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ETHNOBOTANY IN A TROPICAL-HUMID REGION: THE HOME GARDENS OF BALZAPOTE, VERACRUZ, MEXICO

ELENA LAZOS CHAVERO
and
MARIA ELENA ALVAREZ-BUYLLA ROCES
Laboratorio de Plantas Vasculares
Departamento de Biologia
Facultad de Ciencias, UNAM
Apdo. Post. 70-614, 04510 Mexico, D.F., Mexico

ABSTRACT.—In this work, we analyse the home garden's floristic composition and how the peasant families use the plant species in relation to their cultural origin and date of establishment at a rural community recently formed in Veracruz. The home garden is a production alternative that plays an important role in peasant economy and, at the same time, is the family's habitational unit. It has a high floristic richness providing the family with numerous products to satisfy various needs: of the 338 species reported, 37.6% were used for ornament, 25.4% for nourishment and 39.3% had secondary medicinal usages. However, the species with the highest densities and frequencies were the food plants. The interchange of plants and knowledge of plants by the families in the community has made the home garden more floristically homogeneous. The home garden is a place of agricultural experimentation in which all the family participates.

RESUMEN.—En este trabajo, analizamos las especies vegetales de los solares, sus usos y el conocimiento en relacion al origen cultural y a la fecha de establecimiento de las familias campesinas de una comunidad recientemente formada en Veracruz. El solar es una alternativa productiva importante en la economia campesina y es, ademas, la unidad habitacional de la familia. El solar se caracterize por una gran riqueza floristica lo que permite al campesino provecrse de diferentes productos para satisfacer varias necesidades. De las 338 especies reportadas, el 37.6% tienen un uso ornamental, el 25.4% son alimenticias y el 39.3% tienen como uso secundario el medicinal. Sin embargo, las especies mas frecuentes y abundantes son las alimenticias. El intercambio de plantas y de conocimiento ha ido homogeneizando floristicamente los solares. El solar se constituye como un lugar de experimentacion agricola donde toda la familia interviene.

INTRODUCTION

One of the earliest descriptions of home gardens was given by Willis in 1914 quoted in Etifier (1985): "I see the mixed gardens in Ceylon as a wild jungle-like mixture of fruit trees, creepers, bamboo and useful undergrowth surrounding every house." Thereafter, home gardens of traditional societies in tropical-humid regions have received the attention of researchers, e.g. for Africa (Diarra 1975); for Asia (Abdoellah and Henky 1979; Anderson 1979; Bompard *et al.* 1980; Friedberg 1971; Sastrapradja *et al.* 1985; Soemarwoto 1975); in the Pacific Islands (Barrau 1954), for the Antilles (Kimber 1973; Konpem 1978); for Mexico (Alvarez-Buylla *et al.* 1981; Gonzalez and Gutierrez 1983; Lazos and Alvarez-Buylla 1983; Vara 1980; Zizumbo and Colunga 1982).

In general, these studies define the home garden as an area around the peasants' house where they cultivate a complex vegetation to satisfy their needs. Many of these works describe only the floristic composition (Sastrapradja *et al.* 1985), others (Abdoellah and Henky 1979; Kimber 1973; Peeters 1976) point out the relation between the home garden

and the cultural factors, while others (Anderson 1979; Brierly 1976; Diarra 1975; Konpem 1978) emphasize the floristic composition and the species use and management. There are few works that depict the home garden as an economic alternative playing an important role in peasant economy (Etifier 1985; Friedberg 1971; Vara 1980; Zizumbo and Colunga 1982). We propose that an understanding of the economic importance of the home garden in peasant's agricultural production can be a basis upon which one can relate with other aspects of the peasant family life.

The present work is part of a broader study in which we analyzed the relationship between socioeconomic and cultural factors and the home garden's spatial organization, composition, structure, plant usages and process of production (Lazos and Alvarez-Buylla 1983). In this article we discuss the analysis of the home garden's floristic composition and the familiarity and use of plant species by families coming from different cultural origins and with varying length of residence in the community of Balzapote. As new plant species are introduced from outside, residents of Balzpote gradually learn their growth requirements and possible uses. Such dynamics of trial, acceptance and rejectance and learning have led some authors to the hypothesis that home gardens were the ideal place for the origin of plant domestication and agriculture (Anderson 1979).

METHODS

At Balzapote, we collected 414 voucher specimens (deposited in the Herbarium of the Science Faculty, UNAM) from 64 home gardens, and reported their usages. We undertook an ecological census for eight home gardens recording for each sample species its taxonomic identity, structural and ethnobotanical data, and site of origin. We conducted socioeconomical and cultural interviews for each one of the 71 families in Balzapote during November 1980 to December 1982.

Description of the study site.—Balzapote is located in the southeastern tropical-humid region of Los Tuxtlas in the State of Veracruz in Mexico (Fig. 1). It is a recently established "ejido" due to the migration, mainly during the 1960s, of peasants from other regions and from other communities of the same Los Tuxtlas region (Table 1).

TABLE 1. *Date of settlement of the peasant families in Balzapote, Veracruz.*

Date of Settlement	Percentage of Families
1945-1949	2%
1950-1954	1%
1955-1959	23%
1960-1964	38%
1965-1969	20%
1970-1974	14%
1975-1982	2%

The main reasons for the migration since the 1940s were: (a) a regional livestock production "boom"; (b) a rapid population growth—in Veracruz—population increased from 17.6% to 33.7% between 1930 and 1960 (Secretaria de Programacion y Presupuesto 1964); and (c) the fragmentation of land and lack of resources in other regions. Thus, Balzapote is made up of families who entered the community at different dates (Table 1) coming from different regions but mainly (93%) from the same State of Veracruz (Fig. 1).

Economic History of Balzapote.—Production has changed during Balzapote's history. In the beginning, the tropical forest was transformed into corn and bean plots under a shifting cultivation system. This was replaced in importance by livestock raising during the 1970s. As hunting and plant collection decreased and since fishing represents a marginal production source for only some families, home gardens have always played an important role for rural families. Today, pasturelands and home gardens are the two most frequently managed production alternatives (Table 2).

