNAM. Abigail Aguilar Contreras, head of the Herbario Medicinal, Instituto Mexicano del Seguro Social (IMSS), and Nereyda Antonio Barrera of INI were advisors to the project.

NUX: Hugghins, Susan J., linguist affiliated with the SIL who has worked in Santo Domingo Nuxaá since the 1980s. She has published a number of articles on the syntax, morphology and semantics of that variant, and has shared with me (2010) her notes on some plant names, leaving out tonal marks.

OCO: Alexander, Ruth Mary, linguist affiliated with the SIL who worked in Santo Tomás Ocotepec and published a syntactic sketch of that variant, including a few plant terms glossed in English. Her transcription records “the surface tones that result from the application of the sandhi rules, not the underlying forms.” (Alexander, 1988: 158).

OSP: Small, Priscilla C., linguist affiliated with the SIL who has worked in San Juan Coatzospan from the 1960s to the present. She has published a series of articles on that
language, and has shared with me (1997-2010) her notes on plant names, leaving out tonal marks. I have transcribed some additional terms from her “Syntactic sketch of Coatzospan Mixtec,” where she marks the surface tones on the accented syllables. Unaccented syllables in this variant do not carry contrastive tone and assimilate to the tone of the following syllable (Small, 1990: 268).

PEÑ: Alavez Chávez, Raúl, an ethnolinguist affiliated with CIESAS Oaxaca who has published a study on Mixtec toponyms. He is a native speaker of Santa María Peñoles Mixtec who has shared with me information on plant names he learned growing up.

PIN: López López, Pedro, native speaker of Pinotepa Nacional Mixtec, born in 1953. Michael W. Swanton & A. de Ávila interviewed don Pedro on October 11, 2009, at the Jardín Etnobotánico de Oaxaca, in collaboration with don Pedro’s daughter Amada López Curiel, also a speaker of Pinotepa Nacional Mixtec. Grammatical paradigms and plant lexicon were recorded digitally and transcribed. Swanton is studying the phonological traits of this Mixtec variant, including underlying tones and sandhi rules; surface tones have been marked tentatively, pending further analysis. Plant identifications were based on live specimens cultivated at the Jardín Etnobotánico, with some additional species identified tentatively by their Spanish vernacular names.

SEL: Seler, Eduard Georg, German researcher who conducted archaeological and ethnographic fieldwork at several sites in Oaxaca in 1887-88 and again in 1895. The Mixtec plant names he recorded were published by Martínez, 1979, cited simply as “Seler,” without a provenience; they seem to originate in the Mixteca Alta. The German archaeologist appears to have collected voucher specimens, as his Latin binomials distinguish some closely related species with precision.

SJC: Stark Campbell, Sara, Andrea Johnson Peterson and Filiberto Lorenzo Cruz, linguists affiliated with the SIL who worked in San Juan Colorado, and published a 200-page dictionary in collaboration with two native speakers in 1986, using an orthography based on Spanish. They mark tones in all entries. The dictionary includes some plant terms, glossed in Spanish.

SMG: Dyk, Anne, & Betty Stoudt, linguists affiliated with the SIL who worked in San Miguel el Grande and published a 130-page vocabulary in 1965 (reprinted in 1973) using an orthography based on Spanish; they mark tones in all entries. The vocabulary includes some plant names glossed in regional Spanish.

SOT: Katz, Esther, anthropologist who studied edible plants, fungi and animals consumed in San Pedro Yosotato, Tlaxiaco district, Oaxaca, for her doctoral dissertation, presented at the Université de Paris-X in 1990. Katz collected numerous herbarium specimens, which were identified at MEXU while she was affiliated with the Instituto de Investigaciones Antropológicas at the National University (UNAM). Her dissertation lists the voucher specimens by collection number. She transcribed Mixtec ethnobiological nomenclature using a phonetic representation, but did not mark nasal vowels or tones. Yosotato, Yucuhiti and Nuyoo Mixtec are distinguished by a phonological development that seems unique to that area of the Mixteca Alta, the reduction of the voiced prenasalized alveolar /nd/ to the nasal
continuant /n/, resulting in a merger of the reflexes of Proto-Mixtec *nd and *n (Josserand, 1983: 262). Katz has shared with me a list of her Mixtec plant names with a revised orthography and additional species identifications not reported in her dissertation. She has published several articles on Mixtec subsistence, from which I have drawn additional information.

TAM: de Alvarado, Francisco, vicar of Tamazulapan who revised and completed the previous work of Dominican friars studying Mixtec in the area of Teposcolula. The result was the 400-page Vocabulario published in Mexico City in 1593, to this day the most extensive compilation of lexical information on a single Mixtec language. The dialects spoken in Tamazulapan and Teposcolula in the 16th century most likely had a mid-high vowel, transcribed by Academy today with the grapheme <i>; de Alvarado does not appear to have differentiated this phoneme consistently, representing it at times with an <e> and other times with an <i>. As noted by Smith-Stark (2005), de Alvarado chose to represent intervocalic glottal stops with an <h>, a convention followed by some modern authors, and he used a <q> to stand for the sequence /k/ + nasalized /i/ or nasalized /u/. Smith-Stark believed the Dominicans may have recognized three tones, acute (marked with an acute tilde), plain (unmarked) and grave (marked with a grave tilde), although he admits they did so only sporadically and ambiguously. Further examination, however, indicates that the acute and grave tildes were used interchangeably to mark nasalized vowels and pre-glottalized consonants (Michael Swanton, personal communication, 2009). Swanton’s observation is confirmed by the occurrence of the tildes on Spanish abbreviated words, where they stand for nasal consonants, as in the entry iúco otro ácho… (iunco otro ancho…, ‘another rush [which is] wide…’). The tildes seem to occur more frequently where a gloss has been compressed into a reduced space, and it is possible that these marks were introduced by the typographers, rather than the authors. My transliterations of de Alvarado’s plant names to the Academy’s modern orthography are tentative, especially with regards to the distinction between /i/, /i/ and /e/. I transcribe his <e> as <i> when I find contemporary cognates of that particular term that conserve the mid vowel in Mixteca Alta dialects. Similarly, I mark a glottal stop <V'C> when all contemporary cognates of a given form attest to a pre-glottalized consonant, which de Alvarado often fails to mark with a tilde. I have respected his original spelling of Spanish glosses, except for his <ç>, which I transcribe as either <c> or <z>, according to modern usage.

TIL: Piestrzynska, Anna, Master’s degree student at the University of Leiden in the Netherlands who documented medicinal plants used in Santiago Tilantongo in March and April, 2009. She deposited her voucher specimens and ethnobotanical notes at the herbarium of the Jardín Etnobotánico de Oaxaca, where we have identified them according to Linnean taxonomy in collaboration with specialists at the SERO herbarium and MEXU. Piestrzynska transcribed the Mixtec plant names using a phonetic orthography. She only marks high tones, using an acute accent. The tonal patterns she perceives often differ from Kuiper’s transcription of plant names that have also been recorded in Duixi.

TON: Ovando López, Marcelina Rufina, native speaker of Tonahuixtla Mixtec, born in 1941. Sebastian van Doesburg, Michael W. Swanton & A. de Ávila interviewed doña Rufina on July 27, 2009, in Acatlán de Osoario and in Santo Domingo Tonahuixtla. Grammatical paradigms, place names and plant lexicon were recorded digitally and transcribed. Surface
tones have been marked tentatively, pending further analysis. Linnean plant identifications were based initially on Spanish vernacular names, corroborated in several cases with live plants observed on the road between Acatlán and Tonahuixtla in her company. Botanical voucher specimens collected in Tonahuixtla have been identified at MEXU–UNAM, and are kept in the herbarium of the Jardín Etnobotánico de Oaxaca.

**TXA:** *Flora Medicinal de la Mixteca Alta, Tlaxiaco, Oaxaca,* n.d., a collection of 31 medicinal plants described in Mixtec and Spanish, explaining how to use them to treat various ailments. This project involved ten traditional healers (eight women and two men) from the Tlaxiaco region and six experts on the writing of Mixtec. The report was published on line, undated, as part of the UNAM digital library on the traditional medicine of Mexico. No information is provided on the specific community of provenance for the information on any given plant, but the dialectal variation in the entries indicates that a number of municipalities are represented. Some of the data appear to originate in San Juan Mixtepec, district of Juxtlahuaca, while other entries seem to represent the variants of San Miguel el Grande, Santa Catarina Ticuá, Santiago Nuyóo and Santo Tomás Ocotepec in the Tlaxiaco district. The Mixtec names and descriptions were transcribed using an orthography mostly based on Spanish; tones were not marked. The plants appear to have been identified with Latin binomials by Nereyda Antonio Barrera, biologist working at the Instituto Nacional Indigenista (INI) in the city of Oaxaca from the 1990s to ca. 2006.

**XOC:** Stark Campbell, Sara, Andrea Johnson Peterson and Benita González de Guzmán, Linguists affiliated with the SIL working in Xochapa, who published a 150-page dictionary in 2002, available on line in 2003, corrected in 2005. They follow most of the orthographic conventions used by the Academy of the Mixtec Language; they mark tones in all entries. Xochapa Mixtec shows a complex tonal system, demanding the distinction of four levels plus ascending and descending notes. A few plant terms are recorded in the dictionary, glossed in Spanish.

**XYA:** Santiago Martínez, Alfonso, native speaker of Xayacatlán Mixtec, born in 1920. Don Alfonso was interviewed by Sebastian van Doesburg, Michael W. Swanton & A. de Ávila on July 26, 2009, in San Jerónimo Xayacatlán, in collaboration with Profesor Francisco González Rosas, also of San Jerónimo. Grammatical paradigms, place names and plant lexicon were recorded digitally and transcribed. Surface tones have been marked tentatively, pending further analysis. Tentative plant identifications were mostly based on Spanish vernacular names, corroborated in some cases with live plants observed nearby.

**YLX:** Jonathan Amith, anthropologist affiliated with the National Museum of Natural History – Smithsonian Institution, the University of Chicago and Gettysburg College, who has initiated a collaborative project with Rey Castillo García, linguist with a Master’s degree from CIESAS who is affiliated with INALI and is a native speaker of Yoloxóchitl Mixtec. Amith has researched ethnobiological knowledge among Náhuatl speakers in the upper Balsas region for over ten years, and is also working on a distinct Náhuatl language spoken in the Sierra Norte de Puebla. In October of 2010, Amith and Castillo began to document Mixtec plant nomenclature in Yoloxóchitl; Amith has shared his initial field notes with me. He distinguishes five levels of phonetic pitch, which presents a challenge to transcribe into the orthography of *Ve’e Tu’un Savi,* so I have maintained his original transcription.
YSN: Beaty de Farris, Kathryn, linguist affiliated with the SIL working in Yosondúa who published a 100-page dictionary in 2002 in collaboration with five native speakers. They follow most of the orthographic conventions used by the Academy of the Mixtec Language; tones are not marked. The dictionary records a few plant names, glossed in Spanish. Some additional lexical data on Yosondúa Mixtec were drawn from Edwin R. Farris’ syntactic sketch, which does mark tones, in this case “the basic tones, not the surface tones that result from the application of the sandhi rules” (Farris, 1992: 8).

ZAU: Casas, Alejandro, & Juan Luis Viveros, ethnobotanists who undertook research in four communities in the municipality of Alcozauca in the 1980s for their undergraduate thesis at the Facultad de Ciencias of UNAM, under the direction of Javier Caballero Nieto. Their work was published jointly in 1993. The monograph includes the Mixtec names for several plants in an orthography based on Spanish which is ambiguous at times, as it fails to distinguish nasal vowels and does not mark glottalized roots consistently. My transcription of their Mixtec terms is consequently rather tentative. Their species determinations are backed by voucher specimens deposited at UNAM, although they are not identified by collection number in the publication.

ZOL: Gabriel Hernández, Franco, native speaker of San Juan Tamazola Mixtec with a doctoral degree in education, affiliated with Universidad Autónoma Benito Juárez de Oaxaca (UABJO), who has shared with me some of his knowledge of Mixtec plant names which he learned during his childhood.

4.2 Dialectal geography of the sources

Figure 7 places the communities represented in our data base within the major dialect areas defined by Josserand (1983: 470). The available information is far from adequate for any community, but some areas have been covered more extensively, especially the Eastern Alta (DAA: Flora Medicinal, n.d.; DUX: Kuiper, 2003; TIL: Piestrzynska, 2009); the southwestern sub-area of the Western Alta (SOT: Katz, 1990); Mixtepec (MXT: Reyes Santiago, 1993); the Southern Baja (COI: Flores Romero et al., 1986-1990; JIC: López, Santiago, et al., 1986-1990); and Guerrero Mixtec (YLX: Amith & Castillo, 2010; ZAU: Casas, Viveros & Caballero, 1994). Some information is available for the Northern Alta (OSP: Small, 1990 & 1997-2010); Northern Baja (CGM: Ordaz Peregrina et al., 2009; MIC: Gil Guadalupe et al., 2009; NGO: Flora Medicinal, n.d.; TON: Ovando López et al., 2009; XYA: Santiago Martínez et al., 2009); the southeastern sub-area of the Western Alta (CHA: Swanton, 2010; SMG: Dyk & Stoudt, 1973; YSN: Beaty de F. et al., 2002); the eastern sub-area of the Coast (CHY: Pensinger, 1974; SJC: Stark C. et al., 1986); and the western subarea of that same region (PIN: López López et al., 2009). Very limited data have been published from the Apoala sub-area of the Northeastern Alta (APO: López García, 2007 & 2010) and from the northern sub-area of the Western Alta (OCO: Alexander, 1988; TXA: Flora Medicinal, n.d.). We have found no ethnobotanical data for three major dialect areas according to Josserand: Tezoatlán, Central Baja and Western Baja Mixtec. Four other zones are similarly absent in our data base: the Acatepec sub-area of the Coast, the Teozacoalco
Figure 7: Communities represented in this study and Josserand’s (1983) dialect areas
sub-area of the Eastern Alta, the Northeastern Alta beyond the Apoala sub-area, the Northern Alta beyond the Coatzospan sub-area, and the Tlaltempan sub-area in the Northern Baja.

The following list specifies to what dialect area (according to Josserand, 1983: written with capital letters), to which language (according to the Ethnologue: Lewis, 2009), and to which variant (according to INALI, 2007: written with italics) each community in the data base corresponds to:

<table>
<thead>
<tr>
<th>Code</th>
<th>Sub-Area</th>
<th>Language</th>
<th>Variant</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALA</td>
<td>Alacatlatzala – GUERRERO MIXTEC</td>
<td>Alacatlatzala Mixtec – mixteco de Guerrero central alto</td>
<td></td>
</tr>
<tr>
<td>APO</td>
<td>Apoala – APOALA SUB-AREA, NORTHEASTERN ALTA</td>
<td>Apasco-Apoala Mixtec – mixteco del noreste</td>
<td></td>
</tr>
<tr>
<td>AYU</td>
<td>Ayutla – SOUTHERN BAJA MIXTEC</td>
<td>Ayutla Mixtec – mixteco de Ayutla</td>
<td></td>
</tr>
<tr>
<td>CHA</td>
<td>Chalcatongo – SOUTHEASTERN SUB-AREA, WESTERN ALTA</td>
<td>San Miguel el Grande Mixtec – mixteco del sur bajo</td>
<td></td>
</tr>
<tr>
<td>CHY</td>
<td>Chayuco – EASTERN SUB-AREA, COAST</td>
<td>Chayuco Mixtec – mixteco de Oaxaca de la costa central</td>
<td></td>
</tr>
<tr>
<td>CGM</td>
<td>Chigmecatitlán – NORTHERN BAJA</td>
<td>Chigmecatitlán Mixtec – mixteco del suroeste de Puebla</td>
<td></td>
</tr>
<tr>
<td>COI</td>
<td>Coicoyán – COICOYÁN-METLATÓNOC SUB-AREA, SOUTHERN BAJA</td>
<td>Western Juxtlahuaca Mixtec – mixteco del oeste</td>
<td></td>
</tr>
<tr>
<td>CTZ</td>
<td>Cuatzoquitengo – GUERRERO MIXTEC</td>
<td>Alacatlatzala Mixtec – mixteco central de Guerrero</td>
<td></td>
</tr>
<tr>
<td>DAA</td>
<td>Tidaá – EASTERN ALTA</td>
<td>Tidaá Mixtec – mixteco de San Pedro Tidaá</td>
<td></td>
</tr>
<tr>
<td>DUX</td>
<td>Diuxi – EASTERN ALTA</td>
<td>Diuxi-Tilantongo Mixtec – mixteco del este central</td>
<td></td>
</tr>
<tr>
<td>HUI</td>
<td>San Antonio Huitepec – TEOZACOALCO SUB-AREA, EASTERN ALTA</td>
<td>Huitepec Mixtec – mixteco de San Antonio Huitepec</td>
<td></td>
</tr>
<tr>
<td>JAM</td>
<td>Jamiltepec – EASTERN SUB-AREA, COAST</td>
<td>Jamiltepec Mixtec – mixteco de Oaxaca de la costa central baja</td>
<td></td>
</tr>
<tr>
<td>JIC</td>
<td>Jicayán de Tovar – SOUTHERN BAJA</td>
<td>Metlatónoc Mixtec – mixteco de Tlacochistlahuaca</td>
<td></td>
</tr>
<tr>
<td>LAC</td>
<td>Silacayoapan – SOUTHERN BAJA</td>
<td>Silacayoapan Mixtec – mixteco del oeste alto</td>
<td></td>
</tr>
<tr>
<td>MIC</td>
<td>El Rosario Micaltepec – NORTHERN BAJA</td>
<td>Chazumba Mixtec – mixteco de la frontera de Puebla-Oaxaca</td>
<td></td>
</tr>
<tr>
<td>MXT</td>
<td>San Juan Mixtepec – MIXTEPEC MIXTEC</td>
<td>Mixtepec Mixtec – mixteco del oeste central</td>
<td></td>
</tr>
<tr>
<td>NGO</td>
<td>Chinango – NORTHERN BAJA</td>
<td>Chazumba Mixtec – mixteco de la frontera de Puebla-Oaxaca</td>
<td></td>
</tr>
<tr>
<td>NUX</td>
<td>Nuxaá – EASTERN ALTA</td>
<td>Southeastern Nochixtlán Mixtec – mixteco del este</td>
<td></td>
</tr>
<tr>
<td>OCO</td>
<td>Ocotepec – NORTHERN SUB-AREA, WESTERN ALTA</td>
<td>Ocotepec Mixtec – mixteco de Sierra Sur noroeste</td>
<td></td>
</tr>
</tbody>
</table>
The plants marked tun-/tnu-/nu-

“Por madero tenemos yutnu y haciendo mencion de el se dize solamente el tnu que es la diction con que acaba...”
“...For a piece of wood we have yutnu, and when it is mentioned, one says only tnu, which is the diction with which it ends...” (de los Reyes, 1593: 20)

In the preceding chapter we have illustrated how the Proto-Mixtec noun *yutũ* reconstructed by Josserand (1983) gave rise to a third person singular pronominal affix, used in reference to trees and wooden objects, as well as a nominal marker tun-/tnu-/nu- which is prefixed to numerous plant names. There is evidence from two Guerrero Mixtec variants that the full term derived from *yutũ* may become polysemic to designate plants in general, in the same way that the Hanunóo kāyuh ‘tree’ is used as a generic term for all plants (Conklin, 1954), as shown in figure 4 in the third chapter of this dissertation:
Kananí tinaná raku’ vai kujiya vitin saá chi va’aní káá itún tinanár.
Este año mi hermano va a tener muchos jitomates porque sus plantas están creciendo muy bien.
‘This year my brother will have many tomatoes because his plants are growing very well.’ (XOC)

Ñu’un ta’vi nuu xichi’i xitoi José Guadalupe, xikanání yitun tilastún.
En el barbecho donde sembraba mi tío José Guadalupe, nacían muy bien las plantitas de la mora.
‘In the slash and burn field where my uncle José Guadalupe used to sow [his milpa], a lot of little Jaltomata plants would come up.’ (CTZ)

Semantic extensions of the term for ‘tree/wood’ have been documented in both dialects:

- **itún**: árbol, palo / madera / planta / cualquier tipo de máquina ‘tree, stick / wood / plant / any type of machine’ (XOC)
- **yitun / yutun / yutnu / itun**: árbol, palo, madera o mueble ‘tree, stick, wood or furniture/vehicle’ (CTZ)

The 16th century dictionary of de Alvarado indicates that the polysemous use of ‘tree’ for plants in general has a long history in the Mixtec languages:

- **yutnu tata** / yutnu nandai / yutnu nakusi / yutnu ninatavua / yutnu nakuiko / yutnu siko ko’o: planta para plantar (TAM) [orthography in the original source: yutnunacusi / yutnu nacuico / yutnu sico coho]
- **yutnu ye’e yoko** / iyo yo’o / nindai yo’o: planta con sus raíces (TAM) [yutnu yehe yoco / yyoyoho / nindai yoho]

The various contemporary sources show that the Proto-Mixtec form *yutũ’* has undergone considerable phonological modification in different dialect areas; the different forms of the nominal marker derived from it may serve to pinpoint the origin of some plant terms that appear to have been borrowed from neighboring dialects in some areas, as in the case of Coicoyán Mixtec toki, discussed below:

- **yutnú**: árbol (CGM)
- **yoton**: árbol (NGO)
- **yito**: tree, stick, pole (LAC)
- **yiton**: tree (ALA)
- **itun’**: tree (AYU)
- **ñutun**: tree (OCO)
- **yunu**: árbol, madera (SMG)
  - **yunu vixí**: frutal (SMG)
- **yujnu**: tree, stick (YSN) [yuNnu]
  - **yujnu vixí**: frutal (YSN)
- **yutnu**: tree (DUX)
  - **yútnu tata**: árbol de cultivo (DUX)
- **utun**: tree, wood, stick (OSP)
- **yutun**: el árbol, el palo / la madera (SJC)
- **yutun**: tree (JAM)
The coastal dialects have developed a distinct set of prefixes to mark plants with are labeled tun-/tnu-/nu- in other Mixtec variants:

ndi-: prefijo, indica árboles cuyos frutos llevan el prefijo ti- (SJC)
ndikava: el árbol de ciruela (SJC)
   tikava: la ciruela
ndika’a: la palma de coco (SJC)
   tika’a: el coco
ndikuva / ndukuva: el árbol de tamarindo (SJC)
   tikuva/tukuva: el tamarindo
tundukúva: tamarind tree (JAM) [Following the prefix tu-, used for tree names, the fruit prefix is ndu-, rather than ti-. (Johnson, 1988: 107)]
ndu-: prefijo, indica árboles cuyos frutos llevan el prefijo tu- (SJC)
ndukuua: el naranjo (SJC)
   tukuua: la naranja
ndukuua kua’a: el toronjo (SJC)
   tukuua kua’a: la toronja
ndukuua tsiná: el naranjo (SJC)
   tukuua tsiná: la naranja
ndukuua tukuýa: el árbol de lima limón (SJC)
   tukuua tukuýa: la lima limón
ndukuýa: el árbol de limón (SJC)
   tukuýa: el limón
ndukuýu: el guayabo (SJC)
   tukuýu: la guayaba

ti-: prefijo, indica que es nombre de planta (SJC)
   ti ita: la mata de flor
   tiya’a: la mata de chile

ti-: variante de tu-, indica árboles cuyo fruto no lleva prefijo (SJC)
tındoko / tundoko: el guanábano (SJC)
   tındoko iñú / tundoko iñú: el guanábano (SJC)
   tındoko tinu / tundoko tinu: el árbol de chirimoya (SJC)
   tındoko tsaa’a / tundoko tsaa’a: el árbol de nanche (SJC)
tinyáku: el árbol de cuajinicuil (SJC) [nyákua: el cuajinicuil]
tinyika / tunyika: el árbol de mamey (SJC) [nyika: el mamey]
tinyika iñú: el árbol de chicozapote (SJC) [nyika iñú: el chicozapote]
tinyítya: la mata de plátano (SJC)
tinyúk / tunyúk: el árbol de aguacate (SJC)
tíña: el cacaíto, el tlachicón, árbol cuyas hojas son como papel de lija (SJC)
tíní: el otate (SJC)
tityítya: el árbol de zapote negro (SJC)
tiya’mi: la mata de camote de palo blanco (SJC)
tiyatsi / tiyahsîn: el jícara (SJC)
tiyoo: el carrizo (SJC)

De Alvarado recorded terms referring to plants that appear to have had a function of individuation, as described in section 3.1 of this dissertation, but which do not appear to have been used lexically:

ndu’u yuvua / ndu’u yutnu / ti’ndi yuvua / sa’ndu yuvua: mata de cualquier yerua (TAM) [duhu yuvua / duhu yutnu / téde yuvua / sádu yuvua]

The coastal dialects also have two independent, unbound terms for ‘plant’ that are not cognates of yutun, and which do not seem to generate any specific names:

tsa’a: la mata, la planta (SJC)

¿Najava taa’an tsaha ndika’a tsahñi tyu’u? ¿Cuántas matas de palma mató la tuza? [¿Najava taahan tsaha ndicaha tsahñi tyuhu?] (SJC)

The second form appears to have originated historically in a term which in the Mixteca Alta designates seeds or seedbeds:

yáwá: plant (Santa María Jicaltepec, district of Jamiltepec; Bradley, 1970: 15)
yava: la planta de semilla (SJC)
yava: almáciga, pachol (SMG)
avá / yava: almácigo o almáciga (CAB)
yawa: semilla (APO)

The terms for ‘firewood’ in Guerrero Mixtec and also in the Northern Alta appear to involve the reduplication of the marker for ‘tree/wood,’ or the addition of the classifier for ‘animal/round object’ (in other dialects, ‘firewood’ relates to the term nduku, to be discussed in the following section):

tito: firewood (LAC)
titno / titun / tsitno: leña (CTZ)
tutun*: firewood (AYU)
tutun: firewood (OSP)

The specific plant names prefixed with the nominal marker tun-/tnu-/nu- constitute the largest nominal category that we have been able to document in the different variants of Mixtec. The species labeled with this marker are mostly trees and shrubs, but other life-forms are included as well, such as reeds and bamboos, large succulents, and even erect herbs. Rigidity of the stem, non-edibility of the leaves, and inconspicuousness (or perhaps undesirability) of the flowers seem to be the determinant features in assigning plants to this category. In the following list, names that appear to be cognates are grouped together, ordered alphabetically according to the bi-syllabic term that distinguishes the taxon, rather than the form of the prefix. The ordering follows Mixtec phonemes, e.g. <nd> is placed after <nu>; <i> is interspersed with <i> since the forms in many Mixteca Baja dialects show the
latter vowel in place of the former, found in their cognates in the Mixteca Alta and the Coast. If two reflexes of a Proto-Mixtec phoneme are attested in initial position in the cognate set, e.g., <d> and <s>, the order will follow the phoneme reconstructed by Josserand (1983). When the bi-syllabic term involves the prefix ‘animal/round object,’ the order reflects the initial phoneme of the second syllable, rather than the variable form of the marker (si-/t-/ti-/tsi-/tyi-).

The orthography of all the Mixtec terms has been standardized, following the criteria of Ve’e Tu’un Savi (2007). Linnean binomials cited before the source’s acronym indicate the identification is provided in the reference but does not appear to be backed by a voucher specimen. All Latin names have been updated following taxonomic changes based on molecular evidence, using Mabberley (2008) and Irekani (n.d., a database maintained by the Unidad de Informática para la Biodiversidad, Institute of Biology, UNAM) as references. Some Mixtec terms are occasionally quoted from Caballero’s (2008) dictionary and other sources as a tentative reference to interpret the botanical names. Etymologies that are not followed by an acronym or a specific bibliographical citation were obtained from the same source as the ethnobotanical information.

4.3.1 Cognate sets and individual terms with initial <a>

ti’a’ma [?]: cuagulote (ZAU) [tiahma] Guazuma ulmifolia Lam., MALVACEAE [STERculiACEAE]  tu- appears to become ti- under certain phonological contexts in this dialect

yutu ánimá taki: corazón bonito (PIN) unidentified Porque al cortarlo se ve bonito el corazón, muy buena madera de corazón, no se pudre. taki: bonito This may be a calque from Spanish, rather than a term used in Mixtec.

tiaksi: árnica (ZAU) [tia shi] Acourtia dugesii (Gray) Reveal & King [synonym: Perezia dugesii Gray], COMPOSITAE  tu- appears to become ti- under certain phonological contexts in this dialect

4.3.2 Cognate sets and individual terms with initial <ch>

tuche’e (MXT) [tu che’/ tu ché’e] Dodonaea visciosa (L.) Jacq., SAPINDACEAE  te’e / tye’e: cáscara dura de frutas como calabazas, cocos / pico de ave (CAB)  chée: viejo, anciano / grande en tamaño / importante (CTZ, XOC)

tuchendii (MXT) [tu chentii] Prockia crucis P. Browne ex L., SALICACEAE  tise’ndu / tye’ndu: comején (CAB)

tuchi / tuiyu (MXT) [tu chi / tu iyu] Clethra mexicana DC., CLETHRACEAE

tuntyiki: pitayal (CAB)  chiki: Opuntia fruit
tuchikitu: *chiquito* (MIC) apparently an arborescent cactus

tnuchichikún: árbol de huamúchil (CGM) *Pithecellobium dulce* (Roxb.) Benth., LEGUMINOSAE [MIMOSACEAE] **chichikún**: huamúchil [el fruto]
nuchiku: huamúchil (XYA)
tuchikun: guamúchil (XYA or TON; de Leon, 1980)
tuchiku: huamúchil (MIC)
túncikún: árbol de guamúchil (XOC) **chikún**: guamúchil

* En Xochapa hay muchos árboles de guamúchil y producen muchos guamúchiles.

jnutyila’a: *muérdago* (CAB) probably *Psittacanthus* sp., LORANTHACEAE

* Plantas parasitas con flores alargaditas que vive en las ramas de algunos árboles, como manzanales, encinos, naranjales, etc., cuyos frutos contienen una sustancia viscosa.

tuchima (MXT) [tu-chima] *Ipomoea murucoides* Roem. & Schult., CONVOLVULACEAE

* tsu’me / ty’ma / tyu’ma: avispa (CAB)

tnuchindyichi: *huizache* (CGM) probably *Acacia farnesiana* (L.) Wild., LEGUMINOSAE [MIMOSACEAE] This compound term may incorporate the roots chiin/tyiin:

* uña, and ndichi/ndyityi: ejote (CAB)

sindyichi: *huizache* (TON) The etymology appears to be si- (marker for animals and round objects) + ‘string bean’

* tu chín chitu: uña de gato (TON) chín: uña chitu: gato

tuchínchi: uña de gato (MIC) apparently a thorny species in the Mimosaceae

(i³ ta²) tun⁵ chi¹⁵ ta² yu³ ku⁵ (Y LX) *Heliconia* sp., HELICONIACEAE **Etymology:** ‘banana + mountain [i.e., of the mountain, wild]’

nuchumi: *pochote* (XYA)

chumi: *pochote* (TON)

tuchumi: *pochote* (MIC)

**ton chomi:** pochote (NGO) [ton chomi] *Ceiba* sp., MALVACEAE [BOMBACACEAE] This species is identified as *Ceiba pentandra* (L.) Gaertn. in Flora Medicinal Mixteca de Chinango, but this must be an error, as the Mixtec description of a short tree does not match the stature of the kapok. Furthermore, *Ceiba aesculifolia* (Kunth) Britt. & Baker and *Ceiba parvifolia* Rose are the only species in this genus reported from the tropical deciduous vegetation of the Mixteca Baja.]

* tun⁵ ka’chi⁵ yu³ mi⁵ (Y LX) *Ceiba* sp., MALVACEAE [BOMBACACEAE] kachi: cotton yumi: temporada de secas (fide Amith & Castillo)

nutyumi / tnotsika tyomi / tontyumi / tundika tyinumi / tundika tyumi / tundyika

* tyumi / tuntyumi: pochota, tipo de árbol que abunda en la costa (CAB)

kaxi ŋomi: pochota, tipo de árbol que abunda en la costa (CAB)

tnutyí’nik juaan: encino amarillo (CAB)
tnutyi’nki tnuu: encino negro (CAB)
tyi’nki / tyi’nki: bellota (CAB)

4.3.3 Cognate sets and individual terms with initial <d>

yutnu dañu: pino q’ llaman abeto / abeto arbol (TAM) [yutnudzáñu] Dañu appears to be a primary lexeme that is the proper name for firs.

tdenu: sweetgum (OSP) probably Liquidambar styraciflua L., HAMAMELIDACEAE “…plant names with initial t or ch, from fused utun ‘tree’…” (Small, 1990, p.405)

tnúde’eñu: nebro; es de naturaleza caliente y amarga; sirve para el reumatismo, el mal aire (TIL) [tnú ñe’ñu] Juniperus sp., CUPRESSACEAE

tnúde’ñu: enebro (DUX)

tnudia / tnudiya: pirul (CGM) Schinus molle L., ANACARDIACEAE
tu dí’a: pirul (TON)
tudia: pirul (MIC)
ton dia’a: pirul (NGO) Schinus molle L., ANACARDIACEAE

The orthographic conventions of the Ve’e Tu’un Savi do not allow /tódia’a/ to be distinguished from /tondia’a/; since the Chinango Mixtec name of this tree appears to be /tódia’a/, I separate the marker to avoid ambiguity, as I do in other entries.

tnudichí: biznaga, cactus, en general para el xoconostle, la pitaya (CGM)
nudichí kaya: pitayo de agosto o xoconosle (XYA) Stenocereus stellatus (Pfeiffer)
Ricobono sp., CACTACEAE sikaya: fruit of Cyrtocarpa procera (XYA) kaya: va a abundar / va a toser [CAB]
nudichí kua’ña: pitayo de mayo (XYA) Stenocereus pruinuosus (Otto) Buxb., CACTACEAE
nudichí kusa: cardón (XYA) Lemairocereus weberii (J.M. Coult.) Britton & Rose, CACTACEAE La pitayita se le quita la semilla y se revuelve con masa para tortillas. “You take the seeds from the small fruit [of this cactus] and you mix them together with tortilla dough.”
tudichí kusa: órgano (XYA or TON; de Leon, 1980)
nudichí nuni: garambullo (XYA) Myrtillocactus geometrizans (Mart.) DC., CACTACEAE
nudichí vee: gigante (XYA) Neobuxbaumia sp., CACTACEAE vee: pesado / abajo (CAB)
nudichí yaa: jotillo (XYA) Escontria chiotilla (K. Schum.) Rose, CACTACEAE
tudichí laya: chimlayo, órgano (TON) Marginatocereus marginatus (DC.) Backeb., CACTACEAE layaa: color gris (CAB) laya may be an abbreviation of the Náhuatl form

tnudichí kaya: xoconosle (MIC) Stenocereus stellatus dichi kaya: choconosle
tudichí koo: gigante de tetecha (MIC) possibly Neobuxbaumia tetetzo (F.A.C. Weber ex J.M. Coulter) Backeberg, CACTACEAE
tudichí nuni: garambullo (MIC) Myrtillocactus geometrizans Sí, en el monte hay.
tudichi yaa: palo de jiotilla (MIC) Escontria chiotilla Es silvestre, no lo plantan.
dichi yaa: jiotilla
tu ita dichi: el gigante (MIC) Neobuxbaumia mezcalensis (Bravo) Backeb.,
CACTACEAE
tondichi: pitahayo (NGO) [ton dichi]
tuchichi: pitahaya (ZAU) [túchichi] Stenocereus stellatus (Peiff.) Riccob., CACTACEAE
tuxichi (MXT) [tu shichi] Isolatocereus dumortieri (Scheidw.) Backeberg / Neobuxbaumia mezcalensis (Bravo) Backeberg / Lemairocereus weberii (J.M. Coult.) Britton & Rose, CACTACEAE
nuxichí: órgano, cacto (SMG)
tnúdichi: organal; es de naturaleza fría; sirve para la gripa de los pollos, la rabia (TIL)
[tnú ðiči]
tnúdźi / nudityi / tontyityi / tunyityi / tunxityi: pitayal (CAB)
notyityi / nudityi / tontyityi / tunyityi / tunxityi / tonxixi / tunđi / tunxityi / yitno tityi / yutun tyityi / yutun tyityi: organal, cactus (CAB)
tonxiji jityi: pitayal (CAB)

tnúdźúůu: romerillo; es de naturaleza caliente; sirve para jabón (TIL) [tnú ðůůű]
Baccharis pteronioides DC., COMPOSITAE
tnúdźůŋ: un tipo de arbusto... se usa para barrer (DUX)

4.3.4 Cognate sets and individual terms with initial <i>

tnúíchî: un tipo de árbol (DUX)

toki (COI) Quercus elliptica Née, FAGACEAE Espécie preferida para leña. Coicoyán Mixtec has the form tu- for the noun marker ‘tree, wood’; this term appears to be borrowed from a dialect that has the form to-.

tun⁵ tui₁⁵ ki₅ kvi₃¹ yu¹ ku¹ (YLX) Quercus sp. Amith & Castillo provide the etymology kuita: ‘round’ + yuku: ‘leaf’
tun⁵ tui¹⁵ ki₅ na⁵ ni⁵²⁵ yu¹ ku¹ (YLX) Quercus sp. nani: ‘long [plural]’
tun⁵ tui¹⁵ ki₅ tu¹⁵ un₃ (YLX) Quercus sp. tuun: prieto
tuiki (MXT) [tu iki] Quercus elliptica Née, FAGACEAE iki / leke / yiki: hueso (CAB)

nu’ńi, nu’nín: juniper (CHA; Macaulay, 1996)

nu’ńi: enebro (SMG)
u’ńjni: enebro (YSN)
yutnu nni: enebro arbol (TAM)
nui’ni / ti’ni / tnuin’ni / tnutní’ni / tonitín / tonityi / tunî’ni / tunití / tunitín: enebro (CAB)

tu ini: palo blanco (MIC) unidentified
tu ini dāhui (MIC) unidentified

tuini (PIN) Sale concha [corteza] dura, pero hay de dos, el de concha dura es tuini.
tuini kóó: *tepehuaje* (PIN) probably *Lysiloma* sp., LEGUMINOSAE [MIMOSACEAE] kóó: *culebra*

tnúíña: *un tipo de árbol* (DUX)
tuĩña: *olmo montés* (APO) This species is cited together with *yutu nda’a ndee, tutonndyi’i, tuyoko* and *tuĩña di’in* as one of the shrubs, whose wood is flexible and resistant, from which the 13 staffs (*vara cruz*) are fashioned for the incoming *teniente* and *policías* on December 31st (López García, 2007: 148).

nuĩñú: sticker bush (YSN) This and the following may be descriptive terms for thorny shrubs rather than proper names.

nu iun / nu iũ / tno ño / tnu iũ / ton iũ / tun iũ / yutnu iun: *espino, espinal* (CAB)

tuĩña di’in: *arbusto de uña ganchuda o uña de gato* (APO) This species is cited together with *yutu nda’a ndee, tutonndyi’i, tuyoko* and *tuĩña* as one of the shrubs, whose wood is flexible and resistant, from which the 13 staffs (*vara cruz*) are fashioned for the incoming *teniente* and *policías* on December 31st (López García, 2007: 148)

di’in / ji’in / si’in / xi’in: *pierna* (CAB)

**tun**^5^  iⁿu^5^  nda^3^ya^5^ (YLX) *Acacia farnesiana* (L.) Willd., LEGUMINOSAE [MIMOSACEAE] Amith & Castillo provide the etymology *ndaya*: *infierno*, because of the painful sting of the thorns

**tun**^5^  iⁿu^5^  ndio’o^3^o^3^ (YLX) *Xylosma* sp., SALICACEAE *iũ*: thorn *ndio’o*: hummingbird

**tun**^5^  iⁿu^5^  ndu^3^u^5^ (YLX) unidentified species *ndu’u*: *gordo / tronco / amole* (CAB)

**tun**^5^  iⁿu^5^  tiu^5^va^2^ (YLX) *Acacia aff. cornigera* (L.) Willd., LEGUMINOSAE [MIMOSACEAE] *tiu’va*: *hamaca* (CAB)

**tuisi**: *mirto* (MIC) possibly *Salvia* sp., LABIATAE *Da flor blanca, es como orégano, “sable” le dicen a la que da flor roja.*

**tun**^5^  is^4^ta^5^  chi^1^ (YLX) *Casearia* sp., SALICACEAE *ista*: ‘tortilla’ *ichi*: ‘dry’

nuitá dichi: *rompebota* (XYA) *Senna* sp. or *Cassia* sp., LEGUMINOSAE [CAESALPINIACEAE], a shrub to small tree with yellow flowers

**yutnu ita kuta**: *palo oloroso de que hazen los rosarios* (TAM) [**yutnu itacuta**]

**yutnu ita nda’a**: *guayacan* (TAM) [**yutnui tandaha**]

**tun ita ndi’i / yiton ita ndi’i / yunu ita ndi’i / yutun ita ndi’i**: *árbol de la flor morada o la jacaranda* (CAB) *ndi’i*: *color azul, color morado*

**tuita timi**: *Senna atomaria* (L.) Irwin & Barneby, LEGUMINOSAE [CAESALPINIACEAE] (KAP) [**tu-ita-timi**]

95
nu ita tyaa: *jacaranda* (CAB)

tnu ita xi’i: ‘árbol de la flor morada’, *jacaranda* (CAB)

tu ita yáté: *clavellina* (TON) *Pseudobombax ellipticum* (Kunth) Dugand, MALVACEAE [BOMBACACEAE]
yutu ita yata: *itayata* (PIN) *Pseudobombax ellipticum* yakua yutu ita yata: Sale una yacua para amarrar.

tnuitsi: *ocote que arde* (CGM) Pines do not grow at the low altitude of Chigmecatitlán, but splintered pitchpine wood is brought in from the highlands to be sold as kindling, which is what this Mixtec term and the Spanish gloss refer to.

tuisi: *ocote o pino* (TON)
yutu iti: *pino* (PIN)
tuyiti: pine tree (JAM)
yutnu ite / yutnu yusa: *pino* (TAM)
ití dusa: tea de pino (TAM) [itedzusa]

   ití kavua: quando es trasparente (TAM) [yt econva]

nuyiti / tun yiti: *pino, ocote* (CAB)

tí’iti: *nogal* (ZAU) [ti ihtí / tih ti] *Juglans mollis* Engelm., JUGLANDACEAE

tu- appears to become ti- before /i/ and /y/ in this dialect

tí’ití: *sabino* (ZAU) [ti ití / tu iti] *Juniperus flaccida* Schdl., CUPRESSACEAE

*tu’iya* [*?*] (MXT) [tu hilla] *Rhus oaxacana* Loes., ANACARDIACEAE

tuiyi: *huachipile* (SOT) [tu ‘iyi] *Diphysa* sp., LEGUMINOSAE [PAPILIONACEAE]
tui’i: *chipilillo* (PIN) Two kinds are distinguished:

   yutu tu’i’kuan (PIN) possibly *Diphysa* sp., LEGUMINOSAE [PAPILIONACEAE]
   No comen la flor pero la madera de corazón es muy resistente, pa horcón.
   tu’i’i kuchi (PIN) [El] que es blanco, que no tiene corazón.

*tuiyu / tuchii* (MXT) [tu iyu / tu chii] *Clethra mexicana* DC., CLETHRACEAE

4.3.5 Cognate sets and individual terms with initial <j>

*nujanú*: gretado (SMG)

*tnújīn* / *ndua tnujīn*: *cebolla* (DUX)

4.3.6 Cognate sets and individual terms with initial <k>

*palma yitokaa* (San Jorge Nuchita, district of Huajuapan, Oaxaca; Chávez Rendón *et al.*,
1999) *Dioon mixtecensis* sp. nov., ZAMIACEAE  *yito* (pronounced *ʒito*) is the form for ‘tree’ in this Central Baja variant  *kaa*: *metal / bazo* (CAB)

**nukachi:** [planta de] *algodón* (XYA)

**tukachi:** *algodón* (MIC)

**tun**² *ka'chi*² (YLX) *Gossypium* sp., MALVACEAE

**tun**⁵ *ka'i*⁵ *yu'mi*⁵ (YLX) *Ceiba* sp., MALVACEAE [BOMBACACEAE]

*yumi*: *temporada de secas*

**tnúkáchî:** *la planta que da algodón* (DUX)

**yutu tukati:** *palo de algodón* (PIN) *Gossypium hirsutum* L., MALVACEAE

**kati ya’á:** *el cuyuchi* (PIN) *brown cotton*

**nukaji:** *encina* (SMG)

**nukajín:** *encino* (CHA)

**nukaji kuiji / tnuajaji kuiji / tunkaji kuiji:** *encino blanco* (CAB)

**nikaji yaa / tonkaxi / tun ikaa / tunkaji yaa:** *encino lengua de cabra* (CAB)

**tukatsi kuitsi:** *encino blanco* (TXA) *Quercus* sp., FAGACEAE  Yee uvi nuu *tukatsi:* in an kuu *tukatsi kuitsi* cha inkai kuu *tukatsi kua*, tia ntui va’a kutata kue kue’e yo’o. Existen dos clases de encinos; el encino blanco y el encino rojo, tienen el mismo uso. The description of this species in TXA cites San Juan Mixtepec as the only specific locality where it grows; the prevalence of the phoneme /ts/ in the description seems to corroborate that the information originated in Mixtepec.

**nukaji kuaan / tnaajaji kuaan / tunkaji kuaan:** *encino amarillo* (CAB)

**nukaji kuiji / tunkaji kuiji:** *encino blanco* (CAB)

**nukaji tnuu / tnaajaji tuun / tunkaji tuun:** *encino negro* (CAB)

**tunkaka:** *cacahuamano* (CAB)  *cacahuanano*: *Gliricidia sepium* (Jacq.) Kunth ex Griseb., LEGUMINOSAE (Martínez, 1979)

**tu kalá** (TON) *Wigandia urens* (Ruiz & Pavón) Kunth, HYDROPHYLLACEAE

**tukandii** (MXT) [tu canti / tu kantii] *Montanoa leucantha* (Lagascia) S.F. Blake subsp. *arborescens* (DC.) V.A. Funk, COMPOSITAE  *ka’ndi*: va a reventar, tronar, explotar / corta, va a cortar; *kandii*: *sol* (CAB)

**ítâ nukapára:** *retama* (DUX)

**tuñaji:** *sauco* (SOT) [tungati] *Sambucus cf. nigra* L. var. *canadensis* Bolli [synonym: *Sambucus mexicana* C. Presl.], ADOXACEAE [CAPRIFOLIACEAE]

**tnokati:** *sauco* (DAA) [tno kati] *Sambucus nigra* L. var. *canadensis* Bolli  *kati / katsi / katyi*: algo simple que no tiene sabor / *algodón* (CAB)  La hierba es simple y se considera caliente... En el tratamiento para la tos: las flores hervidas se toman como té... Mal de ojo: se ocupan las ramas para hacer limpias a los niños. (DAA)

**yutnu kate:** *sauco arbol* (TAM) [yutnu cate]

**ton kawa:** *el chilaco* (NGO) [ton kagua] *Montanoa tomentosa* Cerv., COMPOSITAE
The orthographic conventions of Ve’e Tu’un Savi do not allow /tōkawa/ to be distinguished from /tonkawa/; the Chinango Mixtec name of this tree appears to be /tōkawa/. Sirve para cuando no puede nacer el niño: se toma en forma de té el cocimiento de tres hojas en un jarro de barro amarillo, con un cuarto de litro de agua y se toma tibio... Las flores se utilizan para adornos en los altares o en las ofrendas del día de muertos, son muy aromáticas y huelen bonito. (NGO)

tukava: cagual (COI) Tithonia diversifolia (Hemsley) Gray, COMPOSITAE Tallos para hacer “corralitos” y “camillas”.
i'ita tu'ka'va (YLX) unidentified species in the COMPOSITAE Amith & Castillo do not analyze tu'kava etymologically

nukavá: amarguita, hierba (SMG)

tnúkáva: un tipo de hierba del ángel (DUX)

- tu'káva ku'áan: un tipo de hierba del ángel... este árbol crece de tres a cuatro metros de altura. Se usa para construir los techos de las casas y para hacer corrales para los animales. Sus flores son amarillas. Sus ramitas son medicinales (DUX)

- tu'káva ku'e: un tipo de arbusto rojo, nombre científico: Ageratina rubricaulis (DUX) kua'a / ku'e: color rojo (CAB) Ageratina rubricaulis (Kunth) R.M. King & H. Robinson, COMPOSITAE (?)

- tu'káva kuixi: un tipo de hierba del ángel, nombre científico: Ageratina mairietiana (DUX) kuiji / kuixi / kuixiin: color blanco (CAB) Ageratina mairietiana (DC.) R.M. King & H. Robinson, COMPOSITAE (?)

- tu'káva úá: un tipo de arbusto... es amargo... se hierve con agua, y se rocia el té sobre las piedras ardientes en el temazcal para que el vapor entre en el cuerpo adolorido y se sane (DUX)

- úá tu'káva: un tipo de flor silvestre (DUX)

- tu'káva uwa: hierba de coyote; es de naturaleza caliente, amarga y picosa; sirve para el dolor del estómago, la diarrea (TIL) [tu' kah'a uwa]

- yuku tu'káva uwa: hierba de ángel; es de naturaleza caliente; sirve para la fiebre, el reumatismo (TIL) [yu'ká tu' kah'a uwa]

- tu'káva kava: hierba de ángel (DAA) Eupatorium sp., COMPOSITAE (The majority of the species formerly included in Eupatorium are now placed in several other genera)

kava / kawa: vesícula / corazón o médula del árbol / tuerce, se enreda / peña (CAB)

- Io inka nuu yuku ya'at dani xeni'ün tana xi nu sangui ña da'a. Existe una [otra] clase de hierba de ángel, también se ocupa antes del parto, se toma como té una taza para apurar el parto. (DAA)

- yutu kina / tu'kiná: quina (MIC) possibly Hintonia sp., RUBIACEAE

- yutu kina: quina (PIN) Muy amargo, se le echa al aguardiente, es remedio.