TABLE 2. *Management of different production alternatives among the peasant families in Balzapote, Veracruz (1980-1982).*

Production Alternative	Percentage of Families who Manage the Production Alternatives
Home garden	97%
Cattle raising	70%
Crop fields	55%
"Acahual"*	39%
Fishing	7%
Hunting and Plant Collection	3%

*Portions of secondary vegetation from which plant products are obtained for selfconsumption.

RESULTS

Description of the home gardens.

The home garden is the only dual purpose alternative that peasant families manage. It offers a production option and therefore a means of work where animal and plant species are managed and, at the same time, it serves as the peasnat's habitational unit, giving it a peculiar vegetation structure and a physical arrangement in three components: the backyard, the garden, and the orchard, each one fulfilling different aspects of the dual purpose (Fig. 2). The home garden is basically composed of perennial self-generating (either vegetatively or by seed) species which allow a continuous extraction of products (for a fuller description see Lazos and Alvarez-Buylla 1983).

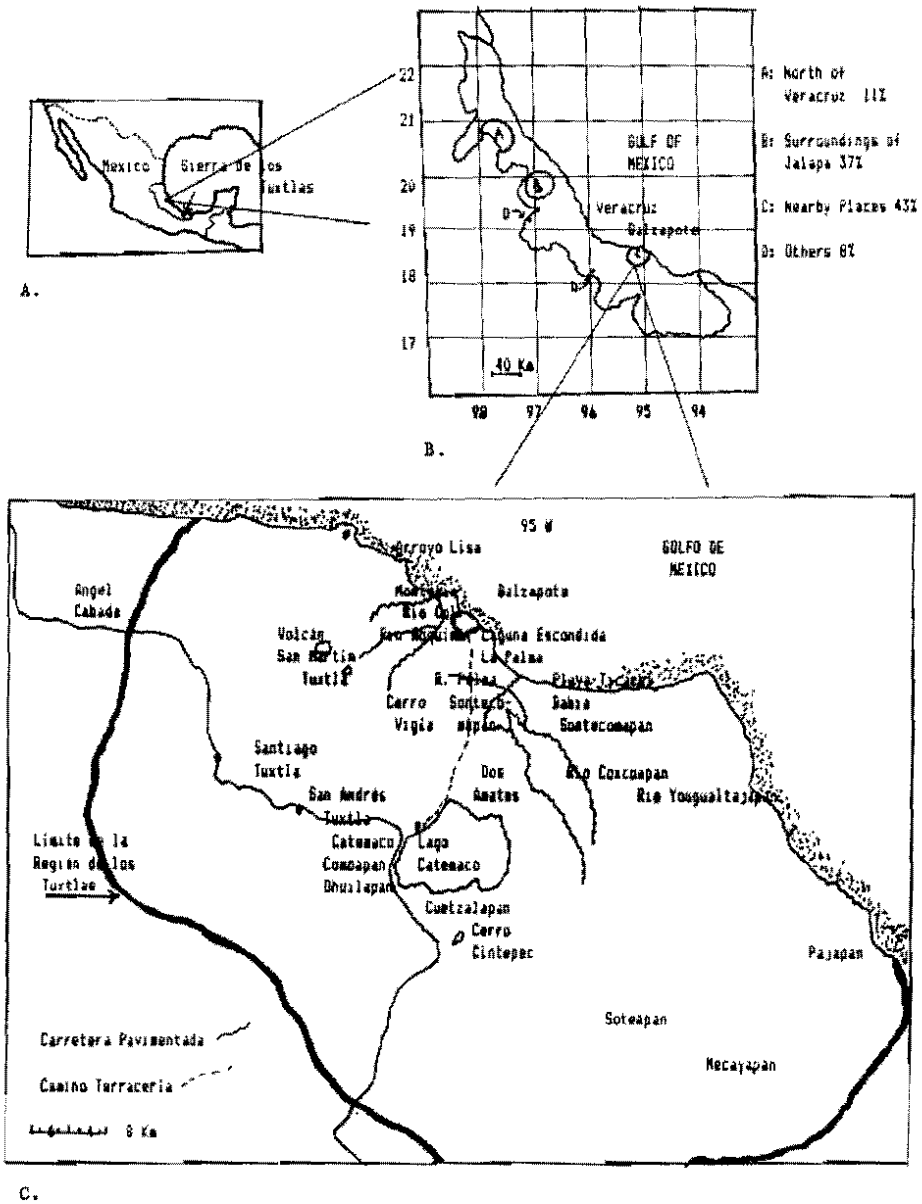

FIG. 1.—A. Geographical localization of Veracruz in Mexico. B. Geographical localization of the native regions of the peasant settlers of Balzapote and percentages of families coming from those regions. C. Geographical localization of Balzapote and nearby places in Los Tuxlas Region.

FIG. 2.—Home garden of Balzapote. At right, a typical peasant house and backyard, left foreground, garden with ornamental plants and, at left background, an orchard with fruit trees and trees for construction and various domestic uses.

Use and knowledge of home garden's plants.

In the home gardens of Balzapote a large number of plant species are grown and used for a number of different purposes. Furthermore, some species are multi-purpose plants; we distinguish a primary and a secondary use.

In Table 3, we analyse the uses of 338 species in 76 angiosperm families and 3 pterydophytes and report their primary and secondary uses in Appendix 1. We note that 127 species (37.6%) have an ornamental use and of the 25.4%8 (86 species) used for nourishment the majority are fruits. A large number of species (31) are used mainly for curative purposes and 27.8% of those remaining are irregularly distributed among other categories. However, food species are represented by the highest densities and the highest frequencies of appearance in the home gardens.

Of the 338 species, 35% have secondary uses, of which 39% are used for medicine and the rest to create shade (hereinafter, shadow plants), for construction, for firewood, to serve in rituals, as edible fruit, or as seasonings in food.