- yutu klavo: palo de clavo (PIN) unidentified

- tnuku kuuaan: iunco otro pardillo (TAM) [tnucu qua]

- tnukua: cubata, tiene flor amarilla (CGM) probably Acacia sp., LEGUMINOSAE [MIMOSACEAE]
tukuaa: álamo (MIC)

yitun kuaan / yutnu juan: encino amarillo (CAB)

yutnu kua’a nda’yu: ebano mas negro (TAM) [yutnuquádáyu] kua’a: color rojo de’ye /
nda’i / nda’yu / nde’yu / ntsa’yu: lodo (CAB)
yutnu kua’a tako: ebano, arbol que llaman tacuiloquavuitl (TAM) [yutnuquaha
tacu] ndiaku / tako / tiaku / xaku: color (CAB)
yutnu kua’a tata tiño’o: ebano vn poco colorado (TAM) [yutnuquaha tata tiño]o] yutnu kua’a yo’o: ebano negro y blanco (TAM) [yutnuquaa yoh]

tonkuii kuaan / tunkuii kuaan: encino amarillo (CAB)
tonkuii ndiayi: encino negro (CAB)

tukuii (MIC) probably Parkinsonia sp., LEGUMINOSAE [CAESALPINIACEAE]

tnúkuí’î: plátano (DUX)
tunkui’i: platanar (CAB)

tunkuisu (KAP) Adenaria floribunda Kunth, LYTHRACEAE [tuncuisu]

yutnu kuixi: encino blanco (CAB)

iton kuixi / yiton kusi: encino blanco (CAB)

ita nukúká: palm tree (CHA; Macaulay, 1996)
nukuka: palmilla (YSN) kuka: peine

Nini ka nastutuda veñu’un jiin nukuka ja kuu taka viko. Siempre adornan el templo con palmilla cuando hay fiesta (YSN)

tukuoy [?]: encino de cuchara (ZAU) [tucuyo] Quercus urbanii Trel., FAGACEAE

tnukutu: copal (referring to the plant) (CGM) Bursera spp., BURSERACEAE
kutu: incienso (CGM)
nukutu: copal (XYA)
tukutu: copal (XYA or TON; de Leon, 1980)
tukutu: copal (MIC)
tukutu (MXT) [tu-kutu] Bursera ariensis (Kunth) McVaugh & Rzed. / Bursera bipinnata (DC.) Engl., BURSERACEAE

tnúkútu: un tipo de árbol, la gente de la región lo llama ‘copalero’ (DUX)
yutu tukutu: árbol de copal (PIN)
kutu / nukutu / tnokutu wa’a / tnukutu / tonkuti / tonkutu / tundukutu / tunkutu /
tunkutu kuixi / tundukutu / utun kutyiu / yunu susia kutu: copalillo (CAB)
kutu: copal (OSP)
kutú: copal (SJC)
kutu dusa: encienso (TAM) [cutu dzusa]
susia kutú: copal (SMG)  
suxia kutu: resina de copal (YSN)

iton kuxi / yiton kusi / yutnu kuixi: encino blanco (CAB)  
tunkuxi: copalillo (CAB)

4.3.7 Cognate sets and individual terms with initial <l>

tun laxa: árbol de naranja (AYU; de Leon, 1980)  
tun laxa ía: árbol de toronja (AYU; de Leon, 1980)

nulimún: limón (XYA)  
tun limon: limonero (AYU; de Leon, 1980)

4.3.8 Cognate sets and individual terms with initial <m>

tun mango: árbol de mango (AYU; de Leon, 1980)  
tumangu: el árbol de mango (SJC)

tnúmxána: manzano (DXU)

tumi’i / ita timi’i (MXT) [tu-mi’i / hita ti mí’i] Thevetia thevetioides (Kunth) K. Schumann, APOCYNACEAE  
lamii / timii / tyimii: abejorro / abeja / avispa (CAB)

tumiñi: epazote (CAB) Dysphania ambrosioides (L.) Mosyakin & Clemants, CHENOPODIACEAE

4.3.9 Cognate sets and individual terms with initial <n>

nunaña / tnunaña / tnutunaña / tunaña / yiton naña / yuton naña / yutun naña: chayotal (CAB)  
  yitun naña: ‘árbol de chayote’, chayotal (CAB)  
itñaña / tanaña: chayotal (CAB)  
tánaña: chayoter (SMG)  
té’e naña / tye’e naña: chayotal (CAB)  
yo’ó te’e naña: bejuco del chayote (XOC)  
tinaña / tinaña: chayotal (CAB)  
yuku naña / yuku tinaña: chayotal (CAB)

tusinén / tusinéin: morera (MIC) probably Morus sp. Como gusanito [el fruto].  
tunai (MXT) [tu nai] Morus celtidifolia Kunth, MORACEAE  
nunenú: moral (SMG) [neñu: mora] Probably Morus sp., MORACEAE  
tnúnenú: un tipo de árbol… da moras (DXU)
yutnu nañu: moral (TAM)
nuneñu / toneñu / tnuneñu / tunai / tunañu / tuneñu: ‘árbol de mora’, moral (CAB)

tunii: elite (COI) Alnus sp., BETULACEAE Ramos de las hojas se utilizan en el baño de temazcal.
túñi: árbol del elite (CTZ)
tunii (MXT) [tu nii / tu ní’i] Alnus acuminata Kunth subsp. glabrata (Fernald) Furlow, BETULACEAE nii / niñi / niñi: sangre / mazorca (CAB)
tunúñi: elite (DUX)
tunii: (ACÑ, Relación de Ayusuchiquilazala) …otro género de árbol, que llaman ellos en su lengua ññuniy y, en mexicano, aili, el cual árbol, con la corteza molida y cocida tiñen a manera de almagre. Ayusuchiquilazala is present-day Santos Reyes Zochiquilazala, municipality of Juxtlahuaca, Oaxaca. Aile, ilite: Alnus spp., BETULACEAE (Martínez, 1979) nii: sangre / mazorca (CAB)

tunii (JIC) Croton draco Schdlld., EUPHORBIACEAE La savia se inyecta en la uretra del pene como remedio para enfermedades venéreas.
yutu tunini: drago, grado (PIN) probably Croton draco Porque tiene sangre, [la savia] es roja y se ocupa para el dolor de muela, hasta deshace la muela si se aplica, con un algodoncito se saca la sangre [de la planta] y en ocho días se despedaza la muela.

niñi: sangre
tunii xuxa [?]: tlauhtole (ZAU) [tuhni shusha] Lysiloma divaricata (Jacq.) Macbr., LEGUMINOSAE [MIMOSACEAE]

tuni katiru siin [?]: trovadora (PIN) Tecoma stans (L.) Kunth, BIGNONIACEAE Planta muy medicinal, viene siendo como el tabardillo de bueno. kati: porque saca un algodoncito cuando está revolando la vaina

tunumi (MXT) [tu numi] Crataegus mexicana Mociño & Sessé ex DC., ROSACEAE
tutinumi (MXT) [tu tinumi] Crataegus pubescens (Kunth) Stend., ROSACEAE
tunúñuu: tejocote (DUX)
tunumi tá’an: samaritán (PIN) probably Brosimum alicastrum Św., MORACEAE Dicen que se come la semilla, dicen que lo hierven y lo comen, y si no lo echan como tortilla. tá’an: juntos, crecen muy cerca uno del otro numi: etymology not evident to don Pedro López López
		
tunumi taján (KAP): Brosimum alicastrum Swarts, MORACEAE [tunumi-taján]
tonumi / tunumumi / yiton tinumi / nutinuu: tejocotal (CAB)

nunuñu: encino de cabra (YSN)

yutu tunuu: pochota (PIN) Ceiba pentandra (L.) Gaertn., MALVACEAE [BOMBACACEAE] La semilla no se ocupa, la fibra se usaba para rellenar la almohada.
tunuu: Ceiba pentandra (KAP)
yutnu nuu: aceiba arbol / ceiua (TAM) [yutnu nuu]
tunuu: pochota, tipo de árbol que abunda en la costa (CAB)
tunuu: cahual (MIC) unidentified species in the COMPOSITAE
yuku tunuu (JIC) Tithonia rotundifolia (Miller) S.F. Blake, COMPOSITAE

tundzidi (TON) unidentified Árbol que da flores moraditas.
tunzidi (MIC) Un árbol de flor morada.

4.3.10 Cognate sets and individual terms with initial <nd>

tundaa vixi / ndaa vixi: gusanillo (SOT) [túnda bǐshi / ndabǐshi] Vernonia aschenborniana Schauer, COMPOSITAE the stem is nibbled on by children
ndaa: algo que está derecho / color azul (CAB)

yutu nd’a ndee: árbol o arbusto de rama flexible (APO) The context in which this designation is quoted seems to indicate that it is a species-specific name: it is cited together with tutonndyi’i, tuyoko, tuiña and tuiñu di’in as one of the shrubs, whose wood is flexible and resistant, from which the 13 staffs (vara cruz) are fashioned for the incoming teniente and policías on December 31st (López García, 2007: 148)
ndee: tiene resistencia / llega / cuesta, vale / color azul (CAB)
tunda’a ndee: copalillo (CAB)

tundaja: Dendropanax arboreus (L.) Decne. et Planch., ARALIACEAE (KAP) [tun-daja]

tun’5ndā5ku3 (YLX) Brosimum sp., MORACEAE Amith & Castillo do not consider ndā5ku3 to be analyzable.

tundaku sivi: escobilla (MIC) Es más correoso. sivi barrer, limpiar

tundakua sivi: escobilla (MIC) Es más correoso. sivi barrer, limpiar

tundakua: calahuate (TON) Tilia mexicana Benth., MALVACEAE [TILIACEAE] El que es muy correoso es el calahuate, la varita, porque la cáscara hasta lo puede uno amarrar con algo.
tundakuá: calahuate (MIC)

ndakua (ZAU) [ndacua] Sida spinosa L., MALVACEAE

7tundakua (COI) Tilia mexicana Schltdl., MALVACEAE [TILIACEAE] La corteza sirve para hacer amarres. El nombre designa a otras plantas con corteza fibrosa útil.
tundakua (na’nu) / ita ndaa: mano de león (COI) Chiranthodendron pentadactylon Larreat., MALVACEAE [STERCULIACEAE] Flor medicinal para el dolor, corteza se usa para amarres. na’nu: large (plural) ndaa: hand

tundakua (vali) / tundakua landyi (COI) Triumfetta brevipes S. Watson, MALVACEAE [TILIACEAE] La corteza flexible se usa para amarres. landyi: lamb, because the dried fruits adhere to wool; the designation tundakua landyi was provided by don Trinidad Oliveros, but Celso Flores had not heard it before

kini: pig; dirty, ugly; the smell of the plant is said to account for the epithet; the designation tundakua kini was provided by don Trinidad Oliveros, but Celso Flores
had not heard it before

tundakua ñuu (COI) unidentified species in the MALVACEAE. *La corteza de los tallos se utiliza para amarres.* ñuu: the town, because of the ruderal habit of this species

tundakua (JIC) *Guazuma ulmifolia* Lam., MALVACEAE [STERCULIACEAE] *La corteza sirve para amarres, el ganado come el fruto.*
tundakua (lamba) (JIC) *Cochlospermum vitifolium* (Willd.) Spreng., BIXACEAE *La fibra de la corteza interna sirve para amarres, se tuerce para hacer lazos.*
tundakua (yatía) (JIC) *Pseudobombax ellipticum* (Kunth) Dugand, MALVACEAE [BOMBACACEAE] *La fibra de la corteza sirve para amarres, se tuerce para hacer cordel y morrales de red.* yata/xiyatyá: cabello de elote (CAB)

ndakua nii (ACÑ, Relación de Xicayan) ...tienen por remedio unas yerbas con sus raíces, la cual llaman ellos en su lengua mixteca dacuanjy Xicayan is present-day Jicayán de Tovar, municipality of Tlacoachitlahuaca, Guerrero nii: uñas / delgado, flaco / sangre / mazorca / piel, cuero (CAB)

ndakua: corteza del árbol (CTZ)

nda³kwa³: jonote (YLX) The term designates pliable bark. Amith & Castillo note, however, that not all the plants that provide useful bark fiber are labeled with this term: Sin embargo, no todos los árboles o arbustos cuya corteza sirve para jonote se llaman nda³kwa². Así, véase el tun⁵ ya³ a³ ke⁵ su².

tun⁵ nda³kwa³ tia³ a² (YLX) *Cochlospermum* sp. tia’á: bule, gourd

tun⁵ nda³kwa³ ñu³ u² (YLX) *Helicteres guazumifolia* Kunth, MALVACEAE [STERCULIACEAE] Amith & Castillo relate the epithet ñu’u, ‘fire,’ to the traditional use of a stick of this species as a fire drill.

tun⁵ ti³ ya⁵ nda³kwa² (YLX) unidentified species, possibly in ANACARDIACEAE

tundakua (MXT) [tu ntacua] *Heliocarpus terebinthinaceus* (DC.) Hochr., MALVACEAE [TILIACEAE]
tundakua kuachi (MXT) [tu ntacua cuachi] *Sida rhombifolia* L., MALVACEAE kuali / kuatyi / kuetsi: pequeño (CAB)

yakua: cáscara de caña (SMG)

tiyakua: corteza, cáscara del árbol (SMG)
tundiaku yo’o (PIN) possibly *Helicteres* sp., MALVACEAE [STERCULIACEAE] Hay otro [árbol] del que se le saca yacua, pero casi no hay, es un árbol chico, delgado. yakua tundiaku yo’o: Porque ése si lo quieres hacer como mescate que sacan los de Ixtayutla, sale yacu blandita, blandita. yo’o: rope

tyakua kati (KAP, Jicaltepec) [tyacua-cati] *Heliocarpus tomentinosus* Turcz., MALVACEAE [TILIACEAE]
tyakua na’nú (KAP) [tyacua-najnu] *Parmentiera edulis* DC., BIGNONIACEAE
lakua / ndakua / nxakua / tiyakua / tsakua / tyakua / yakua: corteza, cáscara de árbol (CAB)
tiakua xiton / tyakua jiton: canela (CAB)
tiakua yuku vixi: canela (CAB)

tunde’ e poli (COI) *Prunus serotina* Ehrh. var. capuli (Cav.) McVaugh, ROSACEAE poli looks like a direct borrowing from Nahua capolin
tonda’yá: peach tree (ALA)
tun³nde¹ e² yu¹ vi² (YLX) *Ardisia compressa* Kunth, PRIMULACEAE (MYRSINACEAE)
yu³vi²: ‘arroyo’, because of the damp habitats this species prefers

Conostegia xalapensis (Sw.) D. Don ex DC. / Miconia obconica Gleason & Wurdack, MELASTOMATACEAE ¹¹⁵ni³ refers to the dry habitat of these species

Conostegia xalapensis (Bonpl.) D. Don ex DC, MELASTOMATACEAE  tumi: hairy, because of the pubescent leaves

Conostegia xalapensis (YLX) ¹¹⁵ni³
Miconia obconica (YLX) ¹¹⁵ni³

Conostegia xalapensis (Sw.) D. Don ex DC. / Miconia obconica Gleason & Wurdack, MELASTOMATACEAE ¹¹⁵ni³ refers to the dry habitat of these species

Conostegia xalapensis (Bonpl.) D. Don ex DC, MELASTOMATACEAE  tumi: hairy, because of the pubescent leaves

Conostegia xalapensis (Sw.) D. Don ex DC. / Miconia obconica Gleason & Wurdack, MELASTOMATACEAE ¹¹⁵ni³ refers to the dry habitat of these species

Conostegia xalapensis (Bonpl.) D. Don ex DC, MELASTOMATACEAE  tumi: hairy, because of the pubescent leaves
**nundea:** mezquite (XYA) *Prosopis* sp., LEGUMINOSAE [MIMOSACEAE]
**tundea:** mezquite (TON)
**tundiaa:** mezquite (MIC)
**ton ndía:** mezquite (NGO) [**ton ndia**] *Prosopis juliflora* (Sw.) DC., LEGUMINOSAE [MIMOSACEAE] ndee / ndiaa / ndiya / ndyaa / nsaa: color azul (CAB)

**ton ndia kuii:** mezquite verde (NGO) [**ton ndia kui**] Senna wislizeni (A. Gray) Irwin & Barneby var. *pringlei* (Rose) Irwin & Barneby [synonym: *Cassia pringlei* Rose], LEGUMINOSAE [CAESALPINIACEAE] kuii: color verde / verdiioso (CAB)

**tundiaa kuaan:** encino amarillo (CAB)

**tundiaká** (COI) *Epidendrum* sp., ORCHIDACEAE This may have be a casual descriptive reference, rather than a lexicalized form, for a relatively tall, cane-like epiphyte.

**tun** ndi3 chi2 ko1o5 (YLX) *Inga* sp., LEGUMINOSAE [MIMOSACEAE] Amith & Castillo gloss ndichi as vaína, ‘pod;’ koo: ‘snake’

**tun** ndi3 chu1u5 (YLX) *Inga megacarpa* M.E. Jones Amith & Castillo derive the etymology from ndichi + yu, ‘stone’, because the thick pod has to be broken with a stone to get to the edible aril.

**tun** ndi3 cha1kwa5: cuajinicuil (YLX) *Inga* sp. Amith & Castillo interpret the etymology as ndichi + yakwa, ‘crooked;’ vide: tinyákua: *el árbol de cuajinicuil,* nyákua: *el cuajinicuil* (SJC)

**yutnu ndidi:** granado arbol (TAM) [yutnudedzi]

**tnúndidó:** un tipo de arbusto... crece hasta dos metros de altura. Da moras amarillas que son comestibles (DUX)

**tnúndido:** manzanital; es de naturaleza caliente; sirve para la disentería y el mal de orina (TIL) *Arctostaphylos pungens* Kunth, ERICACEAE ndido: atravesado [?]

**tnundido:** *Arctostaphylos pungens* Kunth, ERICACEAE (SEL) [**tnu-ndido**]

**tonchii:** encino (NGO) *Quercus* sp., FAGACEAE **tonchii** appears to be a cognate of **tnundii**

**tundii** (COI) *Quercus* sp., FAGACEAE

**yitin ndii / ndi:** encinos (CTZ)

Nuu yíyo yitin ndii na’nu yiyoni luxu: Donde hay grandes encinos, hay mucho heno (CTZ)

**tun** ndi1i5 (YLX) *Quercus* sp. Amith & Castillo relate the etymology ndii ‘to burn’ to the dark bark of that species.

**tunii tuun:** encino (SOT) [**tu nitu**] *Quercus* sp., FAGACEAE /*nd*/ > /n/ in this dialectal sub-area (Josserand, 1983)

**ndyii:** encinos (MXT) [**nchii / nchi’i**] *Quercus* spp., FAGACEAE

ndyii cha’a / ndyii ſu’un (MXT) [**nchii cha’a / nchii ſu’u’n**] *Quercus glauoides* M. Martens & Galeotti, FAGACEAE sa’a / ta’a / ty’a / xa’a: bajo, chaparro (CAB)
ndyii kasi (MXT) [nchi’i cazí / nchii cazii] Quercus urbanii Trel., FAGACEAE
kaji / kasi / kati: algo que no tiene buen sabor, simple (CAB) This term may be a
cognate of SMG nukaji.
ndyii kuii (MXT) [nchii cui] Quercus castanea Née, FAGACEAE
kaji / kasi / kati:
 algo que no tiene buen sabor, simple (CAB)
This term may be a
cognate of SMG nukaji.
tnúndíí: un tipo de encino... es duro... De este árbol se hacen los mangos de las hachas, las
cuñas de los arados y yugos (DUX)
tnúndíí kué’: un tipo de encino... se utiliza para curtir cueros (DUX)
yutnu ndii / yutnu yata: enzina (TAM) [yutnundij / yutu yata]
chindutnundij: bellota (TAM)
ndii nu’u / tnundii nu’u: carrasco arbol (TAM) [dijnuhu / tnudijnuhu]
yutu ndika’a / yutu nd’a ndika’a: palo de tigre (PIN) Cnidoscolus sp., EUPHORBIACEAE  Éste es el que quema... porque ése quema de a madres.

ndikayá / ndika’ayá: leon kuiñi: el que está pinto

nundikin: amaranto (NUX) “nu- es el prefijo para árbol”
yutu iñu ndiki: amaranto (PIN) probably Amaranthus sp., AMARANTHACEAE  Se tuesta la semilla, se muele con canela y panela, se come el polvito.
chiti iñu ndiki (PIN) the seeds of this plant
tnusikin da’a: higuera (CGM) Ricinus communis L., EUPHORBIACEAE

ndijin / ndikin / tsikin / xikin: semillas de chile, rábano, amaranto, tomate (CAB)
da’an / ja’an / sa’an / xa’an: manteca (CAB)

tundikunyi: macuil (CAB)

tunditi / tuntiti ku’u: cuatololote (CAB) cuatelolote: Phyllanthus acidus (L.) Skeels, PHYLLANTHACEAE; cuatololote, tololote: Andira inermis (Wright) DC., LEGUMINOSAE (Martínez, 1979)
tiku’u: cuatololote (CAB)

tunditiú: guapinol (PIN) Hymenaea courbaril L., LEGUMINOSAE [CAESALPINIACEAE]
tundityu (KAP) [tundityû] Hymenaea courbaril
	nünüdiwu: sanalotodo; es de naturaleza caliente; sirve para la fiebre, el sarampión (TIL)
[tnú ndihwu] Cestrum sp.1, SOLANACEAE: Piestrzynska #3; Cestrum sp.2, SOLANACEAE: Piestrzynska #12  ndiu / ndivi / ndiwi: huevo (CAB)

tundixijo (KAP) Triumfetta dumetorum Schltdl., MALVACEAE [TILIACEAE]
[tundishijó]

nundoko síun: palo de anona (XYA) si’un: dinero; siuun ndasan: chachalaca; tiuun: aves de corral / trabajo / espuma / estrella / angosto (CAB)
tundoko tuun: árbol de zapote [negro] (XYA or TON; de Leon, 1980)
tun⁵ ndo³ko⁵ / tun⁵ ndo³ko⁵ iñu⁵: guanábana (YLX) Annona muricata L., ANNONACEAE  iñu: thorn, because of the spikes on the fruit
tun⁵ ndo³ko⁵ tie⁵tan⁵: ilama (YLX) Annona diversifolia Saff.  tie⁵tan⁵: vieja Amith & Castillo note that the epithet parallels the Náhuatl ilamah, “old woman”
tun⁵ ndo³ko⁵ tiu⁵un⁵: anona (YLX) Annona reticulata L.  tiu¹un⁵: guajolote
tun⁵ ndo³ko⁵ tu⁵va² (YLX) Jacaratia mexicana A.DC., CARICACEAE tu⁵ba²: cotorra
tun⁵ ndo³ko⁵ tu¹un¹ / tun⁵ ndo³ko⁵ tu¹un³ yu³vi²: zapote negro (YLX) Diospyros digyna Jacq., EBENACEAE  tu¹un³: prieto  yu³bi²: arroyo
tun⁵ ndo³ko⁵ tu¹un¹ yu¹ku⁵ (YLX) unidentified species in the SAPOTACEAE yu¹ku⁵: cerro, silvestre
tun⁵ ndo³ko⁵ li⁵ku² (YLX) unidentified species  li⁵ku²: perico
tundoko: árbol de zapote (AYU; de Leon, 1980)
tundoko: custard-apple tree (Annona sp.) (OCO)
nundókó: zapotal (SMG)
nundoko: zapotal, árbol (YSN)
tnúndókó: zapote (DUX)
  tnúndoko íñû: anona (DUX)
  tnúndoko língó: zapote blanco (DUX)
  tnúndoko ling̱ulo: zapotal; sirve para el insomnio (TIL) [tnú nd’oko ling̱u] Casimiroa edulis Llave & Lex., RUTACEAE
  linki: delgado, flaco; li’ñki / li’ñki: ratón (CAB)
tundoko: custard-apple tree (Annona sp.) (JAM)
  tnúndoko: palo de anona (PIN) se parte: the fruit splits open as it ripens La que se parte hay una blanca y una roja.
  yutu tundoko cha’a: chirimoya, se pone cenizo / palo de chirmola (PIN) Annona sp., ANNONACEAE Éste anteriormente las hojas tiernas se utilizaban si te daba dolor de estómago, con ceniza calientita, se amarraba la panza a los chamacos.
  cha’a: se pone cenizo ceniza: cha’a
tundoko yoti: malva (PIN) Éso lo utilizamos nosotros para barrer, agarramos como escoba.
  yoti: arena (CAB)
tundoko rachiva: Randia sp., RUBIACEAE (KAP) [tun-doco-rachiva]
tundoko: el guanábano (SJC) ndoko: la guanábana
  tindoko iñû: el guanábano (SJC) ndoko iñû: la guanábana
  tindoko tinúu: el árbol de chirimoya (SJC) ndoko tinúu: la chirimoya
  tundoko tsaa’a: el árbol de nanche (SJC) ndoko tsaa’a: el nanche
yutnu ndoko ñu’un (ACÑ, Relación de Zacatepeque) Las yerbas medicinales que tienen son unas yerbas que llaman en su lengua yutãudocoñûhu: ésta, cocida en una olla y con el agua della, tibia, lavarse, es muy provechosa para las hinchazones. Llámala en mexicano teotzapotl. Zacatepeque is present day Santa María Zacatepec, district of Putla, Oaxaca. ñu’un: deidad, sagrado, dios (CAB); teotzapotl: divine zapote
tonlingo: zapote blanco (referring to the tree) (NGO) [ton lingo] Casimiroa edulis Llave & Lex., RUTACEAE Sirve para calmar los nervios, para el insomnio... Las hojas se usan en todosantos para ponerlos sobre los petates para la ofrenda. (NGO)
nundoko linko / nundoko tenko / tundoko linku / tundoko linko / tunoko tyinko / yutnu linko / yutun tyinko: zapotal (CAB)
tundoko linko: zapotal negro (CAB)
tundoko ndei: zapotal negro (CAB)
  tundoko tinuu: árbol de la chirimoya (CAB) tinuu: tejocote
  tundoko tuun: zapotal (CAB)
  nundoko noo / tnundoko tuun / tundoko tuun: zapotal negro (CAB)
  tundoko tsaa’a: árbol de nanche (CAB)

  tundoko: guarumbo (PIN) Cecropia sp., URTICACEAE [CECROPIACEAE]
  Para el caldo de kabío. Distinguished tonally from tundoko, Annona sp.

  tnúndóó kaxtíla: caña de azúcar (DUX)
**tundoo (COI)** Acaciella angustissima (Mill.) Britton & Rose, LEGUMINOSAE MIMOSACEAE

**tundo'o (MXT)** [tu nto'o] Acaciella angustissima

**tnúndó'ô: un tipo de árbol... se utiliza la corteza... para ablandar el cuero. Se pela la corteza y se vende al curtidor quien la remoja en agua (DUX)**

**ndo’o / nund’o / tundo’o: árbol de timbre (CAB)**

**ndo’o**: timbre, la cáscara de un árbol que sirve para curtir pieles (CAB)

**tnúndó'ô**: un tipo de árbol... se utiliza la corteza... para ablandar el cuero. Se pela la corteza y se vende al curtidor quien la remoja en agua (DUX)

**tundua: guaje** (XYA or TON; de Leon, 1980)

**tundua: huaje** (MIC)

**tondua: guaje rojo** (NGO) **[ton ndua]** Leucaena diversifolia (Schldl.) Benth., LEGUMINOSAE [MIMOSACEAE]

The identification of this species is questionable, as the guaje rojo commonly grown and eaten in the Mixteca Baja is Leucaena esculenta (Sessé & Mociño ex DC.) Benth.

Las yemas de la planta sirven para arrojar las lombrices del estómago y limpian de parásitos: se come cruda la yema con tortilla... Las semillas de los guajes se comen cocidas en el comal y se prepara una salsa; también se guisa con carne de res o queso; esta comida es típica en esta región y se conoce como guaximole. (NGO)

**tundua isu (MXT)** [tu ntúa izu] Lysiloma divaricata (Jacq.) Macbr., LEGUMINOSAE [MIMOSACEAE] **isu: venado** (CAB)

**tundua tikuanda (MXT)** [tu ntúa tikuanta] Leucaena diversifolia (Lam.) de Wit., LEGUMINOSAE [MIMOSACEAE] **tikua’ndi: guamúchil** (CAB)

**tuchi namá: grilla** (MIC) **nama: jabón** (CAB)

**tnúnduchi dé’en: higuerilla** (DUX) **da’an / de’en / ja’an / xa’an / ye’en: manteca** (CAB)

**tnúnduchi nde’e kuixi: grillal blanco; es de naturaleza muy caliente; sirve para la fiebre de los bebés, el dolor instantáneo (TIL) **[tnú nduchi nde’e kwiši]** Ricinus communis L., EUPHORBIACEAE **nde’e: sucio / derrumbe o desbarancadero / malo / durazno, capulín / va a llorar / se va a acabar, kuiji / kuityi / kuixi: blanco** (CAB)

**yutnu nduchi da’a / yutnu nikuviu nduchi tinama: higuerilla de la tierra, de que hazé el azeyte (TAM) **[yutnunduchi dzaha / yutnu nicuvuinduchi tenama]

**tnúnduchi ídú: un tipo de arbusto... se parece al chamizo... Las hojas se pegan al cuerpo cuando alguien está en un temascal** (DUX)

**tnúnduchi idu: cacho de venado, es de naturaleza caliente, sirve para hojear dentro del temascal (TIL) **[tnú nduchi idu]** Dodonaea viscosa (L.) Jacq., SAPINDACEAE **ndutyi: testículos / riñón / frijol; ndutyi nuu: frijol de la cara, ojos; idu / idju / isu / yusu: venado (CAB)

**tonduku ño’ma: escobilla** (NGO) **[ton nduku ño’ma]** Gymnosperma glutinosum (Spreng.) Less., COMPOSITAE

En el caso de fracturas: se recomienda sobar previamente la parte dañada y luego colocar las varitas con hojas alrededor de la zona afectada... Se utiliza este remedio para curar a los chivitos, puerquitos o perritos cuando se fracturan. Es un material indispensable en la casa para hacer lumbre, siempre se tiene un manojito de escobilla seca. Es utilizada como escoba para barrer los patios.
(NGO)

tunduti: cacahuamanche (PIN) Gliricidia sepium (Jacq.) Walp., LEGUMINOSAE
[PAPILIONACEAE] También es curativo para nosotros, cuando le sale mal de ojo, la hoja la tallan en una piedra.
tundutyi / tunduti: cacahuamanano (CAB) cacahuamanano: Gliricidia sepium (Jacq.) Kunth ex Griseb., LEGUMINOSAE (Martínez, 1979)

tun⁵ ndwi⁵na² [tunduu ina] (YLX) apparently Vitex sp., VERBENACEAE Amith & Castillo interpret the etymology as ‘fruit + dog.’
tun⁵ndu¹⁵se⁵u² (YLX) unidentified species in the BORAGINACEAE. Amith & Castillo explain the etymology (‘fruit + tallow’) by the sensation that the edible fruit leaves in the mouth.

tu ndú’u: tehuiztle (TON) probably Acacia bilimekii J.F. MacBr., LEGUMINOSAE [MIMOSACEAE]
tunduu: tehuiztle (MIC)

tundu’u yavi: izote (CGM) Yucca sp., ASPARAGACEAE [AGAVACEAE] Acá no se acostumbra comer la flor. ndu’u / tindu’u / tinu’u: amole (CAB)
tundu’u: izote (TON) Yucca sp. La flor sí dicen que sí se come, pero nosotros no la comemos.

túnúndú na ndoo yúkû: un tipo de hierba... se parece a la hierba santa (DUX) The cognates of DUX ndua have the form nduva

tunduvua ido: iunco negro de que hazen baculos (TAM) [tnudu vuaydzo] Etymology: tree marker + quelite eaten raw + rabbit

tundyai (MXT) [tu ncháí] Pistacia mexicana Kunth, ANACARDIACEAE

tundy’e nkutsi (MXT) tunchee ncutzi / tunche’e ncutzii Prunus serotina Erhr., ROSACEAE kutsi: cerdo; kutsia: se va a agriar (CAB)

tundyiso [?] / tutundyiso (MXT) [tu nchízoo / tu nchiso / tu tunchiso] Comarostaphylis polifolia (Kunth) Zuccarini ex Klotzsch, ERICACEAE

nundyitia: cuajilote (XYA) Parmentiera aculeata (Kunth) Seemann, BIGNONIACEAE This appears to be a cognate of [tun]chita / tita / titya: ‘banana.’
tusinchitiá: cuajilote (TON)
tundyitiá: cuajilote (MIC)

4.3.11 Cognate sets and individual terms with initial <ñ>

nda’a tuñaña: tlachícón (PIN) probably Curatella americana L., DILLENIACEAE Tiene
hojas como lija, con eso limpiaban las jícaras, quedaban lisas, haga de cuenta que la lijó uno con lija, queda liso, liso.

yutnu ña’un: brasil arbol (TAM) [yutnuñahu] probably Haematoxylon brasiletto Karst, LEGUMINOSAE [CAESALPINIACEAE]

nu’iín: otate (XYA) probably Chusquea sp. and/or Otatea sp., GRAMINEAE

ku’tuín: otate (TON)

tuíín: otate (MIC)

yutnuñahu: yutnuñahu: Chamaedorea sp., GRAMINEAE

nu’íín: otoate (JKC) Chamaedorea sp., PALMAE

yutnuñahu: un tipo de bambú (DUX)

chijín: bamboo (OSP) “…plant names with initial t or ch, from fused utun ‘tree’…” (Small, 1990, p.405)

tuñii / yutu tuñii: otate (PIN) Cuando lo corta queda aguadito, por eso ñii; dicen los grandes que cada siete años nacen, ya [a] los siete años se acaban y vuelven a nacer.

tuñii: caña maciza otate (TAM) [tnuñee]

Tuñii (ACN, Relación de Ayusuchiquilazala) unas varas que llaman en su lengua tñuñiy y, en mexicano, otlatl, las cuales dichas varas son muy recias Ayusuchiquilazala is present-day Santos Reyes Zochiquilazala, municipality of Juxtlahuaca, Oaxaca. Otate designates today various species of Chusquea, Guadua, Otatea and other genera of native bamboos (Martínez, 1979; Chávez Rendón et al., 1997-2009), as tuñii and otlatl probably did as well.

Tuñii (ACN, Relación de Xicayan) unas varas muy correosas que llaman, en su lengua mixteca, tñuyy y, en mexicano, otlal Xicayan is present-day Jicayán de Tovar, municipality of Tlacoxtlahuaca, Guerrero

Nuiin / nuñii / tuñii / ton iin / tonii / tonñii / tun iin / tunii / tunñii / tuñii / tyiín: otate (CAB)

nuñúchi: fresno (SMG) probably Fraxinus sp., OLEACEAE

nuñucchi: fresno (YSN)

nuñuchú: fresno (DUX)

nuñutyi / nuyutyi / tonutyi / tnunutyi / tnuyutyi / tunñutyi / tunyutyi: fresno (CAB)

Tuññuu: palo santo (MIC) probably Pittocaulon praecox (Cav.) H. Rob & R.D. Brettell [synonym: Senecio praecox DC.], COMPOSITAE Lo usan de adorno de Navidad, tiene nombre de miel.

Tuññuu: sauce (CGM) probably Salix sp., SALICACEAE

nuñuu: sauce (XYA)

tuñuu: sauce (MIC)

Tuñuu: sauz (COI) Salix bonplandiana Kunth, SALICACEAE La madera blanca se usa para hacer miniaturas, artesanía.

Tuñu’u (MXT) [tu ñu’u] Salix bonplandiana Kunth, SALICACEAE

nuñuu: sauce (SMG)

yutnu ñuu: sauce (TAM)

nuñuu: sauce (CAB)
tnúñúú / tnútnúú: datilera (DUX)

tnúñúú kuá’á: palmar real (DUX)

tnuñuu: palma datilera (CGM) Phoenix dactylifera L., PALMAE Date palms, a species introduced from the Mediterranean, are cultivated in the canyon of the Atoyac river just below town, to the north and west of Santa María Chigmecatitlán.

ñuu: palma de soyate (CGM) Probably Brahea dulcis (Kunth) Mart., PALMAE

ynuu kuachi / yutnu kuachi / ñuu yuta / ñuu ñuma: palmito (TAM) [yutnu quachi / ñuu quachi / ñuu yuta / ñuu ñuma]

itun ñuu / nuñuu / tuñuu / tonñoo / tonñuu / tunñuu / yitno ñoo / yitun ñuu / yutun ñuu: ‘árbol de palma’, palmera (CAB)

kutu ñuu: palmera (CAB)

tuñu’un (MXT) [tu ŷu’un] Quercus conspersa Benth., FAGACEAE
tuñúúú: un tipo de encino... mide hasta cinco metros de altura... cuando... retoñan, el encino da una fruta llamada luyu que la gente come cuando está tierna (DUX)
tuñúúú kue’e: un tipo de encino rojo (DUX)
tuñúúú kuixi: un tipo de encino blanco (DUX)

tnutsiun: mate (CGM) Ficus sp., MORACEAE

tnutsiun kuixi / tnutsiun overo: mate blanco (CGM)
nuñu’u: mate (XYA)
tuñuu: mate (MIC)
tuni’un tuun / tuni’un na’no: atame de zorro / mate grande (ZAU) [tunihu tuu / tunihu náño] Ficus cotinifolia Kunth, MORACEAE

tuñú’un: mate (CTZ) probably Ficus sp. Algunas personas comen los frutos de este árbol.

tu’ñu’u xa’1a1 (YLX) Ficus sp., MORACEAE xa’a1 ‘azul’ o ‘color gris’

tu’ñu’u xa’1a1 (YLX) Ficus sp. ya’a3 ‘blanco’
tu’ñu’u xa’1a1 (YLX) Ficus sp. kwa’a1 ‘rojo’
tu’ñu’u (YLX) Ficus sp. tu’un3 ‘prieto’
tu’ñu’u (YLX) Ficus sp. nu’ni5 ‘maiz’ Amith & Castillo note that this taxon bears the only Ficus fruit that is eaten in Yoloxóchitl.
tu’ñu’u xa’1tu1: chilamate (YLX) Sapium sp. EUPORBIACEAE xa’tu1 ‘pico/venenoso’ Amith & Castillo comment on the fact that both Mixtec and regional Spanish (name derived from Nahuatl) designate this euphorb as a ‘ficus’; in fact, although the authors don’t mention it, the Mixtec name looks like a calque of the Nahuatl chi:la:matl, ‘chili ficos’ – or viceversa.
tuñu’u (MXT) [tu ŷu’un] Ficus cotinifolia Kunth, MORACEAE

tuñu’u kua’a: higo (PIN) Ficus sp., MORACEAE kua’a: colorado

tuñu’u kuichi: higo pero del blanco (PIN) probably Ficus sp., MORACEAE

tuñu’u kuaci: Ficus sp., MORACEAE (KAP) [tunuhu-cuaha]
nuñu’un / toñu’un / tun ñu’un: mate (CAB)

tnoño’on kua’a: mate (CAB)
tuñu’un nuñí: mate (CAB)
tuñu’un so’o: mate (CAB)
**tuntiña’un:** amate (CAB)

**tun ñu’un:** parota, árbol conocido en la costa (CAB) The identification as *Enterolobium* may be in error.

4.3.12 Cognate sets and individual terms with initial <o>.

**tuo’on:** tololote (CHY) [tu ohon] Se hacen las sillas de madera de tololote. cuatololote: *Phyllanthus acidus* (L.) Skeels, PHYLLANTHACEAE; cuautololote, tololote: *Andira inermis* (Wright) DC., LEGUMINOSAE (Martínez, 1979)

**tunto’on:** cuatololote (CAB)

4.3.13 Cognate sets and individual terms with initial <p>.

**tupayá:** el papayo (SJC)

**tunpele / tunpili:** piñón (CAB)

**yutnu peras:** peral arbol (TAM)

**tupipí:** pipe (MIC) *Erythrina* sp., LEGUMINOSAE Aquí hay pero no lo comemos. Pipi appears to be a borrowing from Zapotec, probably by way of regional Spanish.

**yutu pipi:** palo de pipi (PIN) possibly *Erythrina* sp. No saben que se coma la flor, pero la corteza es medicinal cuando alguien tose mucho, cortan la corteza de los dos lados del tronco, del lado que sale el sol y del lado que se oculta, se hierve y se toma.

**tunpípit:** árbol de pipi (CAB)

**tu^n⁵ po^5 cho^2** (YLX) *Ceiba* sp., MALVACEAE [BOMBACACEAE] pocho is derived from Náhuatl po:cho:tl, possibly through Mexican Spanish pochote

4.3.14 Cognate sets and individual terms with initial <r>.

**turachoko** (KAP): *Ficus* sp., MORACEAE [turachoco]

**turrayadu / tuvíli:** rayado (MIC) *Ehretia tinifolia* L., BORAGINACEAE

4.3.15 Cognate sets and individual terms with initial <s>.

**ita tusaa** (COI) unidentified species in the COMPOSITAE Flores para adornar altares.

**tusaní:** huizache (MIC) probably *Acacia farnesiana* (L.) Willd., LEGUMINOSAE [MIMOSACEAE]
tunsañii: cuatololote (CAB) cuatololote: Phyllanthus acidus (L.) Skeels, PHYLLANTHACEAE; cuatololote, tololote: Andira inermis (Wright) DC., LEGUMINOSAE (Martínez, 1979)

tusatioko: Cordia alliodora (Ruiz et Pav.) Cham., BORAGINACEAE (KAP) [tusa-tioco]
tniño tsioko / tundiyoko / tuntioko / tunyoko: hormiguillo, árbol que abunda en la costa (CAB) hormiguillo: Cecropia sp., Cordia sp. (Martínez, 1979)

tyutnu satnu: pino otro (TAM)

tusavi: pipe (ZAU) [tusavi] Erythrina americana Mill., LEGUMINOSAE [PAPILIONACEAE]
tusa’vi (COI) Erythrina sp.
tusavi (JIC) Erythrina sp.
tusava yuku (MXT) [tu saba yucu] Erythrina horrida DC.
tusava’vi / nutiida’vi / tnutyida’vi: árbol de pipi (CAB) probably Erythrina sp.,

tyutu tusia tiñi: piñón (PIN) Jatropha curcas L., EUPHORBIACEAE
tusia: goma tiñi: ratón

nusi’ini: huizache (XYA) The etymology may involve the marker si- ‘animal/spherical object’

nusindiava: mala mujer de monte (XYA)
sindiava: mala mujer (XYA) possibly Cnidoscolus sp., EUPHORBIACEAE
Con ésa asada cortan la leche de cabra para comer con tortilla, se hace bolitas.
‘That plant, once it’s broiled, is used to curdle goat milk so that it can be eaten on a tortilla, it turns into little balls.’

nusisa: cubata (XYA)
tusia: cubata (TON)
tusía / tusisá: cubata (MIC)
tonsisa: cubata (NGO) [ton sisa] Acacia macracantha Willd., LEGUMINOSAE [MIMOSACEAE] jija / sisa / xixa: se está amacizando (CAB)
Las espinas tiernas de la planta sirven para calmar el dolor de las encías o dolor de muelas... Para curar el empacho... (NGO)

tun’si¹³su² (YLX) Bauhinia sp., LEGUMINOSAE (CAESALPINIACEAE) Amith & Castillo derive the etymology from si’in (‘leg’)+ isu (‘deer’), because the shape of the leaf recalls a hoof.

tnusiya (ACÑ, Relación de Zacatepeque) Hay otro árbol, que las hojas y corteza, en cuanto se calienta, y puesta en alguna cuichillada o herida, es muy buena: y llámase este árbol, en su lengua, tñusiya y, en mexicano, tlatlacuahuitl Zacatepeque is present day Santa María Zacatepec, district of Putla, Oaxaca iya / jiya / xiya: está acedo (CAB) tlatla: arder, abrasarse, o quemarse (de Molina, 1571)
tusuku ñuma / tusiko ñuma: escobilla (MIC) es más frágil que tundaku sivi
tudju’va: la planta de cacao (CHY) [tu zuhva]
nusu’va: nogal (YSN)
tnosu’wa / tunci’va tiñi / xi’va kaxi: piñón (CAB)
tusuví (COI) Quercus sp., FAGACEAE Las agallas, llamadas “chicombas” en el español regional, se comen; la leña se considera de calidad inferior.

4.3.16 Cognate sets and individual terms with initial <t>
[The names that appear to involve the marker ta, ‘flower,’ are listed first]

tnútadíkô: un tipo de árbol (DUX)

tnútadúxá: un tipo de hierba, literalmente ‘árbol de flor de copal’ (DUX)
tnutadusa di’i: árnica hembra (DAA) [tnu tadusa di’i] Heterotheca inuloides Cass., COMPOSITAE di’i / di’i / si’i: mamá, madre (CAB) Io sa di’i te io sa yii yukuy a’a. Hay árnica macho y hembra, su diferencia es que el macho crece 50 cm, sirve en igual forma y el macho es verde y tiene un botón que le sale una leche blanca. (DAA)
tnutadusa yii: árnica macho (DAA) Aster aff. gymnocephalus (DC.) A. Gray, COMPOSITAE yii / yii: macho / marido, esposo (CAB) Existen dos clases de árnica, uno es de hembra y el otro es macho, el macho se ocupa para dolor de huesos, untado, y la hembra se ocupa para heridas, para la tos, tomados y untados los dos son efectivos. (DAA)

tnútakíndì: salvia... sus flores son azules y delgadas, y contienen miel que chupan las chuparrosas (DUX)
ìtà tnutakìndì: chía, literalmente ‘flor del árbol de mariposa’ (DUX) The etymology offered by Kuiper is questionable, given that kindi designates Salvia spp. in a number of dialects; the compound may involve the prefix ta- ‘flower,’ as well as tí- ‘animal.’

tnútamínò: un tipo de hierba, nombre científico: Baccharis conferta (DUX) Baccharis conferta Kunth, COMPOSITAE [?] ita minu / tamino: yerbabuena (CAB)
tnutamino: chamizo del monte; es de naturaleza fría; sirve para el reumatismo, el mal aire (TIL) [tnú taa mino] Baccharis heterophylla Kunth, COMPOSITAE

tnútandúû: un tipo de hierba, literalmente ‘árbol de flor de botón’ (DUX)

tnútavé’yu / ita nchikirió’o: dedalera (DUX) probably Penstemon sp., PLANTAGINACEAE [SCROPHULARIACEAE]

tnúta’ú: colorín, pipal (DUX) probably Erythrina sp., LEGUMINOSAE
[PAPILIONACEAE]

**tnútayátyu:** tronadora, nombre científico Tecoma stans (DUX)

**tnútayatu:** tronadora; es de naturaleza caliente; sirve para el empacho, la diarrea (TIL)

[tnú taa žatu] Tecoma stans (L.) Juss. ex Kunth, BIGNONIACEAE

**yatu:** astringente, poderoso como el alumbrí, las sales de plomo, el hierro, etc., algo que entume la boca / pícoso / calzón **yatun:** baúl, veliz (CAB)

**tnútxifí:** un tipo de flor roja, silvestre (DUX) The etymology appears to involve ta-, ‘flower;’ alternatively, it may involve the ‘animal/round object’ marker.

**yúkú tachi tnútayókô:** un tipo de hierba medicinal, literalmente ‘hierba del aire de árbol de flor de vapor’ (DUX)

**tuta’a:** parota (PIN) Enterolobium cyclocarpum (Jacq.) Griseb., LEGUMINOSAE

[MIMOSACEAE] Este semilla lo comen las vacas, anteriormente lo comía la gente, se hierve y se esponja como frijol, ya le quita uno la concha gruesa, lo de adentro está blandito, está sabroso como frijol. **chiti tua’á:** la semilla

**tuta’an:** el árbol guanasatli (CHY) [tu tahan]

**tutaján** (KAP) Enterolobium cyclocarpum (Jacq.) Griseb., LEGUMINOSAE [tutaján]

**tunta’an:** parota, árbol conocido en la costa (CAB)

**tun 5 ta 1 kwi 525** (YLX) Gliricidia sepium (Jacq.) Steud. LEGUMINOSAE

(PAPILIONACEAE) kwii: ‘green’ ta- relates perhaps to ita

**tontami / tnutnami:** árbol de canela (CAB)

  * doo yutnu tami: ‘cáscara de planta olorosa’, canela (CAB)
  * doo yutnu / joo yiton: cáscara o corteza del árbol (CAB)
  * doo / doo yutnu: cáscara del palo (CGM)
  * soo yutun: ‘ropa de árbol’, cáscara (CAB)
  * ñii yunu: ‘piel del árbol’, cáscara o corteza del árbol (CAB)

**tutau** (MXT) [tu-tanu] Pittocaulon praecox (Cav.) H. Rob & R.D. Brettell [synonym: Senecio praecox DC.], COMPOSITAE **tanu:** soyate / topil / se va a destruir; ta’nu: grande en edad, sabiduría y experiencia / se va a romper, se va a quebrar (CAB) it seems significant that both this species and Phlebodium, which have been documented to be used in the treatment of fractures elsewhere in the Mixteca, are named tanu or ta’nu.

**yutnu tna’nu** (ACÑ, Relación de Zacatepeque) Hay otro árbol, que ellos llaman en su lengua yutñutñanu, que la leche deste árbol, untada donde estuviere alguna quebradura de pie o brazo, sana y suelda luego: llámanslo los mexicanos poztepatli. Zacatepeque is present day Santa María Zacatepec, district of Putla, Oaxaca **na’nu / ta’nu / tna’nu:** se va a quebrar o se va a romper (CAB); poztequi: quebrar palo o cosa assi (de Molina, 1571); poztepahtli: plant used in treating fractures (Karttunen, 1983)

**tutawí:** jarilla (MIC) probably Baccharis salicifolia Crece a las orillas del río.

---

116
tontavi: jarilla (NGO) [ton tavi] Dodonaea viscosa (L.) Jacq., SAPINDACEAE  Para sobar los golpes o fracturas... tavi: va a hilar; ta’u / ta’vi: dolor que se siente hasta en los huesos / pedimento / se va a romper (CAB) The Linnean equivalence may be in error.
tutavi (ZAU) unidentified species used as fodder for livestock
tuta’vi (COI) Baccharis salicifolia (Ruiz & Pavón) Pers., COMPOSITAE  Medicinal, calentado en aguardiente se aplica sobre los pies. ta’vi: dolor que aquebranta hasta los huesos (CAB)
tutavi (MXT) [tu tavi / tu tavii] Baccharis salicifolia
tutavi yuku (MXT) [tu tavi yucu] Baccharis heterophylla Kunth, COMPOSITAE
tindaú: chamizo (CHA) Los de San Miguel lo ocupaban para hacer pólvora para cohetes. tindaú stilá: chamizo de castilla (CHA) Lo ocupan los curanderos para hacer limpias.

tnútái: chamizo... mide tres metros y medio de altura, y sus flores son blancas. Se utiliza para hacer escobas. También se utiliza para pegarse con ellas en el temazcal (DUX)

 tnútau: chamizo del río; es de naturaleza caliente, sirve para el reumatismo (TIL) [tnú tau] Baccharis salicifolia (Ruiz & Pavón) Pers., COMPOSITAE
tau: gracias / pobre / pedimento / dolor / se va a romper; tau’u: dolor (CAB)

tnutawi: chamizo de río o de cuete (DAA) Io inka yunu sa ka na tnutayuxi, ko su ku tnutawi te ku xi in yuku i’ni. Hay otros chamizos como de río o de cuete, es para aliviar el estómago del frío, se utiliza para entrada al temazcal.

tnutavui: chamisa (TAM)

tutayoko / tuyoko (MXT) [tu tayoco / tu yoco] Amelanchier denticulata (Kunth) K. Koch., ROSACEAE  tayoko: deidad, dios / zopilote (CAB) the etymology may involve ita and yoko: tlacuache / tibio, blando / espiga / avispa / panal (CAB)

tutayu / tutayu kua’á: palo de zopilote (PIN) unidentified

tutayu kuichi: cedro blanco (PIN)
tutayu kua’á: cedro rojo (PIN) possibly Cedrela odorata L., MELIACEAE

 tnúte’e: calabaza (DUX)

 tun’ t’u’te’ (YLX) Coccoloba sp., POLYGONACEAE  The etymology appears to involve a reduplication of the marker ‘tree/wood.’

tnutni / tnutni kuisi: cedro (TAM) [tnutni cuisi]

tutia’a (COI) Buddleja sp., SCROPHULARIACEAE [BUDDLEJACEAE]

yutu tia’a / tia’á (PIN) Cochlospermum vitifolium (Willd.) Spreng., BIXACEAE ¿Qué no ve que cuando echa semillas parece un bulito [que e]stá? tia’a: bulé yakua tia’a: También a éste se le saca fácil la yacua, pero el que es blanco, el rojo, colorado, no sirve, se corta; yo lo ocupaba para amarrar el ajonjoli al cosecharlo.
tun^5 tia^1^5 v^1^2 (YLX) Cecropia sp., URTICACEAE [CECROPIACEAE] Amith & Castillo leave open the possibility that tiavi may relate etymologically to vavi, which refers to the joints on the stem of various plants.

tutichi: aquacate (MIC)
totichi: avocado tree (LAC)
tutichi yuku (COI) Persea sp., LAURACEAE El fruto se come pero es poco gustado por ser dulce.
tontichi: avocado tree (ALA)
tutichi: avocado tree (OCO) [tutichi]
tuntichi: aquacate (DUX)
tuntichuu: un tipo de árbol, la gente de la región lo llama ‘aguacatón’ (DUX)
tutiyi: avocado tree (JAM)
tutiti: Persea americana Mill., LAURACEAE (KAP)
yutnu tichi kastiya: higuera (TAM) [yutnu techi castilla]
yutnu nda’ya tichi / yutnu tichi ñuu kuii: laurel (TAM) [yutnundaya techi / yutnu techi ñuu cuij]
utittyi / tonittyi / tontiki / tnuxityi / tuntikyi / tuntityi: aquacatal (CAB)

nusidichí: cuachalalate (XYA) Amphipterygium adstringens
tusi díchi: cuachalalate (TON)
tontsidichí: chacualala (NGO) [ton tsidichí] Amphipterygium adstringens (Schdl.) Schiede ex Standl., ANACARDIACEAE chacualala may be a typographic error for cuachalalá, as this tree is commonly known in Mexico Para los riñones: se prepara el té con la cáscara de este árbol; se toma en ayunas por una semana. (NGO)

tnutidiko / yuku tidiiko: [tnu tedzico / yucu tedzico] diko / djiko / jiko / xiko: olor agradable o desagradable (CAB); isi / xidi / yisi /
yuku tidiiko: eneldo (TAM) [yucutedzico]

tuntiite: zapotal (CAB)

nutiká’á: palma / palmoreal (SMG)
yutu tika’a: palma de coco (PIN) Cocos nucifera L., PALMAE
tyu tika’a chiti: palma de cuyul (PIN) Acrocomia aculeata (Jacq.) Mart., PALMAE
tyu tika’a ñu’u: palma de corozo (PIN) Attalea cohune Mart., PALMAE
tutika’a: el cocotero (CHY) [tu ticaha]
tunduká’á: coconut palm (JAM) Following the prefix tu-, used for tree names, the fruit prefix is ndu- rather than ti-. (Johnson, 1988: 107)
yutnu tika’a kastiya: nogal (TAM) [yutnu ticaha castilla]
tunka’a / tundika’a / yutun tika’a: cocal, árbol de coco (CAB)

tnútka’á kuán: un tipo de laurel amarillo (DUX) The marker ‘animal/spherical object’ appears to be involved in the etymology of this and other Diuxi Mixtec terms.

taxá’á vídii: un tipo de laurel (DUX)
yutnu tika’a danu: laurel (TAM) [yutnutica ha dzanu]
tnuchka cha’me: probably *Ceiba* sp. (CGM) (described as a tree with spines on the trunk; the immature fruit is eaten raw)

tutikachima (MXT) [tu-ticachima] *Ceiba aesculifolia* (Kunth) Britt. & Baker, MALVACEAE [BOMBACACEAE] The etymology may involve *kachi*: ‘cotton,’ and perhaps *ma’a*: ‘raccoon.’

tnutskaka: uña de gato (CGM) probably a species in the LEGUMINOSAE [MIMOSACEAE] tiskaka / tskaka: cuervo

nusikantodo (XYA) *Es una yerba medicinal.* [information provided by a person whose name was not recorded]

nusikava: ciruelo (XYA) *Spondias* sp., ANACARDIACEAE
tusikawa limon: limonero (XYA or TON; de Leon, 1980)

túntikáva: ciruelo (XOC) probably *Spondias* sp.

Kuunní tíkáva kuiya viñi chi iyóni ita túntikáva. Los ciruelos van a producir muchas ciruelas este año porque tienen muchas flores. (XOC)

*tun*tía ¹⁺va ⁵⁺kwa⁺a ¹: ciruela (YLY) *Spondias purpurea* L. *kua’a*: ‘red’

*tun*tía ¹⁺ba ⁵⁺kwa⁺an ² (YLY) *Spondias purpurea* kuaan: ‘yellow’

*tun*tía ¹⁺ba ⁵⁺yu⁺ku ³ (YLY) *Spondias purpurea* yuku: ‘of the mountain, wild’

tuntikava: ciruelo (AYU; de Leon, 1980)

tukava: *Psidium oerstedianum* O. Berg, MYRTACEAE (SEL) [tucava]
yutu tíkava: ciruelo (PIN) *Spondias purpurea* L., ANACARDIACEAE *Hay de diferente, el amarillo, el colorado, el criollo que le decimos... el café.*

tundukává: plum tree (JAM) Following the prefix *tu-*, used for tree names, the fruit prefix is *ndu-*, rather than *ti-*. (Johnson, 1988)

tutikava: el ciruelo (CHY) [tu ticava]
tnuticavua: ciruelo (TAM)

nusikava / tunsikava / yutun sikava: naranjal, limar (CAB)

*nusikava ia*: ‘limar agrio’, limonar (CAB)

*tnutskaya: chupandía [referring to the plant] (CGM) *Cyrtoarpa procera* Kunth, ANACARDIACEAE *kaya*: va a abundar / va a toser (CAB)

*nusikaya: coco, coquito (XYA) *Cyrtoarpa procera* Le dicen coquito porque se come lo de adentro de la semilla, es blanco. ‘They call it little coconut because the inside of the seed is edible, it’s white [like coconut flesh]’

*tnútkéê: un tipo de arbusto... tiene hojas brillantes. Da pequeñas frutas azules y flores blancas* (DUX)

*tnutké: Comarostaphylis polifolia* (Kunth.) Zuccarini ex Klotzsch , ERICACEAE (SEL) [tnu-tqué]

*tnotsiki: cuatololote (CAB) cuatelolote: *Phyllanthus acutus* (L.) Skeels, PHYLLANTHACEAE; cuautololote, tololote: *Andira inermis* (Wright) DC., LEGUMINOSAE (Martínez, 1979)
unidentified species in the BORAGINACEAE  
tikin: ‘squash seeds’

tnatskuayú: árbol de guayaba (CGM)
tskuaua: guayabo (MIC)
tokuáá: orange tree (LAC) [tukwaá]
tutikuuaa: coyotomate (ZAU) [tuti cuá]  Vitex mollis Kunth, LABIATAE [VERBENACEAE]
tutikuuaa xanu (COI) Litsea glaucescens Kunth, LAURACEAE  The leaves are used to flavor coffee and cooked silacayote (Cucurbita ficifolia); the epithet xanu, ‘cigar,’ suggests it served to aromatize tobacco formerly.
tutikuuaa ndiki (MXT) [tu ticuántiki]  Psidium guajava L., MYRTACEAE
tutikuuee: árbol cítrico (DUX)
tutikuuee chía: naranjo (DUX)
tutikuuee ndíú: un tipo de limonero (DUX)
tutikuuee ráx: un tipo de limonero (DUX)
tutikuuee vídi: un tipo de limonero (DUX)
yutyikuayu: guayabo (PIN)  Psidium guajava L., MYRTACEAE  yuu: piedra  ¿Qué no ves que cuando está tierno [el fruto] está duro, pués?"
yutyikuayu lekue: guayaba de conejo (PIN)  probably Psidium sp.  Synonym: yuty kuayu yukunexu lekue: aguado  Porque cuando nadie la corta y madura se pone aguado, aguado, lekue.
	ikuayu nuni: guayabillo (PIN)  probably Psidium sp.  Mata más pequeña, porque echa la guayabita como granos de maíz. Las tres son medicinales, para golpes, para caldear con hoja del cáncer y cuachalalá.
tundukuáá: orange tree (JAM)  Following the prefix tu-, used for tree names, the fruit prefix is ndu-, rather than ti-. (Johnson, 1988: 107)
tutukuuaa kua’a: el toronjo (CHY) [tu tucuuaa cuáha]
tutukuuaa sina: el naranjo (CHY)
tutukuuaa vixi: el limero (CHY)
tutukuuaa yuu: el guayabo (CHY)
tnutikuuaa: naranjo (TAM) [tnutiquaa]
yutnu tikuuaa iya kuachi / tikuuaa in ndodo: limon arbol (TAM) [yutnutiquaa yya quachi / tiquaa indodzo] in: uno; ndodo / ndojo / ndoso: chiche (CAB)
yutnu tikuuaa lima: lima, arbol (TAM) [yutnutiquaa lima]
nutikuuaa / tnutkuuee / tuntikuuaa / trukuaa: naranjal, limar (CAB)
nutikuuaa iya / tuntikuua a / yunu tikuuaaya: ‘limar agrio’, limonar (CAB)
tnutikuuee dijin: ‘limar de nariz’, limar (CAB)
tnutikuuee ndíu / tuntikuuaa ndíu: ‘limar hueso’, limonar (CAB)

tnutkuáân: un tipo de arbusto, nombre científico: Polynnia oaxacana (DUX)  if the taxonomic identification is reliable, this is Polynnia oaxacana Schultz-Bipontinus ex Klatt, COMPOSITAE

yutyiku’a’ndi: guamúchil (PIN)  probably Pithecelllobium sp., LEGUMINOSAE  la vaina: tiku’a’ndi

120
tundua tikuanda (MXT) [tu ntúa ticuanta] Leucaena diversifolia (Lam.) de Wit., LEGUMINOSAE [MIMOSACEAE] tikua’ndi: guamúchil (CAB)

yutu tikúá: tamarindo (PIN)
tundukúva: tamarind tree (JAM) Following the prefix tu-, used for tree names, the fruit prefix is ndu-, rather than ti-. (Johnson, 1988)

tunama: higuerilla (TON)
tontsinama: higuerilla (NGO) [ton tsinama] Ricinus communis L., EUPHORBIACEAE
itun tináma / yitun tináma: higuerilla (CTZ) nágma: jabón, detergente

tun5 ti1na1na5 ndu1xi5 (YLX) unidentified species in the SOLANACEAE Amith & Castillo have documented four types of tinana nduxi, one of which bears edible fruit (marked with the epithet va’a, ‘good’); the etymology is ‘tomato + chicken’

tnútnañá: un tipo de roble (DUX)
tnútñaña: cucharal; es de naturaleza caliente; sirve para los dientes que se aflojan (TIL) Quercus sp., FAGACEAE tanaña / tinaña / tinaña: chayotal (CAB)

tnútndíúkú: un tipo de hierba (DUX)

tnutsnán: tempesquistle (CGM) Bumelia laetevirens Hemsl., SAPOTACEAE
tu siniáun: tempesquistle (MIC)

nusiní: venenillo (XYA) Thevetia sp., APOCYNACEAE
tusini: venenillo (TON) Thevetia sp.
tontsinii: venenillo (NGO) Thevetia thevetioides (Kunth) K. Schumann, APOCYNACEAE Los huesos sirven para curar el incordio… (NGO)

tnutiniñí: madroño otro mas colorado (TAM) [tnu tineñe] neñe: mazorca ya seca (TAM)

tun5 ti1nu5u5 (YLX) unidentified species tinu’u: amole [soap plant] (CAB)

tnútndíú: un tipo de arbusto, sus hojas crecen alrededor de los tallos. Se muelen las hojas… y se usan para curar quemaduras (DUX)

tutindixi yuku (MXT) [tu tintishi yucu] Oreobatus trilobus (Seringe) Rydb. [synonym: Rubus trilobus Seringe], ROSACEAE tindixi / tsintsidi / tyindise: granada (CAB)

tnutsindziní / tnutsindzidí: árbol de granada (CGM) ndzidi: elote

tu sioko (MIC) unidentified The marker ti- for animals and round objects becomes si- in Micaltepec and neighboring dialects

tun5 tio1o3 (YLX) Licania platypus (Hemsl.) Fritsch., CHRYSOBALANACEAE tio: ‘root’
tun5 tio1o3 sa3in5: zapote amarillo (YLX) unidentified species in the SAPOTACEAE
sain: ‘corn cob’

tun\(^5\) \(t\)i\(^1\) sa\(^5\) k\(\)i\(n\)\(^{35}\) ña\(^{5}\) nu\(^3\) (YLX) Randia tetracantha (Cav.) DC., RUBIACEAE Amith & Castillo note that the etymology, ‘penis + scratchy,’ appears to refer to the shape of the fruit; ña\(^{n}\)u: ‘large [plural]’
ti\(^1\) sa\(^5\) k\(\)i\(n\)\(^{35}\) kwa\(^{5}\) chi\(^{3}\) / tun\(^5\) (YLX) Randia armata (Sw.) DC. subsp. armata, RUBIACEAE kwachi: ‘small’

tun\(^5\) \(t\)i\(^1\) si\(^{3}\) vi\(^{2}\) (YLX) Genipa americana L., RUBIACEAE t\(\)i\(s\)i\(v\)i: escarabajo, mayate (CAB) Amith & Castillo relate the etymology to si\(v\)i, ‘excrement,’ because of the aspect of the pulp and seeds when the ripe fruits land on the ground

yutu tisu’ma: macuil (PIN) Tabebuia sp., BIGNONIACEAE
tisu’ma: alacrán “alli sino le puedo detallar [por qué]”

yutun tisu’ma: ‘árbol de alacrán’, macuil (CAB)

ndusu’ma / tisu’ma / tundusu’ma / tunsu’ma: macuil (CAB)

tontsiditon (NGO) [ton tsiditon] Solanum erianthum D. Don. [synonym: Solanum verbascifolium L.], SOLANACEAE
tnútítnu / tútítnu: berenjena (DUX) ... se calientan las hojas ... y se ponen encima del estómago empachado titno / titon / titun: leño, leña; titnuu / tyituun: carbón; títoun: gorgojo (CAB)
tnútitnu: hierba loca (TIL) Solanum lanceolatum Cav., SOLANACEAE ...es de naturaleza caliente; sirve para caldearse contra dolores del cuerpo [caldear refers to heating the plant and applying it externally to the afflicted part of the body]

tun\(^5\) tiu\(^{13}\) ma\(^2\) (YLX) Senna sp., LEGUMINOSAE (CAESALPINIACEAE)
tiu\(^{13}\) ma\(^2\): insecto chico Amith & Castillo relate the etymology to the small bees that polinize this species.

tutu'vi / nduku ti'vi (COI) Baccharis conferta Kunth, COMPOSITAE Tallos para barrer, hojas medicinales para dolor de muela. ti'vi: to sweep

tusiyatu: súchil (TON) Astianthus viminalis Baill., BIGNONIACEAE Etymology appears to involve the marker si- ‘animal/round object’

tuton ndyi'i: árbol de viruela (APO) [tutonnchi'i] This species is cited together with yutu nda’a ndee, tuyoko, tuiña and tuínu di’in as one of the shrubs, whose wood is flexible and resistant, from which the 13 staffs (vara cruz) are fashioned for the incoming teniente and policías on December 31st (López García, 2007: 148) ndyi'i: color morado / todo / está bajo / se va a acabar / liso, resbaloso / grano / gordo (CAB)

tnunimá: cazahuate (CGM) Ipomoea sp., CONVOLVULACEAE nima: corazón / cera / pluma de ave (CAB) This may not be a cognate of nusi’ma and tnútnú’á.
nusiu’ma: cazahuate (XYA) Ipomoea sp., CONVOLVULACEAE
tusiuma: cazahuate (MIC) siumi: tecolote o buho (CAB)
tontsio’ma koo: cazahuate blanco (NGO) [ton tsio’ma koo] Ipomoea murucoides Roemer & Schultes, CONVOLVULACEAE koo: serpiente, víbora / se va a desgranar (CAB) …las ramas cuelgan dando un aspecto característico como si estuviera sentado, de ahí su nombre en mixteco ton tsio’ma koo…. [this may be a folk etymology] Para los latidos muy fuertes de las venas: el agüita o jugo que se encuentra en la copita de la flor, calma los nervios o reduce los latidos, se toma el contenido de unas seis copitas cuando uno anda en el campo; en ocasiones produce bostezo y hasta sueño, como que emborracha… (NGO)
tontsio’má kooi: cazahuate verde (NGO) [ton tsio’ma kooi] Ipomoea wolcottiana Rose, CONVOLVULACEAE kooi: serpiente, víbora / se va a desgranar (CAB) …las ramas cuelgan dando un aspecto característico como si estuviera sentado, de ahí su nombre en mixteco ton tsio’ma kooi…. [this may be a folk etymology]

yutu tronjil: toronjil (PIN) Dicen que sí es medicinal.

tutuka’a (MXT) [tu tuka’a] Litsea glaucescens Kunth, LAURACEAE
The etymology in this and the following term appears to involve a reduplication of the marker.

tutuku’u (MXT) [tu tu ku’u] Baccharis pteronioides DC., COMPOSITAE

yito tuun / yunu noo: encino negro (CAB)
tnunoo: acahual (CGM) unidentified species in the COMPOSITAE  Se llenan los terrenos de acahual; se ocupa como pastura y para hacer choza.

tnunoo kua’a: acahual rojo (CGM)

tnunoo kuan: acahual amarillo (CGM)

nunu’u: cahual (XYA)
nunu’u kua’a: cahual colorado (XYA)

tu nu’u: cahual (TON) Not Tithonia sp. but said to be a similar, smaller species in the COMPOSITAE  ita nu’u es la flor

yita tunuu: acahual (ZAU) [yita tunu] Tithonia tubaeformis (Jacq.) Cass., COMPOSITAE

tnútnu’u vía: acahual... el acahual se parece a la hierba tnútnu’u ndáyu, nomás que las hojas del acahual son lisas y las de la otra planta son ásperas. Las flores del acahual son redondas y amarillas (DUX)  vía / wita: blando (CAB)

tnútnu’u ndáyu: un tipo de hierba espinosa (DUX)  ndai / ndayi / ndayi / ndayu: está rasposo (CAB)

tutyeje (KAP) Coccoloba barbadensis Jacq., POLYGONACEAE [tu-tyejé]

nundyitia: cuajilote (XYA) Parmentiera aculeata (Kunth) Seemann, BIGNONIACEAE

tusinchitiá: cuajilote (TON)
tundyitiá: cuajilote (MIC)

chitá: mata de plátano (XOC) [chita: plátano]

Kuá’áni  itún chita chi’íj, ta vitin íyoní chita ve’ej.
Sembré muchas matas de plátano y ahora hay muchos plátanos en mi casa (XOC)

tun chitya: árbol de plátano (AYU; de Leon, 1980)

yutu tutita: mata de plátano (PIN)

yutu tunita kua’a: zapote mamey (PIN) Pouteria sapota (Jacq.) H.E. Moore & Stearn, SAPOTACEAE)

yutu tunita tuun: zapote prieto (PIN) Diospyros digyna Jacq., EBENACEAE

tinyítya: la mata de plátano (SJC)
tutyítya: la mata de plátano (CHY) [tu tyitya]
tundyítya: banana plant (JAM)

nutyite / nutyitya / tunyítsa: platanar (CAB)

4.3.17  Cognate sets and individual terms with initial <ts>

tutsa’an (MXT) [tu-tsa’an] Cedrela oaxacensis C. DC. & Rose ex Rose, MELIACEAE

jia’an / tsá’an / xa’an: huele (CAB)

4.3.18  Cognate sets and individual terms with initial <v>

tonvako: árbol de café (CAB)
sivoko / tivako / tsivako / tyivako: nanche (CAB)
**yutun vati / yutun vati:** toronjil (CAB)

**yutu tuvaxi:** huaje (PIN) probably *Leucaena* sp., LEGUMINOSAE [MIMOSACEAE]

*El de la costa es más dura la vaina.* **vaxi:** la vaina del huaje

**vaxi** looks like a direct borrowing from Náhuatl

**tuvenenu:** venenillo (MIC) probably *Thevetia* sp., APOCYNACEAE

**tuvichí (MXT) [tu vichí]** *Juniperus flaccida* Schlld., CUPRESSACEAE

**tuvilí / turrayadu:** rayado (MIC) *Ehretia tinifolia* L., BORAGINACEAE

**vili:** juguete / bello, bonito, guapo, precioso (CAB)

**tuvini (MXT) [tu vini]** *Lysiloma acapulcensis* (Kunth.) Benth., LEGUMINOSAE [MIMOSACEAE]

**nuvi’ndia:** nopal (XYA) *Opuntia* sp., CACTACEA

**tuvi’ndia:** nopal (XYA or TON; de Leon, 1980)

**tu vi’ndia:** nopal (TON) *El que se come no tiene otro nombre.*

**tu vi’ndia kuixí:** nopal blanco (TON) *El que comen los toros.*

**tu vi’ndia yuku** (TON) possibly *Pereskia* sp., CACTACEAE *Tiene espinas largas y tiene hojitas chiquitas, lo ocupan para cercar. Las hojas no se comen.*

**tonvi’ndá:** prickly pear cactus (ALA)

**tümí’ndya [?] (MXT) [tu mincha]** *Opuntia tomentosa* Salm-Dyck, CACTACEAE

**nuvi’ncha:** tunal (SMG)

**tnuívítnd:** nopal (UX)

**tun mi’nde:** prickly pear (OSP)

**tuviña (MXT) [tu viña]** *Berberis moranensis* Hebenstr. & Ludw., BERBERIDACEAE

**tuviñu kuitsí (MXT) [tu viñu cuitzí]** *Acacia farnesiana* (L.) Willld., LEGUMINOSAE [MIMOSACEAE] **kuisi / kuití / kuítsí:** bajo, chaparro / corto (CAB)

**tuviñu ndyai / tuviñu ndyaya [?] (MXT) [tu viñu nch’ai / tu viñu nchai / tu viñu nchaya]** *Acacia pennatula* (Schldl. & Cham.) Benth., LEGUMINOSAE [MIMOSACEAE] **ndyaa:** color azul / color gris (CAB)

**tuviñu tsivatu (MXT) [tu viñu tsivatu]** *Acacia aff. cochliacantha* Willld., LEGUMINOSAE [MIMOSACEAE]

**tuviñu xi’ín (MXT) [tu viñu shi’in]** *Mimosa lacerata* Rose, LEGUMINOSAE [MIMOSACEAE] **xi’ín:** gotea / está muriendo / pierna (CAB)

**yutu tuví:** tanolocote (PIN) Porque huele a novia, de fresco no huele; árbol para hacer la ramada cuando se va a casar la novia, porque huele mucho, a los dos, tres días viera cómo huele la hoja. **Tamalocote** is an unidentified species of tree in the Jamiltepec district.

**yitu vixi:** palo dulce (ZAU) [yitu bishi] *Eysenhardtia polystachya* (Ortega) Sarg., LEGUMINOSAE [PAPILIONACEAE]
tnúvixya: álamo, literalmente ‘árbol de hojas cenizudas’ (DUX) viji / vixi / viyi: hoja (CAB)
yutnu yaa / yutnu sa’a: alamo bláco (TAM) [yutnuyaa / yutnusaha]

yutu vokote: bocote (PIN) Cordia dentata Poir., BORAGINACEAE Muy buena la madera.

4.3.19 Cognate sets and individual terms with initial <w>
yutnu wisi danu: laurel (TAM) [yutnu huisi dzanu]

4.3.20 Cognate sets and individual terms with initial <x>
duxa: todas las clases del incienso (CGM)
duxa: chicle (CGM) This may vary in its tonal pattern from ‘incense.’
tuxa: ocote (ZAU) [tuusha] Pinus ayacahuite Ehrenb. ex Schltd. / Pinus lawsonii Roezl. ex Gordon / Pinus michoacana Martínez var. cornuta Martínez / Pinus michoacana Martínez forma tumida Martínez / Pinus montezumae Lamb. / Pinus montezumae Lamb. forma macrocarpa Martínez / Pinus oocarpa Schiede ex Schltd. var. ochoterenae Martínez / Pinus pringlei Shaw / Pinus pseudostrobus Lindl. / Pinus oaxacana Mirov [synonym: Pinus pseudostrobus var. oaxacana Martínez] / Pinus teocote Schltd. & Cham., PINACEAE
tuxa (COI) Pinus spp., PINACEAE -xa appears to relate etymologically to xuxa, ‘resin,’ ‘copal’
tuxa xa’un (COI) Abies sp., PINACEAE xa’un: fifteen; this may have come about through folk etymological reanalysis based on a cognate of yutnu dañu: pino q´ llamam abeto / abeto arbol (TAM), where dañu appears to be a primary lexeme that was the proper name for firs.
tuxuxa (JIC) Bursera bipinnata (Sess., & Mociño) Engler, BURSERACEAE
toxá: el pino, el ocoatal (CTZ)
xuxa va’a: copal (CTZ)
tunxa’: pine tree (AYU)
tun suxa: árbol de copal (AYU; de Leon, 1980)
tuyutsa: pinos (MXT) [tu yutza] Pinus spp., PINACEAE
tuyutsa kixi (MXT) [tu yutza kishi / tu yutza kishii] Pinus lawsonii Roezl. ex Gordon kidi / kixi / kixi: olla / calentura, reacción del cuerpo por frío o alta temperatura; kixin: pegajoso / se entume (CAB)
tuyutsa kua’a (MXT) [tu-yutza cu’a] Pinus pringlei Shaw
tuyutsa kuitsi (MXT) [tu yutza cuitsi] Pinus oaxacana Mirov kuisi / kuiti / kuitsi: bajo, chaparro / corto (CAB)
yutsa vixi: copal (MXT) [yutza vishi] This term refers to the resin of Bursera sp., BURSERACEAE
**tuyuxá**: pine tree (OCO)

**nuyúxá / chinu / nuyúxá chinu**: pitchpine, torchpine, *ocote* (CHA; Macaulay, 1996)

**nuyújá / nuyúxá**: *ocotal* (SMG)

- yuxá ñú’un: *ocotillo* (SMG)
- yuju / yuxa: hojarasca de ocotal, follaje (SMG)

**nuyuxá**: pine tree (YSN) [nuyushyá]

- yuxia: hojas de ocotal (YSN)

**tnuyuxá**: *ocote* (DUX)

**Kee xaku duxa ñi tnuyuxa. Xini ñu’u duxatnu xa tenee ndeero nuu ntnukue’e ñiño.** Poco copal sale del ocote. Se usa su resina para pegar la piel donde hay una herida. (DUX)

**tnúyuya**: ocote; es de naturaleza caliente, sirve para el mal aire (TIL) [tnú žuža] *Pinus* sp., PINACEAE  **tnúyuya** may be an error of transcription for *tnúyuxa*

**chu’xe**: pine (OSP) “…plant names with initial t or ch, from fused utun ‘tree’…” (Small, 1990, p.405)

**sucha**: chicle (PIN)

**tuyusa**: el palo de ocote (CHY) [tu yusa]

**yutnu yusa / yutnu ite**: pino (TAM)

**dusa / dusa ye’e**: resina (TAM) [dzusa / dzusa yehe]

- dusa dee yutnu: goma de arboles (TAM) [dzusa dzee yutnu]
- dusa tnoo / dusa nikuku: pez (TAM) [dzusatnoo / dzusa nicucu] pez refers to hardened resin, like the kind that is rubbed on violin bows
- ita dusa ya’a: bálsamo (TAM) [ytadzusayaha]
- dusa ye’e / dusa iti: trementina (TAM) [dzusayhe / dzusaite] [yutnu iti / yutnu yusa: pino (TAM)]

**iti dusa**: tea de pino (TAM) [itedzusa]

- iti kavua: quando es trasparente (TAM) [ytetcavua]

**dusa wisi**: los árboles silvestres que a la redonda deste pueblo hay son unos árboles gruesos y altos, de que sacan un licor oloroso a manera de resina, el cual licor llaman en su lengua dellos zusahuysi y, en mexicano, suchicototzol, y en castellano lo llaman liquidámbar (ACÑ, Relación de Xicayan: 309-310) Xicayan is present-day Jicayán de Tovar, municipality of Tlacoachixtlahuaca, Guerrero

**dusa wisi**: los árboles silvestres que a la redonda deste pueblo hay son unos árboles gruesos y altos, de que sacan un licor oloroso a manera de resina, el cual licor llaman en su lengua dellos zusahuysi y, en mexicano, suchicototzol, y en castellano lo llaman liquidámbar (ACÑ, Relación de Xicayan: 309-310) Xicayan is present-day Jicayán de Tovar, municipality of Tlacoachixtlahuaca, Guerrero

**tunś xa”an2 bi’xi1 ñu3 u”2** (YLX) *Cestrum nocturnum* L., SOLANACEAE  Amith and Castillo note that the etymology ‘smell sweet night’ may be a calque from Spanish.

**tuxatu** (MXT) [tu shatu] *Pinus leiophylla* Schldl. & Cham., PINACEAE
This appears to involve an etymology different from Mixtepec tuyutsa, ‘pine.’

tun₅ xa¹⁵ tun⁵: cuartololote (YLX) Andira inermis (Wright) DC., LEGUMINOSAE
xa¹⁴ tun⁵: cajón

yita tuxaya: begonia (ZAU) [yita tushaia] Begonia balmisiana Ruiz ex Klotzsch, BEGONIACEAE

xayu: ‘scrotum’ ndikachi: ‘sheep’ Amith & Castillo explain the etymology by the shape of the fruit.

xayu: “scrotum” ndikachi: “sheep” A
mith & Castillo explain the etymology by the shape of the fruit.

xayu: “scrotum” ndikachi: “sheep” A
mith & Castillo explain the etymology by the shape of the fruit.

4.3.21 Cognate sets and individual terms with initial <y>

tnúyáa: un tipo de roble... La gente de Diuxi usa mucho los robles para los horcones de sus casas porque son muy duros y resistentes (DUX)

tnúyáa kuáán: un tipo de roble amarillo (DUX)

tnúyáa kuixi: un tipo de roble blanco (DUX)

tnúyáa nda’a tkádí: un tipo de roble, tiene hojas cucharudas (DUX) tikadi / tikádi / tikasi / tikaxi: cuchara (CAB)

tnúyáa te’e: un tipo de arbusto (DUX)

tnúyáa víkô: un tipo de roble medio cenizo (DUX) viko / wiko: nube (CAB)

nuyaa: encino (YSN)
nuyajnúú: black oak tree (YSN) [nuyaNnúú]
nuyaa jnuu: encino negro (YSN) jnuu: negro

nuyakuáán: yellow oak tree (YSN) [nuyakwáán]
nuyaa kuaan: encino amarillo (YSN)
chaá: oak (OSP) “…plant names with initial t or ch, from fused utun ‘tree’…” (Small, 1990, p.405)

yutnu yaa / yutnu yata: roble (TAM)

tun yaa / yiton yaa / yutnu yaa: encino lengua de cabra (CAB)

  nuyaa juaan / tunyaa kuaan: encino amarillo (CAB)
  tunyaa kuiji: encino blanco (CAB)
  tnaa kuiji / tyaa kuixi: encino blanco (CAB)
  nuyaa kuiji / tunyaa kuiji: encino blanco (CAB)
  tyaa ndei / yutun ndei: encino negro (CAB)

  nuyaa nuu / tunyaa tnuu: encino negro (CAB)

  nuyaa juaan / tnuyaa kuaan: encino amarillo (CAB)
  tunyaa kuiji: encino blanco (CAB)
  tnuyaa: tepozán (DAA) [tnuyaa kuaan] Buddleja sp., LOGANIACEAE

  yaa: ceniza / nuevo / lengua / color gris (CAB)  La hierba es estética y se considera fresca… En el tratamiento de cortadura: se prepara tres puntas de la planta por medio litro de agua, se pone a hervir, se enfría y se lava la herida una vez al día hasta que sane la herida. (DAA)

yutnu yaa / yutnu sa’a: alamo bláco (TAM) [yutnuyaa / yutnusaha]

  nuyaa kua’a / nuyakua’a: cuajioite (XYA) Bursera sp., BURSERACEAE
  tuyaa kuixín: cuajioite (TON) kuixín: white
  tuyaa kua’a: cuajioite (TON) kua’a: red
  tu yaa: cuajioite (MIC) Bursera spp., BURSERACEAE  Hay amarillo y hay rojo.

  tun⁵ ti’ya⁴ i ni⁵³ / tun⁵ ti’ya⁴ ma’chi³ (YLX) Curatella americana L., DILLENIACEAE

  Amith & Castillo do not consider tiya to be analyzable; they explain ini to refer to a local, more xerophytic type of vegetation, probably conditioned edaphycally; machi: escama, ‘[fish] scale’
  tun⁵ ti’ya⁴ kwa’⁵¹ (YLX) Bursera aff. simaruba, BURSERACEAE  kwa’a: red

  The rationale for grouping this species together with Curatella appears to be symbolic: Amith & Castillo report that the bark of either species (but primarily Curatella) is used in the cambio de año [?] ceremony [23.], and in the rituals to cure espanto.
  tun⁵ ti’ya⁴ nda’kwa² (YLX) unidentified species, possibly in ANACARDIACEAE

  tuyaa: mulato (PIN) Bursera aff. simaruba (L.) Sarg., BURSERACEAE  The etymology is not transparent to don Pedro López López; pronounced tuzaa.

tun yaa (SEL) Zinowiewia concinna Lundell, CELASTRACEAE [tun-yaa]

  tu yuku yaa: chilar (MIC) Planta de chile
  tun⁴ ya’a: chili plants (AYU)

  Kosora tun’ ya’a te kua’nunu*: He will water the chili plants so that they will grow. (AYU)

  tnuyá’a: chile (DUX)
  tnuyuku yá’: un tipo de chile amarillo, la gente de la región lo llama ‘morongo’ (DUX) probably Capsicum pubescens L., SOLANACEAE

  yutu tuya’a kuán: la mata de chile amarillo (PIN)
  tuyá’a: chili plants (JAM)
chá’a: chili plant (OSP) “…plant names with initial t or ch, from fused utun ‘tree’…” (Small, 1990, p.405)
nukia’a / nuya’a / tnuya’a / tnukui’a / tnuu kuun ya’a / tonya’a / tunya’a / tunyuku ya’a / yitun ya’a / yunu ya’a / yutnu ya’a: chilar (CAB)
tia’a: chilar (CAB)
   ya’a kundi: chilar (CAB)
   yuku kuya’a / yuku ya’a: chilar (CAB)
   ita ya’a: chilar (CAB)
   itu ya’a: chilar (CAB)
   jikuya’a: chilar (CAB)
   kî’a / kuya’a: chilar (CAB)
   nuu kaa tunya’a / nuu nika’ndi ya’a: chilar (CAB)

    tuya’a (COI) Clethra mexicana DC., CLETHRACEAE ya’a: chile / color café (CAB)
    tuya’a (MXT) [tu-y’ya’a] Bursera simaruba (L.) Sarg., BURSERACEAE

    tun’s ya’3a5 ke’su2 / tun’s ndu1u1 is1ta5 ya’3a5 ke’su2 (YLX) Malvaviscus aff. arboreus Cav.,
    MALVACEAE Provides useful bark fiber. kesa: ‘cheese,’ from Spanish queso

    tu yáká (MIC) unidentified

    tuyaka (MXT) [tu yaca] Eysenhardtia polystachya (Ortega) Sarg., LEGUMINOSAE
    [PAPILIONACEAE] yaka: polvo / troje (CAB)

    tnúyákû: un tipo de árbol (DUX) …las hojas… son rasposas
    Xakungatnu io: Este árbol casi se ha extinguido (DUX)

    tuyama itu: rastrojo (PIN) dried stems and leaves of Zea mays

    tuya’mi yutu: guacamote (PIN) Manihot esculenta Crantz, EUPHORBIACEAE
    ya’mi / ña’mi: camote (CAB)

    tiata: encino blanco (ZAU) [tiá.tá / tiahta] Quercus magnoliifolia Née, FAGACEAE
    tu- appears to become ti- before /i/ and /y/ in this dialect
    ata / yata: antiguo o viejo (CAB); yata: arado (CAB)
    tiata: encino chimeco (ZAU) [tiá.tá / tiahta] Quercus obtusata Kunth, FAGACEAE

    tuyata (COI) Quercus sp., FAGACEAE yata: old
    tun’s tia15a5 kwa5an2 (YLX) Quercus sp. kuaan: ‘yellow’
    tun’s tia15a5 tu15un3 (YLX) Quercus sp. tuun: prieto

    tuyata: encino (MXT) [tu yata] Quercus magnoliifolia Née, FAGACEAE
    yuyata [?] (MXT) [yu yata] Quercus obtusata Bonpl., FAGACEAE yuu: piedra (CAB)
    yutnu yata / yutnu ndii: enzina (TAM) [yutu yata / yutnundij]
    yutnu yata / yutnu yaa: roble (TAM) tai yata: [hombre] viejo

    tonyata kusi / tunyata kuijí: encino blanco (CAB)
    tunyata kuan: encino amarillo (CAB)
    tunyata tuun: encino negro (CAB)
tunyata / tunñata / tiata: espino, espinal (CAB)

tnyayi / tonyayi: ágave o magueyales (CAB) These two forms, for which unfortunately no
provenience is indicated, are particularly interesting because they are the only attestation I
have found of the use of the marker ‘tree/wood’ to designate agaves.

tnuyáyu: un tipo de planta, de hojas rasposas y flores amarillas (DU) May be cognate
of COI itia yayu / TAM yayu

nixín / ñaxín: jícara (CGM)
yaxín: jícara (CTZ)
yaxín*: gourd bowl (AYU)
yaxín: jícara (SMG)
tuyachi: palo de jícaro (PIN) Crescentia sp., BIGNONIACEAE pronounced tuyachí
tuyachín (KAP) [tuyachín] Crescentia alata H.B.K., BIGNONIACEAE
tiyásñi / tiyásñín: el jícaro (SJC)
yatsín / yatsí: la jícara (SJC)
itun ndixi / nuxaxi / nuyaji / nuyaxi / nuyayi / tun exi / tunñaji /
tunyaji / tunyatsí / tunyatsi / tunyatsi / tunyaxi: ‘árbol de jícara’, jícaro (CAB)
*yexí*: jícara - gourd (JOS)

nuidi: palo de aguacate (XYA)
nuyísí: el aguacate, aguacatal (SMG)
tnyyidi: aguacate (TIL) [tnú źíóí] Persea americana Mill, LAURACEAE
tnuyísí: aguacatal (CAB)

isi / xídí / yede / yisí / yídí: hoja de aguacatal (CAB) Es de naturaleza caliente;
sirve para alivio [childbirth?], presión, arrugas.

nuyíkí: lengua de vaca, árbol (SMG)
nuyíkí: lengua de vaca (CHA)

tnuyíkí: un tipo de huizache (DU) yíkí: vértice (CAB); iki / leke / xiki / yiki / yíkí: hueso
(CAB)

tnuyíkí íñú: un tipo de planta espinosa (DU)

tnuyíkí / yunu yíkí: ‘árbol con hueso’, espino, espinal (CAB)

ton yiko kuaan: encino amarillo (CAB)

tyokó (MIC) unidentified

tuyoko (JIC) Vismia sp., HYPERICACEAE [GUTTIFERAE]
tuyoko / tutuyo ko (MXT) [tu tayoco / tu yoco] Amelanchier denticulata (Kunth) K. Koch.,
ROSACEAE yoko: tlacuache / tibio, blando / espiga / avispa / panal (CAB)

tnuyóko: un tipo de yagalán (DU)

tnuyóko tndíyí: un tipo de yagalán (DU)

tnuyóko víñú: un tipo de yagalán (DU)

tuyoko: arbusto de panal (APO) This species is cited together with yutu nda’a ndee,
tutonndyí’í, tuína and tuiñu di’in as one of the shrubs, whose wood is flexible and
resistant, from which the 13 staffs (vara cruz) are fashioned for the incoming teniente and policías on December 31st (López García, 2007: 148)

**tnuyoko**: *Ceanthus coerules* Lag., RHAMNACEAE (SEL) [tnu-yocó]
**yutnu yoko kuaan**: box arbol (TAM) [yutnuyocoquaa]

**nuyoo**: carrizo (XYA)
**tuyoo**: carrizo (XYA or TON; de Leon, 1980)
**tonyoo**: carrizo (MIC)
**tonyoo**: carrizo (NGO) [ton yoo] *Arundo donax* L., POACEAE  Se utiliza para cortar el ombligo del recién nacido: se corta la parte tierna o la punta de la hoja y sale el filo listo para cortar... (NGO)
**tnuyóó**: bamboo (ALA)
  **yóó**: reed (ALA)
**nuyoo**: carrizal (SMG)
**nuyoo**: carrizo (CHA)
**nuyoo**: carrizo (YSN)
**tnúyóô**: un tipo de carrizo (DUX)
  **tnúyóó íñû**: un tipo de carrizo espinoso (DUX)
**choo**: carrizo (OSP) “…plant names with initial t or ch, from fused utun ‘tree’…” (Small, 1990, p.405)
**tuyoo**: popote (PIN)
**tuyoo**: el carrizo (CHY) [tu yoo]
**tnuyoo**: caña (TAM) attested by *yo tnuyoo / tnuyooyu*: caña hueca
**danu yoo / yoo ino / yoo dano**: caña de poquiste (TAM) [dzanuyoo / yooino / yoodzano] This attestation, which alludes to the tobacco-filled reeds of pre-Columbian tradition, is evidence that yoo designated *Phragmites* originally, as *Arundo* was introduced by the Europeans.
**yoo kuachi / yoo nine**: carrizo (TAM) [yooquachi / yoonine]
**nduyoo / nuyoo / tioo / tiyoo / tontiio / tonyoo / tnyoo / tnuyoo / tunyoo / tyoo / yitntyoo**: *carrizal, carrizo* (CAB)
**tuyoo** (COI) unidentified species in the CELASTRACEAE  *Hojas para adornar altares, especie preferida.*
**tun yoo**: fresno (AYU; de Leon, 1980)

**tnuyo’o**: zacate (CAB)

**tuyoso chu’un / yuku yoso chu’un** (MXT) [tu-yoso chu’un / yucu yoso chu’un]
*Karwinskia humboldtiana* (Schult.) Zucc., RHAMNACEAE
**yojo / yoso / xodo**: llano, planicie / metate; *tyu’un*: va a quemar / chitextlahua (CAB)

**tnuyu’a**: enebro (DAA) [tnu yu’a]  *Juniperus deppeana* Steud., CUPRESSACEAE  
**yu’a**: hielo, nieve / hilo / espeso (CAB) This species of juniper is used in the treatment of ailments caused by coldness and aire: Xenie’un xi sa ko’o ñayiwi kida u’u ña’an ndidi, sa kutona ñayiwi tna’an kue’e kaxi, te sa tna’an kue’e
tachi. Ñayiwi tna’a yunu ya’a ndidaa dene nde duwa’a xi. Ñayiwi tna’an tachi ku’i a naku’a xi’in yunu wixi yunu ya’a dene xi’in sañini. kue’e kaxi: enfermedad de frio, reuma / ‘enfermedad de frialdad’, catarro, gripe; tatyi: aire, viento (CAB) Two kinds of this plant are recognized, one with thorns, the second one without thorns: Io uu nuu yunu ya’a, in sa io iño te inka sa ña tuu iño. Kada u’u ña’a xi nusa tuni ko’o nuxi. Tawa nu nduko o in ndawa o in sa’a we’e. (DAA)

tuyuchi (MXT) [tu yuchi / tu yuchii] Fraxinus uhdei (Wenzig) Lingelsh., OLEACEAE

tenyuku: ahuehuete (CGM)
nuyukún: sabino (XYA)
tuyuku: sabino (MIC)
tuyuku (MXT) [tu yucu] Taxodium mucronatum Ten., CUPRESSACEAE
tuyuku: ahuehuete (TXA) Taxodium mucronatum
nuyúkún: sabino, pino (SMG)
nuyukún: cypress tree (YSN)
tnúyújún: sabino (DUX)
tnuyukun: sabina (TAM) [tnuyq]

tenyukun kastiya: cipres arbol (TAM) [tnuyq castilla]

tenyóku / tinyóku: el árbol de aguacate (SJC)

tenýyuku ñama: lengua de vaca (TIL) [tnú žuku ñama] Buddleja sp., LOGANIAEAE

Es de naturaleza caliente; sirve para anginas, heridas, empacho.
tenýyuku ñámâ: lengua de vaca (DUX) dama / ñama / xama / yama: totomoxte (CAB)
tenýyuku ñama yúkú: un tipo de lengua de vaca silvestre (DUX) ...se hace té de las raíces... y se toma para curar la enfermedad de mal aire

tenýyuku yaa: mostazón (TIL) [tnú žuku żaa] Nicotiana glauca Graham, SOLANACEAE

Es de naturaleza fría; sirve para los piojos. yaa: ceniza / nuevo / lengua / color gris (CAB); the epithet seems to refer to the salient glaucous color of the plant

tenýyuku yúu: un tipo de arbusto... crece de un metro a un metro y medio. Es verde cenizo y muy espinoso. Sus hojas son grandes y redondas (DUX)
yúkú yúú: un tipo de arbusto, literalmente ‘hierba de cañada’... es espinoso. Sus hojas son muy grandes. Tiene flores moradas que no tienen ningún uso (DUX) probably Wigandia urens (Ruiz & Pavón) Kunth, HYDROPHYLLACEAE

tenyukun: encino (XYA or TON; de Leon, 1980)
tu yukun: encino (TON)

tundu: madroño (COI) Arbutus xalapensis Kunth, ERICACEAE
tuyundu (MXT) [tu yuntu] Arbutus xalapensis

tuyulu: modroño (SOT) Arbutus xalapensis yulu designates the fruit, tuyulu the tree
nuyu’ndú: modroño (SMG)
tnúyú’ndu: un tipo de madroño, nombre científico: Arbutus glandulosa (DUX)

tnúyú’ndu kué': un tipo de madroño rojo (DUX)

tnúyú’ndu kuíxí: un tipo de madroño blanco (DUX)

tnuyu’ndu: madroño (TÁM) [tnu yúndu]

nuyu’ndu / tiu’ndu / tnu’ndu / tnuyu’ndu / tun ñu’ndu / tun yu’lu / tun yu’ndu: madroño (DUX)

tnuyutu: quiote (CGM) inflorescence of Agave spp.

nuyutu: quiote (XYA)

tuyutu: quiote (MIC)

tnuyutú: quiote macizo (DUX)

yutu yáu: quiote de maguey (SMG)

tnuyutnu ye’e yuu: ‘árbol pie de piedra’, árbol de higo de monte (CAB) probably Ficus sp., MORACEAE

tuyuu (KAP) [tu-yuu] Casearia arguta Kunth, SALICACEAE [FLACOURTIACEAE]

tuyu’u (MXT) [tu yu’u] Quercus candidans Née, FAGACEAE

tun yuva: huaje (AYU; de Leon, 1980)

tuyuxí: azomiate (MIC) Ése lo agarra también cuando se cura la gente, es muy buena para aire.


(ita) tuxi (COI) Barkleyanthus salicifolius (Kunth) H. Robinson & Brettell, COMPOSITAE La flor se usa como adorno para altares.

toxí / yuku toxí: el sumiate (CTZ)

  Yuku toxí kúaña xiníñu’un ta nikuati.
  El que reza es el que necesita las yerbas del somiate (CTZ)

nuyújí: chamisal amarillo (SMG)

nuyúxí: chamizo (CHA)

tnútayuxí: un tipo de árbol, literalmente ‘el árbol de la flor del mal de ojo’... Las flores... son amarillas. Se utilizan para limpiar a las personas a las que les han hecho ojo (DUX) kue’e ndoko / kue’e ndutyi nuu / kue’e nuu / kue’e tinuu: mal de ojos; kue’e ndyu’u / kue’e yi’vi / kue’e yu’u: enfermedad de susto (CAB)

tnútayuxí: chamiz blanco (TIL) [tnú taa žuši] Barkleyanthus salicifolius (Kunth) H. Robinson & Brettell, COMPOSITAE Es de naturaleza fría; sirve para catarro, mal del ojo, veneno.

tnutayuxí: chamiz blanco (DAA) [tnu tayuxí] Barkleyanthus salicifolius (Kunth) H. Robinson & Brettell, COMPOSITAE [(CAB)] Se utiliza para limpia, cuando se tiene ojo, espanto...

nuyuji: chamizal amarillo (CAB)
This long list is far from exhausting the taxa of plants that are marked with tun-/tnu-/nu- in the Mixtec languages. The examples illustrate how the nominal category is simultaneously narrower and broader in its composition than groupings like Tzeltal te’ (Berlin et al., 1974) or Aguaruna numí (Berlin, 1992: 173), which seem to correspond more closely to the concept of ‘tree’ in English or árbol in Spanish. It is narrower in the sense that several arboreal species with edible leaves or with perceptually salient flowers are labelled by other markers in Mixtec. It is broader in so much as several shrubs, reeds, large succulents, and even some stout herbs are incorporated into it. Other named groups are similarly eclectic, as we will now examine with a more limited selection of illustrations.

4.4 The plants labeled yuku

Josserand (1983) reconstructed a Proto-Mixtec form *yuku, which she glossed as hierba in Spanish and ‘brush’ in English. The latter interpretation seems unwarranted, as several variants of Mixtec have a separate term for ‘brush, weeds,’ which in Chayuco Mixtec also serves as a generic designation for plants, and perhaps specifically for herbaceous species. Although widespread, this term does not appear to be incorporated into the name for any specific taxon in the documentation that I have been able to review for various dialects:

ku’u: maleza, monte (CTZ)
   Xa ndeéni xavi kua’nu ku’u xa’a yutu. Ya viene creciendo mucha maleza a la milpa. (CTZ)
kü: brush / weeds (AYU)
kokon: matorral, maleza, monte espeso o muy frondoso (SMG)
kü: matorral, zarzal, espesura (SMG) [cuhù]
kü: un tipo de hierba, es alimento para los animales (UX)
kü: genérico, por lo usual algo que no se puede comer, pero hay excepciones; no sirve para medicina; maleza (NX)
ku’u: monte (CHY) [cuhù]
   Kuv ku ssi tuñayxa ka djaniteño níiyivi: Es monte donde la gente todavía no ha trabajado (CHY) [Cuhu cu si tuñayxa ca zatitino níiyivi.]
ku’u: planta (CHY) [cuhù]
   Ityi núi ku’a xaan nuu ku’u iyo; iyosi tyaki xaa itasi: Por mi rumbo hay toda clase de plantas, unas con flores muy bonitas (CHY) [Ityi núi cuaha xaan nnu cuhu iyo; iyo si tyaki xaa ita si.]
ku’u: el monte, el campo (SJC)
ku’u: yerua q’nace en herial (TAM) [cuhu]
kü / ku’vi / ku’wi: hierba (CAB)

Unlike the variation we have noted in the forms that would have originated in the Proto-Mixtec *yutu’ “tree / wood,” the contemporary cognates derived from *yuku exhibit more phonological stability in the different dialect areas. Semantically, however, the term can vary significantly; in some variants it incorporates edible greens, in others it appears to have been extended to include plants in general, and even fruits may be labeled ‘sweet yuku’:
yukú / kú: yerba (CGM)

yuku: hoja (CGM)

yuku xyutnú: hoja de árbol [x-NOUN: genitive in Chigmecatitlán Mixtec]

iku táchí ná’nú: orégano (XOC)

yuku: hierba (CTZ)

Yìyo kua’ a nuu yuku: Hay una gran variedad de hierbas (CTZ)

yuku: arbusto, hierbas (SMG)

ti yuku: hierbas, plantas (SMG)

yuku: hierba, planta (YSN)

Yuva kuu ììn yuku ja kuu kajiyo: El quelite es una planta que podemos comer (YSN)

yuku kuiì: hierba / verdura (YSN) kuiì: verde

yúkú: hierba, es comida para animales / hierbas medicinales (DUX)

yuku: algo que sirve para comer o para medicina, pero hay excepciones (NUX)

yuku vidi: hierba tibia, hierba caliente (APO)

Doyuku / Yodo yuku: llano de quelites (APO)

xuku: hoja, hierba, monte (OSP)

xku davi: helecho (OSP) This appears to be an abbreviation of xuku davi, ‘leaf-rain’; cognate of COI tiko savi.

chó’q: herb, medicine (OSP)

yuku: las verduras / la hierba, la especia (SJC) [yùcù]

yuku vixi: la fruta (SJC) [yùcù vixi]

yuku: la hierba / las verduras (CHY) [yùcù]

yuku vixi: la fruta (CHY)

yuku: yerua q’ se estiéde y echa ojas (TAM) [yucu]

ita: yerua generalmente (TAM) [yta]

yiku / yuku: hierba (CAB)

kivi tatan / yiku tatna / yuku tana / yuku tatan: ‘planta medicinal,’ medicina (CAB)

The forms ikú in Xochapa Mixtec, xuku / xku in Coatzospan, and yiku (of unkown provenience, recorded by Caballero, 2008), are the only attestations we have found of phonological modification of Josserand’s reconstruction for Proto-Mixtec. The specific taxa that are designated with the class term yuku are mostly herbs. Relatively small size, non-edibility of the leaves and inconspicuousness of the flowers seem to be primary traits in assigning plants to this group. Many of the plants in this category are used medicinally. As in the previous section, the examples will be presented in cognate sets ordered alphabetically:

yuku alkanfor: alcanfor (DAA) [yuku alcanfor]  Achillea millefolium L., COMPOSITAE

La hierba es simple y se considera caliente... Para heridas: se tuestan las hojas en el comal y las hojas tostadas se remueven, se ponen en la herida. Mal aire: las hojas se calientan con alcohol y se refriega todo el cuerpo...

yuku anís, anís (COI)  Tagetes micrantha Cav., COMPOSITAE

yúkú chi’ìn: un tipo de hierba medicinal; literalmente, hierba de zorrillo (DUX)
chisun / yuku chisun: hierba venenosa (CTZ) It is not clear whether this term designates poisonous plants in general or a specific kind.

yuku chundini: hierba del lucero; es de naturaleza caliente y amarga, sirve para el empacho (TIL) [žuku ču ndini] Brickellia veronicifolia (Kunth) A. Gray, COMPOSITAE; the bracts that sub tend the florets of this species resemble a star when they dry, hence the Mixtec and Spanish names

yúkú chudínî: un tipo de hierba medicinal, literalmente ‘hierba estrella’... Dan flores blancas desde fines de septiembre hasta el mes de noviembre. Se hierven estas hierbas con agua para hacer té para curar el dolor de estómago (DUX) tikuxini / tánhuxini / tyudini: estrella (CAB)

ítâ chódínî / ita chudínî: un tipo de flor silvestre, literalmente ‘flor de estrella’... se utiliza para curar el dolor de estómago (DUX)

yuku daxin niñi: medicina para disentería de sangre (NUX)

kata: sábila (NGO) Aloe vera (L.) Burm. f., ASPHODELACEAE kata: va a tener comezón / malacate (CAB) En el tratamiento de algunos tipos de granos que se infectan: se calienta en la ceniza de la fogata una hoja abierta a la mitad y se caldea la parte afectada... La flor en botón es comestible. Las flores maduras raspan la lengua si son ingeridas. (NGO)

kata: sábila (MIC)

xku kata: malanga (OSP) probably Xanthosoma sp., ARACEAE

yuku kata: yucucata (PIN) unidentified species, probably an aroid kata: va a tener comezón (CAB) Various species of aroids have irritating sap due to the presence of calcium oxalate crystals; don Pedro López López confirmed that the etymology relates to itching.

vichi kata: huitchicata (PIN) Xanthosoma robustum Schott, ARACEAE vityi: hoja (CAB)

yo’o kata: come mano (PIN) Philodendron sp., ARACEAE yo’o: ‘vine, rope’ This set of cognates is shared by two dialect areas at opposite ends of the Mixtec territory, which have probably been separated historically since the time Proto-Mixtec was spoken.

yuku kue’e dayu: estafiate (TIL) [žuku kwe dažu] Artemisia ludoviciana Nutt., COMPOSITAE Es de naturaleza caliente y muy amarga, sirve para la diarrea, cáncer. Piestrzynska records the same Mixtec name for gordolobo, which designates Gnaphalium spp.: sirve para el asma, el catarro dayu: saliva; dayu kaa: ‘tos elevada’, tosferina (CAB)

yuku kue’e dayo: gordolobo (DAA) Gnaphalium sp., COMPOSITAE kue’e dayu: ‘enfermedad de saliva’, tos / ‘enfermedad de saliva o de moco’, catarro, gripe (CAB) Se utiliza para la herida... cólico... gripe... quemaduras... (DAA)

yuku dayu (ACN, Relación de Justlahuaca: 289) ...otra yerba, que llaman en su lengua mixteca yucuzayu y, en mexicano, iztauhyatl, que, molida y bebida, es muy saludable para las pechugueras (Juxtlahuaca is a large town in the southern Mixteca Baja in Oaxaca, where Mixtec is still spoken today) iztauhyatl, estafiate: Artemisia
ludovicana Nutt. subsp. mexicana (Willd. ex Spreng.) D.D. Keck, COMPOSITAE
iztauhyatl (vowel lengths unattested; etymology obscure, possibly involving izatl, ‘salt’): axenxios o asensios yerua (de Molina, 1571)
yuku dayu: assencios (TAM) [yucudzayu] ajenjo, wormwood: Artemisia spp., COMPOSITAE (Martínez, 1979; Real Academia Española, 1992)
yuku dayu kastiya / yuku sa’a / yuku ña’a de’e: ruda (TAM) [yucudzayu castilla / yucu saha / yucu ñahadzehe]

yuku diko: ‘hierba de olor’, orégano (CAB) diko/djiko/jiko/xiko: olor agradable o desagradable
yuku diko / yuku xiko: pimienta (CAB)
nda diko: pimienta (CAB)
yuve xiko: ‘quelite de olor’, pimienta (CAB)

yúkú díni: un tipo de hierba medicinal... se toma el té para curar el dolor de estómago (DUX)

yúkú dolór (DUX) un tipo de hierba medicinal, parece hoja de zanahoria... Las mujeres muelen finamente los camotes... Entonces los ponen en un plato hondo que contiene agua. Los baten para hacer espuma, y ponen la espuma donde le duele al que está enfermo de tristeza y enojo

yuku ii / ita ii: toloache (TIL) Datura stramonium L., SOLANACEAE Es de naturaleza caliente, sirve para el reumatismo, el mal aire ii / yii: es delicado; ii / tii / titi / tyii: pequeño (CAB)

ino: cigarro (CGM)
yuku nu (kuii): tabaco (COI) Nicotiana cf. rustica L., SOLANACEAE Se usa para hacer daño mágicamente en la “brujería”. kuii: green
yuku nu yuku (COI) Hemichaena fruticosa Benth., PHRYMACEAE [SCROPHULARIACEAE]
yuku nu yuku (COI) Leucocarpus sp., PHRYMACEAE [SCROPHULARIACEAE]
yuku kuín na’nu: tabacón (TXA) Nicotiana tabacum L., SOLANACEAE
yuku inu: tabaco (SMG)
yuku inu: tabaco (YSN)
inu: tabaco (OSP)
inu: tabaco (SJC)
o: el tabaco (CHY)
o / yuku ino: beleño piciete (TAM) [yno / yucuino]
yuku ino (ACÑ, Relación de Ayusuchiquilazala) tomaban entre los bezos de la boca y los dientes una yerba que llaman ellos en su lengua yucuyno, y en mexicano piciete (Ayusuchiquilazala is present-day Santos Reyes Zochiquilazala, municipality of Juxtlahuaca, Oaxaca) picietl: Nicotiana rustica L., SOLANACEAE (Martínez, 1979)
yuku ino / yuku inu / yuku kuino: tabaco (CAB)
nda’a inu / nakuino / nkuino / tainu: tabaco (CAB)

[ntkuku] jite: tabaco (CAB) jite: ancho
[ntkuku] ndute: tabaco (CAB) ndute: agua
*ino: tobacco (JOS)

**yu**ku ínú: zarza (SMG)
**yu**ku íño: abrojo (TAM) [yucuño]

**yu**ku ita (ACÑ, Relación de Justlahuaca) una raíz que llaman en su lengua mixteca yucuyta y, en mexicano, suchipatlí [xo:chipahtli, ‘flower-remedy’]: molida y bebida es provechosa para el dolor de tripas (Juxtlahuaca is a large town in the southern Mixteca Baja in Oaxaca, where Mixtec is still spoken today)

**yu**ku kaku se’ena (COI) probably Montanoa sp., COMPOSITAE kaku: ‘to be born’ se’e-na: ‘child-3PL,’ i.e., ‘herb [for] their children [to] be born’

**yu**ku ka’ni: ‘yerba caliente’, jamaica (CAB)

kándó’ó: planta medicinal, yerba de tapón (SMG) [cándóhó]
kando’o: pitiona (CAB)
yu**ku kaa: pitiona (CAB)
yu**ku kando’o / yu**ku ndo’o: pitiona (CAB)

**yu**ku kawa (ZAU) [yu**cu** caua] Calea ternifolia Kunth [synonym: Calea zacatechichi Schuld.], COMPOSITAE

**yu**ku kava (MXT) [yu**cu** cava] Calea ternifolia

**yu**ku tnúkawa uwa: hierba de ángel (TIL) [žu**ku** tnú kah^a uh^a] Ageratina petiolaris (Mociño & Sessé ex DC.) R.M. King & H. Robinson, COMPOSITAE Es de naturaleza caliente; sirve para la fiebre, el reumatismo.