Some of the most broadly used species are very common plants. Such is the case of the "guayaba" *(Psidium guajava)*, naturalized in Balzapote, which is used in eight different ways, the: (a) fruit for human and animal food; (b) stem for construction and manufacturing of tools; (c) cortex and leaves for curative purposes: as antidiarrheic and antipiretic and for vaginal washes; (d) leaf as seasoning; (e) whole tree as a shading plant and for domestic uses (support for hammock, hen shelter, etc.).

TABLE 3. *The primary and secondary use of species in the home gardens of Balzapote.*

* Percentage (total number species = 338).

\+ Percentage (total number species with secondary use = 117).

Coffee was included here (commonly considered as stimulant) because it is used as beverage or as complement with meals.

Category of Use	SPECIES				
	Primary Use		Secondary Use		
	Number	Percentage*	Number	Percent*	Percent+
Ornamental	127	37.6%	3	0.9%	2.6%
Nourishment	86	25.4%	12	3.5%	10.3%
Fruit	51	15.1%	5	1.5%	4.3%
Vegetable	17	5.0%	1	0.3%	0.8%
Spice	17	5.0%	5	1.5%	4.3%
Beverage	1	0.3%	1	0.3%	0.8%
Medicinal	31	9.2%	46	13.6%	39.3%
For Shadow	20	5.9%	11	3.2%	9.4%
Domestic Uses (dyes, glues)	17	5.0%	4	1.2%	3.4%
Construction	11	3.2%	7	2.1%	5.9%
Fences	10	3.0%	3	0.9%	2.6%
Animal Fodder	8	2.4%	3	0.9%	2.6%
Weeds	5	1.5%	16	4.7%	13.7%
Rituals	3	0.9%	6	1.8%	5.1%
Firewood	2	0.6%	6	1.8%	5.1%
Without use	18	5.3%			

Ornamental species.—Ornamental plants are kept in home gardens to decorate the house. Flowers are occasionally cut for funerals using any color for children and only white and/or pink for adults. Most ornamental plants are appreciated for their flowers ("tulipanes," *Hibiscus* spp.), for their scent ("huele de noche," *Cestrum racemosum*), or for both reasons ("rosasm" *Rosa* spp.), as well as for the shape and color of the leaves ("terciopelo," *Coleus* spp.), and the stem ("nopal," *Opuntia* sp.) or for the fruit ("manzanita," *Malpighia glabra*).

The most common ornamental plants are secondarily used in rituals. Those of red and white color are considered magical. For example, the salmon lily ("lirio salmon," *Crinum* sp.) and the red rose ("rosa," *Rosa* spp.) are used by some families for "spiritual cleansing" or to protect the home garden against the influence of "evil spirits."

Food plants.—In the case of food species, fruits are eaten fresh, prepared as refreshments or sometimes as conserves ("guayaba," *Psidum guajava*). As vegetables, peasants consume the fruit (tomato, "jitomate," *Lycopersicum esculentum*), flower (squash, "calabaza" *Cucurbita pepo*), bulbs, root stalk or corms (garlic, "ajo," *Allium cepa*; "malanga," *Colocassia esculenta*; cassava, "yuca," *Manihot esculenta*).

Many fruit trees have a secondary curative use for which the leaves are generally prepared as infusions. Because they are also trees, they are used for construction, as shadow trees or for several domestic uses (such as drying places, hen shelters, support for hammocks).

Seasoning plants.—The most common seasoning species grown in the home gardens are "oregano" (*Lippia* sp.), "epazote" (*Chenopodium ambrosioides*) and "cilantro extranjero" (*Eryngium foetidum*) from which the stem and leaves are used.

Medicinal plants.—Medicinal species are used to cure mild diseases or to relieve the symptoms of serious ones. In this case, the infusion of leaves is the most common preparation. These species have no secondary uses because they are too specific. For example, a cultivated species "maravillosa," *Crassula* sp., is only used as an antiseptic and as analgesic. Also, a wild species like "hierba martina," *Hyptis mutabilis*, has only a medicinal use, the leaves are used as antispasmodic and the roots are taken to stop internal bleedings (for a fuller description see Alvarez-Buylla and Lazos 1983).

Plants with other ues.—Large trees with permanent foliage, *e.g.* "nopo," *Cordia stenododa*, are grown to give shadow for the house. Trees used for construction are strong and have erect, thick trunks, *e.g.* "chagane," *Dalbergia glomerata*. Most of them are canopy trees of the mature tropical forest. Some home gardens have living fences of native species chosen for their quick regeneration from stumps ("palo mulato," *Bursera simaruba*). Most trees grown in the home garden protect the house against northern and southern winds.

At Balzapote, there are few species which serve strictly for ritual purposes and are used generally for "spiritual cleansing." The most common ones are basil ("albaca" *Ocinum basilicum*), elderberry ("sauco" *Sambucus mexicana*), and marigold ("flor de muerto" *Tagetes erecta*).

Many of the weeds found have specific uses. Such is the case of the "escobilla," *Sida* spp. used in the manufacture of brooms and as forage for the animals raised in the home garden.

From the detailed analysis of the eight home gardens, 27 species are the most common and were found in four or more of the eight home gardens. Of these 27 species, 33% are food plants, 45% are ornamentals and the rest have other uses (construction, shadow trees or living fences). Curative species are common at the most to three home gardens. Of the 993 individuals distributed among these 27 species, 43% are used for food, 36% as ornamental plants and 21% for fences or as shadow trees. The frequency of ornamental plants varies greatly: from a species found in only one home garden (*e.g.* "cola de gato" *Lobelia fulgens*) to other broadly distributed among almost all of them (*Coleus* spp.).

Figure 3 shows the percentage of species, individuals and canopy areas assigned to different uses in the eight home gardens. It is clear that food and ornamental species are the most dominant plant uses. Although there are a greater number of ornamental species, individuals of the fewer food species occur in greater abundance and contribute a greater proportion of the total covering. Curative and shadow plants are represented by a lower percentage of species, individuals and canopy areas and the rest of the plant uses are represented in fewer home gardens and with still lesser percentages.