**yu**ku kawa: hierba de ángel (DAA) Eupatorium sp., COMPOSITAE The majority of the species formerly included in Eupatorium are now placed in several other genera.

kava / kawa: vesícula / corazón o médula del árbol / tuerce, se enreda / peña (CAB) La hierba es amarga y se considera caliente... Para el tratamiento de asma... La reuma... en temazcal... Io inka nuu yu**ku** ya'a te dani xenie’un tana xi ni sanguiñía da'a. Existe una [otra] clase de hierba de ángel, también se ocupa antes del parto, se toma como té una taza para apurar el parto. (DAA)

**yu**ku kaya (SEL) Rhus aromatica Aiton var. mollis Ashe, ANACARDIACEAE [yu**cu**caya]

**yu**ku kidi: escobilla (TIL) [žu**ku** kidi] Gymosperma glutinosum (Spreng.) Less, COMPOSITAE Es de naturaleza caliente; sirve para el reumatismo, el hueso quebrado. kidji: pegamento; kidi, kixin: pegajoso (CAB)

yúkú kídji (DUX): un tipo de hierba, literalmente ‘hierba pegajosa’. La gente de la región la llama ‘cedrón’... Son muy pegajosas y sus flores son amarillas. Se hierven y ponen en los pies o en las manos si se han fracturado o torcido.

**yu**ku kini: orégano (CAB)

yuku ki’wi / ita ki’wi / ki’wi ya’á / ki’wi kuii: añír color (TAM) [yu**cu**quèhui / itaquèhui / quèhuiyaha / quehuicuij] Indigofera suffruticosa Mill., LEGUMINOSAE
ki’wi: Justicia spicigera Schlld., ACANTHACEAE (Lucila Franco, Pinotepa de don Luis, Jamiltepec district, Oaxaca, 1983: personal communication)

yuku kolo: hierba real o hierba del guajolote (TIL) Lantana sp., VERBENACEAE Es de naturaleza caliente, sirve para la diarrea, el dolor de oído. kolo / ko’lo: guajolote (CAB)

yúkú koyótê (DUX) Un tipo de hierba medicinal… Se hierven con agua… Se toma ese té para curar un ligamento que se ha movido de su lugar en el vientre. Es muy amarga.

yuku kua’a: jamaica (CAB) kua’a: red

yuku kuañu’un [?] (ACÑ, Relación de Tilantongo) Y que la enfermedad más común entre ellos es dolor de pechos muy grande, y que se curan con unas yerbas que se dicen, en mixteco, yucuquañuu, que en mexicano se dice iztiquepatli y, en castellano, ‘medicina fría’. kuañu’un: tumor, úlcer; kueñe/kueñu/kuañi/kuañu: ardisilla (CAB); i:zticpahtli: ‘cold(adjective)-remedy’

yuku kue’e niin / yuku ndikin: verbena (COI) Lepidium virginicum L. CRUCIFERAE Medicinal en infusión para disentería. kue’e niii: ‘enfermedad de todo’, anemia ndikin: semillas de chile, tomate, rábano, guayaba, amarando, entre otros (CAB)
yuku kue’e niii [?] (MXT) [yucu cue niii] Acalypha pheoides Cav., EUPHORBIACEAE

yuku kue’e ndyiko’o [?] (MXT) [yucu cue nchico’o] Zinnia peruviana (L.) L., COMPOSITAE ndyiko: se va a enfriar; ndyikoko: regresa, voltea (CAB)
yuku kue’e ndyiko: hierba recaída (TXA) [yuku kue’e nchiko] Zinnia peruviana (L.) L., COMPOSITAE The description of this plant in the original publication only cites localities in the municipality of San Juan Mixtepec, where the information probably originates.

yúkú kue’e xidô (DUX) un tipo de hierba medicinal, literalmente ‘hierba de la enfermedad que hierve’… Se toma té de las hierbas yúkú kue’e xidô para curar la fiebre amarilla o la tifoidea

yuku kue’i yaji tii nu’un: hierba de la muela (TXA) Ranunculus dichotomus Mociño & Sessé ex DC., RANUNCULACEAE yaji kiti: ‘come animal’, comezón; tii: pequeño / se va a tullir / liso, resabaloso / hombre / estómago; tiin: uña / sudor / ratón / pepita; nu’un: diente (CAB)] Hay dos clases de hierba de muela, la otra tiene el botón de color morado y sirven para lo mismo. (TXA)

yuku kuii: trébol (DAA) Melilotus indicus (L.) All., LEGUMINOSAE [PAPILIONACEAE] kuii: color verde (CAB) Crece en los cultivos del chícharo y en las milpas. La hierba tiene sabor estítico y es fresca… Se usa contra el estreñimiento, para bajar la presión… (DAA)

yuku kuiñu / ita kuiñu: yerba de la hinchazón (COI) ~Eupatorium sp., COMPOSITAE
**Hojas medicinales, aplicación cutánea para edema. **

**yu’kulu**<sup>3</sup> (YLX) unidentified species in the EUPHORBIACEAE  

**kwi’ñu**: hinchazón

**yuku kutu:** chicle (COI)  
Asclepias cf. notha W.D. Stevens, APOCYNACEAE  
[ASCLEPIADACEAE] Látex cuajado en un carrizo en el rescoldo del fogón se mastica como chicle. See similar report for **tayúchî** (DUx) below.

**yuku lastrî: cañagria (SMG)**  
lastrî may derive from Spanish rastrojo

**yuku lochi:** huelve de noche (TXA) [yucuu lochi]  
Cestrum nocturnum L., SOLANACEAE  
lote / lotyi / pilo: zopilote (CAB)

**yuku ma’a / yuku nda ma’a** (COI)  
Geranium sp., GERANIACEAE  
Medicinal para bebés. ma’a: raccoon

**yuku nata’an:** vergonzosa, no se puede comer, pero sí sirve para medicina (NUx)  
probably Mimosa sp., LEGUMINOSAE

**yuku nii:** hierba de la hemorragia (TXA)  
Bouvardia ternifolia (Cav.) Schdl., RUBIACEAE

Yee uvi nuu yuku yo’ o tia na va’a kutata-na kuu ña tsaa’ ita kuaan ka. Cha na va’a kuu ña tsa’nü nuu tukatsi ra na’in kixi xin. Hay dos clases, pero sólo sirve una la que se da con flores en forma de plátano y de color amarillo; la que crece en el encino se ve peludita y no se recomienda.

**yuku nú’u si’ina:** diente de perro (TON)  
Datura sp., SOLANACEAE  
“[El fruto de] ése tiene mucha espina.”

**no’on tsi’ina [?]/ tsidaa tsi’ina [?]/ yuku tsi’ina / tolvachi:** diente de perro / chile de perro / hierba de perro / tolvache (NGO) [no’o tsi’ina / tsidatsi’ina / yuku tsi’ina / tolvachi]  
Datura stramonium L., SOLANACEAE  
nu’un: diente; ina / siina / tiina / tsina: perro; sidaa / tidaa / tisaa: pene (CAB); to:loa:xihuitl / to:loa:tzin: Datura sp.  
(de Ávila, 2009) Las semillas se usan para emborrachar a las personas, para que hablen con la verdad o digan lo que saben acerca de algún robo o pérdida, de algún daño o brujería: se les da a comer siete pares de estas semillas para que se emborrachen bien y empiezan a hablar. (NGO)

**yuku nu’un** (COI)  
Datura cf. quercifolia Kunth, SOLANACEAE  
Semilla enteógena para adivinar; hoja medicinal. nu’un: tooth

**yuku nu’un:** yerba de Tlapa (COI)  
Datura stramonium L., SOLANACEAE

Considerada maleza, conocida como venenosa.

**yúkú núu:** un tipo de hierba alucinante (DUx)  
nu’u: toloache (NUx)

**yuku nú’u** (PIN)  
Es una mata de hasta un metro, es curativo, da vaina, se usa como remedio. Nú’u suena como ‘diente’.

**yuku nu’u** (ACÑ, Relación de Mixtepeque)  
género de semilla a manera de semilla de rábanos,  
que llaman ellos yucunuhu, y en mexicano llaman tlapatli: esta semilla, molido y bebida, dicen que es buena para mal de todo el cuerpo. (Mixtepeque refers to present-day San Juan Mixtepec, Juxtlahuaca district)  
**tlapati:** intoxicating plant, also used
medicinally (Karttunen, 1983); \textit{Datura} sp., SOLANACEAE

\textbf{yuku nuu:} yerua que en beüiendola pierden el juyzio (TAM) \textit{[yucu nuu]}

\textbf{yuku nuu ko’o kutu daya / yuku daya / yuku kuvui kutu daya / yuku nakani daya / yuku sinduvui kutu daya: mandrágora (TAM) \textit{[yucunucohocutudzaya / yucu dzaya / yucu cuvui cutudzaya / yucu nacani dzaya / yucu sinduvui cutudzaya]}

\textbf{yuku nuu:} pimienta (CAB)

\textbf{yúkú nuu tóto (DUX)} Un tipo de hierba medicinal, literalmente ‘hierba cara de roca’... se asan las hojas... para curar granos en la piel de los niños.

\textbf{yúkú nda’a yáva (DUX)} Un tipo de hierba medicinal, literalmente ‘hierba la mano pequeña’... crecen sobre rocas grandes. \textit{yáva:} almácigo / añejo, viejo, semillas de mucho tiempo / tecolote, búho (CAB)

\textbf{iku ndaku / yiku ndaku / yuku ndaku:} orégano (CAB)

\textbf{yuku ndau ndute:} hierba de agua (TIL) unidentified species \textit{Sirve para la diabetes. la’vi / nda’u / nda’vi / ta’u:} pobre de pobreza, de lástima; \textit{ndusa / nduta / ndute / ndutya / nute:} agua (CAB)

\textbf{yúkú ndáu yuku kég:} hierbas medicinales, medicina tradicional; literalmente, ‘hierba pobre, hierba humilde’ (DUX)

\textbf{yuku ndavua:} borraja (TAM) \textit{[yucundavua]}

\textbf{yuku ndavua / yuku yuvui:} salúia (TAM) \textit{[yucundavua / yucuyuvui]}

\textbf{yuku ndiava (JIC) probably Urera sp., URTICACEAE ndia’va:} chinche (CAB)

\textbf{yuku ndii (JIC) Pseudogynoxys chenopodioides (Kunth) Cabrera, COMPOSITAE Hojas medicinales para “nube” y granos ojos. ndí’i:} grano (CAB)

\textbf{yuku ntsikanchi:} malva (NGO) \textit{Malva parviflora L., MALVACEAE ndikandii / ſñankyii / tyikandyii / xandyii:} sol (CAB) \textit{Se usa para la inflamación: se ponen a hervir las hojas con la raíz en una olla de barro y con medio litro de agua y se toma como caldo. Se comen las hojas cocidas, diario, por cinco días. (NGO)

\textbf{yuku ndiko ye’e / yuku saa ye’e:} perexil (TAM) \textit{[yucundicoyhe / yucusae yehe]}

\textbf{yuku ndisi (ACÑ, Relación de Zacatepeque) Hay otras varillas, que las raíces, molidas y bebidas, son buenas para cualquier enfermedad, en especial para las buebas: llaman la dicha raíz, en su lengua dellos, \textit{yucudisi y, en mexicano, ocpatlī. (Zacatepeque is present day Santa María Zacatepec, district of Putla, Oaxaca) ndede / ndidi / ndisi / ndixi:} mezcal; \textit{ndixi yavi:} pulque (CAB); \textit{ocpahtli:} pulque remedy

\textbf{yuku ndiyi:} berenjena (TXA) \textit{[yuku ntiyi]} \textit{Solanum sp., SOLANACEAE}

\textbf{yuku ndi’i:} la pegajosa (TIL) \textit{[žuku ndi’i]} \textit{Mentzelia hispida Willld., LOASACEAE}
Es de naturaleza caliente y amarga, sirve para granos, mal de orina. **ndii / ndīī**: liso, resbaloso; **ndī’i / ndī’i**: está bajo / se va a acabar (CAB)

**yuku ndikin / yuku kue’e niin** verbena (COI) *Lepidium virginicum* L. CRUCIFERAE Medicinal en infusión para disentería. **ndikin**: semillas de chile, tomate, rábano, guayaba, amaranto, entre otros **kue’e niin**: enfermedad de todo, anemia (CAB)

**yuku nikin iñu**: hierba del santo remedio (TXA) *Datura stramonium* L., SOLANACEAE **nikin**: semillas de chile, tomate, guayaba, amaranto, etc.; **iño / iñu / iun**: espinas (CAB) Se usa para saber qué enfermedad tiene la persona... **Iyo uvi nuu yuku nikin iñu**, chi iin vi iñu kuije’i de inka vi a ni’i, so nuvi-ji nuuí tatan nuu kue’i ya’a. **Kuvi ko’o-yuku ya’a chi jikó xini-on.** Hay dos clases de Hierba del Santo Remedio, una blanca y otra morada, las dos sirven para lo mismo, esta hierba no se toma porque quedan locos. (TXA) [24.] The phonological peculiarity /nd/ > /n/ indicates that this information comes from the southwestern sub-area of the Western Alta, in Josserand’s (1983) classification of the Mixtec languages.

**yuku ndikin**: *ceuadilla* (TAM) [**yucudiq**]

**yuku ndo’o** (ACÑ, Relación de Justlahuaca) Otra raíz de yerbas, que llaman en su lengua mixteca *yucudoho*, y en mexicano se llama *tlacopatlī* [**tlaco:pahtli**]: ‘shrub-remedy’: esta yerba, molida y puesta en las postemas, las deshace, y las hinchazones madura. (Justlahuaca is a large town in the southern Mixteca Baja in Oaxaca, where Mixtec is still spoken today) **tlacopatle**: *Aristolochia* spp., ARISTOLOCHIACEAE (Martínez, 1979); the species in this genus, however, which grow mostly as vines or lianas, do not seem to fit the Mixtec and Náhuatl etymologies.

**yuku ndute**: *plantas (comestibles) de agua, berros?* (NUX) Only one of three speakers who were consulted recalled this term, with some uncertainty.

**yuku nduvua / ita nduvua ndu’u kastiya / ita tímii kastiya**: *manzanilla* (TAM) [**yucunduvua / itanduvua duhu castilla / itatemij castilla**]

**yuku ngutu** (TIL) *Buddleja sessiliflora* Kunth, SCROPHULARIACEAE [**Buddlejaceae**] ngutu: *toro*

**yuku ŋa’án**: planta narcótica (SMG)

**yúkú ŋadí’i** (DUX): un tipo de hierba medicinal, literalmente ‘hierba mujer’

**yuku ŋi’i**: *hierba del baño* (TXA) *Monnina xalapensis* Kunth, POLYGALACEAE i’in / ŋi’i̱n / ŋe’en / ŋi’i̱n / ŋi’i̱n: temazcal (CAB) Son dos clases, el macho y la hembra; en la hembra las hojas son más grandes y gruesas y la flor es blanca con semilla rojita; las dos se utilizan pero es más buena la hierba del baño macho. (TXA)

**yúkú ŋuû**: un tipo de hierba medicinal, nombre científico: *Oenothera* (DUX)

**yuku ŋuu**: *palma* (SMG) probably *Brahea* sp., PALMAE

**yukuñuu**: *palma* (YSN)
Jiin yukuñuu kuu sa’ayo yuu, ndo’o ti lelu: Con la palma podemos hacer petates, tenates y sombreros (YN)

yuku paletaria: paletaria (DAA) Parietaria pensylvanica Muhlenb. ex Willd., URTICACEAE  La hierba es simple y se considera fresca... En el tratamiento de calentura... Para mal de orines la ocupan agregando otras plantas como chamizo blanco, huele de noche...

yuku pastor: hierba del pastor (NGO) Acalypha subviscida S. Watson, EUPHORBIACEAE  Para curar los jiotes de la mano...

yuku pi’ndu (TON) Matelea trachyantha (Greenm.) W.D. Stevens, APOCYNACEAE [ASCLEPIADACEAE] The edible fruit of this plant, which is encouraged to grow in home gardens in Tonahuixtla, is called pi’ndu in Mixtec, pepino silvestre in Spanish. It is eaten cooked and is sold in the market in Acatlán de Osorio.

yuku romero: romero (DAA) Rosmarinus officinalis L., LABIATAE  Es una planta caliente y calmante... Se ocupa para el dolor de menstruación y vómito... reumatismo... Sirve para caldeados en falseaduras de vacas o toros. Io yuku xii [sic] te yuku di’i yuku ya’a. Yuku di’i ku sa sa ni kan’an nu ya’a, te yuku yii xenie’on sa kada tana nu chijuto: Se clasifica en romero macho especial para los toros y sirve para el reumatismo en personas, combinado con el romero hembra que ya fue descrito. di’i / di’i / si’i: mamá, madre: yii / yii: macho / marido, esposo (CAB)

yuku saa (COI) Echeveria sp., CRASSULACEAE Medicinal en infusión para “sarampión”.

yuku San Jose (TON) Datura sp., SOLANACEAE  The description indicates that the fruits are smooth, without thorns; said to be similar to yuku nú’u si’ina, diente de perro, “ése tiene mucha espina... la semilla de la yerba de San José se muele y se toma con la flor de Guadalupe.” The description of the latter matches Brugmansia sp.

nuu San José: diente de San José (MIC) Datura sp. Tiene su bolita, hay dos, uno tiene su espina, otro liso; las semillas del liso las daban a tomar cuando alguien le robaba a uno, para ver quién había robado, pero con medida, si tomaba uno de más se volvía uno loco.

yuku sata (COI) Bidens odorata Cav., COMPOSITAE sata: paloma / espalda (CAB)
yuku satá: clase de hierba que da florecita blanca; la comen los animales (CHA)

tiko savi: chicosabi (COI) This term designates most ferns in Coicoyán Mixtec; the etymology of tiko is obscure to my consultants, while savi refers to the rain.

yuku savi (MXT) [yucu savi] Llavea cordifolia Lag., PTERIDACEAE

xkudavi: helecho (OSP) This appears to be a contraction of xuku davui, ‘leaf + rain’.

dukua davui: polipodio (TAM) [dzucuadzavui] probably Selaginella spp., SELAGINELLAACEAE

dukua davui / yuku dukua davui: doradilla (TAM) probably Selaginella spp., SELAGINELLAACEAE
yuku dukua davui: culantrillo de pozo (TAM) [yucudzucadzavui] probably Adiantum sp., PTERIDACEAE

yuku sawi takuii: algas (CAB)  takuii / tikuii: water

yuku sayu: gordolobo (TXA) Pseudognaphalium oxyphyllum (DC.) Kirp. [synonym: Gnaphalium oxyphyllum DC.], COMPOSITAE  dayu / deye / sayu: saliva; sayu takyi / sayu xaan: tosferina (CAB)
yuku sa’a / yuku ſa’a de’e / yuku dayu kastiya: ruda (TAM) [yucu saha / yucu ſahadzehe / yucudzayu castilla]  yucudzayu appears to be a cognate of TXA yuku sayu

yuku sayu: hierba de la cucaracha (TXA) Mandevilla foliosa (Muell. & Arg.) Hemsley, APOCYNACEAE

yuku siko kiti (ACÑ, Relación de Mixtepeque) hay otra yerba, que llaman ellos en su lengua yucusicoquity, y en mexicano llaman yepatzin: esta yerba, molida y untada algra hinchazón con ella, se deshinchá y quita el dolor (Mixtepeque refers to present-day San Juan Mixtepec, Juxtlahuaca district) diko / jiko / xiko: olor agradable o desagradable; kisi / kiti / kitsi / kityi: animal (CAB); epatzin / yepatzin: ‘little skunk’; epatl: cierto animalejo que hiede mucho (de Molina, 1571)

yuku stáa įní: clase de enredadera en la milpa, la punta se come, se cuece en el comal; la comen los animales (CHA) The etymology appears to be ‘tortilla + thorn;’ this plant would be expected to be labeled yua.

yuku su’ma tiñi: clase de planta (CHA) Cuphea sp., LYTHRACEAE  The etymology is ‘tail + mouse.’

iku táchí ná’ní: orégano (XOC)  táchí: aire, viento; ná’ní: grandes
yuku tachi kruxi: hierba de conejo (TIL) [žuku tači kruši] Pherotrichis mixtecana Brandegee, APOCYNACEAE [ASCLEPIADACEAE]  Es de naturaleza caliente; sirve para el mal aire takyi / tati / tatsi / tatyi: aire, viento (CAB)
yúkú táchí kuixí (DUX) un tipo de hierba medicinal… es pequeña y blanca. Se tuestan y muelen los camotes de esta hierba. Se ponen en aguardiente, y se toma cuando entra aire en el vientre de una persona por no haber comido durante mucho tiempo
yúkú táchí tnútayókô (DUX) un tipo de hierba medicinal, literalmente ‘hierba del aire de árbol de flor de vapor’
yúkú táchí tnúu (DUX) un tipo de hierba medicinal, literalmente ‘hierba de aire negro’… son pequeñas y su camote es oblongo. Los camotes se tuestan y se muelen, se echan en aguardiente y se toma cuando entra aire en el vientre de una persona por no haber comido durante mucho tiempo
yuku tachi: valeriana (DAA) The Flora Medicinal Mixteca de San Pedro Tidaá (n.d.) identifies this plant as Valeriana sp., CAPRIFOLIACEAE, but the accompanying drawing and physical description, which emphasize a large bulb and simple oblong leaves, do not seem to correspond to that genus: Es una hierba, mide 50 cm de altura aproximadamente, con camotes de 20 cm, pícoso, el tallo es peludo y sin espinas. Hojas larguitas, anchas y verdes, nacen desde el camote. Las flores son blancas,
primero los botones, cuando se abren tienen la forma de estrella... Todo el año hay camotes, porque las hojas se secan... Se considera caliente... Para cuando una persona está nerviosa... Desinflamar heridas...

**yuku tachi kuijin:** camote de conejo (TXA) Asclepias glaucescens Kunth, APOCYNACEAE [ASCLEPIADACEAE] **kuichin / kuiji / kuixi / kuxin:** blanco (CAB) Sirve para curar el aire... El aire viene por espanto de monte o porque sale uno de noche y nos pega el aire, o pasa uno donde se murió una persona o también donde ve uno un muerto o cuando pasa uno en un panteón. (TXA)

**yuku tatyi:** ‘yerba de malaire’, albahaca / ruda (CAB)
**yuku tatyi wa’a:** albahaca (CAB)

**yuku taxi kuali:** orégano (CAB) **kuai / kuatyi / kuetsi:** pequeño (CAB)

**yuku tajá:** hierba del rayo (TXA) Parietaria pennsylvanica Muhl. ex Willd., URTICACEAE **taja / tasa / tatyá / taxa:** rayo (CAB) Para curar de nahual: Se muele toda la planta y se hace una masa y se unta en todo el cuerpo como baño... Cuando cae un rayo cerca de la casa y truena, se escucha muy feo y de ahí les pega la enfermedad... (TXA)

**yuku tamarreál** (DUX): tamarreal, medicinal... el camote... se parece al camote del lirio. Se tuesta en el comal y se muele. Se pone este polvo encima de una herida. También se puede hervir y usar el agua para lavar una herida.

**yuku tamorreal:** itamorreal (DAA) *Potentilla* aff. *staminea* Rydb., ROSACEAE Tamarreal and *itamorreal* are derived from *dichtamo*, Martínez (1979) recorded a number of species in the Compositae, Ephedraceae, Passifloraceae, Polypodiaceae, Smilacaceae and Turneraceae under these names in various parts of Mexico, but did not cite any member of the Rosaceae. *Dichtamo* is the Peninsular Spanish form of Latin *dictamus* and Greek *δικτάμιον*, dittany, a monotypic genus in the Rutaceae found in Central and Southern Europe to Northern China (Mabberley, 2008). *La hierba es amarga*, se considera caliente... *En el tratamiento de heridas... tos... golpes*... Existe otro itamorreal como el de venado, sirve para la herida (DAA)

**yuku tami:** orégano (CAB) **tami:** fragante, buen olor, perfumado

**yuku tanaña:** clase de planta que huele un poco como lavanda (CHA)

**yuku tatna ruda:** ruda (TIL) *Ruta chalepensis* L., RUTACEAE *Es de naturaleza fría; sirve para sordera, fiebre, [cuando la criatura] no quiere nacer, mal aire, veneno* **kivi tatán / yiku tatna / yuku tana / yuku tatan:** ‘planta medicinal’, medicina (CAB)

**lura / yuku lota / yuku loto / yuku luta:** ruda (CAB)

**yuku taxini:** pericón (TXA) *Tagetes lucida* Cav., COMPOSITAE **taxini:** sombrero (CAB), but the etymology probably involves *ita* and *xini*: cabeza / orilla, lado, de lado / va a saber / se va a emborrachar / en la tarde (CAB); this species is reputed to have been used as an enthogen (Ott, 2004).

**yuku tayoko:** cinco negritos (TXA) *Lantana camara* L., VERBENACEAE
tayoko: deidad, dios / zopilote (CAB), but the etymology may involve ita and yoko:
menor en edad / hija / tlacuache / tibio, blando / rinde, abunda / avispa / panal / vapor (CAB) The description of this plant in TXA only cites localities in the municipality of San Juan Mixtepec as its area of distribution, where the information probably originates.

yuku táyóó: malva, planta medicinal (SMG)
yug táyóó: violeta (SMG)
yuku tayoo: malva (DAA) Nuu in ñayiwi ni nakadi xi, tni nu in ta'wi yuku kuii ya'a xi'in yuku tayoo te tastuu nu xí nuu in kidi ndute sa na ndu'a xi, dakee ni'n'nu nu xi te tastuu nuxi yawí diuluchi sa kuechi o dani nusa ku ñayiwi tne'n'u. ...se ocupan 20 gr de trébol y 20 gr de malva en 1 litro de agua, se hierve, se cuela y se pone lavado rectal, se ocupan 40 gr de trébol y 4 gr de malva, se hierve en 4 ó 5 litros de agua y se pone baños de asiento. (DAA)

yuku ta'yu (ACÑ, Relación de Justlahuaca) otra planta que llaman yucutayu,
que, molida y puesta en alguna llaga, la sana, la cual yerba llaman en mexicano palancapatli (Juxtlahuaca is a large town in the southern Mixteca Baja in Oaxaca, where Mixtec is still spoken today) ta'yu: se va a podrir (CAB); palancapah: name of several medicinal plants (Karttunen, 1983) palancapatle: Grindelia inuloides Wild., COMPOSITAE / Cineraria vulneraria Alam. ex DC. [synonym: Senecio vulneraria DC.], COMPOSITAE / Solidago velutina DC., COMPOSITAE (Martínez, 1979)

yuku tiaka: palo de pescado (ZAU) [yucu tiachá] Solanum erianthum D. Don. [synonym: Solanum verbascifolium L.], SOLANACEAE From the point of view of its growth habit, as indicated by its vernacular Spanish name, this species would be expected to be labeled tu-, but it appears to be ascribed to the yuku category because of the use of its foliage as a fish poison, documented by Casas, Viveros & Caballero (1994: 123).

xku tde'en: hoja de higuerilla (OSP) The etymology appears to involve the marker ‘animal / round object’

yuku tidiiko: eneldo (TAM) [yucutedzico]
tnutidi / yidi no’on / yuku tidiiko: hinojo (TAM) [tnu tedzico / yedze noho / yucu tedzico]
diko / djiko / jiko / xiko: olor agradable o desagradable (CAB); isi / xidi / yisi / yixi / yidi: hoja de aguacatal (CAB); noho: diente (TAM)

yuku tii (ACÑ, Relación de Xicayan) hay otra yerba que llaman yucutihí, que llaman en mexicano coazihuizpatli: esta yerba, molida y puesta en las coyunturas, el que estuviere tullido y con dolores, se le quitará y sanará con ellos (Xicayan is present-day Jicayán de Tovar, municipality of Tlacochiilahuaca, Guerrero) ndiyi / tii / tiyi / tiví: se va a tullir (CAB); coaciuiztli: gota, o perlesia (de Molina, 1571)

yuku tikadi / yuku tuchi: llantén (TAM) [yucuticadzi / yucu tuchi] tikadi / tikasi / tyikasi: cuchara (CAB) llantén, llantén: Plantago spp., PLANTAGINACEAE (Martínez, 1979)
**yuku sikandyii:** *malva* (MIC) probably *Malva rotundifolia* L., MALVACEAE

Está como de lache [i.e., alache, Anoda cristata]... es buena para calor, acá lo conoce uno como remedio pero en México lo comen. **ndyikandyii:** sol (CAB)

**yúkú tkátnû** (DUX) juncos, bejuco; literalmente, ‘herba de nudo’

**yuku tikatuu** (COI) *Trigonospermum melampodioides* DC., COMPOSITAE

*tikatun:* término que alguna variante asigna a número [?] (CAB)

**yuku tikayo** (COI) *Helianthemum glomeratum* (Lagasca) Lagasca ex Dunal, CISTACEAE

*tikayo:* carbón / chicharrón (CAB)

**yúkú tkúá** (DUX) un tipo de hierba medicinal, literalmente ‘herba de mariposa’. La gente de la región la llama ‘herba de mariposa’

**yuku tiliyi:** flor de sapo (TXA) *Oenothera rosea* L’Hér. ex Aiton, ONAGRACEAE

*Hay dos clases de Flor de Sapo, blanca y rosa; las dos sirven para el mismo uso. tiliyaa:* lagartija (CAB)]

**yuku tiluu:** clase de planta que da florecita blanca (CHA)

**yuku tinaña:** sonajilla (COI) *Lepechinia* sp., LABIATAE

**tilastún:** mora semejante al tomate (CTZ) The phonological variability in this set is puzzling and they may not all be cognates, although they seem to refer to the same two or three related species in the nightshade family.

pl'1la'xi132 (YLX) *Jaltomata* cf. *procubens*, SOLANACEAE

**ndirastun:** tindaso (COI) *Jaltomata procumbens* (Cav.) J.L. Gentry, SOLANACEAE

*Fruto dulce se come crudo.* The local Spanish name appears to have been borrowed from another Mixtec dialect.

**tindasu’u kuachi** (MXT) [**tintazu’u cuachi**] *Solanum americanum* Mill., SOLANACEAE

**tindasu’u na’nu** (MXT) [**tintazu’u nanu**] *Jaltomata procumbens* (Cav.) J.L. Gentry, SOLANACEAE

**yuku tinesun:** hierba mora (TXA) [**yuku tinesum**] *Solanum americanum* L., SOLANACEAE

En el tratamiento de la disípela... La disípela se presenta por susto y mal aire... De esta hierba existe otra parecida con el nombre de tileso o hierba de desípela, pero no es tan recomendable... va’a ka yuku yuve tinesun: También es comestible.

**tileso:** tileso (SOT) *Jaltomata procumbens* (Cav.) J.L. Gentry, SOLANACEAE

**tīlaxún kuāñū’ún:** planta del género como la hierbamora (SMG) **kuāñū’ún:** infectado, ulcerado

**tīlaxrnu:** clase de fruta comestible que da una planta de flor blanca; se parece al miltomate, antes se ocupó para hacer salsa (CHA)

**tīlaxrnu kuāñū’u:** hierbamora; clase de planta que se ocupa la flor para quitar el mezquino; su fruta no es comestible (CHA)
tnédo: un tipo de hierba... crecen hasta treinta centímetros de altura, su pequeña fruta es suave, y la cáscara es delgada, es azul, dulce y comestible (DUX)  possibly Jaltomata procumbens

yuve tinesu: yerbamora (CAB)

yuku tinuu (JIC)  Lantana camara L., VERBENACEAE  tinuu: ojo (CAB)

yuku tindaku (COI)  Gaultheria sp., ERICACEAE  Fruto se come, es apreciado.  
tindaku: gusano / lombriz / escoba; ndaku: nixtamal / pozole (CAB)

yúkú ndiyi (DUX)  un tipo de hierba medicinal... son útiles cuando la gente padece de fiebre  ndiyi: grano / se va a quemar / es friolento (CAB)

yuku tiñoo’u: clase de planta (CHA)

yuku tiñeñe: yerua mora (TAM) [yucu ti ñeñe]

yuku tiñoo / yuku yaa: cerraja, yerua (TAM) [yucutiñoo / yucuyaa]  probably Sonchus oleraceus L., COMPOSITAE

yuku tiñu’u (?) (ACÑ, Relación de Justlahuaca)  Hay otra raíz de yerba, que llaman en su lengua mixteca yucutñuhu y, en mexicano, tlacohuitlequizpatli; esta raíz, molida, y desleída y bebida, es muy saludable para el dolor de costado, y, untado con ella donde se tiene el dolor, es muy saludable.  tiñu’u: tuza; tiñu’un: mar / chintextlahua / se va a gastar o desaparecer / colmena / higo (CAB); chintextlahua probably refers to the black widow spider (Latrodectus mactans Fabricius, THERIDIIDAE) , known as chintatlahua in the Valley of Oaxaca. The etymology of the Náhuatl name cited in the Relación is uncertain; it seems to involve tlaco:tl: vara, and (tla)huiltequi: atajar, o yr por camino más breue, o atravesar (de Molina, 1571); alternatively, the verbal root may have been hui:tequi: to whip, beat someone (Karttunen, 1983), in which case tlaco:hui:tequizpahtli would be read as ‘shrubby remedy to whip (the patient).’ In neither case do the Mixtec and Náhuatl etymologies seem to match, unlike other plant names in the 16th century Relaciones.

yuku tiojo (KAP)  Tournefortia hartwegiana Steud., BORAGINACEAE [yucu-tiojo]

yuku tioo yuku (COI)  Passiflora sp., PASSIFLORACEAE  El fruto se come ocasionalmente, aunque es agrio.

yuku tisa’a kuachi: hiedra (TXA)  Psittacanthus calyculatus (DC.) Don, LORANTHACEAE  Iyo uvi nuu yuku tisa'a, de yatin nuu iyo-jo, so mevi-ji tatan nuu kue’i káyu. Suni tata dayuku ya’a nuu no’o ña’an kue’i niñi xeen. Existen dos clases de hiedra, la hiedra verde es en la misma forma que la otra, pero ésta es toda verde, las flores verdes pero cualquiera de las dos hiedras sirve para lo mismo.

yuku tisi’i: yerba de coraje (PIN)  Un bejuco curativo, lo hierven, lo muelen y se toma con
un poco de aguardiente o mezcal, no tiene flores. tisi'i: coraje

yuku tiso'ma: pescadilla (ZAU) [yucu tisó'ma] Zanthoxylum arborescens Rose, RUTACEAE From the point of view of its growth habit, as indicated by the Latin epithet, this species would be expected to be labeled tu-, but it appears to be ascribed to the yuku category because of the use of its foliage as a fish poison, documented by Casas, Viveros & Caballero (1994: 123) lasu'ma / ndidu'ma / tiji'ma / tiso'ma / tidu'me / tisu'ma: alacrán (CAB)

yuku titeya: hierba de la cucaracha (TXA) Petiveria alliacea L., PHYTOLACCACEA Esta planta sirve para las sarnas y hongos de los pies: se muelen las hojas y se aplica levemente a la parte afectada... Va'a xeen yuku yo'o ña ka'ni tite'ya: Las hojas crudas de esta planta se muelen con el nixtamal y se obtiene una masita verde, ésta se pone en las rendijas de los casas y acaba con las cucarachas. tite'ya: cucaracha (CAB)  The description of the plant in TXA only refers to localities in the municipality of Mixtepec.

yuku tiwi: estrellera yerua (TAM) [yucu tehui]

yuku tsixin’i [?]: hierba mora (NGO) [yukutsixin’i] Solanum americanum L., SOLANACEAE tsix’i / tidi’i / tisi’u: calambre (CAB) Para curar la disciplina roja: se prepara una masa con las hojas de la planta y se aplica. Sirve para los granos infectados... Kui kuxindo nda’axi tata yua. También se comen las hojas como quelite. (NGO)

yuku tiyeye: palma otra (TAM) [yucute yeye]

yúkú tñani ñú’u (DUX): un tipo de hierba, literalmente ‘hierba zoyate de tierra’... Se muelen sus hojas y se ponen en una herida. Las flores y la hojas se hierven y se toma el té para curar el dolor de estómago, para curar la diarrea o el paludismo... Además, es bueno que una señora lo tome cuando tenga problemas al dar a luz. The term soyate in this context refers to the belt of plaited palm (called tñani or a cognate in Mixtec) to keep the belly tightly bound, a habit that is believed to maintain the woman’s health and fertility.

yuku tnumi yo’o: oregano (TAM) [yucu tnumi yoho]

yuku too: hierba de la cuarta (TXA) Stevia sp., COMPOSITAE Sirve para latido y para empacho... Óo uu nuu yuku too ya’a, iin oo yo’o chii ñu’u, te inka jaa oo kunu yo’o, te íini nuu tatna-i. Hay dos clases de yuku cuarta, una que tiene raíz por abajito de la tierra y otra que tiene la raíz más profunda, las dos sirven para lo mismo. too: medida del dedo pulgar hasta el dedo índice (CAB)

yuku tuchi: valeriana? (CHA)

yuku tuchi: simonilla (DAA) Conyza filaginoides (DC.) Hieron., COMPOSITAE La hierba es amarga, se considera caliente... Se ocupa para la bilis, para el dolor de cólico, dolor de estómago y diarrea.
yuku tuchi: altagisa (TIL) [žuku tüči] unidentified species  Es de naturaleza caliente; sirve para los cólicos menstruales, la sangre pegada. Altamisa: Ambrosia artemisifolia L., Parthenium hysterophorus L., Zaluzania triloba (Ortega) Pers., COMPOSITAE (Martínez, 1979)

yúkú túchi (DUX): un tipo de hierba medicinal; literalmente, ‘hierba de tendones’... Se toma el té para curar un ligamento que se ha movido de su lugar en el vientre. Son amargas.

yuku tuchi (ACN, Relación de Justlahuaca) otra raíz de yerbas que, para dolor de ombligo, bebida, es muy buena, la cual llaman en su lengua mixteca yucutuchi y, en mexicano ttalhuapatli tutyi: vena, nervio, cartílago (CAB); ttalhua-: tendón, nervio; pahtli: medicina generalmente, emplasto, ungüento (de Molina, 1571)

yuku tuchi / yuku tikadi: llantén (TAM) [yucu tuchi / yucuticadzi] lantén / llantén: Plantago spp., PLANTAGINACEAE (Martínez, 1979)

yuku tu’n (COI) Eryngium gracile Delaroche, UMBELLIFERAE Raíz medicinal para “tristeza”, “billosios”. tu’n: solo, solito (CAB)

yuku xinde’e (COI) Lopezia racemosa Cav., ONAGRACEAE

yuku xintsi: hierba de muerto (NGO) [yuku xi ntsi] Lepidium virginicum L., CRUCIFERAE ndii / ndii / ntsii: difunto (CAB) Sirve para los jíotes en la cabeza, en la cara o en las manos: se muele las hojas y se aplica sobre las manchas. (NGO)

yuku xnuu (JIC) Salpianthus arenarius Kunth, NYCTAGINACEAE Medicinal para “hinchazón” de los niños. xnu’un: paludismo (CAB)

xku xte’en: cilantro cimarrón (OSP) The label ve- (cognate of yuva) might be expected for this species, but in Coatzospan Mixtec it appears that only the greens that are eaten cooked are assigned to that nominal category, while the taxa eaten raw like xku ndudu and presumably xku xte’en are marked simply as herbs.

yuku yaa: estafiate (SMG)

yuku yaa: espule (TIL) [žuku žaa] Pinaropappus roseus (Less.) Less., COMPOSITAE  Es de naturaleza fría y amarga; sirve para el sarampión yaa: ceniza / nuevo / lengua / color gris (CAB); the epithet seems to refer to the glaucous coloration of the plant

yúkú yaa (DUX) un tipo de hierba, nombre científico: Pinaropappus roseus. Parece diente de león... La gente muele la hierba... La echa en agua y se baña con ella si padece sarampión

yúkú yaa ínû (DUX) un tipo de hierba, literalmente ‘hierba de ceniza espinosa’. La gente de la región la llama “cenizuda”.

yuku yaa: estafiate (DAA) Artemisia sp., COMPOSITAE La hierba es amarga y se considera caliente... En el tratamiento para la diarrea... tos...

yuku yaa / yuku tiñoo: cerraja, yerua (TAM) [yucuyaa / yucuţiño] The Náhuatl dictionary of de Molina (1571) records ichpoli for cerraja yerua; espule, the local Spanish name for Pinaropappus roseus recorded by Piestrzynska (TIL), is derived from the Náhuatl ichpoli

151
**yuku yaa:** estafiate (CAB)
blancura / música

**yuku yaa isu** (COI) *Elaphoglossum* sp., DRYOPTERIDACEAE  **yaa:** tongue  **isu:** deer, same etymology as the Greek Ελαφός + γλώσσα in the Linnaean name

**yuku yaa sundiki:** lengua de vaca (PIN)  Cuando los chamacos tán enfermos, lo ponen en la brasa, lo ponen con un poco de manteca de marrano y un poco de ceniza, y se lo amarran a los chamaquitos.

**yuku ya’á** (PIN)  probably *Argireia* sp. [synonym: *Rivea corymbosa* (L.) Hallier f., CONVOLVULACEAE  Es una hoja redonda, y sale el bejuco blanco, blanco así, y sale a la orilla de los ríos, y es curativo, que lo muelen y lo beben . . . para dejar de tomar [alcohol], pero tiene que ser fuerte la persona que lo toma, a veces se quieren volver locos... la flor es blanca, y las semillas echa tres en cada vainita.

**yuku ya’a:** mastuerzo del Peru (TAM) [**yucu yaha**]

**yuku ye’e ndikin:** cadillos que se pegan a la rropa (TAM) [**yucuyehe**]

**yúkú yíki** (DUX): un tipo de hierba medicinal, literalmente ‘hierba de la enfermedad de hueso’

**yuku yudi** (DAA)  This term appears to designate rue or fennel:  **Nada tna'an nu xi xi'in yuku yudi, xi'in ti sa'a ndiwi, tnu tayuxi, ita ntsa'nu te dandoyo nu xi'in ndute ka'nu ini te dindodo nu xi nu nu'un te naku'a nu nitu'u nuu nitu'u nda'a sa'a in da'a. Por aire: cuando se les echa ojo, se ocupa desde la parte media de la ramita hasta la punta, se mezcla con ruda, el hinojo, el huele de noche, el chamizo blanco, la hierba de alcanfor, la flor de maribundio, se le echa el alcohol y lo requeman y lo tallan para que suelte el olor, todo es externo. (DAA)  **yudi:** heno o paxtle (CAB); heno: *Tillandsia usneoides* (L.) L., BROMELIACEAE (Martínez, 1979)

**yúkú yúû** (DUX) un tipo de arbusto, literalmente ‘hierba de cañada’... es espinoso. Sus hojas son muy grandes. Tiene flores moradas que no tienen ningún uso  The description matches *Wigandia urens* (Ruiz & Pavón) Kunth, HYDROPHYLLACEAE

**yukun:** hierba del grano (TXA)  *Justicia* sp. [synonym: *Beloperone* sp.], ACANTHACEAE

**yukun:** surco, fila, hilera / labrar madera / va a asobar (CAB)  **Sava ka tu'un ka'an tsa'a yuku yo'o ta yuku yo'o ra avi yee. In ka kau ñasi'i cha in ña ii. Yuku ii ka ra nani ka ntu'i ra tsa i kue nta'a nttaa-tono so'o tí'in cha ya ya ni kaa kolor [3 or more characters garbled]. San ni tsichun-na yuko yo'o ña kuta na ku'u kue'e yo o tía ña kuun-na ña nua nti'í vari tatú na kitia ko'o-na rakue sa'i tata. Hay dos clases, la hembra y el macho, el macho es más alargado y con hojas parecidas a la oreja de ratón con tallo de color blanco. Esta hierba se usa también para grano pero por fuera, tomada no tiene efecto.

A disproportionate number of the taxa that incorporate **yuku** into their designation are reported to be used therapeutically, as noted in the descriptions quoted from the different
sources. Diuxi Mixtec probably has the most balanced ethnobotanical inventory on record to date; 21 of the 34 plants labeled yúkú documented by Kuiper (2003) are specified to be used medicinally or to be entheogens (62%); in contrast, 22 of the 95 plants labeled tnu- (23%), 10 of the 45 plants labeled ita (22%), and only 1 of the 9 plants labeled ndua (11%), are noted to be used as remedies. None of the plants labeled yua are reported to have any medicinal use. 9 of the 34 plant names marked yúkú recorded by Kuiper designate bean plants (yúkú xichi), which in Coicoyán and Mixtec variants recorded by Caballero are labeled yuva or a cognate, and yo’o in the coastal dialects; if the bean terms are excluded (none of which appear to be used as remedies), the percentage of plants reported to be used medicinally in this nominal category rises to 84%. The high prevalence of pharmacologically significant taxa in this category is confirmed by other sources, as well: the Flora Medicinal de la Mixteca Alta, n.d., lists 31 medicinal plants used in the Tlaxiaco region, of which 20 are marked yuku, another 2 incorporate the classifier tu-, 1 more is labeled ita, 1 is a food plant with the ti- classifier, 1 shows a metaphoric designation (‘goat’s leg’), and the remaining 6 were borrowed from other languages (5 from Spanish, 1 from Náhuatl probably via Spanish).

4.5 Plants labeled ita

Mixtec names that incorporate the class term ita designate species that have perceptually salient blossoms. The literature often reports that taxa with this label serve as ritual offerings in the domestic altars, in churches and cemeteries, and in the rituals conducted on mountain tops and other sacred places to request rain and to cure sick people. Some of these plants are herbaceous annuals that would be included in the folk category ‘wildflowers’ in English, but the group is much broader, as the examples that follow will illustrate. Josserand (1983) did not reconstruct the term for ‘flower’ in Proto-Mixtec; the regularity of the form ita in the dialects for which we have information suggests that it has not undergone significant change since the languages diversified, except for tonal modifications. In some variants, it has become homophonous with the term that labels grasses:

ita: flor (XOC)
ita / yita: flor / zacate o pasto (CTZ)
ita: flower (LAC)
ita: flor (SMG)
   lu’lu / lu’lu itá: yema de la flor, pedículo (SMG)
ítà: flower (DUX)
ita: flor (OSP)
ita: la flor (SJC) [ítà]
   tú’ndu: el botón de flor (SJC)
ita: flor generalmente (TAM)
   itu itu: huerto (TAM) [ituita]
ita / yita: flor (CAB)
lee: flor (CAB)

ita búrru (DUX): un tipo de flor silvestre, literalmente ‘flor de burro’
**ita cha’u**: flor morada (CHA)  Tiene camote que se come.

**ita chete**: flor de cabello de elote, helecho (CHA)

**ita chiki** (COI)  *Nopalxochia ackermannii* (Haw.) F.M. Knuth, CACTACEAE  Flor se come cocida, es medicinal cruda, adorno para altares.  **chiki**: fruit of *Opuntia* sp.

**ita chiki** (MXT) [**hita chiqui**]  *Heliocereus speciosus* (Cav.) Britton & Rose, CACTACEAE

(ita) **chiviyu** / (yuku) **chiviyu** (COI)  unidentified species in the COMMELINACEAE  Grows frequently in the milpas.

**ita chumbi** (KAP) [**ita-chumbi**]  *Phaseolus* sp., PAPILIONACEAE, “especie de frijol silvestre”

**ita daá**: flor de nochebuena (TON)

**ita di̱ḵi̱ li’i** (DUX): cresta de gallo, silvestre

**ita díko** (DUX): un tipo de laurel silvestre, literalmente ‘flor de olor’

**ita dusa ya’a**: bálsamo (TAM) [**ytadzusayaha**]  This form may entail a metaphoric use of the class term.

**ita ia di’i**: Santa María (DAA)  *Tanacetum parthenium* (L.) Schultz-Bip., COMPOSITAE  **iya si’i** / **yade’e** / **yadi’i**: ‘sagrada mujer’, virgen (CAB)  Antes del parto, para dolor de estómago y para calentura... para limpia... (DAA)

**ita Guadalupe**: flor de Guadalupe (XYA)  probably *Brugmansia x candida* Pers., SOLANACEAE.  The flowers were an important entheogen. [25.]

**ina** / **ita ina**: liga para paxaros (TAM)  This entry in the dictionary suggests that **ita ina** designated *Psittacanthus* spp., LORANTHACEAE

**ita ini**: flor del corazón (CAB)

**ita ji’i**: flor de frijolón (SMG)  probably *Phaseolus coccineous* L., LEGUMINOSAE

**ita jombíil**: bugambilía (DUX)

**ita kachini**: flor de sombrero (CHA)

**ita kadju**: la piñanona (CHY) [**ita cazu**]  probably *Monstera deliciosa* Liebm., ARACEAE

**yita ka’yi takuui**: ‘flor pinta líquido’, jamaica (CAB)  probably *Hibiscus sabdariffa* L., MALVACEAE
ita kayu (JIC)  
*Cosmos sulphureus* Cav., COMPOSITAE

í'ta² ka'tyuy³ (YLX)  
*Cosmos sulphureus*

ita kai (MXT) [hita kai]  
*Cosmos sulphureus* Cav., COMPOSITAE

ita ka’yu / ña’mi ita ka’yu: dalia montés (SOT) ['ita ka’yu] Dahlia aff. tenuis B.L. Rob. & Greenm., COMPOSITAE)  
*ka’yu*: pinta o dibuja / va a escribir (CAB)

ita ka’yu: dalia (YSN)

ita ká’î (DUX) probably *Cosmos sulphureus*. *Un tipo de flor silvestre, literalmente ‘la flor que tiñe’*

ita kayu (KAP) [ita-cayu] *Quamoclit vitifolia* (Cav.) Don., CONVOLVULACEAE

ita ka’yu: color leonado (TAM) [itacayu]

De Alvarado’s entry, which refers to a color rather than a plant, probably reflects the use of *Cosmos sulphureus* Cav., COMPOSITAE, as a yellow dye by the Mixtec people, as attested by 16th century sources for the Mexica in the Valley of Mexico, where this species was called *xo:chipalli*, ‘flower-dye.’

ita katila / ita stila / ita tyila: albahaca (CAB)

From the Spanish Castilla, Castille.

ita kindi (COI)  
*Salvia stricta* Sessé & Mociño, LABIATAE  
*Esta planta es considerada un indicador de tierra fértil. Kindi* is the Mixtec term for *chía* in other dialect areas; the crop does not appear to be known in Coicoyán.

í’ta² ki’ndi² [quinti]  
*Salvia elegans* Vahl, LAMIACEAE  
*Salvia mexicana* L., LABIATAE

ita kinta: ita kinta morada / flor guinda (SOT) ['ita kinta]  
*Salvia purpurea* Cav., LABIATAE  
*ita kinta kue’e*: ita kinta roja / flor guinda (SOT) ['ita kinta kue’e]  
*Salvia cinnabarina* M. Martens & Galeotti, LABIATAE. Flowers ingested raw.

ita kinta le: ita kinta azul / flor guinda (SOT)  
*Salvia recurva* Fern., LABIATAE  
*Flowers ingested raw.*

ita takkindi / ità tkindi / ità tmutakkindi: chía, literalmente ‘flor de mariposa’ (DU)  
The etymology appears to involve both the class term ità and the nominal marker ta derived from it.

kindi: *chía* (TAM) [attested as *dzahaquende*: azeite de chía]

ika kindi: albahaca (CAB)

ita kivi (JIC)  
*Justicia spicigera* Schldl., ACANTHACEAE

ita kixin (COI)  
*Cuphea infundibulum* Koehne, LYTHRACEAE  
*kixin*: sticky

ita kixin (COI)  
*Desmodium strobilaceum* Schldl., LEGUMINOSAE [FABACEAE]  
*El tallo se usa para sacar briznas del ojo. Nombre genérico para “flores pegajosas”.*

ita ko’ó: campánula, enredadera (XOC) probably *Ipomoea* sp., CONVOLVULACEAE

ko’ó: plate, dish

ita ko’o (COI)  
*Ita ko’o* is a generic designation for *Ipomoea* spp., associated with the belief that a person who touches this plant will break dishes.

ko’o: plate, dish
ita ko’o vali (JIC) Ipomoea hederifolia L., CONVOLVULACEAE
ita kó’ó: campanilla, la flor de un bejuco (DUX)

ita ko’yo: orquídea (CAB)

ita kuá’a: geranio, malvón (SMG) [ità cuàhá]
ita kuá’a: geranio (CHA)
ita kuuá’a: la jamaica (SJC) [ità cuahá]
ita kua’a: ‘flor roja’, jamaica (CAB)
yita kua’a yiya: ‘flor roja agria’, jamaica (CAB)

ita kuán: flor de muertos (CGM)
ita kuáñ / yita kuáñ: zempoaxuchitl (CTZ)
ita kuáñ: zempoaxochitl (CHA)
ita kuáñ: flor de cempasúchil, cultivada (DUX)
   ita kuáñ vilú (DUX) flor de cempasúchil silvestre, literalmente ‘flor amarilla de gato’
ita kuáan: la flor de muerto (CHY) [ita cuaan]
ita kuáan (KAP) [ita-cuaan] Tagetes erecta L., COMPOSITAE

ita kuáun ndikachi (COI) Tagetes sp., COMPOSITAE ndikachi: sheep
ita kuáun (JIC) Tagetes tenuifolia Cav., COMPOSITAE La flor se usa para adornar los altares el Día de Muertos.

i₃ta² kw₁ on⁵ (YLX) Tagetes erecta L., COMPOSITAE Two named varieties, i₅i₅ and ndo₃ ko². Amith & Castillo gloss kwa¹ on⁵ as el señor quien es dueño de los animales silvestres.
   i₃ta² kw₁ on⁵ yu³ ku⁵ (YLX) Tagetes remotiflora L., COMPOSITAE

ita kuía:trébol (TAM) [ytacuij]
ita kuía: albahaca (CAB)

ita xkiyi: flor blanca (YSN) xkiyi: blanco
ita kuixi búrru (DUX) un tipo de flor silvestre; literalmente ‘flor blanca de burro’
ita kuixi / ita kuixi / ita kuxi: ‘flor blanca’, la margarita (CAB)
ita kuixiyin: ‘flor blanca’, bocote (CAB) probably Cordia sp., BORAGINACEAE

ita kuixia (COI) Bidens sp., COMPOSITAE kuiya: year

yita kundaa: jamaica (CAB)

ita leko: pasto (XOC) ita: flor; leko: conejo This may involve a mistranslation of the form for ‘grass,’ which has become homophonous with the class term for flowers.

ita limbé: dalia (SMG)
ita limpee: dalia (CAB)

ita liya: la margarita (CAB)
ita lo’o: ‘flor pequeña’, rosa, rosita (CAB)

ita margaritá (COI) Bejaria sp., ERICACEAE Adorno para los altares. From the Spanish margarita, ‘daisy.’

ita mayo (COI) Bomarea hirtella (Kunth) Herb., ALSTROEMERIACEAE [LILIACEA] Adorno para los altares, especie preferida. mayo: the month of May, from Spanish

ita minú: yerbabuena (SMG)
ita minú: hierbabuena (CHA)
tamínú: hierbabuena (YSN)
ita mino / ita minu / tamino / taminu: yerbabuena (CAB)

ita miny / táminy: chamiso (SMG) mínuy: epazote; nducha mínuy: caldito de epazote

ita mitu: mirto (DAA) Salvia microphylla Kunth, LABIATAE mitu: venadito (CAB); mitu as ‘fawn’ may be a borrowing from Spanish gamito, while ita mitu looks like the Mixtecized form of mirto Se ocupa para limpias de niños y adultos. Por aire: cuando se les echa ojo, se ocupa desde la parte media de la ramita hasta la punta...
(DAA)

ita ná’nu: florifundio (CHA) probably Brugmansia x candida Pers., SOLANACEAE

ita nii (MXT) [hita nii] Penstemon kunthii G. Don, PLANTAGINACEAE [SCROPHULARIACEAE sensu lato]

ita nuni: cacalosúchil (XYA) probably Plumeria rubra
ita nuni: cacalosúchil (TON)
ita nuni: flor de mayo (XOC) probably Plumeria rubra nuní: maíz
ita noní (COI) Plumeria rubra L., APOCYNACEAE
ita nuni (MXT) [hita nuni] Plumeria rubra
ita nuni: cacalosúchil (DUX)
ita nuni kawa (ACÑ, Relación de Zacatepeque) Hay otro árbol que se cría en las peñas, que llaman ellos en su lengua ytanunicahua y, en mexicano, tepecalosuchitl: la corteza deste árbol, cocida y bebida, es buena para servir de purga [kava / kawa: peña (CAB); tepe:ca:ca:lo:xo:chitl: mountain crow-flower, i.e., wild frangipani

ita ndaa / ita ndaka: lirio cardeno (TAM) [ytandaa / ytandaca]

ita ndaa kua’a [?]: …un elevado árbol nombrado en el idioma mixteco itandacua, que en el nuestro significa flor de mano colorada, que produce por fruto una azucena de la que nace una perfecta manilla a modo de las de pavo. (Relación de San Andrés Chicahuaxtla, 1777; Esparza, 1994: 68) (San Andrés Chicahuaxtla is a Trique community in the Putla district, Oaxaca, where Mixtec was spoken as the lingua franca) The description matches Chiranthodendron pentadactylon Larreát., MALVACEAE [STERCULIACEAE] An alternative etymology would involve ndakua; this species is
known as **tundakua** in Coicoyán Mixtec.

**ita nda’na ma’a** (MXT) [**ita nta maa / hita nta’a máa**] *Chiranthodendron pentadactylon*  
Larreát., MALVACEAE [STERCULIACEAE] **nda’a**: mano; **ma’an**: mapache, comadreja (CAB)

**ita ndádi dé’ê** (DUX) lengua de buey  
**ita ndádi dé’e kuíxi** (DUX) un tipo de flor silvestre

**ita ndánu**: *flor de huisote* (SOT) *Yucca* sp., AGAVACEAE  
The flowers are eaten cooked.

**ita ndáva**: *’flor que se apaga’*, rosa (CAB)

**ita ndaxin**: *bocote* (CAB) probably *Cordia* sp., BORAGINACEAE

**ita ndeka**: *monjas* (CGM) *Laelia* sp., ORCHIDACEAE  
**ita sindiaka**: *monjas* (MIC) probably *Laelia* sp.

**ita ndiaka** (COI) *Artorima erubescens* (Lindl.) Dressler & Pollard, ORCHIDACEAE  
*Ornamental para altares, especie preferida.* **ita ndiaka** is the generic name for various orchids in Coicoyán and Jicayán de Tovar  
**ita ndiaka** (COI) *Encyclia ghiesbreghtiana* (A. Rich. & Gal.) Dressler, ORCHIDACEAE

**ita ndiaka kuaan** (COI) *Prosthechea citrina* (La Llave & Lex.) W.E. Higgins / *Prosthechea karwinskii* sp. nov., ORCHIDACEAE  
**ita ndiaka ñu’un** (COI) *Govenia* sp., ORCHIDACEAE  
*Las flores se llevan a los altares.* The epithet ñu’un, ‘earth,’ specifies that this is a terrestrial orchid.

**ita ndiaka** (JIC) *Barkeria* sp.; *Encyclia* sp.; etc., ORCHIDACEAE

**ita ndyaka kuaan** (MXT) [**ita nchaca cuan**] *Prosthechea aff. citrina* (La Llave & Lex.) W.E. Higgins [synonym: *Encyclia aff. citrina* (La Llave & Lex.) Dressler], ORCHIDACEAE  
**ita ndyaka kua’a** (MXT) [**ita nchaca cu’a**] *Laelia furfuracea* Lindl., ORCHIDACEAE

**ita ndyaka lakuku** (MXT) [**ita nchaca lacucu**] *Pollardia tripunctata* (Lindl.) Withner & Harding [synonym: *Encyclia tripunctata* (Lindl.) Dressler], ORCHIDACEAE  
**lakuku**: tortolita (CAB)  
**ita ndyaka tiin** (MXT) [**hita nchaca tiin**] *Oncidium graminifolium* (Lindl.) Lindl., ORCHIDACEAE  
**tiin**: uña / sudor / ratón / pepita (CAB)

**ita nchaka**: orquídea (SMG)  
**nchaka**: pegamento

**ita nchaka**: orquídea (CHA)

**ita ndékà**: un tipo de orquídea color de rosa, florece en noviembre y diciembre (DUX)  
probably *Laelia furfuracea* Lindl., ORCHIDACEAE

**ita ndéká kuáan**: un tipo de orquídea amarilla, florece en febrero y marzo (DUX)  
probably *Prosthechea citrina* / *Prosthechea karwinskii*, ORCHIDACEAE

**ita tndékà ñú’un**: un tipo de orquídea de tierra (DUX)

**tindyaka**: la orquídea (CHY)

**ita ndaka / ita ndaa**: lirio cardeno (TAM) [**ytandaca / ytandaa**]  
**tindaca**: engrudo

**ita ndaka kuísí / ita ndiki kuísí / ita santa maría**: azucena (TAM) [**ytádacacuisí /**

158
*ntentequecuisi / yta santa Maria*

**ita ndeka:** lirio, orquídea (CAB)

**ita ndeke:** glue (JOS) The mucilage of *Bletia* spp., *Laelia* spp., and other genera in the Orchidaceae has been used widely as an adhesive in Mesoamerica since antiquity.

**ita andiu:** flor del cielo (CHA) orquídeas

**ita ndéuí / ita ndéyû:** un tipo de orquídea rosa, florece en noviembre, diciembre y enero (DUX) probably *Artorima erubescens* (Lindl.) Dressler & G. Pollard, ORCHIDACEAE **andeve / andiwi / andiwi / ndivi:** cielo (CAB)

**ita ndeyu:** orquídea (SMG) **ndeyu:** relampaguear, brillar

**ita ndeyu:** orquídea (CHA)

**ita ndéyû kuágñ:** un tipo de orquídea amarilla (DUX)

**ita ndika:** platanitos (COI) *Epidendrum gladiatum* Lindley, ORCHIDACEAE Los niños comen las semillas inmaduras como golosina. **ndika:** banana

**ita ndika / ita ndiaka:** (COI) *Epidendrum oaxacanum* Rolfe ex Ames, ORCHIDACEAE Los niños comen las semillas inmaduras como golosina.

**ita ndika / ita ndiaka:** (COI) *Epidendrum sp.*,, ORCHIDACEAE Los niños comen las semillas inmaduras como golosina.

**ita ndikandii / ita ndyikandyii / ita nikandii / ita diki ndii / ita jiko kandii / ita nandii / ita nandyii / ita ndii / ita jiko kandii / ita nandii / ita yandi:** ‘flor cabeza de sol’, girasol (CAB)

**ita ndi’nisaa [?] :** flor de pipi (SOT) **ita ndi’nisa** *Erythrina americana* Miller, LEGUMINOSAE [PAPILIONACEAE] The flowers are eaten cooked.

**yita ndio’o:** pájaro vachiquichi (ZAU) **yita ndio** *Cuphea wrightii* A. Gray, LYTHRACEAE) **ndio’o / ndiyo’o / niyo’o / ntsio’o / sandyo’o / tsiyo’o / tyndyo’o:** colibrí, chupamirto (CAB)

**ita ndyo’o:** (MXT) **ita ncho’o** *Salvia mexicana* L., LABIATAE) **ndyo’o:** colibrí, chupamirto (CAB)

**ita ndio’o:** chupamirto (TXA) **ita ntio’o** *Penstemon campanulatus* (Cav.) Willd., PLANTAGINACEAE

**ita ndiyo’o:** planta buena para el estómago (CHA)

**ita nd’i’ji ni ndi’i:** un tipo de flor morada (DUX)

**ita ndiki:** flor de encaje (YSN) **ndiki:** cuerno, but more likely a cognate of ‘small seed’

**ita ndiki kuisi / ita ndaka kuisi / ita santa maria:** azucena (TAM) [ytandequecuisi / ytándacacuisi / yta santa Maria]

**ita ndiutia:** (COI) *Fuchsia arborescens* Sims, ONAGRACEAE Ornamental para altares.

**ita ndixi [hita ntishii]** *Lupinus campestris* Cham. & Schldl., LEGUMINOSAE [PAPILIONACEAE] **ndixi:** elote / ala / mescal; **ndixii:** zopilote / garrapata (CAB)
**ita ndixín**: yolosóchil (COI)  
*Magnolia mexicana* DC. [syn: *Talauma mexicana* (DC.) G. Don.], MAGNOLIACEAE  
La flor se usa como remedio para “mal del corazón” y dolor, junto con la flor de *Chiranthodendron*.  
**ndixín**: wing

**ita nziki yaa**: flor de muerto (MIC)  
probably *Tagetes* sp., COMPOSITAE  
*Es una flor silvestre, amarilla.*

**ita ndii**: *Stevia* sp., COMPOSITAE  
Las flores se usan como adorno para la ofrenda del Día de Muertos.  
**ndii**: deceased person

**ita ndiyi**: flor de muerto (YSN)  
**ndiyi**: difunto

**ita ndókô**: jazmín (DUX)  
probably *Philadelphus mexicanus* Schldl., HYDRANGEACEAE

**ita ndo’o** / **ita ndo’o ño’a** / **ita ndo’o nene** / **ita ndo’o kuaan** / **ita kuaan**: jasmin (TAM)  

**ita ndoso** (COI)  
*Brugmansia x candida* Pers., SOLANACEAE  
**ita ndoso (yuku)** (COI)  
*Solandra* sp., SOLANACEAE  
Para adivinar: infusión de la flor, o se mastica la corteza verde.  
**ndoso**: teta **ndoso ii**: deidad, dios sagrado  
(CAB)  
*Brugmansia*, introduced from the Andes, seems to have displaced the native *Solandra* as the primary referent of **ita ndoso**.

**ita ndukun** (COI)  
*Salvia elegans* Vahl, LABIATAE  
**ndukun**: cochineal

**ita nduti**: flor de cartucho (CAB)  
probably *Zantedeschia aethiopica* (L.) Spreng., ARACEAE  
**nduti**: frijol / riñón (CAB)

**ita nduva** (COI)  
*Penstemon roseus* (Cerv. ex Sw.) G. Don, PLANTAGINACEAE  
*[SCROPHULARIACEAE]*  
The etymological link with *Leucaena* is not clear, if there is one.

**ita nduvua ndu’u kastiya / ita timii kastiya / yuku nduvua**: manzanilla (TAM)  
*[itanduvua] duhu castilla / itatemij castilla / yucunduvua]*

**ita nduxa**: flor de trébol (CHA)  
probably *Oxalis* sp., OXALIDACEAE

**ita nduyu kaa**: clauellina (TAM)  
*ytenuyucaa*, a typographical error for *ytanduyucaa*, as attested by *duyucaa*: clauo

**ita ntsa’nú** [?] (DAA)  
This term appears to designate ‘yerba de alcanfor’ or ‘flor de maribundio’ (?):  
Nada tna’an nu xi xi’in yuku yudi, xi’in ti sa’a ndiwi, tnu tayuxi,  
**ita ntsa’nu** te dandoyo nu xi’i’in ndute ka’nu ini te dindodo nu xi nu nu’un te naku’a nu nitu’u nnu nitu’u nda’a sa’a in da’a.  
Por aire: cuando se les echa ojo, se ocupa desde la parte media de la ramita hasta la punta, se mezcla con ruda, el hinojo, el huelo de noche, el chamizo blanco, la hierba de alcanfor, la flor de maribundio, se le echa el alcohol y lo requeman y lo tallan para que suelte el olor, todo es externo.  
(DAA)  
**tsa’nú**: mollera / grande en edad, sabiduría, experiencia / el
caballete de la casa (CAB)]

ita ntsikin ya’a [?] flor de muerto (NGO) [ita ntsikiya’á] Tagetes lunulata Ortega, COMPOSITAE ndjín / ndyikin / ntsikin / tsikin: semillas de chile, tomate, rábano, guayaba, amaranto, entre otros; ntsíí: difunto; ya’a: chile / color café (CAB)

Para el piquete de alacran o mordedura de víbora de cascabel... Esta flor la utilizan mucho para adornar las ofrendas con motivo de día de muertos. (NGO)

ita ndze’e: azucena (CGM) ntse’en: temprano (CAB)

ita ndzidin: calosúchil (CGM) (Plumeria rubra, APOCYNACEAE) [ndzidin: elote]

(ita) ñuma (COI) Tillandsia sp., BROMELIACEAE Adorno para altares. ñuma: wax

ita ñuñu: flor de panal (ZOL) unidentified epiphytic orchid

ita ñu’ú: flor de nochebuena (XOC) ñu’ú: tierra, suelo / terreno; ñu’ú: sol; ñu’ú: fuego, lumbré Stark, Johnson & González (2003) relate the name of this plant to the term for ‘earth’

ita ño’on: flores de nochebuena (CTZ) ño’on: el sol
ita ñu’un / tuita ñu’un (MXT) [ita ñu’u / tu hita ñu’un] Euphorbia pulcherrima Willd. ex Klotzsch, EUPHORBIACEAE ño’on / ñu’un: sol (CAB)

ita ñu’un: flor de nochebuena (SMG) ñu’un: fuego; ñu’un: terreno, tierra; ndikandii: sol
ita ñu’ú: nochebuena (DUX)

ita ñu’un (COI) Castilleja arvensis Schldl. & Cham., Castilleja tenuiflora Benth., Castilleja spp., OROBANCHACEAE ñu’un: fire

ita paxkua: flor de nochebuena (CGM) Euphorbia pulcherrima Willd. ex Klotzsch, EUPHORBIACEAE from Spanish Pascua

ita pelo (JIC) Operculina pteripes (G. Don) O’Donell, CONVOLVULACEAE pelo: vulture

yita perikoon: pericón (ZAU) [yita pericoó / yita perico o] Tagetes lucida Cav., COMPOSITAE

ita rosa: rosa de Castilla (CGM)
yita rosa: rosa (CTZ)

nu ita rosa / ton ita rosa / tnu ita rosa: rosal (CAB)
tun ita rosa: ‘planta flor de rosa’, rosal (CAB)

yuku saa (COI) Echevería sp., CRASSULACEAE An epiphyte, growing on Quercus sp.; used medicinally in an infusion to treat sarampión.

ita saá: siempreviva (SMG)

ita saa: flor de siempre viva (YSN)

ita dáá (DU) probably Sedum sp., CRASSULACEAE un tipo de siempreviva; la gente
mastica sus hojas para curar llagas de la boca

**ita dāa yūkū** (DUX): un tipo de siempreviva montés

**ita dāa**: flor siempre viva (APO) “Itadaa, compuesta de ita = flor; dāa = perenne, permanente, duradera. Flor siempre viva (López García, 2007: 148)” [26.]

**ita dāa**: siempre viva la flor (TAM) [itadzaa]

**sidá tundúú**: injerto de tehuiztle (MIC) probably *Psittacanthus* sp., LORANTHACEAE

**sa’g**: caballero, planta parásita… es muy bueno tomar el caballero cuando nos duelen los riñones (CTZ)

**ita sa’a / yuku sa’a** (COI) *Psittacanthus* sp., LORANTHACEAE. Adorno para altares.

**ti’xa’la** (YLX) generic term to designate parasitic plants in the LORANTHACEAE (*Psittacanthus*) and CONVOLVULACEAE (*Cuscuta*).

**sa’a** (MXT) [za’a] *Psittacanthus schiedeanus* (Schdl. & Cham.) Blume ex Schult., LORANTHACEAE

**ita sa’a** (MXT) [hita za’a] *Sedum praetulatum* A. DC., CRASSULACEAE

**tisa’q**: muérdago (SMG)

**ita sama kuain** [?] (MXT) [hita sama cuain] *Artorima erubescens* (Lindl.) Dressler & G.E. Pollard, ORCHIDACEAE) [sa’ma: ropa, tela / joya, tesoro; kuai: escalera / caballo (CAB)

**ita San Juseé** (DUX) flor de San José... nadie cultiva la flor de San José porque el gobierno no lo permite [?]

**ita Sánta Mariá** (DUX) flor de Santa María... el té de las flores de Santa María es útil para curar el estómago cuando gruñe...

**ita santa maria / ita ndaka kuisi / ita ndiki kuisi**: azucena (TAM) [yta santa Maria / ytádacacuisi / ytandequecuisi]

**ita santo domingo**: azucenita (SOT) unidentified edible plant

**ita saña / yuku uva** (COI) *Salvia* cf. *lavanduloides* Kunth, LABIATAE saña: corncob; uva: bitter

**ita sa’vi / ita tida’vi / ita tida’vi / ita tnutyida’vi / ita tuntisa’vi / yita tsisa’wi**: flor de pipi (CAB) probably *Erythrina* sp., LEGUMINOSAE


**ita siki** (COI) *Kohleria deppeana* (Schdl. & Cham.) Fritsch, GESNERIACEAE

**ita so’o tiin** (COI) *Pinguicula moranensis* Kunth, LENTIBULARIACEAE so’o: ear tiin: mouse The nominal relationship between this and the following terms from Mixtepec and Pinotepa Nacional is probably incidental.

**ita so’o** (MXT) [ita zó’o / hita zo’o] *Senna holwayana* (Rose) H.S. Irwin & Barneby, LEGUMINOSAE [CAESALPINIACEAE] do’o / jo’o / lo’o / so’o: orejas (CAB)

**ita so’o vilu** (MXT) [hita zo’o vilu] *Calochortus balsensis* A. García-Mendoza,
LILIACEAE vilu: gato (CAB)

ita so’o: flor de orejita (PIN) Plumeria rubra L., APOCYNACEAE

ita suma chele (JIC) Tillandsia sp., BROMELIACEAE su’mati: cola del animal tyele: gallo (CAB) The relationship between this name and the following term from Mixtepec is probably incidental.

ita tzele (MXT) [hita tzele] Cologania angustifolia Kunth, LEGUMINOSAE [PAPILIONACEAE] tyele / xelee: gallo (CAB)

ita tanu yata (MXT) [hita tanu yata] Sprekelia formosissima (L.) Herb., AMARYLLIDACEAE tanu: soyate / topil / se va a destruir; ta’nu: grande en edad, sabiduría y experiencia / se va a romper, se va a quebrar; yata: espalda, atrás / cabello de elote (CAB)

ita té’û: dalia (DUX)

ita tchavi (MXT) [ita ti chávi / hita ti chavi] Calliandra grandiflora (L’Hér.) Benth., LEGUMINOSAE [MIMOSACEAE] tyavi: huarache, zapato; sia’vi / tiya’vi / tsa’vi / tya’vi: liendre (CAB)

ita tika / yuva tika (COI) Lagascea helianthifolia Kunth., COMPOSITAE Las flores se comen cocidas en el rescoldo. tika: grasshopper

ita tikaka (COI) Cosmos sp., COMPOSITAE tikaka: crow

ita tkáâ: cacalote, Conophilus [sic] alpina, literalmente ‘flor de cuervo’ (DUX) probably Conopholis alpina Liebm., OROBANCHACEAE

ita tikandiutia (COI) Rumfordia floribunda DC., COMPOSITAE A preferred species to offer in altars and shrines. The etymology appears to involve the root ‘sun’.

ita tikava kuaan / ita vixi (MXT) [hita ticava cuan / ita vishi] Verbesina perymenioides Sch.-Bip. ex Klatt, COMPOSITAE This may be a cognate of COI tukava and the nominally related taxa in other dialects.

ita tkúâ: un tipo de flor silvestre, literalmente ‘flor de mariposa’ (DUX)

yita tikuua: erisipela (ZAU) [yita ticua] Bouvardia ternifolia (Cav.) Schldl., RUBIACEAE

ita tikuua (yuku) (COI) Rondeletia cf. tenorioi Lorence, RUBIACEAE Flor adorno para altares, especie preferida. The term can be glossed as ‘wild citrus flower,’ because of its aroma.

ita tikudi: orquidea (CAB)

ita tkúndî: un tipo de flor silvestre, Lupinus montanus, literalmente ‘flor de pájaro’ (DUX)

ita tinu’un / ita tuniu’un: flor de cagual (CAB)

ita tinu’un na’nu / ita tunu’un / tinu’un stila / yita tnono’on na’no: ‘flor de cagual
grande’, girasol (CAB)

**ita tindoo** (COI) *Dahlia coccinea* Cav. COMPOSITAE  Flor para adornar altares.  **tindoo**: spider

**ita tindoo** (COI) *Dahlia sp.*, COMPOSITAE  Flor para adornar altares. A different species from the previous, with rose colored ligules.


**ita tnđúû**: *un tipo de flor silvestre, literalmente ‘flor esférica’* (DUX)

Viko tnunda’a Oko Ñaña xi’in Ita Ndeui ndaxa ita tnđu. Nde vitna daxa dichi tnunda’a ita tnduu nuu ñayiu xyuku viko ve’ei xa tnunda’ai. Diuni ka dakee ñayiu ita tnđu yau nuu ndeé ta’uí. En la fiesta de la boda de Veinte Coyote y Orquídea, rey y reina antiguos, la novia repartió las flores llamadas ita tnđúû. Hasta la fecha la novia reparte ramos de estas flores a la gente que viene a la fiesta en su casa cuando se casa por la iglesia; también la gente pone ramos de estas flores en hoyos donde colocan ofrendas a los chaneques.

**ita tise’e** (COI) *Tigridia pavonia* (L.f.) DC., IRIDACEAE  Los bulbos se comen cocidos.  **ita tise’e yuku** (COI) *Tigridia ortantha* (Lem.) Ravenna [synonym: *Rigidella ortantha* Lem.] The bulbs are known to cause vomiting if ingested.

**se’e** (MXT) [ze’e] *Ainea conzattii* (R.C. Foster) Ravenna, IRIDACEAE

**se’e na’nú** (MXT) [ze’e nanú] *Tigridia pavonia* (L.f.) DC., IRIDACEAE

**ita titiatia**: *azucena* (COI) *Milla biflora* Cav., ASPARAGACEAE [ALLIACEAE]

**yita tuxaya**: *begonia* (ZAU) [yita tushaia] Begonia *balmisiana* Ruiz ex Klotzsch, BEGONIACEAE

**ita tixaaya** (COI) *Begonia* sp., BEGONIACEAE  Los niños chupan el tallo, que es agrio.

**ita txíchî**: *un tipo de flor silvestre* (DUX)  The etymology appears to involve the marker for animals and round objects.

**ita tya’a** (KAP) [ita-tyaha] *Cochlospermum vitifolium* (Willd.) Spreng., BIXACEAE  **tya’a**: bulé (CAB)

**ita tsaka**: *orquídea* (CAB) Presumably this form derived from *tiyaka > *tsiyaka > tsaka tiyaka / tiyaka / tsìaka / siaka / tsaka: pescado (CAB)

**tyiyatya** (CHY) *Pseudobombax ellipticum* (Kunth) Dugand, MALVACEAE  [BOMBACACEAE] *La flor itayata; hay dos clases de itayata, una es blanca y una es roja*

**ita tyatya / ita yata / yita yata**: *flor de la bailarina o escobetilla* (CAB)

**ita tuiyi**: *flor de huachipile* (SOT) [ita tu iyí] *Diphysa* sp., LEGUMINOSAE  The cooked flowers are eaten.
yita tunuu: acahual (ZAU) [yita tunu] Tithonia tubaiformis (Jacq.) Cass., COMPOSITAE

ita tusaa (COI) unidentified species in the COMPOSITAE Flores para adorno altares.

ita viko (MXT) [ita vico] Milla oaxacana Ravenna, ASPARAGACEAE
ita viko ndi: flor de fiesta de muertos (APO) ndii / ndiýi / ndiiy / ndtii: difunto (CAB)
ita viko (Santiago Ixtayutla, Jamiltepec District, Oaxaca) unidentified species in the ORCHIDACEAE (de Ávila, 1983) viko: festivity / cloud

ita vílû: un tipo de orquidea azul con rayas, literalmente ‘flor de gato’ (DUX)

ita viô (DUX) possibly Satureja sp., LABIATAE un tipo de poleo... las flores... huelen dulce... este tipo de poleo es medicinal
távío: a kind of flower (DUX)

ita víxa: un tipo de flor medicinal (DUX)

ita widi: manrubio (DAA) Marrubium vulgare L., LABIATAE vidi / viji / visi / vitsi / vixi / widi: dulce (CAB)

ita xatu (COI) Persicaria hydropiperoides (Michx.) Small, Polygonaceae xatu: spicy

ita xīkā ndódó: un tipo de flor silvestre, literalmente ‘flor que anda encima’ (DUX)

ita ximiria / yuku ximiria (COI) Piqueria trinervia Cav., COMPOSITAE Las flores se usan como adorno en la ofrenda del Día de Muertos; es remedio para el catarro. The etymology is obscure; it may be a borrowing, but the source is unknown to me.

ita ximú: flor de magueyito (SMG) probably Tillandsia sp., BROMELIACEAE

ita xīni (MXT) [hitu shini] Tagetes lucida Cav., COMPOSITAE dini / jiñi / sini / xini: cabeza (CAB)
ita xīnī / yuku ita xīnī: pericón (SMG)
ita dini: pericón (DAA) Tagetes lucida Cav., COMPOSITAE dini: cabeza / nariz (CAB)
Para falseadura, torcedura, inflamación de vías urinarias y del estómago. (DAA)
ita dīnī (DUX): un tipo de flor silvestre, medicinal
ita xīnī / yuku ita xīnī: pericón (CAB)

ita xīni chito’o: flor la cresta de gallo (PIN) Celosia cristata L., AMARANTHACEAE ita: flor; xīni: cabeza; chito’o: gallo
ita xīni xīto’o (KAP) [ita-xinixitohō]: Dahlia pinnata Cav., COMPOSITAE

ita xīnu (MXT) [hitu shīnu] Tillandsia prodigiosa (Lem.) Baker, BROMELIACEAE ita xīnu kuaan (MXT) [hitu shīnu cu’an] Catopsis compacta Mez,
This appears to be a cognate of DUX dínû and TAM ditnu.

BROMELIACEAE

Pitcairnia cylindrostachya L.B. Sm., BROMELIACEAE

ita yaa / yita yaa: ‘flor blanquiza’, la margarita (CAB)

ita ya’a / yuku xatu (COI) Asclepias curassavica L., APOCYNACEAE

Asclepias curassavica L., ASCLEPIADACEAE Medio tallo aplicado para dolor de muela. ya’a: chili pepper xatu: spicy The relationship with the following name from Mixtepec is probably incidental.

ita ya’a (MXT) [hita ya’a] Bouvardia ternifolia (Cav.) Schldl., RUBIACEAE

ita yakun / iñu yakun (COI) Cirsium sp., COMPOSITAE yakun: brush, escobeta

ità yau: clase de flor de color azul, decorativa (CHA) Se llama así porque su hoja se asemeja al maguey.

ita yisi: toronjil (SMG)

ita yisi: flor de borrachito (CHA)

ita yidi: flor de la novia (TIL) [ita ŋii] Satureja oaxacana Standl., LABIATAE Es de naturaleza caliente; sirve para frío del estómago, cólicos menstruales isi / yede / yisi / yidi: hoja de aguaacatal (CAB) The aroma of Satureja does resemble the scent of crushed avocado leaves.

ítà yidi: un tipo de poleo (DUX) Lo toman las personas que tienen escalofrío o que tienen dolor de cabeza causado por la cruda. Ka xetniu ñayiu Diuxi ita yidi ora ka tnunda’ai nuu dutu. Mee kiu xe’eni xa tnunda’ai, xe kuidó ñayiu tatu ñ’aa tadi’i noviu ta jan yuku xa kadava’a taveñu’u, deveñu’u noviu nu’nue kechita na kua’a daxa noviata nuu ñayiu xyuku viko ve’eña. Nde’e dikota. La gente de Diuxi ocupa el poleo llamado ita yidi en la fiesta de boda. El día del casamiento una persona enviada por los padres del novio va al monte a cortar este poleo para que el padrino y la madrina del novio hagan manojitos que la novia pueda repartir a la gente que ha venido a la fiesta en su casa. Esta hierba es muy olorosa.

tayidi: a kind of flower (DUX)

ita yidi di’i: un tipo de flor (DUX) di’i / si’i / si’i: madre (CAB)

ita yidi yii: un tipo de flor, la gente de la región la llama ‘flor de borracho’ (DUX) yii: marido, esposo (CAB)

ita yisi: flor del toronjil (CAB)

ita yódo yútnú: un tipo de parásito, literalmente ‘flor que trepa árbol’ (DUX)

ita yoyuu (KAP) [ita-yoyuu] Combretum farinosum Kunth., COMBRETACEAE

ita yuku úå: dalia (DUX)

ita yutnu tikuua: azahar (TAM) [yta yutnutequaa]

ita yutu: cacayas (CGM) Agave flowers, which are eaten cooked

ita yutu nda mitu: cacayas de cucharilla (CGM) Dasylirion flowers, also edible; the
etymology of nda mitu was explained by our consultants as ‘hand + cat’

**ita yu’u** (CGM) Bourreria andrieuxii (DC) Hemsl., BORAGINACEAE

**ita yu’u** (TON) unidentified species “Ése hay en el monte, son rositas, moraditas, algo así son chiquitas, se da en el mes de diciembre, la verdad no lo he tocado de cerca para ver si huele, por acá terrenos de Xayacatlán [de Bravo]”

**ita yu’u**: Coutaportla ghiesbreghtiana (Baill.) Urb., RUBIACEAE, or Lindleya mespiloides Kunth, ROSACEAE. In 2009, Michael W. Swanton (personal communication) interviewed the last speaker of Santiago Tejupan Mixtec (Teposcolula district), a woman who has lost her sight. She remembered that the fragrant white flowers of **ita yu’u** were used in the festivity of Corpus Christi. Her relatives provided Swanton and Sebastian van Doesburg with samples of both species, but could not recall which of them was the right kind.

**tgyúchî**: chicozapote (?) (DUX) probably Asclepias sp., APOCYNACEAE Crece hasta metro y medio de altura, y las flores y la leche son blancas… Para extraer la leche, la gente cortaba las hojas. Entonces metían canutos de carrizo debajo de la parte quebrada para que la leche cayera adentro. Cuando los canutos de carrizo se llenaban de esa leche, la gente los llevaba a su casa para ponerlos cerca de la lumbre para hervir. Al día siguiente quebraban el carrizo y sacaban el chicle para masticarlo.

4.6 The plants labeled **yuva** and **nduva**

The group marked with the class term **yuva** and its cognates encompasses a wide variety of life-forms, all of which have edible leaves, tender shoots, or occasionally, flowers. Many of them are terrestrial herbs, but there are also vines, shrubs, epiphytes and a couple of trees included in this nominal category, as the examples which follow will illustrate. The dialects of the western Mixteca Baja (including Guerrero), the extreme northeast (Coatzospan, OSP) and the Coast that have been documented only show this grouping, which encompasses the greens that are eaten raw or cooked. Most variants in the Mixteca Alta and the northern Baja for which we have records present an additional category, labeled **nduva**/**nduve**/**nduwa**/**nduve**, which is composed of the greens that are eaten raw, specifically (perhaps it is unnecessary to point out that his classificatory opposition of the raw and the cooked resonates deeply with the structuralist roots of linguistic anthropology and the influence of Lévi-Strauss on ethnobiology, as discussed in chapter 2). The term **nduva** is found in the western Baja as the name for Leucaena spp., but it does not appear to generate a larger grouping of plants. Furthermore, in the northeastern Alta, where **nduve** does mark some taxa besides Leucaena in at least one dialect (Apoala, APO), the group **yuva** is absent, and edible greens are labeled **yuku**. Maestro Ubaldo López García (2010, personal communication) confirms that the term **yuva** or a cognate is not used in Apoala. The dialects of the Coast, which Josserand (1983) proposed to have originated in Mixtepec Mixtec (MXT), lack the “raw” grouping, which is present in MXT, an indication, perhaps, that the **nduva** category was innovated in the highlands after Mixtec speakers colonized the Pacific lowlands. The geographic distribution of both class terms will be mapped out and discussed in the sixth chapter of this dissertation.
In San Juan Tamazola Mixtec (Nochixtlán district, Oaxaca), **yuwa** is considered a profanity ("una grosería"), as it refers to "la paloma" (the penis). **Quelites** (edible greens) are labeled **yuku** with a tonal change to distinguish from non-edible herbs (Franco Gabriel Hernández, personal communication, 1987). This semantic development may be more widespread, and may help to explain the absence of the plant category **yuva** in the northeastern Alta. In support of such a hypothesis, de Alvarado (1593) listed **yuvua** and **yeq** [yikin: calabaza] among the terms for a woman’s genitals (miembro de muger), although plants remained the primary referents for both entries. Whatever the local history of **yuva** may have been, forms such as **yuku taka**, **yuku tetu / yuku tiiti**, **yuku tikutun**, **yuku tindaxi / yuku vidi**, and others, will appear in the following lists, along with cognates marked **yuva** or **nduva**.

The phonological correspondence of **yuva** and **nduva** seems to be part of a larger set of matching, semantically related terms in the Mixtec languages, which also includes **yuta / nduta** (‘river’ and ‘water’), **yau / ndau** (‘agave’ and madre de pulque), **yuku / nduku** (‘leaf, herb’ and ‘thin stick/broom’), and others. These paired terms seem to originate in a regular alternation between allomorphs that would have marked possession in Proto-Mixtecan nouns, a pattern which has been retained partly in Trique (Michael W. Swanton and Christian DiCanio, 2010, personal communication). In the plant lexicon, this hypothesis also seems to explain the curious correspondence we have recorded in Pinotepa Nacional Mixtec between **yakua** and **ndakua**, where **yakua** designates the fiber once it has been extracted, while **ndakua** is the form that is compounded into specific plant names [27].

De Alvarado recorded native as well as introduced greens in the category **yuvua**, such as cabbage, chard, mallow, purslane and coriander. Under **[n]duvua** he listed lettuce, radishes and thistle. For the Spanish entry legumbre, ‘vegetable,’ the Dominican lexicographer felt compelled to cite both Mixtec forms. The terms themselves he glossed as “vegetable that is eaten cooked” and “vegetable which is eaten raw;” similar definitions are provided by contemporary vocabularies of the dialects that use both terms. An attestation from Yosondúa indicates that quelites may be subsumed under a wider category labeled **yuku**:

**yuva**: quelite que comemos (XYA)
**yúa**: “Hay un quelite que crece grande donde hay mucho abono, tiene su semilla rojita, nosotros nomás le decimos yúa.” (TON)
**yúa**: quelite (MIC)
**iva**: hierba, quelite (XOC)
- ¿Ndá iva kúa kúkúoún kaxúñ? –Ndí’i kúa va nú iva kú拥护 kaxúñ
- ¿Qué clase de quelite te gusta? –Me gustan todas las clases de quelite (XOC)
**iva / yiva**: quelites (CTZ)
**Yíyo kua’aní nuu iva**: Hay una gran variedad de quelites (CTZ)
**yua**: quelite, hierba (SMG)
**yua**: verdura que se come cocida, quelite (CHA)
**yuva**: quelite (YSN)

**Yuva kuu iín yuku ja kuu kajiyo**: El quelite es una planta que podemos comer (YSN)
**yúá**: hierbas comestibles (DUX)
**yuve**: la verdura que se come cocida (HUI)
uve: quelite (OSP)
yúva: la hierba comestible (SJC)
yuva: ortaliza para comer coizada / verdura q’ se come coizada (TAM)
   yuva: berza (TAM)
   ndu’u yuva / ndu’u yutnu / ti’ndi yuva / sa’ndu yuva: mata de cualquier yerua
   (TAM) [duhu yuva / duhu yutnu / téde yuva / sádu yuva]
iva / yeva / yiva / yia / yua / yuva / yuve: ‘plantas que se comen cocidas’, quelite (CAB)

Parallel entries for the group labeled nduva include the following:

ndua: verduras, hierbas (SMG)
ndua: vegetable, eaten raw (edible grass, herb, leaf, bud, shoot, etc) (CHA; Macaulay, 1996)
nduve: plano, boca arriba / flecha; “nduwe is not used for herbs or greens” (OSP)
nduva / ndua: huaje (NUX)
nduve: la verdura que se come cruda (HUI)
nduvua: ortaliza para comer cruda / verdura que se come cruda (TAM) [duvua]
   nduvua / yuva: legumbre (TAM)
ndiva / ndrua / ndua / ndue / nduwa: cogollo de plantas y yerbas que se consumen crudas (CAB)

The list of taxa below will be ordered by cognate sets, independently of the class term yuva, nduva or yuku, since the nominal categories overlap extensively in the different dialect areas.

ndua aju: ajo (DUX) Allium sativum L., ALLIACEAE
yuwa chiin (JIC) probably Ipomoea sp., CONVOLVULACEAE Hojas y tallos se comen cocidos. tyiin: uña / semillas de chile / ratón; tyi’in: zorrillo (CAB)

yuva china (COI) Berula erecta (Huds.) Coville, UMBELLIFERAE Las hojas y los tallos se comen crudos.
ndua china: un tipo de berro… el cuerpo adolorido se cura con el té de los berros llamados ndua china… (DUX)

ndua dítu: un tipo de berro comestible, la gente de la región lo llama ‘berro de montón’… crece encima de las ramas de todos los árboles grandes y sobre rocas en Duxi. Las hojitas de estos berros son redondas, pequeñas, ligeramente rojas y comestibles. Se pone sal y chile en las tortillas, y se comen con estos berros crudos. Saben a rábanos. (DUX) The description matches Peperomia sp., PIPERACEAE
ndua dítu kuénû: un tipo de berro comestible, literalmente ‘berro de ardillas’ (DUX)


vedun: estropajo (OSP) This designation seems to relate Luffa aegyptiaca Mill., CUCURBITACEAE, with the edible leaves and stems of Cucurbita spp. and Sechium
edule (also a cucurbit) in Coatzospan.

yuwe ińu: punta de guaje espinuda (SOT) [yuwe 'ińu] Mimoswa watsonii Robinson, LEGUMINOSAE [MIMOSACEAE]
ve nyuu: cardo (OSP)
nduvua ińo: cardo (TAM) [duvuaino / docoduvuaiño] probably Cirsium spp., COMPOSITAE, called huitzkilitl [thorn-quelite] in Náhuatl, same etymology as the Mixtec name recorded by de Alvarado

yuve ińu yiki: 'quelite de seis esquinas', espinaca (CAB)

yuku ido: hierba de conejo (NUX) probably Tridax coronopifolia (Kunth) Hemsl., COMPOSITAE Historically, the terms for ‘rabbit’ and ‘deer’ appear to varied in the last vowel.

yúa ídu: quelite de caballo (MIC) unidentified species
yiwa isu: hierba de venado (ZAU) [yiwa izu] unidentified species used as fodder for livestock
yuwe iyu: quelite de caballo (SOT) [yuwe 'iyu] Bidens sp.?, COMPOSITAE isu: venado (SOT)
yuve iyu: quelite de toro (SOT) [yuwe 'iyu] Manihot cf. angustifolia (Torr.) Muell. Arg., EUPHORBIACEAE

yuwe iti: quintonil (SOT) [yuwe 'iti] Amaranthus hybridus L., AMARANTHACEAE
yuw jiti: quintonil (SMG) probably Amaranthus hybridus L., AMARANTHACEAE
yuw jiti: quintonil (CHA)
yuva tajiti: quintonil (YSN)
titi / yua titi (DUX): un tipo de quelite... La gente come las hojas... cuando están tiernas. Se lavan, se cuecen por cinco minutos y después se exprimen. Se revuelven con sal, cebolla, chile verde y jitomate, y de la mezcla se hacen bolas. Entonces se frien en aceite. Se ponen en tortillas para comérselas
titi kué'e / yua titi kué'e: un tipo de quelite rojo (DUX)
titi kuixi / yua titi kuixi: un tipo de quelite blanco (DUX)
yuku tetu: quintoniles (APO)
titu: quelite (NUX) probably Amaranthus sp. or Chenopodium sp., specifically
yeva iti / yiva iti / yova iti / yua jiti / yua iti / yuva ity / yuva ixi / yuva staa jiti / yuva iti / yuva uti / yuve iti / yuve iti: amaranto, quintonil (CAB)
yuku tetu / yuku tiiti: amaranto, quintonil (CAB)
yuve iti: yerbamora (CAB)

yiwa kaa: quelite de fierro (ZAU) [yiwa caa] unidentified species consumed as a quelite
yuva kaa (COI) Cestrum aurantiacum Lindl., SOLANACEAE Las hojas tiernas se comen cocidas; nombre genérico para Cestrum spp. comestibles. kaa: metal, because of the flavor of the plant, according to Celso Flores
yiva kaa: quelite de campana... en Cuatzoquitengo si hay (CTZ) kaa: fierro, metal / kaa: campana
yuve tuñaa: quelite de fierro (SOT) [yuve tungaa] unidentified plant consumed as a
 quelite  The etymology appears to involve the tree/wood classifier {tun-} + {kaa}.

**yuwe tuña / tuñaya:** caña agria (SOT) {tuñaya} Begonia biserrata Lindl./ Begonia sp., BEGONIACEAE  The etymology seems to be {tuña} {i}ya, ‘sour metal-tree.’

**ve kave:** huele de noche (OSP) probably Cestrum sp., SOLANACEAE  This term is placed here tentatively as a cognate.

**yiwa kalixi:** mostaza (ZAU) {yiua calishi} Brassica rapa L., formerly adscribed to Brassica campestris L., CRUCIFERAE

**yuva kani:** alaches, acá lo preperan con frijol quebrado o con calabaza (CGM) probably Anoda cristata (L.) Schldl., MALVACEAE

**yuvua kane / yuku kane / yuvua tayoo kuii:** malua (TAM) {yuvua tayoo cuij / yucu cane / yuvua cane}

**yuwe kata:** huachicata (SOT) Xanthosoma sp., probably Xanthosoma robustum Schott, ARACEAE

**yiwa kini:** quelite de marrano (ZAU) {yiwa quini} Salpianthus purpurascens (Cav. ex Lag.) Hook. & Arn., NYCTAGINACEAE

**yuva kini:** quelite de marrano (COI) Cleome sp., CLEOMACEAE [CAPARACEAE]
Hojas y tallos tiernos se comen bien cocidos con “sal buena”, producida en las salinas de la Mixteca Baja; especie preferida. kini: pig; dirty, ugly

**yu³va² ki³ni² / yu³va² xì³li³** (YLX) Rytidostylis sp., CUCURBITACEAE  Amith & Castillo gloss kini as ‘pig’ and provide no translation for xili, which appears to be a proper name for this plant.