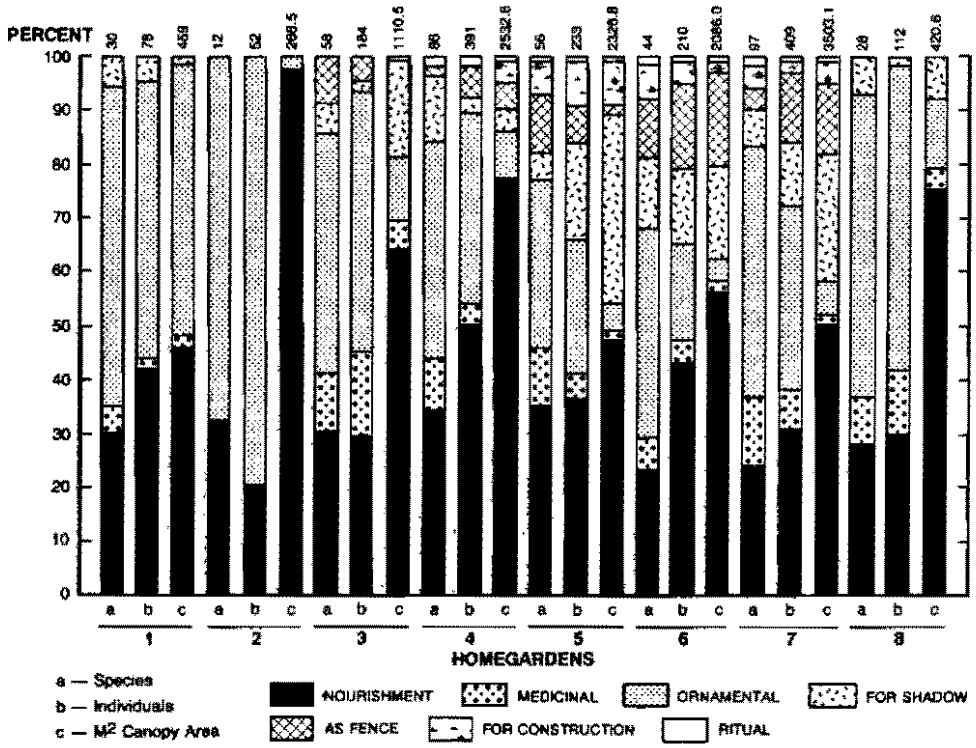

FIG. 3.—Percentages of species, of individuals, and of canopy areas in relation to their use in the 8 target home gardens. The numbers at the top of the graphic correspond to the total of species in column a, to the total of individuals in column b, and to the canopy area in column c.

Familiarity with and knowledge of plants.

The families of Balzapote are very heterogeneous in their geographical and cultural origin and date of establishment. This is the reason for the striking heterogenity of knowledge about plants and their uses among them, reflected, for example in the diversity of names given to the same species and the number of them without a name (Table 4).

Slightly over half (58.3%) of the species have a name composed of one term (the primary lexeme or monomial term). These may be species with a general use known to all of the inhabitants or are species at the generic level (Berlin *et al.* 1966; Friedberg 1986). Examples of well known species: "coco" *Cocos nucifera*, "jicama" *Pachyrrhizus erosus*; and of species at the generic level: "chocho" *Astrocaryum mexicanum*, "escobilla" *Sida* spp.

Species with more than one name (base term plus the determinants) may be a variety of a well known species or somewhat unfamiliar species that need a modifier for specification. Examples: Compound name for different species of the same genus: "rosa blanca" *(Rosa moschata)*, "rosa carton" *(R. odorata)*, "rosa concha" *(R. chinensis)*, "rosa nina" *(R. multiflora)* and "rosa roja" *(R. damascena)*. Species that need a description: *Senecio* sp. named "vara amarilla," "yellow stalk," a long stalked shrub with yellow

TABLE 4. *Different names given to one and the same species according to the geographical origin of the peasant families.*

Scientific Name	Name from nearby		N. from Jalapa
	Ohuilapan	Catemaco	
Bryophyllum pinnatum	siempreviva	maravillosa	belladona
Delonix regia	arbol del fuego	cochimbo	framboyan
Erythrina spp.	gasparito or iquimite		cosquelite
Hampea eutricia	caimito or tapaculo		no name
Justicia sp.	no name		añil
Lippia alba	salvia		manrubio
Mimulus longiflorus	no name		no name
Psidium guajava	guayaba		guayaba
Philodendron hederaceum	mafafa		mafafa
Xanthosoma robustum	apichi		mafafa

flowers; *Thumbergia tragans*, "copa de oro," a yellow cup flower. Other wild species unknown to the inhabitants of Balzapote have neither name nor use.

Among the species managed in the home gardens some are known only by the families who introduced them, while others are generally used by most families. There are also species whose usages lie in between these extremes. We devised six artificial groups of plant species according to the extent of knowledge and management in Balzapote, and to their origin.

1. *Species domesticated long ago with common uses and names known by all families.* They represent 17% of the 338 species found in the home gardens. From these, 73% are food plants. Examples: "calabaza" *Cucurbita pepo*, "jitomate" *Lycopersicum esculentum*, "ajo" *Allium sativum*, "rosa" *Rosa* spp.

2. *Plants introduced to Balzapote by the first settling families.* Some of the plants are now broadly distributed or even naturalized in the area. Examples: "guayaba" *Psidum guajava*, "citricos" *Citrus* spp., "ninfa" *Vinca rosea.*

3. *Broadly distributed wild species from secondary plant communities.* Although they have several different uses and names, they are known by almost all the people at the village. Example: "malva de cochino" or "escobilla," *Sida* spp.

4. *Wild species from the tropical forest or from secondary vegetation.* These were familiar to most of the inhabitants coming from nearby places, and unknown to those coming from places with contrasting climatic conditions to those of Balzapote. Among these species, some are tolerated in the home gardens [*e.g.* "cascarillo" *Croton nitens* used for construction] and others are brought for curative or ornamental purposes [*e.g.* various species of orchids].