**yuwe kini:** quelite de cuchi (SOT) Manihot cf. aesculifolia (Kunth) Pohl [synonym: Manihot olsersiana Pax, EUPHORBIACEAE

**yuwa kochi** (JIC) Cynanchum sp., APOCYNACEAE [ASCLEPIADACEAE] Hojas, tallos y frutos se comen cocidos. chiki yuma: name for the edible fruit

**yuwe kolo:** quelite de guajolote (SOT) unidentified species in the COMPOSITAE consumed as a quelite

**yuva kondo:** chepiche, chapicha (CAB)

**ndua kua’a:** ‘cogollo rojo’, rábano (CAB)

**yuwe kuii:** quelite verde (SOT) {yuwe kwii} Peperomia sp., PIPERACEAE

**yuwe kuli / yuwe stansia:** mostaza (SOT) {yuwe stancia} Brassica napus L., CRUCIFERAE

**yuwe kuva:** zarza hueca (SOT) {yuwe kuba} Byttneria cf. aculeata Jacq., MALVACEAE [STERCULIACEAE]

**lapandzi / lapantsi:** papaloquelite (CGM) tlapanche: Porophyllum nutans Robinson &

yiwa leso: oreja de conejo (ZAU) Asclepias sp., APOCYNACEAE [ASCLEPIADACEAE]

yiva lívano: mostaza... en Cuatzoquitengo... cuando empieza a llover esto es lo primero que nace (CTZ)

yuwe malanga: malanga (SOT) Xanthosoma sagittifolium (L.) Schott, ARACEAE

ete: guaje (SOT) Leucaena leucocephala (Lam.) de Wit / Leucaena macrophylla Benth., LEGUMINOSAE [MIMOSACEAE]
yuwe nete: puntas de guaje (SOT) Leucaena macrophylla
ndua néte: guaje (SMG) probably Leucaena sp., LEGUMINOSAE

ndua néte: edible part of guaje tree (CHA; Macaulay, 1996)

ndete: guaje (OSP)

ndrua nete / ndua ndata / ndua ndete / nduva ndete / nduva nete: guaje (CAB)

yuva nata / yuva ndata / yuva nyatya / yuwe nete: guaje (CAB)

ndete / ndetya: guaje (CAB)

tnundetya: guajal (CAB)

yuwe ne’ya: granadita (SOT) Lopezia sp., ONAGRACEAE

yuwe ne’yu: hierba de conejo (SOT) unidentified plant consumed as a quelite nda’yu / nde’i / nde’yu / ne’yu: lodo (CAB)

yuvua nidakun kavua / yuvua nitanda ndodo / yuvua nikoyo ndodo: llanta de col (TAM) [yuvuanidzaqh cavua / yuvua nitandandodzo / yuvuanicoyondodzo]

yuwe ni’i: siempreviva (SOT) Commelina sp., COMMELINACEAE

yu³va² nu¹⁵ u³ kwì⁵ in² (YLX) Anoda aff. cristata, MALVACEAE Amith & Castillo attribute the etymology (‘face + spotted) to the margin of the leaves of this species, “which often has a faintly colored border.”

yuva nuu ndute: ‘quelite en el agua’, berro (CAB) This may be a description rather than a lexicalized form.

yuva nuu yìi: poleo (TAM) [yuva nuu yee] yìi / yìì: macho / marido, esposo (CAB)

yuwe ndaxi: quelite de zopilote / quelite de cañita (SOT) [yuwe ndašì] Peperomia sp., PIPERACEAE) ndaxi: se va a mojar / se va a desatar, se va a desamarrar; ndaxin: sonoro, claro (CAB)
yuku ndiki: creo que es el amaranto; hay uno blanco y uno rojo (APO)
yuku ndiki dutu: el que es de muchas semillas (APO) dutu: papá / sacerdote (CAB)
ve ndikin: quintonil (OSP) probably Amaranthus sp., AMARANTHACEAE
yuku ndiki: quelite (i.e., Amaranthus sp. or Chenopodium sp.) (PEÑ)
yuve ndijin: quintoniles (HUI) probably Amaranthus hybridus L., AMARANTHACEAE
yuva ndiki: el [b]ledo (CHY)
ivu ndikin / nsikin / vendii’ ikin / yiva ndijin / yiva ndikin / yiwa ntsikin / yuve ndijin: amaranto, quintonil (CAB)

yiwa ndikondo: quelite de sapo (ZAU) [yiwa ndicodo] unidentified species consumed as a quelite ndikondó: sapo (CTZ)

ndua ndoo: yerba santa (MIC)
ndua ndoo: yerba santa (XYA) Se echa al pozole: It is used to flavor pozole.
tina ndóo: hierbasanta (XOC)
yuwe noo: hierba santa (SOT) Piper auritum Kunth [synonym: Piper sanctum (Miq.) Schdl.], PIPERACEAE
yu ndo: yerba santa (SMG) ndoo: caña (SMG) / ndoo yutu: caña de la milpa (CTZ)
yuku ndua ndoo: la hierba santa (TIL) [žuku ndu’a ndoo] Piper auritum Kunth, PIPERACEAE Es de naturaleza fría; sirve para las heridas
ndua ndóó: hierba santa (DUX)
 tnúndúa ndoo yúkú: un tipo de hierba... se parece a la hierba santa (DUX)
ve ndoo: hoja de yerba santa (NUX)
ndua ndoo: yerba santa (PEÑ) nda’a ‘hand, branch’
yua ndoo: yerbasanta (PIN) Piper auritum Kunth, PIPERACEAE “Para el caldo de pollo, caldo de vaca, pancita de vaca, patita de vaca.”
yúa ndoo va’a: “es del bueno” (PIN)
yua ndoo ku’u: “que es del monte” (PIN) Piper sp., PIPERACEAE
yuva ndoo (KAP) [yubandoo] Piper auritum Kunth, PIPERACEAE
yúa ndoo: la hierbasanta (SJC)
yua ndoo: ‘quelite grande’, yerbasanta (CAB) ndoo: grande, frondoso, selecto

Although Caballero provides this interpretation of the name of the plant, it seems possible that the etymology involves ndoo: ‘cane, stem’, which is well attested in several dialects. Josserand reconstructs *ndoo’ as ‘caña - cane,’ and *ka’nu’ as ‘large (singular).’ Ndoo is recorded as ‘grandes (plural)’ in both CTZ and XOC, and as ‘grande, selecto’ in SMG, but was not registered with that meaning in CHY nor SJC, and does not appear to be attested in TAM. I have not encountered any reference to its translation as ‘leafy,’ other than CAB. Katz (1994) documented the ingestion of Piper auritum stems as food, which lends credence to the interpretation of yua ndoo as ‘maize-stem / sugarcane quelite,’ and would explain the assignment of this species to the groups labeled ndua or yua in some dialects, though the main use of this plant is as a flavoring herb, in agreement with its adscription to the minu nominal class in yet other Mixtec variants.
deva ndoo / diva ndoo / ndiandoo / ndiva ndoo / ndra’a ndoo / ndrua ndoo / ndua ndoo / nduva ndoo / nduve ndoo / vendoo / yandoo / yua ndoo / yuva ndoo / yuve noo:
yerasanta (CAB)

minu ndoo: yerasanta (CAB)
minu nda’a ndoo: ‘condimento de mano ancha’, yerasanta (CAB)
nda’a ndoo / ndra’a ndroo: yerasanta (CAB)
ndiandoo / tiandoo: yerasanta (CAB)

tnondiva ndoo / tnonduwa ndoo / tonndiva ndoo / tunndiva ndoo / yitno ndiva ndoo:
yerasanta (CAB)

ndua: huaje (CGM)
    ndua ku’a: huaje rojo (CGM)
    ndua kuui: huaje verde (CGM)
ndua: huaje (XYA)
    ndua ku’a: huaje (XYA)

tondua: guaje rojo (NGO) [ton ndua]  Leucaena diversifolia (Schldl.) Benth.,
    MIMOSACEAE  The identification of this species provided in Flora Medicinal is
    questionable, as the guaje rojo commonly grown and eaten in the Mixteca Baja is
    Leucaena esculenta (Sessé & Mociño ex DC.) Benth.

nduva: guajes (ZAU)  Leucaena spp., LEGUMINOSAE [MIMOSACEAE]
    nduva ku’a: guaje colorado (ZAU) [nduva cuá]  Leucaena esculenta subsp.
        esculenta (Mociño & Sessé) Benth., LEGUMINOSAE [MIMOSACEAE]
    nduva kuayo: guaje de caballo (ZAU) [nduva cual]  Leucaena macrophylla
        Benth., LEGUMINOSAE [MIMOSACEAE]
    nduva kuui: guaje verde (ZAU) [nduva cuí]  Leucaena leucocephala (Lam.) de Wit
        subsp. glabra (Rose) S. Zárate, LEGUMINOSAE [MIMOSACEAE]
    nduva manso: guaje verde (ZAU)  Leucaena leucocephala subsp. leucocephala
        (Lam.) de Wit, LEGUMINOSAE [MIMOSACEAE]
    nduva nduchi: guajentuchi (ZAU) [nduva nduchí]  Leucaena esculenta (Mociño &
        Sessé) Benth. subsp. paniculata (Britton & Rose) S. Zárate, LEGUMINOSAE
        [MIMOSACEAE]

nduva: guaje (XOC)
	nondiva kuayi: huaje de caballo (CTZ)
    ndiva ku’a: guaje rojo (CTZ)
    ndiva kuui: guaje verde (CTZ)
    ndiva kuayi: guaje de caballo (CTZ)

Yasinní numa yitun ndiva kuayi: Es muy sabroso el retoño del árbol de guaje de
    caballo (CTZ)

tun yuva: huaje (AYU; de Leon, 1980)

nduva ku’a (MXT) [ntúa cuá]  Leucaena esculenta

ndua: guaje (YSN)

ndu: huaje (PEÑ)
ndiva / ndua / nduva / nduve / nduwa: guaje (CAB)
ndua kua’a: guaje (CAB)

ndua ndodo: pipicha (CGM) probably Porophyllum tagetoides (Kunth) DC., COMPOSITAE
ndúa ndudu: pápaloquelite (XYA)
   ndua sikuñu’u: pepicha (XYA) sikuñu’u: la hormiga arriera (ants of the genus Atta)
ndua ndudu: papaloquelite (TON)
   ndudu sikuñu’u: pepicha (TON) probably Porophyllum tagetoides sikuñu’u: ant
ndua ndudu / nda ndudu: pácalo (MIC)
   nda ndudu sikoñuu: pipicha (MIC) “sikoñuu lo dice hormiga”
yiwa ndusu: pápalos (ZAU) [yiwa ndusú] Porophyllum spp., COMPOSITAE
yuva ndusu (COI) Porophyllum ruderalis (Jacq.) Cass. ssp. macrocephalum (DC.) R.R. Johnson, COMPOSITAE Se come crudo, lo traen a vender de la zona baja.
ndua ndusu (MXT) [ntúa ntuzu / ntúa ntuzu’u] Porophyllum ruderalis
yuwe no’su: papaloquelite (SOT) Porophyllum ruderalis (Jacq.) Cass. var. macrocephalum (DC.) Cronquist, COMPOSITAE
ndua ndusú: papaloquelite (edible herb) (CHA; Macaulay, 1996)
yuva ndusu: pácaloquelite (YSN) probably Porophyllum ruderalis ssp. macrocephalum
ndua ndudu idu: un tipo de romero (DUX) idju / idu / isu / usu / yisu / yusu: venado (CAB)
ndúa ndu’u: pácaloquelite (APO)
xku ndudu: papaloquelite (OSP)
ndudu: chepiche (NUX) probably Porophyllum tagetoides
ndrua ndrudu / ndrua ndrusu / ndua ndudu / ndua ndusú / nduva ndusu / nduva tusu / nduve ndudu / nduve ndudu sto’o / ndua ndudu: pácalo o papaloquelite (CAB)
ndua ndudu / nduva ndusu / nduve ndudu: chepiche, chapicha (CAB) ndudu: sabroso, sazonado
   ndua ndudu sikuñu’u / ndua ndusu sikuñu’u: chepiche, chapicha (CAB)
   ndua ndusu tyoo / nduva tyitoo: chepiche, chapicha (CAB) tyoo: cangrejo; tyo’o: pulga; tyito’o: gallo
yiwa ndusu / yua ndudu / yuva lusu / yuva ndusu / yuve ndusu / yuve nusu: pácalo o papaloquelite (CAB)
yuva ndusu / yuve nusu: chepiche, chapicha (CAB)
   yuva ndusu ite / yuve nusu ite: chepiche, chapicha (CAB) ite: pasto
   yuve nusu kuatiy: chepiche, chapicha (CAB) kuachi: small
xkutiudu: pácalo o papaloquelite (CAB) The etymology appears to be yuku tiudu, where ti- would alternate with the prefix ndu-, a pattern attested in other plant names.
tyindudu: chepiche, chapicha (CAB)
   tyindudu tata: pácalo o papaloquelite (CAB) tata: papá / señor / semilla seleccionada para sembrar
tilusu: chepiche, chapicha (CAB)
nudu satu: ‘sabor picoso’, rábano (CAB)

vendunaña: chayotal (CAB) The tender leaves and stems of Sechium edule (Jacq.) Sw., CUCURBITACEAE, are eaten in Oaxaca. naña: chayote
yiwa nduu (ZAU) [yiwa ndu] Galinsoga parviflora Cav., COMPOSITAE
yuva nduu (COI) Galinsoga quadrirradiata Ruiz & Pavón, COMPOSITAE Se come crudo.
   nduu: sabroso, sazonado (CAB) This etymology does not appear to be evident in Coicoyn Mixtec.
yuva nduu (COI) Jaegeria hirta (Lag.) Less., COMPOSITAE Se come crudo,
gusta con elote asado.
yuva nduu (COI) Jaegeria pedunculata Hook. & Arn., COMPOSITAE Se come crudo.
yuva nduu isu / yuva nduu yuku (COI) Alloispermum integrifolium (DC.) H. Robinson, COMPOSITAE Las hojas tiernas se comen crudas.
yuva nduu (JIC) Galinsoga parviflora Cav., COMPOSITAE Hojas se comen crudas.
yuve nu’u: quelite de borrego (SOT) Galinsoga sp., COMPOSITAE
ita nduvua ndu’u kastiya / ita tímii kastiya / yuku nduvua: manzanilla (TAM) [itanduvua
duha castilla / itatemij castilla / yucunduvua] The first form appears to be a cognate
of COI and JIC yuva nduu, Galinsoga spp. & Jaegeria spp., which chamomile resembles

yu³va² ndu¹xa² i³ya⁵ / yu³va² i³ya⁵ (YLX) Arthrostemma ciliatum Pavón ex D. Don,
MELASTOMATACEAE This and the following terms are cognates of ZAU yita
tuxaya and COI ita tixaaya, which designate begonias.
yuve nuxiya / nuxiya: xocoyule (SOT) [yuwe nušiya] Oxalis decaphylla Kunth,
OXALIDACEAE The etymology appears to be n(d)uxa + iya.

ndzitsí / ndzitsé: las flores o los retoños del huaje (CGM)
yua nkútu: un tipo de hierba, literalmente ‘hierba de toro’... se usa el fruto... para hacer
jabón (DUX)
yuve ña’an na’vi (SOT) [yuwe ña’a na’ni] unidentified plant consumed as a quelite
ñ’a’an: mujer; na’vi / nda’vi: pobre; ñ’a’an na’vi: viuda (CAB)

ndia’mi: rábano (XOC)
ndia’mi / yiva ndia’mi: rábano (CTZ)
nduva ña’mi: rábano (MXT; Carlos Macedonio Sánchez Bautista, personal communication,
1986) The leaves are eaten raw in Mixtepec, together with the tubercles.
nduva ña’mi: raban (TAM) [duvuñañami]
nduva ña’mi kuisi: nabo (TAM) [duvua ñami kuisi]
yuve ña’mi: ’quelite camote’, rábano (CAB)
yuve ña’mi kuaan: ’quelite de camote amarillo’, zanahoria (CAB)
di’va ña’mi / ndaña’mi / ndiva ña’mi / nduva ña’mi / nduve ña’mi / nduwa ña’mi /
dyaña’mi: rábano (CAB); ndiva ña’mi: ’cogollo camote’, rábano (CAB)
ndiva ya’mi kuaan / nduva ña’mi kuaan: ’yerba camote amarillo’, zanahoria
(CAB)

yiwa papalo: pápalo (ZAU) Porophyllum ruderale (Jacq.) Cass., COMPOSITAE
Las hojas se hierven y se revuelven con sal y chile y hoja de ciruela (aparentemente Spondias purpurea). Se muele todo sobre metate y se forman bolitas que se comen directamente después de haberse molido. Esta comida se llama yuva si'ka' vi'si', literalmente ‘quetite caca trasero burro’ por su apariencia como estiércol de burro. See yuva xii, which may be the same species of Manihot, used in Jicayán de Tovar to make the same type of food.

yuva rindi: yerbamora (CAB)

yuwe saa: quelite de pajarito (SOT) Ipomoea sp., CONVOLVULACEAE

yua sa’a: quelite santo (XYA) Es la hoja de un árbol, retoña en enero, se cortan los retoños y se cuecen en horno de maguey, se le echa agua para apagar la piedra para que salga blandito, le echan el agua por un tubito de maguey para apagar el horno. Es de lugares altos donde hay cucharilla, gigante. ‘It’s the leaf of a tree, it sprouts in January, the new sprouts are cut and they are cooked in an earth oven of the kind used for baking agaves, they put water in to cool the hot stones so that the leaves come out soft, they add the water by means of an agave [inflorescence] tube to turn off the oven. It grows in high altitude places where there is Dasylirion, Neobuxbaumia.

yua sá’a: quelite santo (TON) Ése hay en mes de diciembre, enero, febrero, cortan el tiernito, la puntita, hacen el horno y lo cuecen como la barbacoa, y muy sabroso, hay en el cerro, lejos, crece como el huaje ése, ¿vio usted el venenillo?, más delgadita la hoja y son retoños tiernos que empiezan a nacer en diciembre.

yuva sa’a tuya’a: hierba de pierna de vieja (CHY) yuva saha tu yaha; sa’a yo: [nuestro] pie; ya’a: el chile

yuva sava: berro (COI) Rorippa sp., CRUCIFERAE Se come crudo. sa’va: ‘frog’
yuva sava (vali): berro chiquito (COI) Rorippa nasturtium-aquaticum (L.) Hayek., CRUCIFERAE Se come crudo.
ndua sava (MXT) [ntúa sava / ntú’a saba] Rorippa nasturtium-aquaticum
yuwe tya’va: berro (SOT) [yuwe tya’ba] Rorippa nasturtium-aquaticum ndia’va / nditia’a / tiya’a / tya’va: chinche (CAB); tia’a: chinche, Edessa cordifera Walker, an edible insect (SOT)
yuku la’va: berros (PEÑ) la’va: rana (CAB)
yuvua sitiyawa: berros (TAM) [yuvuasiteyahua] tiyahua: rana
yiva la’va / yuva sa’a / yuva tya’wa / yuwe tia’va: berro (CAB) la’va / sa’va / tia’wa: rana
ndua sa’a / nduva sa’va / nduve ya’va / ndiva la’la: berro (CAB)
yuku tya’wa: berro (CAB)
yiva la’va / yuva sa’a / yuva tya’wa / yuwe tia’va: rábano (CAB)
ndiva la’la / ndua sa’va / nduve sa’va / nduve sa’a: rábano (CAB)

ndua jatú: berro (SMG) etu / jatú / jetú / sati / satu / tsatu / tyatu / xati / xatu / yatu / yetu: pica, está picoso (CAB)
ndua jatú / nduva jatú / nduve tiatú: berro (CAB)
ndúa satu: rábano (TON) satu: pícoso
ndua satu: ‘cogollo pícoso’, rábano (CAB)

yuva chichi (COI) the leaf buds and tender stems of the bean plant, which are eaten

yuwe silantro: cilantro (SOT) [yuwe cilantro] Coriandrum sativum L., UMBELLIFERAE

yuva skítaka (COI) Stellararia cf. prostrata Baldw., CARYOPHYLLACEAE This may be a cognate of de Alvarado’s yuwa siki, with perhaps the epithet taka (enmarañado: CAB), which describes its appearance.

yuwa siki / yuva yondaa siki: mastuerzo de la tierra (TAM) [yuhua siquí / yuhua yondaa siquí]

yuva so’má (COI) Smilax sp., SMILACACEAE Las puntas tiernas se comen cocidas.

yiva sūtu: el berro (CTZ) probably Rorippa sp., CRUCIFERAE sūtu: sacerdote, cura

This name, which is unique among Mixtec designations for water-cress, seems to be a calque of ya’wi: jau:ku:n, ‘quelite del cura,’ berro (Malinaltepec Tlapanec, spoken in the immediate vicinity of Cuatzoquitengo; Suárez, 1983b)

yuwe taan: quelite de temblor (SOT) [yuwe taa] unidentified species consumed as a quelite nāa / tnaa / taan: tiembla (CAB)

yua taka: quelite (CGM)
  yua taka kua’a: quelite rojo (CGM)
  yua taka kuixi: quelite blanco (CGM)

yua taka (MXT) Sonchus oleraceus L., COMPOSITAE

yuwe taka: quelite de manteca (SOT) Chenopodium berlandieri Moq., CHENOPODIACEAE

yuá táká: quelite de manteca (CHA)

yuá tá: un tipo de hierba, parece huazontle... La gente come las hojas y las flores de esta hierba... las flores se cuecen en un poco de agua y se exprimen... se untan las flores con huevos batidos y se frien con aceite... las hojas se echan en una olla con agua y se ponen en la lumbre a hervir. Se echan ajo, sal, chile y cebollas en la olla. Se cuece durante quince minutos (DUX)

yuku taka: quintonil, huazontle (NUX)

yuku taka: huazontle (PEÑ)

yuvua taka: acelga (TAM) [yuvuataca]

ita yuva taka / ita yuwe taka / yuva taka / yupe taka: huazontle, quelite de manteca (CAB)
  sitaka / staka / taka: nido, con referente a aves (CAB) / taka: nido, maraña, enredo, maleza, embrollo (CTZ)

nduva taka: huazontle, quelite de manteca (CAB)
  taka yaa: huazontle, quelite de manteca (CAB)
  yuku taka: huazontle, quelite de manteca (CAB)

nduva taya’à (MXT) Dyssodia pinnata (Cav.) B.L. Robinson, COMPOSITAE (Carlos Macedonio Sánchez Bautista, personal communication, 1986)
ndua taya’á (MXT) [ntúa taya’á] Dyssodia glandulosa (Cav.) Hoffm., COMPOSITAE
nduva taya’á: pata de gallo (YSN) taja / tajia / tasa / taśia / tatsu / tayta / taxa / taya:
rayo; ndeya’á / nduta ya’a / ndute ya’a / ndutsia’á / taya’a / tya’a / tiya’a / tsiya’a /
tyiya’a: salsa (CAB); tià’: salsa (XOC); teya’á’: chili sauce (AYU); nducha’a:
salsa (YSN)

yiwa ta’[yi]: quelite podrido (ZAU) [yiwa tai] unidentified species consumed as a quelite
ta’yí: podrirse (CTZ)

yua tuyóo: alachi (TON) “Acá no acostumbran comerlo; es babosito.”

yua tayoo: alache (NGO) [yuatayoo] Anoda cristata (L.) Schldl., MALVACEAE Sirve
para el estómago en el caso de la

disentería… Las hojas son comestibles al igual que
los tallos tiernos. Se pueden preparar poniendo a hervir las hojas y los tallos y ya
cocidos se sacan de la olla y se pasan a otra cazuela… (NGO)

yua tayoo / yua teyoo: alaches (MIC)
yiwa tayoo: malva (ZAU) [yiwa taio] Malva parviflora L., MALVACEAE
yiwa tiyoo: alache (ZAU) [yiwa tiáo / yiwa tió] Anoda cristata (L.) Schldl., MALVACEAE
yuva tayoo: alachi (COI) Anoda cristata (L.) Schldl., MALVACEAE Se come cocido.
yua tayo’o (MXT) Anoda palmata Fryxell, MALVACEAE
yuwe tyyoo: quelite de violeta (SOT) Anoda cristata (L.) Schldl., MALVACEAE
yuayóó: violeta (SMG) probably Anoda cristata
yuva tayoo: violeta, malva (CHA)
yuva tayoo: violeta (YSN)
tayoo / yua tayóó: violeta (DUX)
yua tayoo kúchí: un tipo de hierba, literalmente ‘hierba violeta de puerco’ (DUX)
yuku itá yoo: violeta (NUX) probably Anoda cristata This form suggests that the
etymology of tayoo in other dialects may involve a contraction of íta, ‘flower,’ since
Anoda has salient purple blossoms.

yuvua tayoo kúi / yuku kané / yuvua kané: malua (TAM) [yuvua tayoo cuij / yucu cané /
yuvua cané]
yua tayoo / yuve tóó: quelite de violeta (CAB)

yuva tía’a: culantrillo (COI) Peperomia sp., PIPERACEAE Se come crudo, especie
preferida. tía’a: edible chinch bug, considered a delicacy

yiwa tiaka: hoja de pescado (ZAU) [yiwa tiahcá / yiwa taca] Rumex sp.,
POLYGONACEAE

yiwa chi’na: amole / lava ropa (ZAU) [yiwa chína / yiwa chiña] Phytolacca
icosandra L. / Phytolacca octandra L., PHYTOLACCACEAE
tíxi’na: planta de fuchina silvestre (CTZ) Fuchina, the synthetic dye fuchsine, resembles the
deep purple juice of the ripe fruit of Phytolacca spp.

yuva tíchina (COI) Phytolacca octandra L., PHYTOLACCACEAE Las hojas tiernas se
comen cocidas.

yuva titsina (MXT) [yúa títzina] Phytolacca icosandra L., PHYTOLACCACEAE
txích ińá: un tipo de hierba silvestre… crecen en las milpas. Crecen hasta treinta
centímetros de altura… sus frutas son azules oscuras y por dentro son moradas con
muchas semillas. La gente las come (UX) xityi: pitaya / ejote / estómago (CAB) ina: ‘dog’ This may not be a cognate of the rest of the set.

yiwa t’i’in: quelite de zorrillo (CTZ) [t’i’in: zorrillo]
Yasinni yiva t’i’in, mií ka vi kivi táanna tikava xi’inña: Es muy sabroso el quelite de zorrillo, sobre todo cuando le ponen ciruelas (CTZ)
yu³va² ti’⁵in⁵ (Y LX) Solanum nigrescens M. Martens & Galeotti, SOLANACEAE Amith and Castillo confirm t’⁵in⁵ as zorrillo, ‘skunk.’

yiwa t’i’in: hierba mora (ZAU) [yiwa tii] Solanum nigrum L., SOLANACEAE
yuwa tiin (JIC) Solanum cf. nigrum L. SOLANACEAE Hojas se comen cocidas. tiin: uña; sudor; ratón; pepita (CAB)
yiwa t’i’in: yerba mora (CTZ) probably Solanum nigrescens Mart. & Gal., SOLANACEAE Distinguished tonally from the previous entry, an interesting “minimal pair” for phonemic analysis.
Va’ani yiva t’i’in kaxiyo kivi ndó’oyo sayi, chi yoya lo’oña: Es muy bueno comer el quelite de yerba mora cuando tenemos gripe, aunque está un poco amargo (CTZ)
yiwa t’i’in / yiwa tni’in: yerbamora (CAB)
yuva ti’in: yerbabuena (CAB) This may be an error in response to Caballero’s questionnaire.

nduva tijaku: rábano (CAB)

yuva tika / ita tika (COI) Lagascea helianthifolia Kunth., COMPOSITAE Las flores se comen cocidas en el rescooldo. tika: chapulín, grasshopper

nduvua tikadi: lechuga (TAM) [duvuatecadzi] ticadzi: cucharita (TAM)

yuwe tyikí [?]; alternatively, yuwe tyikin [?): quelite de vela / quelite de hoja gruesa / quelite de semilla (SOT) [yuwe tyikí] Peperomia aff. obtusifolia (L.) Dietr., PIPERACEAE tyikí / tyinkí / tyikí: tuna; ndikin / tyikin / tyikin / xikin: semillas de calabaza, támala, sandía, chilacayote, melón, pepitas (CAB)

tsivatnu: verdolaga (CGM) This and the following terms seem to be cognates of tikutnu / chikitun, although the phonological process that would have generated the Northern Baja forms is a challenging reconstruction.

sivatnu: verdolaga (XYA)
tsivaton: verdolaga (NGO)
sivatu: verdolaga (MIC)
yiwa xikitu: verdolaga (ZAU) [yiwa xikitú / yiwa xiki tu] Portulaca oleracea L., PORTULACACEAE

chigiton (JIC) Portulaca oleracea L., PORTULACACEAE Hojas y tallos se comen cocidos.
yiwa chikitun: verdolaga (CTZ)
yua tikitu (MXT) Portulaca oleracea L., PORTULACACEAE
yuwe skitu: verdolaga (SOT) Portulaca oleracea

tkútnû / yuva tkútnû: verdolaga (UX)
yuku tikutu: verdolaga (APO) Maestro Ubaldo López García (2010, personal communication) interprets the etymology of tikutu as “que no se cultiva”; kutu: arar (SMG); desyerbar, limpiar la milpa (CTZ)

chikutun: verdolagas (NUX)
yuku tekuitni: verdolaga (PEÑ)
tikutu: verdolaga (HUI)
xikutu: verdolaga (PIN)
yúva xikutun: la verdolaga (SJC)
xikutu / yuva xikutu: la verdolaga (CHY) Va’a sasi yuva xikutu: La hierba verdolaga es sabrosa para comer

yuku tikutnu / yuvua tikutnu: verdolagas (TAM) [yucu tecutnu / yuvua tecutnu]
yio tyikiton / yíva tyeketno / yiva tyikutun / yua sivatnu / yua skutnu / yuva skitnu / yuva skitun / yuva tyiton / yuva xikutun / yuve tikutnu / yuve skitun / yuve téikutun: verdolaga (CAB)
yuku tikutun: verdolaga (CAB)
tikutun / tyikitno / tyikutnu: verdolaga (CAB)
yi4va nd’i3tu3 (Cuicatec from Santa María PápalO) verdolaga (Anderson & Concepción, 1983)

kkweej 32 chiritun 2.2.3 (Trique from San Martín Itunyoso) purslane (Christian DiCanio, 2009, personal communication)
tsco xi’qui’tyon (Amuzgo from San Pedro Amuzgos) verdolaga ... La verdolaga se encuentra en la milpa de chagüe, en tierra húmeda. (Stewart & Stewart, 2000: 199)
tson tskö xikiton (Amuzgo from San Pedro Amuzgos) verdolaga (Tapia, 1980). Tsco/tskö is the class term for ‘leaf/ herb.’ These Trique and Amuzgo forms are evidently cognates of the Mixtec terms; the variability of the latter suggests that Trique and Amuzgo borrowed theirs from dialects in the western Mixteca. The Cuicatec term may be a cognate of an earlier form in the northeastern Alta. It is intriguing that the term for ‘purslane’ should be borrowed so frequently, since there appear to be few cognates derived from Proto-Mixeotec and little evidence of language contact in the plant lexicon of Mixtec, Trique and Amuzgo. Tikutnu and its sister forms may be testimony of the recent spread in Mesoamerica of Portulaca oleracea, which may originate in western Asia, although it has been found in archaeological contexts that predate 1492; it has been proposed that humans facilitated the spread of this species (Chapman et al., 1974).

yua tsiko’ne / yua tsko’ne: quintoniles (CGM) probably Amaranthus hybridus
yua sikuni: quintoniles (MIC)
iywa tiku’ni: alegría (ZAU) [iywa ticu un] Amaranthus hypochondriacus L., AMARANTHACEAE
iywa tikuní: quintonil (ZAU) [iywa ticúni / iywa ticú’uni] Amaranthus hybridus L., AMARANTHACEAE
yuwa tikone (JIC) Amaranthus hybridus L., AMARANTHACEAE Hojas y tallo tiernos se comen cocidos.
iywa tikuní: quintonil (CTZ)
yua tikuni (MXT) [yuva ticuni] Amaranthus hybridus L., AMARANTHACEAE
yua sikuni: amaranto, quintonil (CAB)
yuva tyikoní’i: yerbamora (CAB)
ndua tikuañu’un [?] (MXT) [ntua ticuañu un / ntua tickuñu’un] Porophyllum tagetoides (Kunth) DC., COMPOSITAE  tikuañi / tikuañu / tikuañi: zancudo; kuañi / ndikuñi / tikuañi: ardilla; uun: sabor simple (CAB)  This may be a cognate of nda ndudu sikoñuu: pipicha (MIC)

yuvua tinama / yuvua nikuni / yuvua tinduu: repollo de versa (TAM) [yuvuaniqni]

yuku sínana tnuu: yerbamora (TON) probably Solanum sp., SOLANACEAE “La verdad nosotros no lo comemos; tengo una nuera que viene de por Veracruz, que dice que sí lo come.”

yuva tinana: quelite tomate (COI) Physalis sp., SOLANACEAE  Las hojas tiernas y los brotes se comen cocidos.

yiva tinana: quelite de tomate (CTZ)  Yíyo nuu va’ani yíyo yiva tinana yíyoña yuku kó’g va’a: Hay lugares donde abunda el quelite de tomate, hay en montes bien tupidos (CTZ)

yuku tinesun: hierba mora (TXA) [yuku tinesun] Solanum americanum L., SOLANACEAE  En el tratamiento de la disipela… La disipela se presenta por susto y mal aire… De esta hierba existe otra parecida con el nombre de tileso o hierba de disipela, pero no es tan recomendable …va’a ka yuku yuve tinesun: También es comestible.

yuwe tineso: hierba mora (SOT) Solanum americanum Mill. / Solanum nigrescens M. Martens & Galeotti, SOLANACEAE There is probably a historical link between tineso and tileso (Jaltomata procumbens), both designating solanaceous herbs with prominent round fruit.

yuve tinesu: yerbamora (CAB)

yuwe tiní’a: herbáceas, literalmente ‘hierba gusano de oro’ (DUX) The etymology appears to involve the marker ‘animal/round object.’

yuku tindaxi: chepil, chipil (CAB)

yuwa tindii (JIC) Kallstroemia maxima (L.) Hook. & Arn., ZYGOPHYLLACEAE Hojas y tallo tiernos se comen cocidos.  tindi: grillo (CAB)

yuwe tiniyi: quelite de ardilla (SOT) Peperomia quadrifolia (L.) Kunth, PIPERACEAE  ndiyi: difunto / se va a encoger / se va a tullir / se va a quemar (CAB)

yuku tiñeñe: yerua mora (TAM) [yucu ti ñeñe]  ñeñe: raton

yuwe tiní: quelite de ratón (SOT) Polanisia uniglandulosa (Cav.) DC., CAPPARIDACEAE  nduve tiní: chepiche (HUI)  tiní: ratón, por la forma de las hojitas

yiva tinu: chepiche, chapicha (CAB)  tinu: ratón

títa’i / yua títa’i: chayotillo (DUX) Se cuecen chayotillos con agua en una olla, se sacan, se
exprimen, se ponen sobre tortillas y se comen con sal. También se frien en aceite.

**ndua sitnii**: huaje de ratón (TON) “Es un pequeñito así que también se come el huajito, son pequeños pero muy sabrosos.”

**nduve tyitnii**: chepiche, chapicha (CAB)

**yuá tíyayá**: guía de calabaza (CHA) Refers to the edible, tender leaves and young stems of squash, widely eaten in Oaxaca.

**yuva tíxa’ya** (JIC) *Heterocentron parviflorum* Whiffin, MELASTOMATACEAE  Se come cocida con carne para quitarle la “xoquía” . This is a cognate of COI ita tíxaaya, which designates a *Begonia* that children suck on the stems for their sweet and sour flavor; the etymology seems to involve iya, ‘acidic.’

**yuku tsixin’i** [:] hierba mora (NGO) [yukutsixin’i]  *Solanum americanum* L., SOLANACEAE  tiixi‘i / tiidi‘i / tiisi‘u: calambre (CAB)

Para curar la discipela roja: se prepara una masa con las hojas de la planta y se aplica. Sirve para los granos infectados… Kui kuxindo nda’axi tata yua. También se comen las hojas como quelite. (NGO)

**yuva tiyuku**: pápalo o papaloquelite (CAB)

**ndua tnjén / tnjén**: cebolla (DUX)

**yuva too / yuve too**: yerbamora (CAB)

**yuve tóó / yua tayoo**: quelite de violeta (CAB)

**ndúa to’ó**: chepiche (APO)

**nduve to’ó**: pápalo (HUI)

**yúa úa**: yerbamora (PIN) probably *Solanum nigrescens* M. Martens & Galeotti, SOLANACEAE “Hervido, despues se frie y una salsa roja.” úa: amargo

**yuva uva**: la hierbamora (CHY)  uva: amargo

**yuwe viko**: jabonera (SOT) [yuwe niko] *Phytolacca icosandra* L., PHYTOLACCACEAE viko / wiko: nube / fiesta / estación o el tiempo del año (CAB)

**yuwe viyu**: pierna de vieja (SOT) [yuwe níyu] *Hybanthus verticillatus* (Ortega) Baill., VIOLACEAE  niyu: milpa tierna (SOT)]

**yuwa wa’á**: quintoniles (TON) Etymology: ‘quelite good’

**yuva xii** (JIC) *Manihot* sp., EUPHORBIACEAE  Las hojas tiernas se comen cocidas y molidas, alimento durable que los mestizos nombran “caca de burro” en son de burla. xii: se va a marchitar (CAB)
**nduva xiko:** planta de olor, cilandro (CAB)

**yiwa chi’ndi** (ZAU) [yiwa chihndi] unidentified species consumed as a quelite

**yuva xi’ndi** (COI) Cyclanthera tannoids Cogn., CUCURBITACEAE Las hojas, tallos tiernos y frutos se comen crudos y cocidos. **xi’nde:** joto, puto **xindi:** nalga (CAB)

**tixi’ndi:** name of the edible fruit

**yuva xi’ndi kava** (COI) Cyclanthera langei Cogn., CUCURBITACEAE Los frutos, las hojas y los tallos tiernos se comen cocidos. **kava:** peña (CAB)

**yuwe xi’ni:** chayotillo (SOT) [yuwe ši’ni] unidentified plant consumed as a quelite, evidently a cognate of COI **yuva xi’ndi,** and probably a species in the CUCURBITACEAE

**yuwe tidi’ndyi:** planta bejuquera con flores blancas y frutos pequeños que llaman chayotillo (CAB) The description, which corresponds to a cucurbit, agrees with the phonological resemblance to propose that this is a cognate of **yuva xindi.**

**yiwa xiki** (ZAU) [yiwa shiqui] unidentified species consumed as a quelite

**yuva xiyo** (COI) Miconia globulifera Naudin, MELASTOMATACEAE

**yuva xiyo leso** (COI) Tibouchina scabriuscula (Schdl.) Cogn., MELASTOMATACEAE No use reported. **leso:** rabbit

**yuva xiyo (na’nu)** (COI) Leandra subseriata (Naundin) Cogn., MELASTOMATACEAE **na’nu:** large (plural) Para tapar barbacoa; tinte amarillo para lana.

**yuva xiyo (na’nu)** (COI) Miconia militus Wurdack, MELASTOMATACEAE Para tapar barbacoa; tinte amarillo para lana.

**yuva xiyo vali / yuva xiyo (nu’un) tiin** (COI) Monochaetum calcaratum (DC.) Triana, MELASTOMATACEAE Las hojas tiernas se comen cocidas con carne.

**vali:** small (plural) **nu’un:** tooth **tiin:** mouse

**yuva xiyo** (JIC) Conostegia xalapensis (Bonpl.) D. Don., MELASTOMATACEAE Las hojas se comen cocidas en caldo de carne; el fruto se come crudo.

**yuva xiyo (leko)** (JIC) Tibouchina hintonii Gleason ex Todzia, MELASTOMATACEAE Se come cocida con carne. **leko:** rabbit

**yuva xiyo (leko)** (JIC) Tibouchina cf. naundiniana (Decne.) Cogn., MELASTOMATACEAE

**yuva xiyo (ndiaa)** (JIC) Miconia schlechtendalii Cogn., MELASTOMATACEAE Las hojas se usan para tapar carne cocida en barbacoa bajo tierra. **ndiaa:** color azul (CAB)

**yuva xiyo tumi** (JIC) Clidemia hirta (L.) D. Don, MELASTOMATACEAE **tumi:** ‘pubescent’

**yuva si’yu:** el chiyu (CHY) **si’yo:** capulín This appears to be a cognate of COI and JIC **yuva xiyo:**; the phonological similarity is reinforced by the fact that the fruit of various melastomes is often called capulín in regional Spanish.

**tscoxiuu** (Amuzgo from San Pedro Amuzgos) hoja de capulín (comestible) ... Ayer agarraron un mapache y lo hicieron en barbacoa con hojas de capulín. (Stewart & Stewart, 2000: 199) **Tsco** designates ‘herb, leaf”; **xiuu** appears to be a cognate of **xiyo** in Coicoyán and Jicayán, where wild game is cooked in a pit oven with melastome leaves, as the Amuzgo entry specifies. The **Relación de Justlahuaca** of
1580 (ACÑ) mentions that Amuzgo was spoken in addition to Mixtec in both Jicayán de Tovar and Ayusuchiquilazala, present day Santos Reyes Zochiquilazala, a community close to Coicoyán (which does not appear to be cited in the colonial record prior to the 18th century). The direction of borrowing for this term is not clear to me, which does not seem to be widespread in Mixtec. Only one melastome is reported to be eaten as a green in Yoloxóchitl in the neighboring coastal area of Guerrero, where it is designated **yu'³va² ndu'¹xa³² i³ya⁵** (Amith & Castillo, 2010).

**yuva xkula:** *chepil, chipil* (CAB)

**yuwe xukui:** *quelite de leche* (SOT) **yuwe šukwi** unidentified species consumed as a *quelite* dekui / dikui / sikui / sikui / xikui / yukui: *leche* (CAB)

**yiwa xuxa:** *fraile* (ZAU) [yiwa shúsha] *Euphorbia graminea* Jacq., EUPHORBIACEAE This appears to be a cognate of *xuxa*, ‘pine resin / copal,’ and *tuxa*, ‘pine.’ The plant is characterized by its white latex, which may motivate the nominal link to tree resins.

**yiwa yaa:** *quelite de manteca* (ZAU) *Chenopodium berlandieri* Moq., CHENOPODIACEAE

**yuva yaa stila** (COI) *Chenopodium album* L., CHENOPODIACEAE *Medicinal para diarrea.*

**yiva yaa / yiwa yaa / yuva yaa:** *huazontle, quelite de manteca* (CAB)

**yuva yaa** (COI) unidentified tree with large edible leaves; Don Trinidad Oliveros translated *yaa* as ‘music, song,’ but Celso Flores disagreed with that interpretation. Differs tonally from the term for the *Chenopodium.*

**yuwe yaa:** *chichicastle* (SOT) unidentified plant consumed as a *quelite,* possibly a cognate of COI *yuva yaa*

**ndua yáá:** *diente de león color cenizo, comestible* (DUX) probably *Taraxacum* sp., COMPOSITAE yaa / xaa: *ceniza* (CAB)

**ndua yáá íñû:** *diente de león con espinas, no comestible* (DUX) probably *Taraxacum* sp., COMPOSITAE

**yua yáá ín:** *un tipo de hierba, literalmente ‘hierba lengua de perro’, es comida para animales* (DUX)

**yuva ya’á:** *lengua de vaca* (COI) *Rumex* sp., POLYGONACEAE *Se come cocido con frijol molido.* yaa: *lengua* (CAB)

**yuwe yaa snikí:** *lengua de perro* (SOT) *Rumex salicifolius* Weinm. var. *mexicanus* (Meisn.) C.L. Hitchc., POLYGONACEAE sníki: *toro* (SOT)

**yuwe yava:** *cilantro* (SOT) [yuwe yaba] *Daucus montanus* Humb. & Bonpl. ex Schult., UMBELLIFERAE avá / yava: *almácigo / añejo, viejo, semillas de mucho tiempo* (CAB)

**yuvua yavua:** *culantro verde* (TAM)
nduve ya’va: rábano (CAB)

yiwa vixi: chipile (ZAU) [yiwa bishí] Crotalaria pumila Ortega, Crotalaria sp., LEGUMINOSAE [PAPILIONACEAE] vixi: ‘sweet’ This may be a reinterpretation of an earlier form, attested by the designations found in other areas.

yiva yixi: chipile... este quelite se da en tierra caliente (CTZ) probably Crotalaria sp.

yu’3 va’2 a’ ixin: chipilin (YLX) Crotalaria spp.

ndikaxi (MXT) [nti cashii] Crotalaria rotundifolia Walter ex J.F. Gmelin var. vulgaris Windler, LEGUMINOSAE [PAPILIONACEAE] The etymology may be ndika axi, cognate with CTZ yiva yixi and SMG yúva axin, which also refer to Crotalaria sp.; ndika seems to allude to a banana because of the shape of the seed pods.

yuku ndikaxi (MXT) [yucu nticashii] Crotalaria filifolia Rose, LEGUMINOSAE [PAPILIONACEAE]

yive yixi: chipile (SOT) [yuve ’iši] Crotalaria sp., LEGUMINOSAE [PAPILIONACEAE]

yuwe ivi: chipile (CAB)

yuva vidi: chipil, chipil (CAB)

yuwe yena (MXT) Rumex salicifolius Weinm. var. mexicanus (Meisn.) C.L. Hitchc., POLYGONACEAE

yiwa yo’o (ZAU) [yiwa yoo] Cynanchum jaliscanum (Vail.) Woodson, APOCYNACEAE [ASCLEPIADACEAE] yo’o: vine, rope

yiwa yo’o (ZAU) [yiwa yoo] unidentified species consumed as a quelite

yiwa yo’o lapis (ZAU) [yiwa yoo lapiz] unidentified species consumed as a quelite

yiwa yo’o livi saa (ZAU) [yiwa yoo livisa] unidentified species consumed as a quelite livi: bonito, bello, precioso (CTZ)

yiwa yo’o owa (ZAU) [yiwa yoo owa] unidentified species consumed as a quelite owa / eva / owa / uyu / yua / yuva: amargo (CAB)

yuva yo’o (COI) Gonolobus sp., APOCYNACEAE [ASCLEPIADACEAE] Las hojas, los tallos tiernos y los frutos se comen cocidos.

yuve yo’o / yuwe yuku: chicañuma (SOT) [yuve yo’o / yuwe yukuu] unidentified species in the APOCYNACEAE [ASCLEPIADACEAE] consumed as a quelite

yuve yo’o savi: rabo de iguana (SOT) [yuve yo’o sani] unidentified plant consumed as a quelite Savi may refer to rain but also to the Mixtec people, to distinguish this plant as the native yuwe yo’o, in the same way that minu savi (Dysphania ambrosioides) is contrasted with minu stila (Mentha sp.)

ve uku: quelite del monte (OSP) It is not clear whether this is a specific designation, or a generic term for quelites that are gathered in the forest. uku/yuku: mountain, forest

yuwe yuyu: quelite de rocío (SOT) Drymaria cordata (L.) Willd. ex Schult.,
4.7 Other labeled groupings

Mixtec plant nomenclature includes a variable number of smaller categories, in terms of the quantity of taxa that they encompass. Some of these appear to be absent in certain dialects, where the generic term may be known but it does not seem to generate a nominal set.

4.7.1 Thorny plants

The term ‘thorn’ generates a sizable and eclectic nominal grouping of plants: \textbf{Iñu ta’a kuu iin nuu iñu}: Las hierbas llamadas \textbf{iñu ta’a} son miembros de una clase de hierbas espinosas (DUX).

\begin{itemize}
  \item \textit{iun}: espina (CGM)
  \item \textit{iñu / ñiñu}: espina (CTZ)
  \item \textit{iñu}*: thorn (AYU)
  \item \textit{iñu}: abrojos, espinas (SMG)
  \item \textit{iñu}: thorn (OSP)
  \item \textit{iñu}: la espina (SJC)
  \item \textit{iño / iñu / ñiño / iun}: espina (CAB)
  \item \textit{iñu cháâ}: cardo (DUX) [cháâ: gris]
  \item \textit{iñu cha’a} (MXT) \textit{Ferocactus macrodiscus} Britton & Rose / \textit{Mammillaria haageana} Pfeiff. / \textit{Mammillaria mystax} Mart., CACTACEAE \textit{tya’a: bule} (CAB)
  \item \textit{iñu che’e ndyo’o} (MXT) [\textit{iñu che’e ncho’o}] \textit{Xylosma flexuosum} (Kunth) Hemsl., SALICACEAE \textit{te’e / tye’e}: cáscara dura de frutas como calabazas, cocos / pico de ave; \textit{ndyo’o}: colibrí, chupamirto (CAB); \textit{chée}: viejo, anciano / grande en tamaño / importante (CTZ, XOC)
  \item \textit{iñu kími}: cardos (SMG) \textit{kimí}: estrella (CAB)
  \item \textit{iñu kiun}: un tipo de cardo (DUX)
  \item \textit{iño koo / iño títí}: zarza (TAM) [yñocoo / yñotete]
  \item \textit{iñu kuan}: espina de una yerba que es muy frágil (MIC)
  \item \textit{iñu kuaan} (MXT) [\textit{iñu cuan}] \textit{Argemone mexicana} L., PAPAVERACEAE
  \item \textit{iun kuaan}: huizache (ZAU) [\textit{inu cuu}] \textit{Acacia farnesiana} (L.) Willd., LEGUMINOSAE [MIMOSACEAE])
  \item \textit{iñu kuan}: zarza amarillo (PIN) “como uña de gato”
  \item \textit{iñu lewu}: chicalote; es de naturaleza fría y amarga; sirve para cataratas, mal aire (TIL) [\textit{iñu lehv”u}] \textit{Argemone} sp., PAPAVERACEAE \textit{leu kuku / liuku / luku}: tortolita
\end{itemize}
iños nñelu: un tipo de planta silvestre y espinosa, literalmente `espinosa palomita’... útiles para curar el mal de aire, la gente enferma se pega con estas plantas (DUX)

iños lusu: chilusu (MIC) probably Cylindropuntia sp., CACTACEAE Espina muy penetrante de una planta tipo nopal, está redondo, cuando se pega ya no se suelta. si lusu: zorro

iños ndata (JIC) Mimosa albida Kunth ex Willd., LEGUMINOSAE [MIMOSACEAE] Planta medicinal, aplicada caliente sobre piernas. ndata: va a rajar, se va a abrir o romper la piel (CAB)

iños ndikachi (MXT) [iños nticachi] Xanthium strumarium L., COMPOSITAE ndikachi: `sheep’

iños ndiki: amaranto (PIN) probably Amaranthus sp., AMARANTHACEAE

iños sisisi: abrojo (MIC) probably Kallstroemia maxima (L.) Hook. & Arn., ZYGOPHYLLACEAE Da flor amarilla.

iños ta’a: un tipo de hierba espinosa, tiene flores amarillas y crece en el campo de trigo... se utilizan para curar a la gente que padece de mal aire, la gente se pega con estas hierbas en la parte adolorida de su cuerpo para aliviarse (DUX)

iños tika: zarza (PIN) Mimosa sp., LEGUMINOSAE tika: chapulín

iños tikonduu: berenjena (COI) Solanum lanceolatum Cav., SOLANACEAE Se usa como remedio. kondo: rodilla; ko’ndo: puño/pelota (CAB)

iños tndúu: un tipo de hierba espinosa (DUX) The etymology appears to involve the marker for animals and round objects.

iños tukuia’a iñi / yuku tukuia ini: vergonzosa (PIN) Mimosa pudica L., LEGUMINOSAE [MIMOSACEAE] tukuia’a: “de tristeza, porque no más lo toca y ya se cierra”

sivixi (MIC) probably Hechtia sp., BROMELIACEAE

iños vitsi (MXT) [iños vitsi] Hechtia aff. podantha Mez, BROMELIACEAE vitsi: dulce / piña (CAB)

iños dini: biznaga (XYA) iños: espina; dini: cabeza

iñuidiní: bizniyaga (MIC) probably Echinocactus platyacanthus Link & Otto, CACTACEAE

iños xini chee (COI) Don Trinidad Oliveros cited this term that designates globular cacti found in the drylands of the Balsas basin to the north of Coicoyán. xini: `head,’ chee: 'ox.'

iño ku’a / iño títa’[] / tiño dini: espinas de visnagas (TAM) [yño quaha / iño tetah[] / teñodzini] []: illegible character dzini: cabeza (TAM)
iñu yakun (COI)  *Cirsium* sp., COMPOSITAE  yakun: 'brush,' for the shape of the flowers

4.7.2 Grasses

Relatively few taxa are labeled with the term glossed in Mexican Spanish *zacate*, which in some dialects appears to have become homophonous with the class term ‘flower,’ indistinguishable, it seems, even in its tonal pattern.

**ete:** pasto (CGM)
**ita:** pasto (NGO)
**ita, yita:** flor / zacate o pasto (CTZ)
**itya:** grass (AYU)
**ichga:** zacate, hierba, pasto (SMG)
**ìtê:** pasto (DUX)
**ite:** grass (OSP)
**itya:** el pasto, el zacate (SJC)
**itya:** el zacate (CHY)

- **tu itya:** el palito de zacate (CHY)
- **itya ityi:** la paja (CHY)  ityi: seco

**ita:** yerua generalmente (TAM) [yta]
**ita:** paja (TAM) [ita]
  - **ita yechi:** paja seca (TAM)
  - **ita kasiti:** pasto la comida (TAM) [ita casite]  The etymology appears to be eat=3ANI.

**ita / ite / itia / itsa / itya:** pasto (CAB)
**itajii:** pasto (CAB)
**ita xa’an:** zacate (CAB)
**ite kuii / kuii:** ‘pastura verde’, zacate (CAB)
**ite na’nú:** ‘pastura grande’, zacate (CAB)

**itsa dii:** pasto duro o resistente (APO)

**ita leko:** pasto (XOC) [ita: flor; leko: conejo]

**ite na’nú / itsa na’nú / itya na’nú:** pasto grande, zacatón, pasto de vainas largas y rasposas (CAB)

**ita nda’a / ita kua’a:** yerua otra con que hazen xacales (TAM) [itandaha / ita quaha]

**ita ndaku / ita yoko:** yerua con q’ hazé casas paxizas (TAM) [itandacu / yta yoco]

**ita ndatnu / ita ñee / ita yuu:** grama yerua (TAM) [ita datnu / ita ñee / yta yuu]

**ita ndikin:** zizania (TAM) [itandeq]

**ite ndoo:** ‘pasto crecido’, zacatón (CAB)
íté ndú’ù: un tipo de pasto... crece un metro de altura... la gente lo ocupaba para techar sus casas (DUX)

itya ndu’ù: pasto tostado, zacatón (CAB)

icha tikatu (MXT) [hicha ticatu] Paspalum sp., POACEAE tikatun: término que alguna variante asigna a número (?) (CAB)

í’ta² tin’du² (YLX) unidentified species in the CYPERACEAE Although Amith & Castillo gloss this taxon as a ‘flower,’ it seems more likely to correspond to the class labeled ‘grass.’

itia tumi (JIC) unidentified species in the GRAMINEAE tumi: ‘hairy’

ichg vé’e / ichg ndg’á: zacatón (SMG)

itia yayu (COI) Muhlenbergia sp., GRAMINEAE The little horses made for the Day of the Dead appear to be made specifically with this species of grass. Bits of the food offered on the altar for the souls are attached to the straw animals as if on saddle bags, and the little horses are deposited together with the flowers of the altar on the side of the path close to the house, for the deceased to take their meal with them.

icha yai (MXT) Sporobolus indicus (L.) R. Br., POACEAE yayu: pajas que v sauan los yndios para sacrificios (TAM) This entry appears to refer to the ancient practice of perforating the tongue or other appendages of the body and passing through a stem of grass or a piece of cord to be offered to the deities.

ite yayu / ite yeyu / itya yayu: ‘pasto rasposo’, zacatón (CAB)

ita yoko / ita ndaku: yerua con q’ hazé casas paxizas (TAM) [yta yoco / itandacu]

ite yoko: ‘pasto de espiga’, zacatón (CAB)

4.7.3 Brooms – switches – shrubs:

Some Mixtec dialects generate a few plant names based on nduku, glossed as vara (switch), escoba (broom), or leña (firewood). Historically, yuku and nduku may represent reflexes of allomorphs that indicated possession, as discussed with regards to the phonological correspondence between yuva and nduva in the preceding section.

nduku: vara (CTZ)

nduku ti’ví: escoba (CTZ) [ti’ví: barrer]

ndu³ku²: vara (YLX)

ndu¹'ku⁵'chi⁵: escoba (YLX)

nduku: leña (SMG)

nduku: la leña (PIN)

nduku: leña (SJC)

nduku: leña (CHY)

duku / nduku / nruku: leña (CAB)
Most species assigned to this nominal category appear to be small shrubs:

**ndaku**: *escobas* (ZAU) [*ndacu*] *Schkuhria pinnata* (Lam.) Kuntze ex Thell. var. *virgata* (Llave) Heiser, COMPOSITAE

Unidentified species in the MALVACEAE

**nduku ti’vi**: *escoba* (CAB)

**ndaku / nraku / tindaku**: *escoba* (CAB)

Unidentified species in the MALVACEAE

**nduku yoo**: *bejuco* (XYA) *La que se enreda el pitayo*. ‘The plant that grows on *Stenocereus* cacti.’

**yuku ndaku**: *clase de hierba que se ocupaba para hacer escoba* (CHA)

Unidentified species in the COMPOSITAE

**nduku ti’vi / tuti’vi**: *Baccharis conferta* Kunth, COMPOSITAE *Tallos para barrer, hojas medicinales para dolor de muela*. **ti’vi**: to sweep

**nduku yoo**: *bejuco* (XYA) *La que se enreda el pitayo*. ‘The plant that grows on *Stenocereus* cacti.’

**yuku ndaku**: *clase de hierba que se ocupaba para hacer escoba* (CHA)

4.7.4 Soap plants:

Some Mixtec languages mark a few plants with a class term that indicates their use as soap, often glossed in Mexican Spanish as *amole*, derived from the equivalent label in Náhuatl:

**itun tináma / yitun tináma**: *higuerrilla* (CTZ) **nama**: *jabón, detergente*

**ndanama**: *amole, camote de jabón* (APO)

**nama**: *amole, jabón* (OSP)

**nama**: *un género de raíces que llaman los mexicanos amole en su lengua y, en mixteco, nama, con que lavan la ropa; y la para tan blanca como con jabón, salvo que da comezón* (ACÑ, Relación de Xicayan)

**nara**: *yerua xabonera* (TAM)

**nara / tnama**: *jabón* (CAB)

**nama kata**: ‘*jabón comezón*, amole (CAB)

**nama tañe**: ‘*jabón de banco*, amole (CAB)
Nama teyu: amole (CAB)
ña’mi nama: ‘camote de jabón’, amole (CAB)

Nama choko (MXT) [Nama choco] Manfreda hauniensis (Boyé-Petersen) S. Verhoek, AGAVACEAE) nama: ‘soap’ tyoko: hormiga / ilacuache / zopilote / panal (CAB) The genus Manfreda may be subsumed into Agave together with Polianthes, based on their molecular phylogenies (Gerardo Salazar, Instituto de Biología UNAM, personal communication, 2009).

Nama choko kua’a (MXT) [Nama choco cu’a] Polianthes geminiflora (Lex.) Rose, AGAVACEAE

Namateyo (ZOL) probably Microsechium sp., CUCURBITACEAE The tuber was used as soap. Pronounced /namatezo/.

4.7.5 Tuberous roots:

Like other Mesoamerican languages, Mixtec labels several plants with edible tubers with a specific class term. This nominal category also includes medicinal roots in some dialects.

ña’am: camotes (ZAU) [ña^mi] Dioscorea spp., DIOSCOREACEAE
ña’am: camote (CGM) Ipomoea batatas L., CONVOLVULACEAE
ña’am: camote (XOC)
ña’am: camotes (CTZ)
ña’am naña: camote de chayote (CTZ)
ña’am vixi: camote dulce (CTZ)
ña’am vixi yaa: camote dulce blanco (CTZ)
ña’am vixi ndí’: camote dulce morado (CTZ)
ña’am yitun: guacamotes (CTZ)
ña’mux: camote, colmena, tubérculo (SMG)
ña’mu: camote (YSN)
xa’am: camote (OSP)
yá’m: el camote (SJC)
yá’mi cujitsin: el camote de palo blanco, un camote pequeño y blanco (SJC)
yá’mi ñu’u: un tipo de camote, más largo que el camote de palo blanco y crece más hondo en la tierra, pero sabe casi igual (SJC)
yá’mi vixi: el camote dulce (SJC)
yo’o vá’mi vixi: mata de camote dulce (SJC)
ña’mi kua’a: el camote de bejico (CHY) [ñahami cuaha]
ña’mi yutu: el camote de palo (CHY)
ña’mi: batatas, que en su lengua llaman ñami y, en mexicano, camotes (ACÑ, Relación de Ayusuchiquilazala)
ña’mi: batata (TAM) [ñaami]
yá’mi vixi: camote dulce (CAB)
yá’mi kuiji / ña’mi vixi: jícama; ña’mi kuiji vixi: ‘camote blanco dulce’, jícama (CAB)
ña’mi isu: [i]tamo real (COI) unidentified species, possibly Odontotrichum sp.
isu: ‘deer’ Deer are thought to dig up this root when wounded, to eat it and heal. It is considered one of the most important and sought after remedies in Coicoyán.
tamarrial (MXT) Odontotrichum paucicapitatum (B. Robinson & Greenman) Rydb., COMPOSITAE

ña’mi ka’no (ACÑ, Relación de Zacatepeque) Hay otra raíz que llaman ellos ńamicano y, en mexicano, hueycamotli: esta raíz, seca y molida y bebida, es muy buena para purgar. ja’nu / ka’no / ka’nu: grande (CAB) hueycamotli: large-tubercle

ña’mi kuaan ts’a’an (?) (ACÑ, Relación de Cuahuitlan) Los remedios para salud de los naturales son muy pocos: sangría y vómitos, los cuales toman con una yerba que se da en estas partes, de muy mal olor, y ésta provoca muy fácilmente, bebida, a vómitos; la cual se ha de dar desleída, y bebida en agua un poco tibia… llámase esta raíz en mixteca ńamiquatza, que es en castilla ‘raíz amarilla’ ts’a’an: huele (CAB)
Cuahuitlan was a large Mixtec town near the Pacific Ocean to the west of Pinotepa.

ya’mi kua’a: ‘camote rojo’, rábano (CAB)
ña’mi ku’u: camote montés (SOT) (Dioscorea remotiflora Kunth, DIOSCOREACEAE)
ña’mi maso (COI) unidentified species in the COMPOSITAE Tubérculo medicinal, aplicado sobre fracturas. maso appears to derive from Spanish maestro
ña’mi nika: camote de platanar (SOT) the roots of Musa spp., MUSACEAE, a famine food
ña’mi ńu’un (JIC) Dioscorea sp., DIOSCOREACEAE Los tubérculos se comen cocidos. ńu’un: tierra, suelo / bajo, chaparro (CAB)
ña’mi sayí: cebolleja (SOT) Tigridia pavonia (L.f.) DC., IRIDACEAE
(na’mi) tindoyo (JIC) (Calathea sp., MARANTACEAE) Los tubérculos se comen cocidos. tinduyu: Cucurbita ficifolia C.D. Bouché, CUCURBITACEAE

ya’mi tioko: Se dan en los huertos que hacen, melones, sandías, camotes, quacamotes, jícamas, camotes de hormiga que así dicen los indios en mixteco Yac Mitioco parecen papas porque son redonditos y cada raíz que es como una cabeza tendrá como ciento o más camotillos. (Relación de Santa María Huazolotitlán, ca. 1777; Esparza, 1994: 142) Santa María Huazolotitlán is a Mixtec municipality in the district of Jamiltepec, Oaxaca. tioko / tiyoko / tsoko / tyoko / xoko: hormiga (CAB)
ña’mi vixi: camote (ZAU) ńaami bishi Ipomoea batatas (L.) Lam., CONVOLVULACEAE
ña’mi yatu: agengible (SOT) Zingiber officinale Rosc., ZINGIBERACEAE xatu: ‘spicy’
ña mi yuku (MXT) ńami yucu Dioscorea cyphocarpa B.L. Rob., DIOSCOREACEAE
4.7.6 Agaves and plants that resemble them

The Mixtec languages have an elaborate lexicon for the *maguey* and its relatives, as might be expected from the fact that the Mixtec territory probably has the greatest diversity of agavaceous plants in general, and specifically of species in the genus *Agave*:

*yawi*: agave (JOS)

*yau*: maguey (CGM)

*tnuyutu*: quiote (inflorescence of *Agave* spp.) (CGM)

*ita yutu*: cacayas de maguey (CGM) (flowers of *Agave* spp., which are eaten cooked)

*yawi*: maguey (MIC)

*yaví*: maguey (XOC)

*yavi*: maguey (CTZ)

*títi*: flor del maguey... para que comamos (CTZ)

*yau*: maguey (SMG)

*yau yáu*: quiote de maguey (SMG)

*yau*: maguey (CHA) variante: *ndau*

*yau*: maguey (YSN)

*yutu*: quiote (YSN)

*yutu tarri*: quiote de cacaya (YSN)

*Taka nuu yau ka ja’a yutu tarri*: Toda clase de maguey da quiote de cacaya (YSN)

*yáu*: maguey (DUX)

*tnuyütû*: quiote macizo (DUX)

*xavi*: maguey (OSP)

*yavi*: el maguey (SJC)

*yavi*: el maguey (CHY)

*yawi*: *En este dicho pueblo, y toda su comarca, hay un árbol que es en todas partes desta Nueva España general, que le llaman yagui y, en mexicano, metl, y en castellano maguey. Deste árbol tienen muchos aprovechamientos, como es sacar dél aguamiel, y hacer miel negra, cociéndola, y pulque, que es el vino que ellos usan, y curar con el zumo de las pencas muchas maneras de heridas y llagas; y hacen mantas dél, y sogas, jáquimas y agujas (de las puntas), así para coser como para enclavar algunas cosas. Y, ansí mismo, hacen a uso dellos los zapatos que traen, que llaman en mexicano cactle y, en mixteco, chissa. Y dél hacen otras muchas cosas. (ACÑ, Relación de Nochiztlan)*

*yavui*: maguei (TAM)

*yetu yavui / ita yetu yavui / ndutu yavui*: maguei la flor que sale encima del tallo (TAM) [yetuyavui / itayetu yavui / dutuya vui]

*xavi / yau / yavi*: maguey (CAB)

*tnuyavi / tonyavi*: ágave o magueyales (CAB)

*yavi chuku / yavi tachuku* (MXT) [yavi chucu / yavi tachucu] *Agave angustifolia* Hort. Par. ex Steud., ASPARAGACEAE [AGAVACEAE] *tiuku / tiyuku / tyuku*: piojo
yau isa: tipo de maguey (CHA)

yavi itia (TON) “Es el [maguey] de cacayas, se raja y se hace atadero, antes se ocupaba para amarrar zacate.”

yau kastilá: maguey de sábila; es de naturaleza caliente, sirve para la gastritis (TIL) [ząu castilá] Aloe sp., ASPHODELACEAE

yavi kochi: maguey de cochino (XYA) probably Agave marmorata Roezl., which has salient yellow flowers and is called pitzometl in Náhuatl, ‘pig agave’ La flor amarilla la usan de adorno en Semana Santa. ‘They use the yellow flowers for decoration during Holy Week.’

yawi kochi: maguey tepeztate o pitzomé (MIC) probably Agave marmorata. Están las pencas grandes para tapar la barbacoa.

yaukua’a / yauvui yikin: maguei otro mas pequeño y de mas dulce miel (TAM) [yauvui quaha yauvui yeq]

yavi kuaan (MXT) [yavi cuan] Agave americana L. var. oaxacensis Gentry

yauvui kuachitieye / yauvui kuachi yaku: maguei pequeño que nace é las peñas (TAM) [yauvuiqchi tiyeye / yacu]

yáuí kií / yáuí ta: un tipo de agave para pulque (DUX)

yauvui ndaa yusi: mague q´ llamá pita (TAM) [yauvuindaayusi]

yauvui yuku / yauvui ndaa yusi: pita especie de maguei (TAM) [yauvui yucu / yauvuiandaayusi]

yave ndixi: maguey mezcalero (ZAU) [yaave ndishí] Agave sp. ndisi / ndixi / ndidi / nridi: mezcal (CAB)

ngíchì / yáuí ngíchì: un tipo de sábila... las pencas... son delgadas, no son anchas como las de otros magueyes. Se hierven y se toma el agua si la sangre se ha coagulado en el pecho... Así se prepara el maguey para masticarlo o comerlo: se corta la parte blanca de la penca, se pela y se despedaza. Luego se busca coyul. Se mide en partes iguales el coyul y el maguey: un tenate de maguey y un tenate de coyul. Debido a que el coyul es agrio, los dos se cuecen juntos y se ponen dulces por el maguey. Se echan en una olla y se ponen en la lumbre donde se cuecen por cuatro o cinco horas, hasta que se pueden masticar Dakaro nduxa xi’in yau ngichi: [Para comer] se mezcla el trébol con un tipo de sábila (DUX)

yavi nkoyo [?] (MXT) [yavi incoyo] Agave salmiana Otto ex Salm-Dyck

yau ŋuí’û: un tipo de maguey, literalmente ‘maguey de fuego’... las hojas... son anchas y suaves. Este maguey se usa de muchas maneras. La gente corta pencas de maguey y
saca tirantes fibrosos para atar los palos que usan para construir sus casas. Cuando empieza la temporada de lluvias, las pencas que se ponen tiesas se pudren, y la gente saca ixtle de ellas para hacer mecates... También la gente asa las pencas que no están tan endurecidas y las pone en agua dos o tres días para que se pudran y entonces les quita las fibras... Cuando el hijuelo de maguey brota, la gente y los bueyes se lo comen... (DUX)

**yavi siku:** maguey de cacaya (XYA)  *Es muy sabrosa [la cacaya], es tipo mezcalero [el maguey].* ‘The flowers are very tasty, the agave is of the type that is used for making mezcal.’

**yawi sívivi** (MIC)  possibly *Agave potatorum*.  *Maguey chiquito para curar.*

**yavui tichichi / yavui kuii:** maguei grande (TAM) [**yavui techi / yavui cuij**]  

**yavi tii / t’i’i** (MXT) [**yavi tii / t’i’i**]  *Dasylirion acrotriche* (Schiede) Zucc.,  NOLINACEAE

**yavi tíkuchi** (MXT) [**yavi ticuchi**]  *Agave potatorum* Zucc.  *tikutyi: murciélago / gusano (CAB)*

**tikunchi / yau tikunchi:** papalomey (SMG)  *probably Agave potatorum* Zucc.

**yáuí tikunchi / yáuí tilúnchí / yáuí tiriri:** papalome, medicinal agave (CHA; Macaulay, 1996)

**tikundyi:** maguey de papalome (CAB)

**yavui tìwisi:** maguei otro que nace en las peñas espinoso (TAM) [**yavui tehuisi**]

**yavui yuku:** maguei grande de que no sacan miel (TAM) [**yavui yucu**]

**yavi viji / yavui vixi:** ‘maguey de la piña’, piñal (CAB)

4.7.7  Vines

The generic term that is glossed as *bejucos* seems to generate relatively few specific plant names in Mixtec, although it is attested in most dialects. Kuiper’s (2003) compilation does not include any terms based on *yo’o* or a cognate. As might be expected, the lowland areas
close to the Pacific show a greater diversity of lianas and vines that are labeled with this class term, including some cultivated plants that might not be expected to be part of this group, such as tomatoes.

**nduku yo’o** / **nduku yoo:** bejuco (CGM)  
**yo’o** / **yo’otnú** / **yo’o yutnú:** raíz (CGM)  
**yo’ó:** bejuco (XOC)  
**In ndàà ndi’i yo’ó te’è nañá nda’á tikáva:** Se subió todo el bejuco del chayote al ciruelo (XOC) This example is particularly interesting in that it combines the generic yo’ó with te’è, a term that seems to be restricted to squash and chayote plants.  
**yo’ó yitun:** bejuco (CTZ)  
**yo’ó:** vine (AYU)  
**yo’ó yúku:** bejuco (SMG)  
**yo’ó yuku:** bejuco (YSN)  
**xo’o:** bejuco (OSP)  
**yo’o:** bejuco (SJC) [yoho]  
**yo’ó yutnu:** barva de planta (TAM) [yohoyutnu]  

**yo’ó chiti tilandyi:** chicalotillo (PIN) “Amarga, con eso lavaban, con eso anteriormente todo mundo lavaba porque deja blanca la ropa.” **chiti:** semilla **tilandyi:** golondrina  

**yo’ó kua’a** (COI) Vitis tiliifolia Kunth ex Roem. & Schult., VITACEAE *Tallo medicinal y para cinchar la troje; los niños comen los frutos.* kua’a: red  

**kui1yo1o5 kua5an2** (YLX) Solandra maxima (Sessé & Moc.) P. S. Green, SOLANACEAE In Yoloxóchitl, the term for bejuco has become a compound, which appears to involve ‘green’ as the prefix.  

**yo’ó kuun** (JIC) unidentified species, probably in the VITACEAE  

**yo’ó nu’u ina:** bejuco diente de perro (PIN)  

**yo’ó ndáá:** la mata de estropajo (SJC) [yoho ndáá]  
**ndáá:** el estropajo (SJC) daa / naa / ndaa / ndaxa / tindaa: ixtle (CAB)  

**i3ta2 kui1yo1o5 ndi3ku3un3** (YLX) Desmodium spp., LEGUMINOSAE Two kinds are distinguished by color epithets. ndi3ku3un3: ‘toad’  

**yo’ó nduta:** bejuco de agua (PIN) También es bueno cuando se da uno un golpe en el ojo, se lo echa uno. The sap of the vine is drunk when no water is available  

**yo’ó ndútyí:** el bejuco de frijol, la mata de frijol (SJC)  

**yo’ó sa’a** (COI) Struthanthus sp., LORANTHACEAE This term is significant because it shows productive alternation of class terms to designate distinct taxa within a group of related plants: other members of the same family that belong to the genus *Psittacanthus* are labeled ita sa’a in Coicoyán. This species of *Struthanthus* does have
elongated, vine-like stems.

**yo’o tía’a / yo’o tiáa**: bejucó de bule (PIN) *Lagenaria siceraria* (Molina) Standl., CUCURBITACEAE

**yo’o tinana va’a**: planta de tomate (PIN) *Solanum lycopersicum* L., SOLANACEAE

**yo’o tinana saa**: tomatito chiquito (PIN) An arvensic form of the same species. “Nace solo.” saa: pájaro

**yo’o tínana**: tomatal (CAB)

**kuí1 yo’1 o 5 tu15 un3** (YLX) unidentified species, probably in the genus *Vitex* or *Cissus*, VITACEAE The epithet specifies a darker coloration.

**yo’o xikáma**: la mata de jícama (SJC)

**yo’o yá’mi vixi**: mata de camote dulce (SJC)

**yo’o yuku**: zarzaparrilla (TAM) [yohoyucu]

### 4.8 Unaffiliated plants

The names for several taxa do not include a generic label. In some cases, these represent morphologically distinct plants, that would not be expected to fit a classification based primarily on growth habit. In other instances, however, it seems that the specific taxa could easily be assigned to one of the nominal categories, and it appears to be the case that certain dialects have a tendency to discard the generic labels, while cognates will be retained in full binomial form in neighboring areas. Some of the taxa included in this section, such as *koyo* and *minu* form large enough groupings that they could be considered “lesser categories” in Mixtec plant nomenclature; unlike the previous, however, the set seems to be clearly focused on a prototypic Linnean genus, e.g., *Typha* and *Dysphania*.

**chanda**: tipo de maleza, no deja crecer la milpa (NUX)

**chí’í**: un tipo de aceitillo (DUX) aceitilla/aceitillo: *Bidens* spp. (Martínez, 1979)

**chí’í burru**: un tipo de aceitillo (DUX)

**chí’í kúxi / chí’í rátå**: la gente come este tipo de aceitillo con tortillas cuando está tierno (DUX) We would expect this plant to be marked *ndua* or *yua*; edible species of *Bidens* are labeled as such in other dialects. **kuíji / kuítyin / kuixi**: blanco (CAB)

**chí’í yúku**: un tipo de aceitillo (DUX) **uku / xuku / yuku**: cerro, montaña (CAB)

**dzi’í**: cucharilla (CGM) probably *Dasylirion* sp., NOLINACEAE

**si’i**: cucharilla (XYA)

**tí’i [?] / yavi tíi** (MXT) [tí’i / yavi tíi] *Dasylirion acrotriche* (Schiede) Zucc., NOLINACEAE

**chiyí / tiyiyí**: cucharillo, planta (SMG)

**chíyí**: cucharilla (DUX)
chíi: agave delgado llamada ‘cucharilla’ (APO)

chika kiwi: tlanchana (DAA) [chikakiwi] Solanum sp., SOLANACEAE tika / tyika / xlka: chapulín, término genérico / cesto o canasto; kiwi: día / va a entrar / rollo de vestir que es de lana, enredo (CAB) Para el tratamiento de espinilla: la fruta se muele y se le aplica en la piel de todo el cuerpo... (DAA)

chikuili: pingüica (DAA) Arctostaphylos pungens Kunth, ERICACEAE kuilu / tyidaa kuili / tyikuili: pájaro azul (CAB) Para la ronquera en garganta y gripa: se cortan dos o tres ramitas y se mastican... para fuegos... para cálculos renales... para golpes internos... (DAA)

da’a: planta parásita que crece sobre árboles (APO) This term appears to be a cognate of COI ita saa / yo’o saa.

dá’yá dáû: plantas de la lluvia (DUX) Empiezan a crecer durante el tiempo de las lluvias. Literalmente, ‘hijos de la lluvia’. It is not clear whether this poetic term designates a specific taxon, a group of species, or annual plants in general that germinate during the rainy season. da’a / da’ya / de’e / djaa’ / ja’a / ja’ya / se’e / se’ya: hijo, hija; dau / davi / dawi / djavi / javi / sau / savi / sawi: lluvia (CAB)

dikui te’i: la golondrina (NGO) Euphorbia prostrata Aiton, EUPHORBIACEAE dikui / sikui / xiku: leche; te’i: pico de ave / se va a pudrir (CAB) Para sacar espinas, astillas o cañuelas de la milpa o del zacate enterradas: se ponen de dos a tres gotas de la lechita de esta planta en el lugar que se encuentran metidos estos objetos y a los tres días madura y salen. (NGO)

ka’ne: iuncia otra delgada de que se haz esteras (TAM) [cáne]

tskoyo: tule (CGM) probably Typha sp., TYPHACEAE
do’o: popote (COI) Juncus effusus L., JUNCACEAE Se usan manojos de esta planta (contados al parecer en múltiplos de 13) para los rituales de petición de lluvias en la tradición de “San Marcos”.

koyo kita’an (COI) Equisetum sp., EQUISETACEAE kita’an: ‘to disassemble’ This term was provided by Rodrigo Tenorio; Celso Flores had not heard it before.

i’ta² ko’1yo¹ (YLX) unidentified aquatic species
ko’1yo¹ pa’2tu² (YLX) unidentified aquatic species The epithet is from Spanish pato, ‘duck’

koyo yucha (MXT) [coyo yucha] Hymenocallis riparia Greenm., AMARYLLIDACEAE yutya: arena / tierno / río (CAB)
ko’yó: junco, planta que crece en terreno pantanoso (SMG) [cohyò]
ko’yo [?]: espadaña (TAM) [cóyo]
ko’yo / diya’i: iuncia (TAM) [coyo / dziyahi]
ko’yo ita: iuncia otra (TAM)
ko’yo siki: iuncia otra (TAM)
ko’yo tinduu / ko’yo tikoo: iuncia otra (TAM) [coyo tìduu / coyoo ticoo]
ko’yo diya’i / ko’yo tikoo yetu / koyo tinama / koyo nikana ditu / koyo nikana yetu: espadaña có tallo, y bohordo (TAM) [cóyo dziyahi / cóyo ticooyetu / coyo tinama / coyo nicanadzitu / l. yetu]
ko’yo siki diñe: espadaña esquinada (TAM) [còyo siquidziñe]

kuaan Cuscuta spp., CONVOLVULACEAE Used in the treatment of ‘fright’ in children; after the curing ceremony, a bunch of this parasitic plant is thrown into the river for the child to observe, symbolically carrying the illness away. The name for the plant differs tonally from kuaan, ‘yellow.’

kwa³añ (YLX) Cuscuta sp.
kuaan: una planta con flores amarillas (SMG) [kuáán: amarillo] The lexical relationship with COI kuaan is probably incidental; in both dialects, the name for the plant and the color differ tonally.

kuayo: algas (CAB)

kúlí: una especie de flor (SMG)

kuxí: musgo (PIN) Donde sale agua en la piedra, se pone verde.

lómbrâ: un tipo de planta con vainas (DUX) This looks like a borrowing from Spanish, but the source term is not evident; perhaps from alfombra, ‘rug’. Alfonbrilla has been recorded as the designation of four species in two different plant families in Mexico (Martínez, 1979).
lómbrâ ñdū: un tipo de planta de hojas lisas (DUX) lómbrâ ñi ndáyu: un tipo de planta de hojas ásperas (DUX)

vinu: epazote (CGM)
  alaveno: yerbabuena (CGM)
minu davi: epazote (XYA)
  minu kastila / minu ndei: yerbabuena (XYA) ndei: negro / mole, comida, guisado (CAB)
minu dávi: epazote (TON) dávi: ‘Mixtec’
minú dawí: epazote (MIC)
  minú sílã: yerbabuena (MIC)
mino: epazote (ZAU) [miíno] Dysphania ambrosioides (L.) Mosyakin & Clemants, CHENOPODIACEAE
minù nduxí: epazote (XOC) nduxí: pollo, gallina
  minù stila: yerbabuena (XOC)
minu xatu: epazote (COI) Dysphania ambrosioides xatu: ‘spicy’
  minu stila: yerbabuena (COI) Mentha sp., LABIATAE stila: ‘from Castille’
minu nduchi: poleo (COI) probably Mentha pulegium L., LABIATAE nduchi: ‘[for] beans’
minu nduxí: epazote (CTZ)
  minu kastila: yerbabuena (CTZ)
minu (MXT) Dysphania ambrosioides
minu: epazote (SOT) Dysphania ambrosioides
minu stila: hierba buena (SOT) Mentha arvensis L., LABIATAE

mino: epazote; es de naturaleza caliente; sirve para las lombrices (TIL) Dysphania ambrosioides (L.) Mosyakin & Clemants, CHENOPODIACEAE

mino castilá: la hierba buena; es de naturaleza caliente; sirve para la diarrea (TIL) [mino castilá] Mentha sp., LABIATAE

mino ñu ñu dái: epazote (DUX)

ño kastilá: hierbabuena (DUX)

mino: epazote (SMG)

ita minú: yerbabuena (SMG)

mino: epazote (YSN)

mino: epazote (OSP)

mino: epazote (PIN)

mino ita ñu ñu i: yerbabuena (PIN)

mino: el epazote (CHY)

mino kastilá: yerua buena (TAM) [mino castilla]

mino / minu / winu: epazote (CAB)

mino davi / minu idawi / minu ñudavi / minu savi: ‘condimento de lluvia’, epazote (CAB)

mino jatu / minu satu / minu tyatu / minu xati / minu xatu: ‘condimento picroso’, epazote (CAB)

mino kua’a / minu kua’a / vino kua’a: ‘condimento colorado’, epazote (CAB)

mino tsu’un / minu tyi’in: ‘condimento apestoso’, epazote (CAB)

mino yii: ‘condimento macho’, epazote (CAB)

ita minu: yerbabuena (CAB)

umno ja’a: yerbabuena (CAB)

mino kastilá / minu síla / minu síla / minu tila / minu xila: ‘condimento de Castilla’, yerbabuena (CAB)

mino kiny: yerbabuena (CAB)

mino no’on / minu nu’un: yerbabuena (CAB)

mino wa’a: yerbabuena (CAB)

mino nda’a ndoo: ‘condimento de mano ancha’, yerbasanta (CAB)

mino ndoo: yerbasanta (CAB)

nméndê: bisnaga (DUX)

nu’un chika’a: diente de león (DAA) Taraxacum officinale G. Weber ex Wigg.,

ASTERACEAE no’on / nu’un: diente; tyikaa: cuchillo; ndika’a / ndyika’a /
tsika’a / sika’a / xinka’a: león (CAB); the Mixtec term appears to be a calque from

Spanish La hierba es amarga y se le considera fresca... Se ocupa cuando se tiene
dolor de muela, para dolor de estómago... Se come como verdura... (DAA)

ndadi de’e kuixi: un tipo de planta (DUX) ndadi / ndadi: suicio, cochino; da’a / de’e /
dja’a / ja’a / ja’ya / se’e / se’ya: hijo, hija (CAB)

nda’nu: huisote (SOT) Yucca elephantipes Regel, AGAVACEAE

tnutsindeva (CGM) Described as a plant with large round leaves with stinging hairs,
possibly *Wigandia urens* (Ruiz & Pavón) Kunth, HYDROPHYLLACEAE

**sindiava**: *mala mujer* (XYA)  
*Con ésa asada cortan la leche de cabra para comer con tortilla, se hace bolitas. ‘That plant, once it’s broiled, is used to curdle goat milk so that it can be eaten on a tortilla, it turns into little balls.’*

**nusíndiava**: *mala mujer de monte* (XYA)

**sindiavá**: *mala mujer* (TON)  “Para cortar la leche.”

**sindiawa**: *mala mujer* (MIC)  “-¿Cómo se llama esa *sindiawa* para comer? - *Sindiawa* nomás, crece su palo, allá sale la fruta... es como piñón.”

**sindiawa tuun**: ortiga (MIC)  
*Tiene la hoja grande.*

**sindiawa yoo**: ortiga (MIC)  
*Es enredadera de hoja chiquita.*

**nchava**: *Tragia nepetifolia* Cav., EUPHORBIACEAE  
*As indicated by the common name of *Tragia* spp. in English, ‘noseburn,’ this genus is notorious for causing skin irritation and allergies (<www.allergenica.com/Greer.asp>)*

**nchau**: abrojos, espinas, ortigas (SMG)

**ndewa tata**: chichicastle de Castilla o mala mujer (DAA)  
*tata*: semilla seleccionada para sembrar / papá, señor;  
*tatan*: va a rajar, va a romper / medicina (CAB)

**Io uu nuu ndewa ya’a, ndewa tata te ndewa data.**  
*Existen dos clases de chichicastle, uno es de té, el otro es de castilla o mala mujer. Chichicastle de té sirve para refrescarse y para el pulmón. Chichicastle de castilla es caliente, se ocupa para reumatismo, dolor de huesos, mal de aire, calambre de los pies, molido colorado como licuado se toma en ayunas.* (DAA)

**ndewa yuku data**: chichicastle de té (DAA)  
*Urtica sp.*, URTICACEAE  
*data / djata / jata / sata*: paloma (CAB)  
*La hierba es simple y se considera fresca... En tratamiento de fiebre y dolor de cabeza...* (DAA)

**ndéuá**: un tipo de hierba silvestre; la gente de la región la llama ‘chixaxle’ (DUX)

**ndéuá kua’an**: un tipo de hierba silvestre; la gente de la región la llama ‘chigraxle amarilla’... le gente pega chichaxle amarillo en la parte del cuerpo adolorida para calmar el dolor (DUX)

**ndéuá nkútu**: un tipo de hierba silvestre; la gente de la región la llama ‘chixaxle de toró’... es curativa como la hierba llamada ndéuá kua’an (DUX)  
The accompanying drawing in this publication (Kuiper, 2003) seems to indicate that this is a species of *Cnidoscolus*, EUPHORBIACEAE.

**ndéuá tîtnîi**: un tipo de flor silvestre; la gente de la región la llama ‘chixaxle de ratón’... es curativa como la hierba llamada ndéuá kua’an (DUX)

**ndavua ku’a / ndavua tnene**: hortiga (TAM) [davuaquaha / davua tnene]  
*yuku ndavua*: borrja (TAM) [yucundavua]

**tnundeve**: chichicastle (CAB)

**ndikin Iya Si’i** (COI)  
The seeds of *Ipomoea* sp. or *Argyreia* sp., CONVOLVULACEAE, used as an entheogen  
*Iya Si’i*: ‘Holy Female,’ i.e., the Virgin Mary.

**ndikin saña** (JIC)  
*Amaranthus* sp., AMARANTHACEAE  
*Cultivated for its seeds.*

**ndikin saña** (JIC)  
*Sorghum* sp., GRAMINEAE  
*Las semillas se comen tostadas y molidas en pinole  saña*: corncob

**ndo ídu**: cola de caballo (MIC)  
*probably Equisetum sp.*, EQUISETACEAE

**ndo cola, ídu caballo**  “Ahi lo tengo, acá lo hay a la orilla del río.”

**ndóó chini**: rabo de iguana (MIC)  
*unidentified shrub or small tree  Se ocupa lo grueso para*
**hacer corralitos. chini: iguana**

ndó’o landyi (COI) *Huperzia taxifolia* (Sw.) Trevis, LYCOPODIACEAE  *ndó’o*: ‘tail’

landyi: ‘lamb’ The nominal relationship between these three species is probably incidental.

**ndoto kuu: doradilla (NGO) Selaginella lepidophylla* (Hook. & Grev.) Spring, SELAGINELLACEAE  *ndoto*: va a retoñar, va a revivir / kuu: se puede / es / va a poder (CAB) Se usa para los riñones: se hierve toda la planta y se toma como agua normal... Se utiliza a veces, en las ofrendas de día de muertos, colocándola sobre los petates donde se pone la ofrenda. En los nacimientos navideños se acostumbra acostar al Niño Dios sobre estas plantas. (NGO) Metaphoric designations of this type seem rare in Mixtec.

**ndrúta: un tipo de hierba medicinal (DUX) Some Mixtec dialects have retroflex consonants, conventionally spelled <Cr>.

**nduxa: cuyule (ZAU) [dushaa] Oxalis sp., OXALIDACEAE

nduxa (vali) (COI) *Oxalis sp.*, OXALIDACEAE  Las hojas se comen cocidas con hoja de frijol.

**nduxa: xocoyul, cierta variedad de planta sabor agrio (CTZ) probably *Oxalis* sp.

Yasinní yavi, kivi chi’yoña ta táanna nduxa xi’iña: Es muy sabroso el maguey cuando lo cuecen y le ponen el xocoyul (CTZ)

**ndutsa iya (MXT) [ntutza iya] *Begonia gracilis* Vilmorin-Andrieux, BEGONIACEAE

**nduxá: trébol (DUX)

Dakaro nduxa xi’in yau ngichi: [Para comer] se mezcla el trébol con un tipo de sábila [sic] (DUX)

**tindusa: azedera, yerua (TAM) [tindusa]

ñaña: piñuela (PIN) (Bromelia sp., BROMELIACEAE)

**ñaau ndika yuu: la contra hierba; sirve para la epilepsia (TIL) [ñaau ndika żuu]

unidentified species  ñaun / ŋami / ŋawi: águila; ja’un / ŋa’un / tsa’un / xa’un: quince; ndika: mamey, plátano / pecho, chiche / cresta / ancho / ladera; yuu: piedra / testículos / petate (CAB)

**ñuchi: cola de caballo (DAA) *Equisetum* sp., EQUISETACEAE No tiene sabor pues por lo regular se toma acompañada con otras hierbas y es fresca. Crece en la orilla del río, donde hay agua en la ciénaga... Se utiliza cuando sufren de calor, para refrescar el estómago, para reumas y para mal de orines...

**ñuu: palma de soyate (CGM) *Brahea dulcis* (Kunth) Mart., PALMAE

ñuu: palma (OSP)

yuku ñuu: palma (SMG)

yukuñuu: palma (YSN)
Jiin yukuñuu kuu sa’ayo yuu, ndo’o ti lelu: Con la palma podemos hacer petates, tenates y sombreros (YSN)
ñuu kuachi / ñuu yuta / ñuu ñuma: palmito (TAM) [ñuu quachi / ñuu yuta / ñuu ñuma]

si’in ndixi’yu: pata de cabra (TXA) [si’in ntixi’yu] Solanum rostratum Dunal, SOLANACEAE
di’in / ji’in / si’in / xi’in: pierna; ndixi’yu: chivo o caprino en general (CAB) This may be a calque from the Spanish name, which is widespread in Mexico, although it has not been recorded to refer to a Solanum (Martínez, 1979).

ti[y]anda (?) (MXT) [tiantha] Cornus excelsa Kunth, CORNACEAE tianda / yanda: cicatriz (CAB)
ti[y]anda kua’a (?) (MXT) [tiantha cuá’a] Viburnum sp., ADOXACEAE

tikee: planta jabonera (SMG)
tikeye: siempre viua (TAM) [tequeye] These may not be cognates.

tikii (MXT) Echeveria megacalyx E. Walther, CRASSULACEAE tikii: tamal (CAB)

tikuiti yuku: papa montés (COI) Solanum agrimoniifolium Rydb., Solanum stoloniferum Schldl., SOLANACEAE

tikú’u / tikú’u táná: romerillo, planta (SMG) táná: curativo, medicinal

tila’pi (ZAU) [tilahpi] Matelea crenata (Vail) Woodson, APOCYNACEAE [ASCLEPIADACEAE] This plant would be expected to be labeled yiwa, since it is eaten as a quelite (Casas, Viveros & Caballero, 1994: 308)

tsinda’ندز / tsinda’ندز (CGM) Una plantita que se quiebra y tiene leche, y al picarla entre los dos [pedazos] se hace una bolita de chicle. A small herb that contains a latex, which becomes a small ball of chewing gum by breaking the stem and rubbing the ends of the two pieces together. Possibly Asclepias sp., APOCYNACEAE, from which a chewing gum is prepared elsewhere in Coicoyán and probably elsewhere in the Mixteca.

tindii (MXT) [ti ntii] Matelea dictyantha Woodson, APOCYNACEAE [ASCLEPIADACEAE]

tndiyì búrru: un tipo de arbusto silvestre, la gente de la región lo llama ‘buvardía’... buvardia de burro, se llama así porque a los burros les gusta mucho comerlas. Estos arbustos crecen hasta un metro y medio de altura. Dan flores blancas que abren y huelen bonito cuando oscurcece. Al amanecer del día siguiente las flores se cierran, y ya no huelen. Todos los días se abren y se cierran hasta que se marchitan (DUX) The description matches Bouvardia erecta (DC) Standl., RUBIACEAE, which has been recorded in the area. Nani yutnu ya’ a tndiyì burru chi yo ka tna ini burru xa kaxititu. Xa’nutnu in yodo metro: El tipo de arbusto llamado tndiyì búrru se llama así porque a los burros les gusta mucho comerlas. Estos arbustos crecen hasta un metro y medio de altura. (DUX)
tindu’u: amole, jaboncillo (SMG) This may be the same species as CHA yuku tindu’u
tindu’u: amole (YSN)
ndu’u / tindu’u / tinu’u / tindru’u: amole (CAB)

tita’nu (itun) (COI) Polypodium pseudoaureum Cav., POLYPODIACEAE Rizoma molido y aplicado como supositorio es remedio para fatiga extrema; se usa también en el tratamiento de fracturas y en el parto. ta’nu: se va a romper, se va a quebrar (CAB) The tita’nu that grows on trees (itun) is contrasted with the kind that grow on rocks; the two taxa are used to treat different ailments.
tanu ñu’u (MXT) Phlebodium araneosum (M. Martens & Galeotti) Mickel & Beitel, POLYPODIACEAE tanu: soyate / topil / se va a destruir; ta’nu: grande en edad, sabiduría y experiencia / se va a romper, se va a quebrar (CAB)
tanu yutu (MXT) Woodwardia spinulosa M. Martens & Galeotti, BLECHNACEAE

titi sno’o: cerbatana (SOT) [titi sno’o] Saurauia oreophila Hemsley, ACTINIDIACEAE Titi appears to designate edible seeds in this Mixtec variant.
tivíví: tegüísote (SMG) possibly Fourcraea sp., AGAVACEAE
tiwi / tiwi ndayu / tiwi ndasi: césped (TAM) [tehuí / tehuayu / tehudasi]
tixivo: Triumfetta sp., TILIACEAE (KAP) [tishibo]

hsa’an ndiwi [?]: huele de noche (DAA) [t sa’a nd’wi / ti sa’a ndiwi; the latter orthography is recorded in the Mixtec text describing the use of ita mitu] tisa’a: cazo; jia’an / sa’an / tsaa’ / tyaa’ / xaa’: huele; ndivi / ndiwi / ndiwi: huevo; ndivi: guapo, bello, bonito / día, de día / cielo (CAB) The name may be a calque from Spanish. The Flora Medicinal Mixteca de San Pedro Tidaá identifies this plant as Cestrum nocturnum L., SOLANACEAE, but the description of the leaves as small and round and the corollas ‘like a butterfly’ does not seem to match this species: Es una planta de 2 m, su tallo es liso sin espinas. Sus hojas son pequeñas, redondas, con puntas no muy largas…Flores medio amarillas, en su parte baja y medio dulces, el botón es largucho y al abrir es como mariposa… Sirve contra el mal de orines… Aire: se agarran seis o siete varitas y se limpian a personas grandes y niños, se mezcla con ruda, hinojo, mirto, chamizo blanco, hierba de alcanfor, la flor de floribundo se junta se le frota el alcohol y se prende el cerillo y con eso se agarrar y se restriega para que suelte el olor y ya se da la limpia… Se ocupa para barrera, para troncos de terreno, ya que echa mucha raíz.

u’uti [?]: chicle (ZAU) [u uti] Euphorbia macropus (Klotzsch) Boiss., EUPHORBIACEAE This may be a cognate of kutu (copal / chicle) in other dialects.

*wi’nde*: prickly pear (JOS) The contemporary terms derived from this Proto-Mixtec form are often prefixed tun-/tnu-/nu-, as noted in section 4.3
ve’nde: nopal (CGM)
vī’ndia: nopal (XYA)
vī’ndia: nopal (MIC)
  vī’ndia chī idí: un nopal muy espinoso (MIC)
vī’nia: nopales (ZAU) [vihnía] Opuntia spp., CACTACEAE
  vī’nia lakukan: nopal (ZAU) [vih nialacui] Opuntia sp., CACTACEAE lakukan /
  ndikuii / ŋukuii / tyikuili / xikuilo: zorro, zorra (CAB)
vī’ndá: nopal (XOC)
vī’ndia (COI) Opuntia spp., CACTACEAE
vī’nda / vī’ndia / wi’nda: el nopal (CTZ)
mi’ne: nopal (SOT) [min’e] Opuntia spp., CACTACEAE
  mi’ne ŋuyuwi: nopal de zorro (SOT) [min’e ŋungwi] Opuntia spp., CACTACEAE
  nkuii / ŋakuii / xunkuii: zorro, zorra (CAB)
vī’ncha: nopal (SMG)
  vī’ncha sákí: cacto (SMG)
  vī’ncha skóó: nopal redondo (SMG)
vī’ya: nopal (CHA)
  vī’ya iso: nopal de conejo (CHA) Tiene vellito.
  vī’ya sko’o: clase de nopal (CHA)
  vī’ya va’a: nopal de castilla (CHA)
  vī’ya vá’u: nopal de coyote (CHA)
vī’ncha: nopal (YSN)
mi’nde: prickly pear (OSP)
vī’nya: el nopal (SJC)
mi’ndya: el cacto de cualquier clase / la tuna (CHY) [mihndya]
wi’ntsa [?]: Hay en este dicho pueblo, y en muchas partes, otro
  árbol que llaman hunitza, que en mexicano se dice nopale, y en castellano tunal, de
  adonde cogen grana, y tunas coloradas y blancas y amarillas de otro género, y comen
  las pencas cocidas (Nochiztlán is present day Nochixtlán, Oaxaca).
  HAY en este dicho pueblo, y en muchas partes, otro
  árbol que llaman hunitza, que en mexicano se dice nopale, y en castellano tunal, de
  adonde cogen grana, y tunas coloradas y blancas y amarillas de otro género, y comen
  las pencas cocidas (Nochiztlán is present day Nochixtlán, Oaxaca).
  HAY en este dicho pueblo, y en muchas partes, otro
  árbol que llaman hunitza, que en mexicano se dice nopale, y en castellano tunal, de
  adonde cogen grana, y tunas coloradas y blancas y amarillas de otro género, y comen
  las pencas cocidas (Nochiztlán is present day Nochixtlán, Oaxaca).
wi’nda: tunal (TAM) [huinda, attested by the entry penca de tunal: daha huinda / yai huinda]
  mi’nde / mi’ne / mi’ndya / mi’ntsa / mi’ya / nvi’ndya / vi’nda / vi’ndia / vi’ndre /
  vi’ndya / vi’ntsa / vi’ya / wi’nda / wi’nde: nopal (CAB)
  wi’nda / wi’ndia / wi’ndre / wi’ndya / wi’ntsa / vi’ya / wi’nda / wi’nde: nopal (CAB)

vichichi: blijkán / bilihán (PIN) Heliconia sp., HELICONIACEAE Porque allá las hojas
  se ponen cenizos, y con esto antes se hacían las casas. The leaves were used for
  thatching, alternating a layer of straw (zacate del llano) and a layer of Heliconia.
  cha’a: ceniza

vichichi: huichicaca (PIN) Xanthosoma robustum Schott, ARACEAE The leaves are
  used to wrap cheese and other foods to keep them moist and clean.

visi: la hoja de plátano (CHY) [visi] [cognate of PIN vichichi]

vijin jen / vitsin ts’a’a / vityin tya’a: beliján (CAB) [cognate of visi]
vijii / vityi / vixi / vixri / wixi: hoja (CAB)

xímu: planta bromeliácea; magueyita, gallito (SMG) probably Tillandsia sp.,
  BROMELIACEAE

dítu: lama (MIC)
xinqu: lama (SMG)

xinu (MXT) [shinu] Tillandsia plumosa Baker, BROMELIACEAE

ita xinu (MXT) Tillandsia prodigiosa (Lem.) Baker

xinu: heno (CHA) probably Tillandsia usneoides (L.) L., BROMELIACEAE

dinú: un tipo de parásito que invade los árboles (DUX)

- dinú chàá: un tipo de parásito que invade los árboles (DUX) [chàá: gris]
- dinú nda’a ndákû: un tipo de parásito que invade los árboles (DUX)
- dinú ndákû kue’e: bromelia roja… crecen en los árboles… la gente de Tilantongo las ocupa para adornar los altares de los santos (DUX)

dîtnû: alga (DUX)

dîtnu / yudî yutnu: marojo de los arboles (TAM) [dzîtnu / yudzi yutnu] marojo: hojas inútiles o que sólo se aprovechan para el ganado; planta muy parecida al muédago (Real Academia Española, 1992)

dî’itun ndiute / ditnu / sikitun / skitun / xikitun / xitoon: algas (CAB)

xinu: lama o moho (CAB)

yadi ndé’â: un tipo de hierba silvestre y comestible… crece veinte o treinta centímetros de altura. Da una flor roja. Se echan las hojas tiernas, no las macizas, de esta hierba en una olla con agua, chile, sal y ajo. Se hierven hasta que se cuezan, y se comen (DUX)

This plant would be expected to be marked yua. nde’a / nde’e / nde’ña / nde’ya / ne’ya: capulín, cereza (CAB)

yaku: sotol (APO) This may refer to sotolín, Beaucarnea sp., NOLINACEAE.

yata: iú[ñ]co otro á[ñ]cho pero no aspero (TAM)

yisi ñú’ún: anisillo (SMG) ñú’ún: hecho de terreno

yisi: hoja de aguacate (SMG)

yisi: hoja de aguacate (YSN)

Yivi jà ka sa’a jîjnu mani nda’a nuu yisi ka chu’un nava na kuu asun: La gente que hace barbacoa siempre le echa hoja de aguacate para que quede sabrosa (YSN)

Dakée ñådi’i yidi nuu yua títi a nuu yua tayoo xa kidava’aña ndeyu yua: Cuando las mujeres preparan quelites o violetas, ponen hojas de aguacate como un condimento (DUX)

yidji: la hoja de aguacate; la gente usa hoja de aguacate para cocinar con frijol molido (CHY) [yïzi]

yidi no’on: hinojo (TAM) [yedze noho] yidi / yidi: hoja de aguacatal (CAB) no’on:
diente (TAM) [noho]

isi / yede / yisi / yidi / xidî: hoja de aguacatal (CAB)

yodi: iunco o junquillo (TAM) [yodzi]

yóó: reed (ALA)

tonyoó: bamboo (ALA)

yoo tata: carrizo cultivado / carrizo que se cultiva, carrizo doméstico (APO)

danu yoo / yoo ino / yoo dano: caña de poquitoe (TAM) [dzanuyoo / yooino / yoodzano]

The associations with tobacco is evidence that yoo designated Phragmites originally, since smoking tubes made out of that species have been documented archaeologically.
tnuyoo: caña (TAM) [attested by yo tnuyoo / tnuyoiyu: caña hueca]
yoo kuachi / yoo nine: carrizo (TAM) [yooquachi / yoonine]

yotno’o: marojo (TAM) [yo tnoho] [marojo: hojas inútiles o que sólo se aprovechan para el ganado; planta muy parecida al muérgado (Real Academia Española, 1992)]

yuchi: iunco, ancho y aspero (TAM)

yuudi: paxtle (CGM) probably Tillandsia usneoides
yudi (TON) Tillandsia sp., BROMELIACEAE “Son cosas muy pequeñas, ése se da en la rama del mezquite.”
yúdi (MIC) Cuscuta sp., CONVOLVULACEAE
luxu: heno (CTZ)
Nuu yíyo yitun ndii na’nu yíyoní luxu: Donde hay grandes encinos, hay mucho heno (CTZ)
ixi kuii (COI) Lycopodium clavatum L., LYCOPODIACEAE Ornamental para los “nacimientos” en las “posaditas”, fiestas de Navidad. kuii: 'green'
ixi nda itun (COI) Tillandsia usneoides nda’a: 'hand,' itun: 'tree'; nda itun refers to branches
yuxi (MXT) [yushi] Tillandsia usneoides (L.) L., BROMELIACEAE
yuxi: heno, paxtle (SMG)
yúdi: heno (DUX)
yudi chàâ: un tipo de musgo gris (DUX)
yudi kugan: un tipo de musgo amarillo (DUX)
xude: heno (OSP)
yudi: yerua que crian los arboles parda (TAM) [yudzi]
yudi yutnu / ditnu: marojo de los arboles (TAM) [yudzi yutnu / dzitnu] marojo: hojas inútiles o que sólo se aprovechan para el ganado; planta muy parecida al muérgado (Real Academia Española, 1992)
yudi / yuxi: heno o paxtle, planta parasita, vive en la copa de algunos árboles, es de color blanquizco, sirve de adorno en las fiestas (CAB)

yu’u chúan: un tipo de planta... estas plantas no crecen verticalmente, sino que se extienden en el suelo. Dan flores blancas. Cuando estas flores se marchitan, se forma el fruto que se llama chúan. Su tamaño es como el de un chile morrón. Tiene partes verdes y partes blancas. Asamos los chúan en la lumbre y comemos la cáscara y la carne, pero no comemos las semillas (DUX) tyu’u / xu’u / yu’u: boca, orilla, ribera (CAB)]

4.9 The main crops

The long history of agriculture in the Otomanguean region that has been documented by archaeologists, as described in the introduction to this dissertation, seems to be reflected in an extremely rich and diversified terminology for maize, beans and squashes in the Mixtec languages. Following Berlin’s (1992) prediction, these plants of highest cultural salience are
not assigned to any nominal category, for the most part, and are consistently subdivided into a higher number of labeled kinds or varieties than any other botanical taxon. Even the plants that are only metaphorically associated to the Mesoamerican triad dispense with the class terms that might be expected in their nomenclature, as the examples of Conopholis, Dioon and Parasicyos will illustrate.

4.9.1 Maize

*Zea mays* L. (GRAMINEAE) has the most elaborate vocabulary in Mixtec, by far. The numerous types and subtypes of corn that are named in the different dialects will not be presented here, but only the cognate sets for the basic terms will be listed. As might be expected, the forms that have been recorded in the different dialects show greater phonological stability than other plant names.

*itu*: cornfield (JOS)

*itu / itun*: milpa (XOC)

*itu / yitu / yutu*: milpa (CTZ)

*itu*: corn plant (AYU)

*ufu*: cornfield (LAC)

*itu*: maize plant / milpa (COI)

*itu*: milpa, campo (SMG)

*itu*: maíz (SOT) [*itu*]

*ítu*: cornfield (DUX)

*itu*: cornfield (OSP)

*itu*: cornfield (JAM)

*itu*: milpa (SJC)

*itu*: huerta (TAM)

*itu ita*: huerto (TAM) (*ituita*)

*itu nduchi*: hauar (TAM) [*itunduchi*]  This would be *habar* in contemporary Spanish, i.e., ‘faba bean field.’

*iti / itiu / itu / utu / yitu / yutu*: milpa (CAB)

*itu mila* (COI)  unidentified mosses that grow in dense, cushion-shaped clusters

*mila*: ‘lizard’  The implication of the name is that the moss is figuratively the lizard’s milpa.

*itu kuiyo* (JIC)  *Tripsacum* sp., GRAMINEAE  *kuiyo*: roadrunner, the bird *Geococcyx velox*  A myth that was recorded in Copanatoyac Mixtec in Guerrero (*Tno’o savi mixtli*, 1985) dwells on the relationship between *Tripsacum* or teosinte and the roadrunner. [29.]

*itu lasu’un* (MXT) [*hitu lazu’un*]  *Sorghum bicolor* (L.) Moench, GRAMINEAE

*lasu’un / la’un / laxu’un*: corrcamino (CAB)

*itu su’un*: milpa de corrcamino (SOT) [*itu su’u*]  unidentified species, possibly

*Tripsacum* sp. or wild *Zea* sp., GRAMINEAE, a famine food  *du’un / la’un / su’un*: corrcamino (CAB)
ndzidin: elote (CGM)
nzidi: elote (TON)
ndixín: elote (XOC)
ndisi / ndixi: elote (CTZ)
ndixi: elote (COI)
ndixi: elote (SMG)
nyixi: el elote (SJC)
ndixi: el elote (CHY)
ndidi: mazorca ya quajado el maiz (TAM) [dedzi]
dixi / ndede / ndidi / ndidi / ndi / ndxi / ndidi / ndidi / ndixi / ndiri / ndixi / ndyixi /
nsidi / nsixi / nyixi / nxii / tyixi: elote (CAB)

ndixi tikaka: mazorca de cacalote (COI) Conopholis alpina Liebm., OROBANCHACEAE ndixi: elote, tender ear of maize tikaka: crow

tilí'i: elote con unos cuantos maicitos... no lograron llenarse de maiz, se desgranan y se asan al comal, qué ricos son (CTZ)

isá: elotito (XOC)
yisa: jilote, elote aún no cuajado (CTZ)
isa / yisa: jilote (CTZ)
isa: elotillo, jilote (SMG)
ida: mazorca de maiz, antes que quaje el grano (TAM) [ídza]
ida / ija / isa: jilote (CAB)

níi: mazorca (TON)
níi: mazorca (XOC)
níi: mazorca (CTZ)
níi': corn ear (AYU)
níni: mazorca (SMG)
níni da’a: ‘mazorca hijo’, mazorca con cabeza ancha y doble cabeza (APO)
níni ke’en: ‘mazorca varias’, varias mazorcas en una mata (APO)
níni: la mazorca (SJC)
níni: la mazorca (CHY)
níni: mazorca ya seca (TAM) [neñe]
nii / níi / níi / níi: mazorca (CAB)

nií yuku (MXT) [nii yucu / nii yucu] Conopholis alpina Liebm., OROBANCHACEAE The etymology appears to involve nii: mazorca, and yuku: monte, cerro (CAB).

nií ñu’u: mazorca de monte (SOT) This is an unidentified ‘cob’ ingested as a famine food in the lowlands, tentatively assigned by Katz to the PALMAE, but more likely a species of Dioon, ZAMIACEAE. At least one species of that genus has been reported from lower altitudes in the Verde-Atoyac drainage in the southern Mixteca (Chávez et al., 2001; Dioon is notorious for its large cones that resemble maize (called teocinte in Honduras) and yield large, starchy seeds, that can be made into tamales and other
foods if processed properly to get rid of their toxic compounds.

**sañi**: oloTE (CTZ)
**saña**: oloTE (COI)
**sañii**: oloTE (SMG)
**xīñii**: el oloTE (SJC)
**djañii**: el oloTE (CHY) [zañii]
**dañii**: mazorca, el corazón della (TAM) [dzañee]
**dañii / janii / larlii / nsidiin / sañii / sañoo / xiñii**: oloTE (CAB)

Curiously, in the communities in southern Puebla the old term for ‘corn cob’ appears to have been lost, and it is designated ytu nuní, which can be glossed as ‘stick of the maize grains.’