These three last groups [2, 3 and 4] constitute 42% of the 338 species. From these, 51% have construction and domestic uses, 25% medicinal, and 23% food and ornamental uses.

5. *Species introduced to Balzapote by peasants from neighboring villages.* These plants represent 45% of the 338 species. From these, 50% are for ornament, 33% for medicine and 22% for nourishment. Examples: "manguito" *Codiaeum vanegatum* var. *pictum*, "hoja morada" *Acalypha* sp., "florinfundio" *Datura suaveolens*. Peasants coming from other regions did not know their name or use or they gave them other uses and names.

6. *Species introduced to Balzapote by families from distant regions.* Most of these species can be found only in home gardens belonging to those families who brought them from their original villages. These species constitute only 9% of the total number (338) of species and from these, 52% are for medicine, 36% for ornament, and 23% for food. Examples: coffee, *Coffea arabica*, is grown by families from Jalapa and Chicontepec although its knowledge and cultivation have now diffused. The "acate chichi" *Calea zacatechichi*, brought from Jalapa, is used for medicine.

If we analyse the origin of the species in the eight target home gardens, we conclude that most species are cultivated in Balzapote (31% of 198 species and 50% of the 1,675 individuals), but also, there is a significant number of wild species (32% of species and 21% of individuals). The other plants are from nearby places (27% of species and 20% of individuals) and the rest from distant places.

On the other hand, taking into consideration this analysis, it is worthwhile making an attempt to explain the differences in the percentages of species of different origins grown in the eight home gardens. First, it is necessary to state two facts: 1) species considered as cultivated in Balzapote are those introduced by the first settlers of Balzapote (about 30 years ago). For these families they were considered as species introduced from their native villages, but for the subsequent inhabitants they were considered as cultivated species in Balzapote. 2) the species brought by families whose native villages were located nearby Balzapote were pooled with those of group 5.

From Table 5, we conclude that in home gardens 1 and 4, whose owners come from villages nearby Balzapote and who settled 20 to 25 years ago, there is a significant percentage of species brought from neighboring places, that as we stated above, can be mixed with those brought from their native villages. Furthermore, because they were born in nearby places, the peasants are familiar with the cultivated species there and have easy access to plants from their original villages where they always have relatives and/or friends. In home garden 4, the percentage of species brought from Catemaco (the native village of the family) is very high. Many of the species introduced by this family are now considered as currently grown in Balzapote.

Another interesting fact regarding these two home gardens is the percentage of wild plants, with number 1 having a low and home garden 4 a high percentage of wild species. This can be associated with the fact that the first one was established in a very disturbed site, without trees, and far away from any area with wild vegetation. On the contrary, the second was established in an 8-year-old secondary vegetation site. These same reasons explain the high percentages of wild plants present in home gardens 3, 5, 6, and 7 and the low values for home gardens 2 and 8.

The data shown for home gardens 3 and 8 indicate that in both cases the percentage of species brought from their original village (Ohuilapan) is also high (in comparison with the rest of the home gardens). This can be explained because Ohuilapan is relatively near Balzapote and has similar ecological conditions. Because of periodic visits by the families to their villages, there is a constant flow of species between the two communities.

The families 5, 6, and 7 come from places near Jalapa, a distant town and with different environmental conditions, which explains the low percentage of species found

TABLE 5. *Different origins of the species found in the 8 home gardens, origin and date of settlement of the family, and prior vegetation to the establishment of the home garden.*

HN = Home garden number; GB = grown in Balzapote; GN = grown in nearby places; GO = grown in their original places; W = Wild; T = total.

HN	SPECIES					FAMILY		PRIOR
	GB	BN	GO	W	T	Origin	Date	Vegetation
1	13 43%	14 47%	1 3%	2 7%	30	Montepio	1962	Secondary (1 year)
2	11 92%	1 8%	0 0%	0 0%	12	Puebla	1966	Secondary (1 year)
3	31 53%	6 10%	9 16%	12 21%	58	Ohuilapan	1955	Secondary (10 years)
4	19 20%	44 46%	16 16%	17 18%	96	Catemaco	1954	Secondary (8 years)
5	37 65%	2 4%	2 4%	16 28%	57	Jalapa	1966	Secondary (7 years) Cropfield
6	22 52%	2 5%	5 12%	13 31%	42	Jalapa	1963	Primary Home garden
7	31 32%	31 32%	2 1%	34 35%	98	Jalapa	1958	Primary Home garden
8	13 45%	6 21%	8 27%	2 7%	29	Ohuilapan	1959	Secondary (1 year)

from their original place. Moreover, and in contrast to those coming from nearby places, it is more difficult for these families to travel frequently to their native places and the species grown in them can hardly be adapted to the conditions of Balzapote. In these home gardens the percentage of the so-called species currently grown at Balzapote is high, although it should be stressed that in home garden 7 it is lower, because many species have been introduced from neighboring places. This can be explained because this family is more prosperous than the average at Balzapote and thus has financial resources to purchase exotic ornamental plants from nearby villages.

Finally, in home garden 2 most of the species are those currently grown in Balzapote, probably because it belongs to a young family who has not yet completed the establishment of its home garden and thus have sown only the most common and fastest growing species of Balzapote. Also the family's original place (Puebla) is far away from Balzapote and has differing environmental conditions.

The role of the family members in the plant species knowledge and use.

In Balzapote, the family is the socioeconomic, productive, and consuming unit in charge of deciding the management of their different economic options. This manage-

ment is based in a sexual and age work division where the role of each family member is stipulated (Alvarez-Buylla and Lazos 1988).

The family is also the cultural unit. This is reflected in the family's knowledge implied in the use and management of plants. This knowledge is not a steady phenomenon, instead it is a continuously changing and broadening process according to the family's needs. Different aspects of it are undertaken by different members of the family.