**noni’**: corn grain (JOS)
**nuni**: maíz (TON)
**núñi**: maíz (XOC)
**nuni’**: corn (AYU)
**muni**: maíz (SMG)
**núñi**: corn (DUX)
**muni duku tikaxiki**: maíz envuelto en totomoxtle (APO) dukú: envuelto, tikaxiki: totomoxtle
**nuni**: maíz (OSP)
**núñi**: el maíz (SJC)
**núñi**: el grano de maíz (CHY)
**nuni**: may (TAM)
  **nuni kastiya**: trigo (TAM) [nuni castilla] ‘Castilian maize,’ i.e., wheat
  **nuni kuisi**: mayz blanco (TAM) [nuni cuisi]
  **nuni kuisi kastiya**: arros (TAM) [nunicuisicastilla] rice
  **nundoko / nuni vuju tiido’**: cuauad (TAM) [nundoco / nunicuviutedzoho] barley
**noni / nuni / núñi / nñi**: maíz (CAB)

**viu**: cuando apenas está naciendo la milpa (MIC)
**wiyi**: milpitas de 20 cm (CTZ)
**viu**: milpitas (SMG)
**vi**: milpitas recién germinadas (CAB)

**náma**: totomoxtle (CGM)
**náma**: totomoxtle, hojas de mazorca (CTZ)
**náma / ndoko náma**: el totomoxtle (SMG)
**yama**: el totomoxtle, el rastrojo (SJC)
**náma**: el totomoxtle (CHY)
**náma**: el rastrojo, el guamil (CHY) [nàmà] This and the previous term are distinguished tonally.
**náma**: caña de mazú seca (TAM)
**dama / náma / náma nii / xama / yama**: totomoxtle (CAB)

**tika xiki**: totomoxtle (CAB)
vixi niñi: *totomoxte* (CAB)

*ndoo*: cane (JOS)

ndoo: *caña* (CTZ)

Xina’an vixiní nixiyo ndoo yutu, chi un nixitaanna tatan xa’a yutu: Antes eran muy dulces las cañas de la milpa, porque no le echaban abono a la milpa (CTZ)

ndoo: *sugarcane* (AYU)

ndoo: *caña* (SMG)

 tnúndóó kaxtíla: *caña de azúcar* (DUX)

ndoo: *la caña de azúcar* (SJC)

ndoo: *la caña de azúcar* (CHY)

ndoo: *caña de comer* (TAM) [doo]

ndoo kusa / ndoo tu’u: *caña sin mazorca* (TAM) [doo cusa / doo tuhu]

ndoo tnami: *caña de mayz elada* (TAM) [dootnami]

ndoo wídi: *caña dulce* (TAM) [doohuidzi]

ndoo / noo: *caña* (CAB)

*yawá*: *rastrojo* – cornstalk (JOS)

toñama: *zacate* (NGO) [ton ñama] The context in which this term is quoted in the publication makes clear that it refers to dried maize stalks and leaves, rather than grass.

nuñáámá: *caña seca del maíz* (SMG)

tama / tiama / tiñama / tyama / nuñama / tnoñama / tnoyama / tnuñama / tonñama /
totama / tunñama / tnyama: *cañuela, rastrojo* (CAB)

nayama / ñama: *cañuela, rastrojo* (CAB)

 tixanda ñama: *cañuela, rastrojo* (CAB)

 tnundoo ñama: *cañuela, rastrojo* (CAB)

Communities in southern Puebla seem to have lost again a reflex of this Proto-Mixtec form; in Chigmecatitlán we were given *lastruju* for *rastrojo*, and in Micaltepec the equivalent term is *itia*, the same as ‘grass.’

ndió’: *zacate* (XOC) This refers to green maize foliage used as fodder.

Chikaa ndió’o nuú burro ná kuxiri chi t’a’an kuxiri: Échale zacate al burro porque no ha comido (XOC)

nda’a yo’o: *zacate de la milpa* (CTZ)

ndayó’o: *zacate, maloja* (SMG)

na’a yo’o / nda’a yo’o / ndiyo’o / ndra’a yo’o / ndyo’o: *zacate* (CAB)

yate: *cabellos de elote* (NGO) ‘corn silk’ Sirve para los riñones, el mal de orines y dolor en el vientre: se prepara el té con los cabellos de un jilote... También se comen hervidos con los elotes... (NGO)

chete ití: *cabello de mazorca* (SMG)

diète / stiatsa / tiete / tiyate / tyate / tyete / xiyati / xiyatya / yata / yate / yete: *cabello de elote* (CAB)

*yoko*: *espiga* – tassel (JOS)
4.9.2 Beans

As mentioned in the third chapter of this dissertation, in some Mixtec dialects there is a set of basic terms for maize distinguished by vowel harmony, as illustrated by the following forms:

\[
\text{nuni} / \text{níi} / \text{nzídi} / \text{itu} / \text{viu} \quad \text{(MIC)}
\]

There is a matching set of terms for beans with a harmony of high vowels and an alternation of consonants:

\[
\text{nduchi} / \text{ndichi} / \text{yuva chichi} \quad \text{(COI)}
\]

The meaning of these terms will become clear in the following sets of cognates, which confirm the tendency for high V harmony in other variants of Mixtec:

\[
*\text{duti'}: \text{bean (JOS)} \\
\text{nduchi}: \text{frijol (CGM)} \\
\text{nduchi}: \text{frijol (XOC)} \\
\text{nduchi nduu}: \text{ayacote (XOC)} \quad \text{Phaseolus coccineous L., LEGUMINOSAE} \\
\text{nduchi} / \text{nduchu}: \text{frijol (CTZ)} \\
\text{nduchi'}: \text{beans (AYU)} \\
\text{nduchu}: \text{bean (LAC)} \\
\text{nduchi}: \text{frijol (SMG)} \\
\text{nduchi xá’án}: \text{higuerrilla (SMG)} \quad \text{Ricinus communis L., EUPHORBIACEAE} \\
\text{nduchi stila}: \text{haba (YSN)} \\
\text{nduchi tluu}: \text{chicharo, arveja (YSN)} \\
\text{nduchi}: \text{legume (DUX)} \\
\text{ndutsi}: \text{beans (OSP)} \\
\text{ndutyi}: \text{el frijol (SJC)} \\
\text{ndutyi}: \text{el frijol (CHY)} \\
\text{ndutyi ňu’u}: \text{el cacahuate (CHY)} \quad \text{[ndutyi řusu]} \\
\text{nduchi}: \text{frisoles (TAM) [duchi]} \\
\text{nduchi kuachi / nduchi tiyadi}: \text{lantejas (TAM) [duchi quachi / duchi teyadzi]} \\
\text{nduchi na’nú / nduchi none}: \text{haua (TAM) duchi nanu / duchi none} \\
\text{nduchi tinduu}: \text{arveja (TAM) [duchtinduu] satinduu: esphera, o espherica cosa}
The reflex for this Proto-Mixtec form is again lost in southern Puebla, where we found what looks like a borrowing from the Náhuatl *exotl* via Spanish:

**nduchi yote: ejote, acá se come pero ya macizo (CGM)**

The same dialect does share with other areas a form which was not reconstructed by Josserand, and which distinguishes the bean plant, marked by the class term ‘herb’ in some variants and by ‘quelite’ in others:

**yuku xichi: guía de frijol, acá no se come (CGM)**

**yúkú xíchi ndúchí: legumbres (DUX)**  Kuiper lists several types, including the following:

- **yúkú xíchi ndúchí nda’a viú:** un tipo de frijol con ejotes negros y largos… Este frijol se siembra con la milpa para que se pueda enredar alrededor de ella (DUX)

This highly specific designation incorporates the term viú for newly germinated maize plants.

- **yúkú xíchi ndúchí téyú:** un tipo de frijol (DUX)  
  téyú: banco, sill (CAB)

- **yúkú xíchi ndíiyí:** un tipo de frijol silvestre, comestible, literalmente ‘herba del surco de muerto’, la gente de la región lo llama ‘frijol de muertos de surco’…
  Produce frijoles negros, pintos, blancos y amarillos. Las mujeres cortan los ejotes… de sus guías. Los abren, y los frijoles salen de sus vainas. Ponen una olla al fuego. Echan agua adentro de la olla y los frijoles, hierba santa, ajo, sal y chile. Los cuecen media hora. También las flores son comestibles (DUX)

**sichí / yuku sichí: frísoles cuando empiezan a salir (TAM) [sichí / yucusichí]**

**yuku ítyí / yuku jítyí / yuku ndutí / yuku tsítyí / yuku tyítyí / yuku xítyí / yuku xíxi / xkundutsí:** frijolar (CAB)

**yíva tyítyí / yíva ndítyí / yíva tyítyí / yíva tyítyí:** frijolar (CAB)

The coastal dialects, which refer bean plants and other crops to the nominal category labeled yo’o, do not share a cognate of chichi / sichí / xichi:
yo’o nduti tún: frijol negro (PIN)  Phaseolus vulgaris L., LEGUMINOSAE
yo’o ndúyí: el bejuco de frijol, la mata de frijol (SJC)

There may be a fourth term in the set nduchi / ndichi / chichi, which is poorly documented, however. Caballero (2008) cites the forms ita kuityi and yi’i, flor del frijolar, and tnukuityi, frijolar; unfortunately, as in all entries in his dictionary, there is no information on the provenience of these terms. Dyk & Stoudt (1973) provide what seems to be a specific name for the flowers of the scarlet runner bean, a distinct species domesticated in Mesoamerica:

ita ji’í: flor de frijolón (SMG)

In analogy with the term viu for maize seedlings, Diuxi Mixtec has an equivalent for bean sprouts:

chjitútnu: la planta de frijol negro cuando apenas brota o germina (DUX)
  tnuu / tuun: ‘black’

4.9.3 Squashes

Vowel harmony also characterizes the main terms relating to the species of Cucurbita that are cultivated in different areas of the Mixteca:

*yikí’: squash (JOS)
 jkin: calabaza (CGM)
 jkin: calabaza (XOC)
 yikin / yijin / ñijin: calabaza (CTZ)
 yikí: calabaza (CHA)
 sìkin: calabaza (OSP)
 yikin: la calabaza (SJC)
 yikin: calabaza (TAM) [yeq]
 jkin / nikin / ñikin / xijin / xikin / yijin / yikin / yikun / yikin: calabaza (CAB)

Cucurbita pepo L. subsp. pepo, called huicha or huiche in Oaxaca, is distinguished as the ‘thorny squash’ in the few Mixtec dialects for which we have a specific designation:

yikin ñú: calabaza (SMG)
 yíki ñú: calabaza (CHA)
 yikin ñú: huicha (YSN)

Cucurbita moschata (Duchesne ex Lam.) Duchesne ex Poir, called támala in Oaxaca, is related etymologically to the sweet potato, or qualified as the yellow squash:

kiá’mi: tamalayota (XOC)
 yíkin ña’mu: támala (YSN)
 yíki kua’á: la calabaza (CHY) [yiquí cuaha]
 yikin ña’mi: calabaza grande amarilla (TAM) [yeqñami]
ikiñ ña’mi / jia’mi / xikin a’mi / yijin ña’mi / yikin ña’mi / yikin ya’mi / yijin ña’mi / yijin ya’mi / yikin ña’mi / yikin ña’ma / yikin ña’mi / yikin ya’mi: támala (CAB)
yikun kuan: támala (CAB)

Cucurbita ficifolia Bouché, called chilacayote in Mexico, is marked as a squash in some Mixtec dialects, while in others it is not preceded by the class term yikin:

_tinduyú_: chilacayote (XOC)
tinduyu: chilacayote (CTZ)
tinduyu: silacayote (COI)
yikin tinduyu: chilacayote (SMG)
tinduyu: chilacayote (CHA)
yikin tinduyu: chilacayote (YSN)
tinduyu: calabaza blanca y redonda (TAM)
nduxiu / nduyu / tenduyu / tindruyu / tindui / tinduyu / tinuyu / tinduyu / tsinduyu /
tunduyu / tyinduyu / xinduyu: chilacayota, chilacayote (CAB)

A wild cucurbit that is endemic to the Mixteca is referred to the latter nominal group in San Juan Mixtepec:

_tinduyu ko’o [?] (MXT) [tintuyu co’o] Parasicyos dieterleae R. Lira Saade & R. Torres Colín, CUCURBITACEAE  koo: serpiente, víbora; ko’o: plato (CAB)

Cucurbita argyrosperma Huber, called pipiana, has been rarely recorded in Mixtec lexicography:

tinoo: la calabaza pipiana (CHY)
yikin tinuu: calabaza larga lisa (TAM)

A few Mixtec names have been recorded for other kinds of squash, but there are probably other terms to distinguish the different species and landraces:

_yíki ña’u_: calabaza de tierra caliente (CHA)

Squash seeds receive a specific denomination in some dialects:

_tskin_: semilla de calabaza (CGM)
_tsitin / tyikin / tytitin / xini yikin_: ‘semillas de calabaza, támala, sandía, chilacayote, melón’, pepitas (CAB)

In other areas, the cognate seems to designate a broader group of seeds, and _iki_ is used as an epithet to specify cucurbits:

_chiti iki_: pepita de calabaza (PIN)

A term that appears to have focused on amaranth historically has come to designate a larger category of seeds in some dialects, including squash _pepitas_: 
Squash blossoms, a highly valued food in Mesoamerica, receive a specific name in Mixtec:

**vayá**: *flor de calabaza* (CGM)
**vàvà / yàvà**: *flor de calabaza* (XOC)
**vaya / yita waya**: *flor de calabaza* (CTZ)
**tívayá**: *flor de calabaza* (SMG)
**tívaya / ita yikín**: *flor de calabaza* (YSN)
**tivuaya / ita vuaya**: *flor de calabaza* (TAM)
**ita vaya / ndivaya / tavaya / tivaya / tivea / tivey**: *flor de calabaza* (CAB)

In some dialects, squash flowers are designated with the term that is reserved for the plants of squash and chayote (*Sechium edule* Jacq.) Sw., CUCURBITACEAE:

**ita ta’yi**: *flor de guía de calabaza* (SOT)
**ita tye’e**: *la flor de calabaza* (CHY) [ita tyehe]

*Guías*, the tender stems and leaves of squashes and chayote, are also eaten commonly in southern Mexico and may have motivated the development of a distinct term for the vegetative structure of these species, which in some dialects seems to have acquired later a broader denotation:

**tee**: *guía de cualquier planta que se extienda* (CGM)
  **numá tee**: *guía de calabaza* (CGM)
**yo’ó te’e nañá**: *bejucu de chayote* (XOC)
**te’e yikín**: *guía de calabaza* (CTZ)
  **te’e nañá**: *guía de chayote* (CTZ)
  **Yasinní nuu te’e yikín á te’e naña kaxí yo**: *Es muy sabrosa la guía de calabaza o de chayote para comer* (CTZ)
**ta’í**: *guías de calabaza* (SMG)
**tnúte’e**: *calabaza* (DUX)
  **te’e yijín**: *calabaza* (DUX)
  **te’e tndúyú**: *chilacayoterá* (DUX)
**tye’e**: *la mata, la planta de bejucos u otras plantas que tienen guías y se extienden por el suelo* (SJC)
  **Kuiya vityin kua tatsiyu kua’á tye’e yikín**: *Este año voy a sembrar muchas calabazas* (SJC) [Cuiya vityin cua tatsi yu cuaha tyehe yiquin]
**ndu’u ta’í**: *mata de calabazas* (TAM) [duhu tahi]
  **yutnu nda’ya yo’o / ta’í tnunda’ya yo’o**: *vid* (TAM) [yutnundaya yoho / tahi
  **tnundaya yoho|tnute’e**: *guía de calabaza* (CAB)
**ste’e / ta’a / ta’yi / te’e / tye’e**: *guía de calabaza* (CAB)
5. Conclusion: the geography of quelites and flowers

The previous section of this dissertation has documented how nominal markers serve to generate a major portion of the plant lexicon in the Mixtec languages, and how the categories labeled ‘flower’ and ‘edible green,’ among others, can encompass a substantial number of the terms that designate species that might be expected to be assigned to differing life-form categories in Berlin’s (1992) interpretive framework. This final chapter is focused on a geographic pattern that becomes evident in the lexical data that have been presented. The occurrence of the two labeled groupings ‘flower’ and ‘quelite’ in the botanical nomenclature of other Mixtecan and Otomanguean languages, as well as in neighboring linguistic families, is charted on a map to show that the classificatory features found in Mixtec are not unique and have a wider distribution in Mesoamerica.

5.1 Spatial distribution of the yuva and nduva class terms

Among the nominal categories presented in chapter 4, the class labeled quelite (‘edible green’) appears to be the most variable across the Mixteca. Some dialects attest to an additional nominal grouping to distinguish greens eaten raw, while other variants seem to dispense with the category altogether, labeling all taxa involved as yuku, the generic term that can be glossed roughly as ‘herb’. Figure 8 shows the spatial distribution of three lexical patterns in Mixtec plant nomenclature:

1. dialects which distinguish raw (nduva) and cooked (yuva) quelites
2. dialects which label edible greens in general as yuva
3. dialects which lack the nominal category yuva and label quelites as yuku

Omitted from the map in figure 8 are the localities for which we have insufficient information, such as Ayutla and Silacayoapan. It should be pointed out as well that some dialects that lack the yuva marker do show some terms that are labeled nduva, e.g., nduva ndoo (Piper auritum) in Nuxaá and ndua ndudu (Porophyllum sp.) in Apoala, but the data at hand are insufficient to determine how widespread this fourth nominal pattern might be.

The available information indicates that the presence or absence of the two classes of quelites does not correlate with the linguistic history of Mixtec, as reflected in the dialect areas defined by Josserand (1983) on the basis of phonological features. Among the variants that show the *tVn > tnV and *s > d developments that characterize the Mixteca Alta in general, and the eastern Alta in particular, some dialects like Diuxi and Huitepec distinguish raw and cooked quelites, while others like Apoala, Nuxaá and Peñoles lack the yuva marker altogether. In the western Alta, San Miguel el Grande, Chalcatongo and Yosondúa belong to the first grouping in figure 8, while Yosotato falls into the second pattern. In the Mixteca Baja, all the variants in Puebla for which we have data (Chigmecatitlán, Xayacatlán, Tonahuixtla and Micaltepec) make the yuva vs. nduva distinction, whereas the Baja dialects in Oaxaca (Coicoyán) and Guerrero (Alcozauca, Coatzoquitengo, Jicayán, Yoloxóchitl) do not show any plant terms labeled nduva, except for Leucaena and its close relatives in some variants. San Juan Mixtepec, which shares with the coastal area the *j > ch development and is thought to have been the original
Figure 8: The class terms for quelites in the Mixtec dialect areas
- localities where *nduva* and *yuva* are attested
- localities where all greens are labeled *yuva*
- localities where quelites are labeled *yuku*
homeland of the people who colonized the Pinotepa – Jamiltepec – Tututepec area, distinguishes raw and cooked quelites, whereas all the dialects on the coast that have been documented (Pinotepa Nacional, San Juan Colorado, Chayuco) lack the nduva group.

In view of this distribution, and given the fact that the closest relatives of Mixtec (Cuicatec and Trique) both show a quelite class term that labels the majority or all of the taxa of edible greens, it seems tenable to propose that Proto-Mixtec had a nominal category labeled with a term that gave rise to iva / yeva / yiva / yiwa / yua / yuva / yuve / yve and other reflexes. The dialects in part of the eastern Mixteca Alta must have lost this term, perhaps due to a semantic shift of the type mentioned in section 4.6, and the plants formerly labeled with it were subsumed under the category marked yuku. The other Mixtecan languages besides Mixtec do not seem to show a raw and cooked opposition in their plant terminology, which appears to be unique to the central and northwestern Mixteca. If the development of the ndV / yV correspondence from allomorphs marking possession in Proto-Mixtecan nouns holds true, as proposed by Swanton and DiCanio (2009, personal communication), the origin of a nduva grouping must be early, and its presence in most of the Alta and the northern Baja would represent a retention, rather than an innovation. In this interpretation, the designation of Leucaena as the sole referent of nduva in the southern Baja and Guerrero would be a secondary development, after the cognate of neta / ndete had been dropped. I had proposed earlier that Leucaena had served as a prototypical species to generate the nduva nominal category by polysemy (de Ávila, 1993), an interpretation that I have revised. The fact that some eastern Alta dialects show a grouping labeled nduva, even though yuva is absent from their plant lexicon, seems to be consistent with an early origin of the ‘raw’ category.

5.2 Botanical class terms in other Mesoamerican languages

In previous works (de Ávila, 2004; de Ávila, in press), I have discussed the presence of class terms in plant nomenclature in the languages of Mexico and northern Central America that have been sufficiently documented. Figures 9 and 10 summarize the results of those surveys, including research in progress that we have initiated on other languages in Oaxaca. The map in figure 9 shows the distribution of localities where a nominal category of quelites has been recorded, representing all of the linguistic families of Mesoamerica for which we have found adequate data. The map in figure 10 presents the distribution of languages with a nominal category that marks flowers. Both maps distinguish three types of occurrences:

1. languages where the majority or all the edible greens or perceptually salient blossoms appear to be named with terms that incorporate a label that is specific for that semantic category

2. languages where some edible greens or flowers are named with such labeled terms, while the majority seem to be designated by either simple or unproductive primary names, following Berlin’s (1992: 27-28) definition

3. languages where a quelite or flower class term has not been recorded
Figure 9: Distribution of the class term for quelites in Mesoamerica
- Localities where the majority of edible greens are labeled with the class term
- Localities where some edible greens are labeled with the class term
- Localities where the class term has not been recorded
Languages and localities:

1. Seri: Punta Chueca, Sonora
2. Northern Tepehuan: Nabogame, Chihuahua
3. Huichol: San Andrés Cohamiata, Jalisco
4. Northern Pame: La Palma, municipality of Tamasopo, San Luis Potosí
5. Huastec: Tancanhuitz (Ciudad Santos), San Luis Potosí
6. Chichimec Jonaz: Misión de Chichimecas, San Luis de la Paz, Guanajuato
7. Southern Pame: Jiliapan, Hidalgo
8. 17th century Otomí: Ixmiquilpan, Hidalgo
10. Totonac: El Tajín, Veracruz
11. Sierra de Puebla Nahuat: Cuetzalan, Puebla
12. 16th century Purépecha: Tzintzuntzan, Michoacán
13. Mazahua: San Francisco Mihualtepec, State of Mexico
14. Matlatzinca: San Francisco Oxtotilpan, State of Mexico
15. 16th century Nahual: Mexico City
16. Cuitlatec: San Miguel Totolapan, Guerrero
17. Balsas Nahual: Xalitla, Guerrero
18. Balsas Nahual: Ameyaltepec, Guerrero
20. Tlapapec: Malinaltepec, Guerrero
21. Amuzgo: San Pedro Amuzgos, Putla, Oaxaca
22. Chatino: Tataltepec de Valdés, Juquila, Oaxaca
23. Chatino: Panixtlahuaca, Juquila, Oaxaca
24. Trique: San Juan Copala
25. Ixcatec: Santa María Ixcatlán, Teotitlán, Oaxaca
26. Popoloca: San Juan Atzingo, municipality of San Gabriel Chilac, Puebla
27. Comaltepec Chinantec: Santiago Comaltepec, Ixtlán, Oaxaca
28. Sierra Juárez Zapotec: Atepec, Ixtlán, Oaxaca
29. Mixtepec Zapotec: San Pedro Mixtepec, Miahualtán, Oax.
31. Mitla Zapotec: Mitla, Tlacolula, Oax.
32. Oaxaca Zoque: San Miguel Chimalapa, Juchitán, Oax.
33. Francisco León Zoque: Francisco León, Chiapas
34. Chiapanec: Chiapa de Corzo, Chiapas
35. Tzeltal: Tenejapa, Chiapas
36. Pipil: Cuisnahuat, Departamento de Sonsonate, El Salvador
Figure 10: Distribution of the class term for flowers in Mesoamerica
- Localities where the majority of taxa are labeled with the class term
- Localities where some of the taxa are labeled with the class term
- Localities where a class term has not been recorded
A well defined pattern can be discerned in figures 9 and 10, which show a greater incidence of both class terms in the central area of Mesoamerica. Towards the north, a progressive decrease of their frequency is relatively well documented in the sources we have reviewed. A large gap persists towards the south: there is little ethnobiological information available on the Mayan languages of Guatemala. The documentation is even more limited for Sutiaba and Mangue, extinct languages of Otomanguean stock. We have not found adequate information for the Jicaque languages of Honduras, the Misumalpan languages within the conventional borders of Mesoamerica, or the Xinca and Lenca languages, small, isolated families in southeastern Guatemala, northern El Salvador, and southern Honduras that have recently become extinct (Campbell, 1997).

Nicholas Hopkins (1987), summarizing the studies on the classification of plants in Mesoamerica that had been published to date, suggested that: *Es de esperarse que en un área cultural donde otros sistemas (términos básicos de color, números, etcétera) son comunes entre miembros de familias lingüísticas distintas, la ciencia botánica también sería común.* ['It is to be expected that in an cultural area in which other systems (basic terms for colors, numbers, et cetera) are common among members of distinct linguistic families, that botanical science would also be shared.'] The class terms that are so salient in plant nomenclature in the Mixtec languages, which we can now compare with the botanical lexicon of other peoples in Mesoamerica, contradict that expectation. They reveal that the classification systems created by human beings are more diverse than expected and that they merit renewed theoretical discussion.
NOTES:

[1.] De los Reyes (1593) and other early sources cite Ñudzavui as the Mixtec people’s name for themselves, composed of ñuu ‘town, people’ and Dzavui ‘rain,’’ both as a physical phenomenon and as a deity. The cognate term Ñuusavi and other related forms are still used today as a self-designation by Mixtec speakers in various areas of their territory (INALI, 2007), but people in Coicoyán de las Flores, where I did most of my field work, refer to themselves as Nanda’vi, ‘the poor ones,’’ and call their language Tu’un nda’vi, ‘the poor word.’ De León (1980) reports teda’abi as the gloss for ‘Mixtec man’ in San Jerónimo Xayacatlán; she interprets the etymology as ‘hombre de limpia expresión,’ ‘man of clean expression,’ i.e., clear speech. The phonological similarity of Ñuusavi to Nanda’vi and teda’abi suggest that the latter terms arose as folk etimologies. Nevertheless, Savi retains its full meaning (rain and rain-god) in Coicoyán. Other self-designations that have been recorded for the language include Sáin Sau (Macaulay, 1996), Ña Ma Va’a and Snuu Vico (INALI, 2005).

[2.] Náhuatl, a member of the Uto-Aztecan family, was spoken until recently in an area of coastal Guerrero surrounded by Mixtec, Tlapapec and Amuzgo communities. In the 1970s, Lastra’s (1986) collaborators surveyed the language as it was spoken by elders in three communities in the municipalities of Ometepec, Azoyú and Cuautépec, showing considerable divergence from the variants of the upper Balsas and the region known as La Montaña in eastern Guerrero north of the coast. Furthermore, they documented significant dialectal variation between the three communities, which would indicate Náhuatl had occupied that enclave in southwestern Mixtec territory for a long time. More recently, a different dialect of Náhuatl, called mexicano pastor, that appears to have originated in the vicinity of Santa María la Alta in the Tehuacán Valley in southern Puebla (Hvilshøj, 2004), spread over several communities in the Mixteca Baja of northwestern Oaxaca, the districts of Putla and Jamiltepec on the coast, and the mountains and coastal plain of eastern Guerrero in tandem with the development of travelling haciendas of goat-herders during the 18th and 19th centuries (Mouat, 1980). Today, Pastor Náhuatl is dying out, even as Mixtec remains vital in some of the same communities. Besides Náhuatl, there are two other linguistic enclaves within Mixtec territory, Triqui and Amuzgo, which belong to the Otomanguean family.

[3.] Kaufman (1990: 99-100) notes that /*r/ may have actually been /θ/, and that /*p/ is “rare or nonexistent.” His reconstructed syllable has the shape (H)(n)C(y)V(V)(n)(h)(’), where H stands for the laryngeals /”/ and /h/. Every syllable begins with some consonant, which can include H and N (the nasals /n, m/). “The preconsonantal nasal, written <n>, is homorganic to what follows: before laryngeals it is apparently [n]. Vowel clusters are monosyllabic following diphthongs. The diphthongs are written as such because /Vy/ and /Vw/ sequences would be ambiguous for inserting syllable boundaries, and no semivowel corresponding to /a/ is available or otherwise needs to be reconstructed. Disyllabic strings must have a consonant between the two syllabic nuclei.”

[4.] Greenberg (1987) grouped Tlapapec and Sutiaba into his Hokan “subgroup” of “Amerind” (following Sapir’s 1925 paper linking Sutiaba with Hokan), but Campbell (1988) objected specifically to the removal of Sutiaba-Tlapapec from Otomanguean, upholding Jorge Suárez’ opinion, who had related that lineage to the family and had excluded Huave. Rensch
had reconstructed the phonological system of Proto-Otomanguean based on languages representing all the other branches of Otomanguean. He did not dismiss the inclusion of Tlapanec-Sutiaba and Huave in Otomanguean, which other authors had proposed, but considered that there was not enough information on these languages to incorporate them into his study. Rensch (1976) points out that Greenberg had singled out Otomanguean for a word of caution within his Amerind stock: “Among the groups listed here only Otomanguean ... is considered at all not likely to belong to this great family” (Greenberg, 1960, p.791). The latter was to acknowledge Rensch’s work later, which made unnecessary for him what he referred to as “the daunting prospect of a general internal comparison of Oto-Mangue” (Greenberg, 1987: 123). In light of these comments, one is led to wonder how Greenberg would have taken Rensch’s intent to classify Tlapanec-Sutiaba in Otomanguean, had Rensch had the data for Tlapanec that Suárez later published. This does not seem to be a trivial detail, since the affiliation of Tlapanec in Otomangue would place it into an altogether different branch of Amerind in Greenberg’s scheme: he considered Otomanguean to be part of his “Central Amerind subgroup,” separate from the Hokan branch.

[5.] Josserand (1983: 450) presents a preliminary estimate of 2300 years of divergence between the variants spoken in Zapotitlán Palmas in the Mixteca Baja and San Miguel Sosola in the eastern Mixteca Alta. The temporal estimates cited in this dissertation are based on the lexicostatistic or glottochronological method, which uses lexical similarities between related languages to calculate the time that has elapsed since the ancestral language was spoken which gave rise to them, assuming a constant rate of change. All the premises that sustain this method have been questioned (Campbell, 1997: 210), and the reliability of the resulting dates is dubious, but some linguists continue to use them as a measure of the degree of internal differentiation in any given family (Smith Stark, 2004, personal communication), lacking more robust alternatives for quantification.

[6.] Chiapanec and Mangue are outliers: “they originally must have been located somewhere within the area outlined by the rest of the stock... Given that the Mangues were also known as Chorotegas (Nahua /cholol-te:ka-h/ ‘people from /cholol-la:n/’; /cholol-la:n/ is Cholula) it seems feasible to locate the Manguean homeland in the valley of Puebla, whose main center was Cholula.” (Kaufman, 1990: 98).

[7.] Longacre’s Mixtec data were recorded in San Miguel el Grande and San Estebal Atatlahuca in the Tlaxiaco district in the western Alta, Santa María Jicaltepec in the Jamiltepec district on the Coast, Xayacatlán in the northern Baja in Puebla, and Metlatónoc in the upper “Montaña” of Guerrero.

[8.] Josserand’s (1983: 470) map is quite distorted geographically, especially with regards to the location of the southwestern dialects on the coast of Guerrero. She probably intended the map to be a didactic model, rather than an accurate portrayal of Mixtec territory. Besides its geographic inaccuracy, however, her map marks Mixtec presence in two large areas where it has not been spoken recently, and may never have been: the Tlapanec territory, which separates the Mixtec enclave in the municipality of Ayutla de los Libres from the communities further east in Guerrero; and the former Choholtec polity in the districts of Coixtlahuaca and northern Teposcolula in Oaxaca, which separated the Eastern Alta dialects from northern Baja Mixtec in southern Puebla. Furthermore, Mixtec does not appear to have been present, as
Josserand’s map indicates, in the area connecting the Eastern Alta variants with the Mixtec enclaves in Mazatec (Coatzospan) and Cuicatec (Cuyamecalco, Santa Ana Cuauhtémoc, San Miguel Santa Flor) territories. These shortcomings have been corrected on the map in figure 3, which remains a tentative approximation to a complex and still insufficiently documented linguistic reality.

[9.] The plant names that we have recorded in Santa María Chigmecatitlán (Ordaz Peregrina et al., 2009), Santo Domingo Tonahuixtlá (Ovando López et al., 2009), and San Jerónimo Xayacatlán (Santiago Martínez et al., 2009) in the upper Balsas drainage, confirm the northern distribution of the */stV/ > /tnV/ innovation (V = nasal vowel, transcribed as <Vₙ> in the practical orthography developed by Ve’e Tu’un Savi, 2007). This phonological change does not appear to be present, however, in El Rosario Micaltepec in the same region (Gil Guadalupe et al., 2009).

[10.] The botanical terminology we transcribed in four communities around Acatlán de Osorio in southern Puebla in 2009 again confirms the presence of the */s > ð/ innovation.

[11.] The Relación de Cuilapa of 1581 states that the Mixtec people who lived had come from a specific area of the Mixteca Alta: La gente deste pueblo no tiene su nación y origen, ni su nacimiento, en este pueblo, porque son advenedizos… Estos indios son naturales de la Mixteca, que llamamos Alta… Vinieron estos indios de unos pueblos de la Mixteca que llamamos las Almoloyas, tierra muy áspera y fragosa, por ciertos casamientos que hubo en diferentes tiempos, y esto, ha más de trescientos años. “The people of this town do not have their nation and origin, nor their birth, in this town, because they are newcomers… These Indians are native to the Mixteca, which we call High… These Indians came from some towns in the Mixteca which we call the Almoloyas, a very harsh and broken land, because of certain marriages which took place at different times, and this happened more than three hundred years ago.” (Acuña, 1984, vol. I: 178)

[12.] A statistical model derived from phylogenetic studies has recently been applied to historical linguistics, in an effort to overcome the limitations of the glottochronological method in order to obtain more precise estimates for the dates of divergence of the main branches of the Indoeuropean family (Gray & Atkinson, 2003). The results, which are not accepted by all specialists, indicate that the diversification of Proto-Indoeuropean occurred some 3000 years earlier than is commonly held, and they bolster the hypothesis that the expansion of that family is linked to the diffusion of agriculture outwards from the Middle East and Anatolia. It is to be pointed out that the conventional time frames estimated for the Otomanguean and Indoeuropean languages are quite similar, on the order of 6000 to 7000 years. The linguists who have worked on Proto-Otomanguean, furthermore, pride themselves on the completeness and accuracy of their reconstructions, which rival the depth of Proto-Indoeuropean (Campbell, 1997: 157). We can envision that the new dating techniques will shift the initial split in Proto-Otomanguean closer to the period when the first evidence for plant domestication comes up in the archaeological record.

[13.] The full quote: “L'étude des systèmes de classification non occidentaux est une branche de l’ethnologie qui a connu un destin singulier. Enterprise par les grands maîtres il y a trois-
quarts de siècle, elle demeura longtemps en veilleuse en raison des conclusions mêmes de leurs recherches, marquées au coin de l’évolutionnisme triomphant: la pensé des primitifs était aussi indifférenciée que leurs structures sociales (Durkheim et Mauss 1901-1902).

[14.] To choose a Mesoamerican species that will be referred to repeatedly in later sections, ‘buttercup tree’ is the English name for Cochlospermum vitifolium (Willd.) Sprengel, in the family Bixaceae.

[15.] Grammaticalization refers to the diachronic conversion of nouns or verbs into auxiliaries, case markers, inflections or connectives; along this process, a term loses gradually its original lexical content and acquires an increasingly grammatical function (Heine, et al., 1991).

[16.] It seems valid to generalize Macaulay’s (1996) observations on Chalcatongo Mixtec morphology to other variants that have been sufficiently well documented: Alacatlatzala (Zylstra, 1991); Atatlahuca (Alexander, 1980); Ayutla (Hills, 1990); Coatzospan (Small, 1990); Díuxi-Tilantongo (Kuiper & Oram, 1991); Jamiltepec (Johnson, 1988); Jicaltepec (Bradley, 1970); Ocotpecc (Alexander, 1988); Peñoles (Daly, 1973); Silacayoapan (Shields, 1988); Yosondúa (Farris, 1992).

[17.] Kuiper & Oram (1991) analyze téyi as 3MAS + ‘male,’ but if Josserand’s Proto-Mixtec reconstruction *teye is valid, it implies that Díuxi yi is a qualifier derived historically from the term for ‘man.’

[18.] In Silacayoapan Mixtec, “nouns referring to specific kinds of animals or spherical objects cannot occur as the nucleus of a possessive noun phrase”; they appear, instead, “in apposition to a possessive noun phrase with the inherently possessed noun jana ‘domestic animal’ or ‘spherical object’ as its nucleus” (Shields, 1988: 372). This syntactic peculiarity is further evidence for the conceptual linkage of animals and fruit documented in other Mixtec Baja dialects by de Leon (1980: 124, translated by A. de Ávila): “the generic kisi probably does not refer to ‘animal’ but rather to a type of characteristic like ‘animation,’ perhaps correlated with the ‘edibility’ or ‘utility for people’...” De Leon quotes a comment by Lorenzo Martínez from Silacayoapan to affirm that link: “animals and fruit [both] bear fruit.”

[19.] Allan (1977:301) notes that “the commonest inanimate classifier is one for trees and wooden objects, often including boats. The ‘tree’ classifier is frequently connected with the class of long or saliently one-dimensional objects.” He states further that “boats are perhaps the original vehicles, and the ‘boat’ classifier is more widely used than any for vehicles in general.” A series of examples from Xayacatlán Mixtec quoted by de Leon (1980: 154) seem to follow this pattern of semantic extensions:

- nunu’u ‘match [to light a fire]’
- nuxi ‘rifle’
- nukanoa ‘canoe’
- nukarreta ‘cart pulled by oxen’
- nutreen ‘train’
- nuavion ‘airplane’
[20.] One possible exception is the name for *Tagetes lucida* Cav. in an unidentified community in the area of Tlaxiaco: *yuku taxini* (Flora Medicinal de la Mixtec Alta, n.d.).

[21.] Coicoyán de las Flores is the head of the municipality of the same name in the district of Juxtlahuaca, in westernmost Oaxaca; Jicayán de Tovar belongs to the municipality of Tlacoachistahuaca, Guerrero. Both villages are located on the slopes of the Sierra Madre del Sur, geologically the most complex and diverse region in Mexico as described in the introduction to this dissertation. Jicayán is a day’s walk from Coicoyán, and the dialects spoken in the two villages are mutually intelligible. The population of Coicoyán exceeds 1600 people, whereas Jicayán barely reaches 1000. The center of town in Coicoyán is situated at about 2040 meters above sea level, at the head of a valley that drains into the Balsas basin to the north. The lands of the village rise to almost 3000 meters above sea level, and are covered in a complex patchwork of mostly secondary vegetation derived from mixed oak-pine forest. Above 2400 meters there are remnants of a high altitude cloud forest, with species in the Lauraceae, Pentaphylacaceae, Cyatheaceae, *Chiranthodendron*, *Chamaedorea*, *Abies*, etc. Jicayán is located at about 73 meters asl, on the edge of a small alluvial plain that is irrigated and cultivated intensively. The valley is part of the Ometepec watershed, which drains south to the Pacific. The lands of the village lie mostly between 600 and 1500 meters; the original vegetation appears to have been a subdeciduous tropical forest, giving way to an open pine forest (which may be secondary) at higher altitudes.

[22.] Tamazulapan (district of Teposcolula, Oaxaca), where Francisco de Alvarado was the vicar in the late 1500’s, lies at the point where the Mixteca Alta meets the Mixteca Baja and the Chocholtec area (a Popolocan-speaking people). The town is located at the edge of a heavily eroded plateau, nowadays covered with scrub oak and grasslands. Just west of Tamazulapan there is a sudden drop to dry tropical deciduous forest and cactus scrub. The vocabulary gathered by de Alvarado attests to both temperate and tropical biotas, including species from the Pacific and Gulf coasts, such as ceiba, brazilwood and ebony.

[23.] Perhaps Amith & Castillo (2010) refer to *cabo de año*, the ritual that marks a year’s observances after a person has died, a widespread tradition in southern Mexico.

[24.] The full description of how *Datura* sp. is used: *Se usa para saber qué enfermedad tiene la persona cuando no se consigue ninguna medicina para la enfermedad... se muelen solamente las hojas y se le unta sólo en la cabeza y las flores se ponen en la nuca. Cuando se duerme la persona sueña qué enfermedad tiene, si es cosa buena o brujería... Esta planta se usa nada más para saber qué enfermedad tiene la persona, cuando no se cura con nada y avisa para saber quién le hizo el daño a la persona, quién robó animales, a las casas o dinero...* (Flora Medicinal de la Mixteca Alta, Tlaxiaco, Oaxaca. n.d.)

[25.] Don Alfonso Santiago made the following comments on the use of *ita Guadalupe* in San Jerónimo Xayacatlán: *Se toma... antes sabía yo que la tenía el difunto Lino... como ya no ando yo el río... [su difunta esposa] no lo tomó, nomás lo bañó, pero sí lo subió, vio. Hay que buscar una chamaca para que lo hierva para que lo tome... a las cinco de la mañana, para que a las siete lo vea. Siente flores lo toman, se hierva, porque ése lo cortan el viernes, el martes, ese día lo cortan para tomar. No hay que hablarle [a la persona que lo toma], nomás cuidarlo, [si se va a hacer daño] lo agarra uno. Solamente uno de Barranca Salada, ése si lo
tiene. Don Teobaldo trajo la flor, es blanca, como de [10 a 12 cm de larga]. Se hiere, se enfría tantito y se toma. La flor se parece a la de yuku San José. Va uno siguiendo [a] ella [la persona que la tomó], si va [a] un cantil, hay que [a]garrarla, hay que encaminarla. Hay que darle agua, porque se reseca la boca. Es planta como de [1.5 metros de alta], no es enredadera, es planta. It’s ingested in a beverage… I know that the deceased Lino used to have it… as I no longer go along the river [I don’t know where it may grow now]… [my deceased wife] did not ingest it, she only bathed herself with it, but it did have an effect on her, she saw [things]. You have to look for a young girl to boil it so that you can take it… at five in the morning, so that at seven you will see [things]. They ingest seven flowers, they are boiled, they pick them on a Friday, on a Tuesday, those are the days when they pick them to ingest you. You must not speak to the person [who ingested it], you only look after her, you take her by the hand [in case she might hurt herself]. Only one man from Barranca Salada, he does have it [the plant]. Don Teobaldo brought the flower, it’s white, approximately 10 to 12 cms long. It’s boiled, then it’s cooled a little and you drink it. The flower is similar to the blossom of yuku San José. You follow her [the person who ingested it], if she approaches a cliff, you have to take her by the hand, you have to guide her. You have to give her water, because the mouth gets very dry. It’s a [shrubby] plant about 1.5 meters tall, it’s not a vine, it’s a [shrubby] plant. Información adicional proporcionada por la tía del Mtro. Francisco González Rosas:

La flor de Guadalupe es un narcótico… si está enferma, se da cuenta si se va a aliviar o se va a morir. Si pierden algo, en el sueño ven dónde está. Es una flor blanca, dicen, como la yerba de veneno… va a nombrar a la persona que hizo mal… pero si se le pasa la dosis, ya no dice nada, está hablando pero no se le entiende nada… un pétalo lo hacen en rafitas, son siete pares [los que se ingieren].

[26.] López García (2007:162) has recorded the traditional oratory delivered by the representative of the principales [elders] in response to the speech made by the representative of the incoming authorities, prior to the ceremonial presentation of a flower bouquet on January 2nd, following the oath of office on January 1st. In this metaphorical reference to the resilience of the Sedum plant, the incoming office holders are entreated to endure the hardships and deprivation that service to the community often entails (López García, 2003, personal communication):

Na kua’a ini, na kua’a kutsa sa kusa’ando
Na kadatsa, kuenta kida ita vili nani ita daa
Sáni-ini ntsa kivi nu, kivi di’na sa chiīu’undo
En Tade’e, en santu dando ndida tse kida.
Kuan ita ya’a, saani tu jnu yu, tu jnu yutu
Adi en nu’u wa’a, adi en nu’u kaxi kui’ia
Ita ya’a ti kui’ia, ti kataini meni ita wa’a ku
Ti vee ni, ti u’unixi saani, ntse’enika yakuí.
Que nos aguanten y nos soporten
Como la flor bonita, como la siempreviva
Que pensaron y establecieron desde el inicio
Los antepasados para recibir y dar honor.
Porque ésta florece sobre piedra, sobre árbol
En un terreno fértil, en un terreno durísimo
No es una flor mala, es una flor muy buena
No le pesa, no le duele, florece, es aguantadora.
(excerpt from the full speech published by López García, 2010)
[27.] Unlike the other examples, however, where y- would mark the unpossessed form and nd- its useful/possessed equivalent, in yakua / ndakua the pattern is reversed.

[28.] Bule and tecomate refer to bottle gourds, tya’a in Yosotato Mixtec, siya’a in Xayacatlán. Mention of the calabazo, an alternative designation in Spanish, elicited comments on funerary customs in San Jerónimo: Todavía se acostumbra ponerle a un difunto un bulito con su agua, y siete tortillitas, y un rollito de zacate. Ese zacate dicen que cuando llega uno allí donde va uno a estar, salen los toros: le echan para que coman y ya pasan. Los perros nos pasan el río, hay avenida; nos pasan en su oreja, dentro nos llevan. Les echaban cacao [a los difuntos], era su dinero, o siete maíces como dinero. ‘It’s still the custom to bury a deceased person with a small bottle gourd with water, and seven little tortillas, and a small bundle of fodder [tall grass or dried maize stalks]. They say this fodder is for when we arrive there where we will stay, and bulls come out [blocking the way]: the deceased person throws down the fodder for the bulls to eat, and then that person can pass through. Dogs get us across the river, which is swelling; they get us across in their ear, inside their ear they take us across. They would throw in cacao beans [into the deceased persons’ graves], that was their money, or seven grains of maize as money.’

[29.] In the myth, a poor man is helped by his animal companions to obtain true seeds of maize, beans and squash, while his rival unwittingly grows the wild relatives of the three crops. When the fields are visited at harvest time by their father-in-law in common, the poor man is praised for his abundant yield, while his rival gets punished by the old man, who pulls his hair. In disgrace, he becomes the roadrunner, whose tuft of feathers at the back of its head is explained by the story. This is a Mixtec version of a widespread theme on the origin of food crops, with parallels to the Aguaruna Núngkui myth cited by Berlin (1992: 153-160).
BIBLIOGRAPHY:


Berlin, O. B. 1999 How a folkbotanical system can be both natural and comprehensive: one Maya Indian’s view of the plant world. In: Medin, Douglas L., & Scott Atran (eds.) Folkbiology: 71-89.


236


Comisión de Medio Ambiente, LX Legislatura, Cámara de Diputados. 2007. Dictamen a discusión de la Comisión de Medio Ambiente, con punto de acuerdo a fin de exhortar a la SEMARNAT a realizar – en coordinación con los gobiernos de los estados de Puebla, Guerrero y Oaxaca – trabajos para el rescate de la región Mixteca, considerada desastre ecológico por falta de agua. Gaceta Parlamentaria, November 1st 2007, México, D.F.


Contreras Hinojosa, José, Víctor Volke Haller, José Oropeza Mota, Carlos Rodríguez Franco, Tomás Martínez Saldaña & Ángel Martínez Garza. 2005. Reducción del rendimiento de maíz por la erosión del suelo en Yanhuitlán, Oaxaca, México. TERRA Latinoamericana, 23(3): 399-408.


Cruz Castillo, Óscar N. 2007. La estela 1 de Yucuita, Oaxaca. In: Spores, R., Ñuu Ñudzahui, la Mixteca de Oaxaca: 455-462.


de Alvarado, Francisco. 1593. Vocabulario en lengua misteca, hecho por los padres de la Orden de Predicadores, que residen en ella, y últimamente recopilado, y acabado por el padre fray Francisco de Alvarado, vicario de Tamazulapa, de la misma orden. Printed by Pedro Balli, Mexico City. (Photocopy of the original kept at the Biblioteca Nacional de Antropología e Historia, México, D.F.)

de Ávila Blomberg, Alejandro. 1983. Field notes, Pinotepa de don Luis and Santiago Ixtayutla, district of Jamiltepec, Oaxaca.

de Ávila B., A. 1986-1990. Field notes, Coicoyán de las Flores, district of Juxtlahuaca, Oaxaca, and Jicayán de Tovar, municipality of Tlacoachixtlahuaca, Guerrero.


de Ávila B., A. 1999. El nombre de la yerba; citas y apuntes para acompañar la Dendrología de Fray Juan Caballero. In: Caballero, Juan, Dendrología natural y botanología americana, o tractado de los árboles y hierbas de la América (facsimilar edition of the manuscript of ca. 1780). Biblioteca Francisco de Burgoa, Oaxaca.


de Ávila B., A. 2005. El insecto humanizado: biología y mexicanidad en los textos de
Alzate y sus contemporáneos acerca de la grana. In: *La grana y el nopal en los textos de Alzate* (facsimil edition of the manuscript by José Antonio de Alzate, 1777), Consejo Nacional para la Cultura y las Artes, México, D.F.


d de Ávila B., A. in press, b. *Los hilos del país de las nubes; textiles comunitarios de Oaxaca*. Museo Textil de Oaxaca.


d de la Cruz, Martín, & Juan Badiano. 1552. *Libellus de medicinalibus indorum herbis*. Facsimil edition of the manuscript, 1991, Instituto Mexicano del Seguro Social – Fondo de Cultura Económica, México.


Eco, Umberto. 1984. *Cómo se hace una tesis; técnicas y procedimientos de estudio, investigación y escritura.* Editorial Gedisa Mexicana, México, D.F.


Flores Romero, Celso, & Alejandro de Ávila B. 1996. Recordings, transcriptions and grammatical analysis of Coicoyán Mixtec elicitations. Materials on file at the Language Laboratory, Department of Linguistics, University of California at Berkeley.


Gil Guadalupe, Clemencia Eva, Eulalia Díaz Gonzál, Genaro Teófilo Cruz, Salvador Martínez Cruz, Gonzalo Cruz Paz, Sebastian van Doesburg, Michael W. Swanton &
Alejandro de Ávila B. 2009. Micaltepec Mixtec plant names recorded in El Rosario Micaltepec, municipality of Petlalcingo, Acatlán de Osorio district, Puebla. Digital sound recordings and transcripts in custody of Swanton & de Ávila, Centro Cultural Santo Domingo, Oaxaca.


Hendrichs Pérez, Pedro. 1945. *Por tierras ignotas: viajes y observaciones en la región del Río de las Balsas*. Editorial Cultura, México, D.F.


INEGI. n.d. Carta topográfica “Ciudad de México” 1:1,000,000. Aguascalientes.


Irekani. n.d. Database on the biological diversity of Mexico, maintained by the Unidad de Informática para la Biodiversidad, Instituto de Biología, UNAM, México, D.F. <http://unibio.unam.mx/irekani>


Katz, Esther. 1990. Des racines dans la terre de la pluie; identité, écologie et alimentation dans le haut pays mixtèque. Thèse de doctorat, Université de Paris-X.


Kuiper H., Albertha (compiler). 2003. *Ita, ku’u, yau, yua, yuku, yutnu, xi’i*; *diccionario enciclopédico de plantas, mixteco de San Juan Diuxi y Santiago Tilantongo*. Instituto Lingüístico de Verano, México, D.F.


Lastra de Suárez, Yolanda. 1986. Las áreas dialectales del náhuatl moderno. Instituto de Investigaciones Antropológicas, UNAM, México, D.F.


López García, J., Nicolás López García, Abisaí García Mendoza, Michael W. Swanton, Francisco Martínez Carrasco & Alejandro de Ávila B. 2004. Chocholtec plant names recorded in El Tecomate, Santiago Teotongo (Teposcolula district, Oaxaca); voucher specimens deposited at the herbarium of the Jardín Etnobotánico de Oaxaca, Centro Cultural Santo Domingo, Oaxaca.


Martínez, Maximino. 1979. *Catálogo de nombres vulgares y científicos de plantas mexicanas*. Fondo de Cultura Económica, México, D.F.

fisiográfico y evaluación de la erosión de las Mixtecas Oaxaqueñas Alta y Baja. Universidad Autónoma Chapingo - Consejo Nacional de Ciencia y Tecnología (CONACYT). Chapingo, México.


Mendívil Salgado, Rodolfo. 2008. *Con mi voz y mi palabra; memorias de un luchador social del siglo XX. Un mixteco en el camino*. Producción Gráfica y Audiovisual Artificios García Diseño e Impresión, Puebla.


Ordaz Peregrina, Nazario Ignacio, Vicente Jerónimo Palacios Mexicano, Martiniano Beltrán Méndez, Sebastian van Doesburg, Michael W. Swanton & Alejandro de Ávila B. 2009. Chigmecatlán Mixtec plant names recorded in Santa María Chigmecatlán, Tepexi de Rodríguez district, Puebla. Digital sound recordings and transcripts in custody of Swanton & de Ávila, Centro Cultural Santo Domingo, Oaxaca.


Piestrzynska, Anna. 2009. Ethnobotanical notes and plant specimens collected in Santiago Tilantongo, Nochixtlán District, deposited at the herbarium of the Jardín Etnobotánico de Oaxaca.


Pike, K.L. 1948. Tone languages; a technique for determining the number and type of pitch contrasts in a language, with studies in tonemic substitution and fusion. University of Michigan Press, Ann Arbor.


Ravicz, Robert S. 1965 *Organización social de los mixtecos*. Colección de Antropología Social, Instituto Nacional Indigenista, México, D.F.


260


Spores, R. 2007. Ñuu Ñudzahui, la Mixteca de Oaxaca; la evolución de la cultura mixteca desde los primeros pueblos preclásicos hasta la independencia. Fondo Editorial del Instituto Estatal de Educación Pública de Oaxaca, Gobierno del Estado, Oaxaca.


Stephen, Lynn. 2007. Transborder lives; indigenous Oaxacans in Mexico, California, and Oregon. Duke University Press, Durham, N.C.


Tapia G., F. 1985. *Las plantas curativas y su conocimiento entre los amuzgos; árboles grandes y arbustos*. CIESAS, México, D.F.


**Tno’o savi mixtli** - cuentos mixtecos de Guerrero. 1985. Consejo Nacional de Fomento Educativo (CONAFE), México, D.F.