The father and the older sons are in charge of acquiring the knowledge involved in the handling and use of the cultivated trees. Mother and older children are in charge of obtaining the plants for the garden (mostly ornamental, medicinal and seasoning species), as well as investigating the way of growing and using them.

The role played by children is very important, since they introduce to the home garden new useful species, mainly fruits. For example, "zapotillo" *(Bunchosia lanceolata)* and "chagalapoli" *(Ardisia* aff. *belizensis)* are introduced consciously and unconsciously by the children when their seeds are sown or carelessly discarded in the garden.

In the home gardens, children are early initiated into different agricultural practices through the experimentation and the knowledge of their parents that is carefully passed on. So, the home garden is a place of agricultural experimentation where all the family takes part. The father tests new cultivars that are later introduced to crop fields and, the mother generally selects the best food and ornamental varieties.

DISCUSSION

Local people consider the house and the garden as a unit called the "solar." All the peasant families at Balzapote devote part of their work in the transformation of nature to result in a home garden fulfilling two functions: an habitational unit and an economic alternative. Other studies have also remarked upon this fundamental characteristic (Bompard *et al.* 1980; Etifier 1985; Vara 1980; Zizumbo and Colunga 1982).

This double purpose is reflected in the spatial organization and in the management of a high diversity of plant species with different uses. The home garden floristic richness or high diversity, more than 300 cultivated or wild species, perennials or annuals, represented by trees, shrubs and herbs, enables the family to satisfy various needs. This production ensures the acquisition of food (principally fruits), ornamental and medicinal plants, timber for construction, shadow and fence trees, animal fodder, firewood and other diverse products in small scale but all year around (for the production analysis, see Alvarez-Buylla *et al.* 1988). Moreover, most plants are cultivated for more than a single purpose, most of their parts being utilized for different means, and this diversity is increased by the intraspecific variation often found.

Ornamental species are represented by the highest number of species (38% of the 338 species), but the food species are the most common and abundant (Fig. 3). This has also been found in home gardens of Indonesia (Bompard *et al.* 1980), of Africa (Diarra 1975) and of Mexico (Gonzalez and Gutierrez 1983). On the other hand, the home gardens of Morne des Esses in Martinique have more medicinal (56%) and ritual species (Etifier 1976).

The low frequency of use of ritual plants among the families and the gradual disuse of medicinal plants is interesting. This may be explained, in part, because Balzapote is a mestizo population without a strong ethnical-cultural background which has been greatly influenced and subordinated by the capitalist system, not only from an economic point of view, but also from a cultural and ideological one. It is also due to the impact

of migration of certain families that were culturally uprooted. Some could not bring them their plants or even if they could, the plants did not adapt to the climatic conditions of Balzapote. For example, "ruda" *(Ruta chalepensis)* has been introduced, without success, several timcs to Balzapote, but the conditions are not appropriate for it.

So we have to consider both the number of species and their relative abundances to conclude that home gardens are not only for ornament, but they are multifunctional according to the peasant's needs. The way in which different families organize their work in home gardens, and in general in the rest of the productive alternatives, varies. The role played by the home garden production in the household economy is therefore peculiar to each family (Lazos and Alvarez-Buylla 1983).

Such differences are associated with socioeconomical and cultural factors. In Balzapote, the socioeconomic and cultural differentiation originated with the establishment of the community. The families came from different regions and had different economic statuses. In Balzapote the most prosperous residents are those whose production is based on livestock raising; those of more modest means combine several productive altematives (livestock raising, cornfields, "acahual," home garden), while the poorest residents have little land and must sell their human labor to earn their living (for a more dctailed description, see Lazos and alvarez-Buylla 1983). These conditions are reflected in the floristic composition and plant ues (Lazos and Alvarez-Buylla 1983) and in the home garden management (Alvarez-Buylla *et al.* 1983). In general terms, the most prosperous families have home gardens with more exotic ornamental species which are bought in nearby villages, and food plant production is more as a complement to their diet; while the poorest families have more food plants (fruits, vegetables, tubers) as they are basic in their diet (for the variations and the intermediate cases, see Lazos and Alvarez-Buylla 1983). This is also studied in the "kampung" of Central Java. Bompard *et al.* (1980) state that for poor people, the home garden food production is a solution for the interval between rice harvests. In other research, Lizet (1979) considers ornamental species as an index of social progress.

Not all floristic differences among home gardens can be explained by socioeconomic conditions; some are related to the cultural origin and the date of settlement of the families. The species more related to certain cultural background of the families are those used for medicinal, food and ritual purposes. This shows that families have deep roots for some food customs and for certain curative and ritual practices. For example, we see the influence of cultural habits in the presence of coffee trees only in those home gardens belonging to families that come from places where coffee is usually grown and consumed. The cultural influence is also reflected in the existence of some medicinal species ("salvia" *Lippia graveolens;* "zacate chichi" *Calea zacatechnichi)* which are only grown in home gardens of families who used them in their native villages.

Also with respect to the cultural origin of the family, we can conclude that the families that come from places nearby Balzapote with similar environmental conditions, know most of the wild species grown in Balzapote and play an important active role in the introduction of cultivated species. In fact, these families have introduced the greatest number of species that are grown in the home gardens, and have also diffused the knowledge of some wild ones.

Mcanwhile, families coming from villages located far away and with climatic conditions different from those of Balzapote, do not know most of the wild plants and introduce a small number of cultivated species from their native villages. These families therefore handle only some of the species at their arrival and as they become familiar with Balzapote's wild and cultivated flora start using a larger number of species.

If we relate the place from which plants are introduced and their use, we see that the plants brought from nearby places are mainly ornamental and those from far away villages are mainly medicinal. While the species domesticated long ago are primarily food plants and most of the species found in Balzapote are used for construction.

The exchange of plants and the knowledge inherent in their use and management among the families with different origins are bringing about a homogenization of the species compositon of home gardens. In this sense, we can state that a dynamic process of use and knowledge of plants grown in the home garden is taking place through an exchange of information among peasant families in Balzapote.

Although a tendency to homogenization exists, we find that the home garden is also the place where the family is a cultural unit expreses its peculiar customs and/or tastes. In the home garden, families experiment, introducing new wild species in a incipient form of domestication or management and in the selection of different varieties. The home garden constitutes a product of peasant's work, which becomes the family's habitational unit, one of its productive options important in their economy and a place with rich cultural meaning where their conception of life it reflected.

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NOTES

[1]Ejido is the land tenure given in usufruct by the Mexican State after the Revolution to the peasant communities. The ejidatario cannot rent, mortgage, sell or alienate this land.

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz.

USES:

A = ANIMAL FODDER Species.
C = Species used for CONSTRUCTION.
D = Species with a DOMESTIC use. a = to wrap food, b = to make brooms, ch = children's game, f = perfume, g = glue, h = henshelter, i = ink, p = poison, t = to make tools, wc = to wash clothes, wd = to wash dishes, wp = to bath.
E = Species used as a FENCE.
F = FOOD species. c = candy, f = fruit, g = beverage, s = spices, t = stimulant, v = vegetable.
I = Species used for FIREWOOD.
M = MEDICINAL Species. a = antiparasites and anthelmintic, b = anthemorrhagic, c = antiseptic, d = antidiarrhoea, db = antidiabetes, f = pharyngitis, g = for grains, h = to make the hair grow, i = to cure inflammations, it = testicular inflammation, iv = vaginal inflammation, k = to disappear spots on the skin, l = to sleep, meas = measles, mr = muscular relaxing, o = for cough, p = antipoison, ps = snake antipoison, pp = spider antipoison, r = antipyretic, s = antispasmodic, se = ear antispasmodic, ss = stomach antispasmodic, t = to calm, tet = antitetanic, th = to take out thorns, v = vitamins, ves = vesicular problems, y = eye problems.
O = ORNAMENTAL Species.
R = RITUAL Species, c = cleansing.
S = Species used for SHADOW.
W = WEEDS.

PART USED:

The symbols after the used part refers to the way of use. External: *As cataplasm (poultice). **Baths and washes. Internal: +As infusion. ++Taken directly.

Family and Scientific Name	Common Name	Use	Part Used
ACANTHACEAE			
Justicia sp.	Anil	M mr	Leaf**
Spathacanthus parviflorus Leon.	Campanita	O	Flower
Thunbergia fragans Roxb.	Copa de oro (cup of gold)	O	Flower
AGAVACEAE			
Polianthes tuberosa L.	Nardo (nard)	O	Flower
AMARANTHACEAE			
Cyathula achyranthoides (HBK)Moq	Cadillo	W	
Iresine celosia L.	Pata de paloma	W	
Amaranthus spinosus L.	Quelite de espinas, bisquelite rojo y blanco	W	
AMARYLLIDACEAE			
Hippeastrum equestre Herb.	Azucena	O	Flower
Crinum scabrum Herb.	Lirio blanco	O	Flower
Himenocallis americana Roem.	Lirio blanco	O M it	Flower Leaf*

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. [continued]

Family and Scientific Name	Common Name	Use	Part Used
C. amabile Donn.	Lirio rayado	M it	Leaf*
Sprekelia formossisima	Lirio rayado	M it	Leaf*
Crinum sp. (hybride)	Lirio salmon	M it	Leaf*
		R c	Leaf*
Agave sp.	Maguey	O	Plant
Narcissus poeticus L.	Narciso (narcissus)	O	Flower
ANACARDIACEAE			
Spondias purpurea L.	Ciruela	F f	Fruit
Spondias mombin L.	Jobo	A	Fruit
		S	Tree
		F f	Fruit
Mangifera indica L.	Mango (mango)	S	Tree
ANNONACEAE			
Annona cherimola Mill.	Anona, anonilla,	F f	Fruit
	chirimolla (anona)	S	Tree
Annona muricata L.	Guanabana	F f	Fruit
APOCYNACEAE			
Nerium oleander L.	Habanera	O	Flower
Stemmadenia donnell-smithii	Huevo de mono	F f	Fruit
(Rose)Woods		M	Leaf
		E	Tree
		S	Tree
Thevetia plumeriaefolia Benth.	Huevo de mono	S	Tree
T. ahouai (L.) A.D.C.	Huevo de venado	S	Tree
		E	Tree
		F f	Fruit
Tabernaemontana citrifolia L.	Lecherillo, sangrillo	E	Stem
		S	Tree
T. alba Mill.	Lecherillo	S	Tree
Vinca rosea L.	Ninfa	O	Flower
Plumeria rubra L.	Totopolote	O	Flower

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. [continued]

Family and Scientific Name	Common Name	Use	Part Used
ARACEAE			
Xanthosoma robustum Schott	Apichi	O	Leaf
Diaffenbachia maculata N.A.H.B.	Bandera	O	Leaf
(non identified)	Capa de Rey	O	Leaf
Zantedeschia aethiopica (L)Spr.	Capote	O	Leaf
Caladium bicolor (Ait) Vent.	Hoja pinta, hoja de colores, bandera	O	Leaf
Philodendron hederaceum (Jq)Scht	Mafafa	O	Leaf
		D a	Leaf
Colocasia esculenta Schott.	Malanga	F v	Corm
(non identified)	Malanga china, malanguita	F v	Corm
ARALIACEAE			
Dendropanax arboreus (L)Dacna	Hogo	C	Stem
ASCLEPIADACEAE			
Asclepias curassavica L.	Yerba del sapo (milkweed)	M mr	Leaf**
		D ch	Flower
BALSAMINACEAE			
Impatiens balsamina L.	Gachupina	O	Flower
		M g	Flower*
I. sultanii Hook	Gachupina	M g	Flower*
I. holstii Engler & Warb.	Gachupina rellena	M g	Flower*
BEGONIACEAE			
Begonia corallina Carriere	Ala de Angel	O	Flower
B. nelumbifolia Schl & Cam	Begonia, Coralina	O	Flower, Leaf
B. maculata Ruddi	Begonia, Coralina (begonia)	O	Flower, Leaf
B. lobulata A.D.C.	Begonia, Coralina (begonia)	O	Flower, Leaf
B. patula Haw.	Begonia, Coralina (begonia)	O	Flower, Leaf
B. barkeri Knowl & Westc.	Begonia, Coralina (begonia)	O	Flower, Leaf
B. cucullata Willd	Begonia, Coralina (begonia)	O	Flower, Leaf
BIGNONIACEAE			
Tabebuia rosea (Bertol) D.C.	Roble	S	Tree
		O	Flower

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. (continued)

Family and Scientific Name	Common Name	Use	Part Used
Crescentia cujete L.	Jicara	D t	Fruit
		M se	Flower*
BIXACEAE			
Bixa orellana L.	Axiote (achiote)	F s	Seed
BOMBACACEAE			
Ceiba pentandra (L.) Geertn.	Ceiba, pochote	C	Stem
	(kapoc)	S	Tree
Quararibea funebris (Llav) Vis.	Molinillo	C	Stem
BORAGINACEAE			
Cordia stenododa I.M. Johnston	Nopo	S	Tree
		D g	Fruit
		A	Fruit
		I	Branch
		D h	Tree
Tournefortia glabra L.	Palo de agua	E	Stem
Cordia alliadora L.	Suchil	C	Stem
Cordia spinescens L.	Vara prieta	D b	Branch
		M pp	Leaf*
		M tet	Leaf*
BROMELIACEAE			
Annanas comosus (L.) Merrill	Piña (pineapple)	F f	Fruit
BURSERACEAE			
Bursera simaruba (L.) Sarg.	Palo mulato, jiote	E	Stem, Tree
	chaca	M a, s	Stem +
		M meas	Leaf*
CACTACEAE			
(non-identified)	Cruceta	M g	Leaf*
		E	Plant
		F v	Stem, Fruit

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. (continued)

Family and Scientific Name	Common Name	Use	Part Used
Opuntia lasiacantha	Nopal	O	Plant
CANNACEAE			
Canna indica L.	Chilalaga cimarronia	O	Flower
Canna sp.	Mariposa	O	Flower
C. indica L.	Papatla, chilalaga,	O	Flower
CAPPARIDACEAE			
Cleome serrata Jacq.	Charamusca	O	Flower
CAPRIFOLIACEAE			
Sambucus mexicana Presl.	Sauco, ramo de novia	O	Flower
	(elderberry)	R c	Flower
		M o, r	Leaf +
		M y	Leaf*
		M h	Leaf*
CARICACEAE			
Carica papaya L.	Papaya	F f	Fruit
	(papaya)	M a	Latex
CARYPHILLACEAE			
Dianthus cruentus Griseb.	Clavel	O	Flower
CASUARINACEAE			
Casuarina cunninghamiana Miq.	Casuarina	E	Tree
COMMELINACEAE			
Zebrina pendula Schinzl.	Matalin	O	Flower, Leaf
COMBRETACEAE			
Terminalia catappa L.	Almendro	S	Tree
		F f	Fruit

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. (continued)

Family and Scientific Name	Common Name	Use	Part Used
COMPOSITAE			
Simsia sp.	Bella Eusebia	O	Flower
[non identified]	Cardo	O	Flower
Dahlia coccinea Cav.	Dalia	O	Flower
Tagetes erecta L.	Flor de muerto	R	Flower
	(marigold)	M s	Leaf +
Zinnia elegans Jacq.	Girasol, mirasol	O	Flower
Artemisa ludoviciana Nutt.	Hierba maestra,	M s	Leaf +
ssp. *mexicana* (Willd) Kecq.	estafiate	M ves	Stem +
Panudelephantopus sp.	Lengua de perro	A	Leaf
		W	
Bidens pilosa L. var *pilosa*	Mozote	A	Plant
		M pp	Leaf +
Tagetes lucida Cav.	Pericon	M s	Branch
		F s	Leaf
Epaltes mexicana Less	Sabanon	D b	Branch
		M c	Leaf*
Monanoa sp.	Tatuana, tatuaca	O	Flower
		C	Stem
Montanoa grandiflora (DC) Sch. Bip.	Teresita	O	Flower
Verbesina sp.	Tres lomos,	M ss	Flower
	manzanilla	M erysipela	Leaf*
Senecia sp.	Vara amarilla	O	Flower
Calea zacatechichi Schl.	Zacate chichi	M ves	Branch +
		M k	Branch*
CONVOLCULACEAE			
Ipomoea batatas (L) Poir ex Lam.	Camote (sweet potato)	F v	Tubercule
Quamoclit ledexifolia (L) Pom	Campanita	O	Flower
Ipomoea fistulosa Mar. ex Choisy	Cola de gato	O	Flower
CRASSULACEAE			
Kalancho sp.	Siempreviva	O	Plant
Crassula sp.	Maravillosa	M c, g	Leaf*
		M s	Leaf*

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. (continued)

Family and Scientific Name	Common Name	Use	Part Used
Bryophyllum pinnatum (Kurz) Lam.	Belladona maravillosa, siempreviva	M g	Leaf*
CUCURBITACEAE			
Cucurbita pepo L.	Calabaza (squash)	F v	Flower, Fruit
C. pepo L. var. *melopepo* Alef	Calabaza pipiana	F s	Seed
Momordica balsamina L.	Cundeamor	D wc	Leaf
Sechium edule S.W.	Chayote	F v	Fruit
Cucumis melo L.	Melon (melon)	F v	Fruit
Cucumis sativus L.	Pepino (cucumber)	F v	Fruit
Citrullus vulgaris Schrad.	Sandia (watermelon)	F v	Fruit
CYPERACEAE			
Cyperus hermaphroditus (Jack.) Standl.	Zacate	A W	Leaf
CHENOPODIACEAE			
Chenopodium ambrosioides L.	Epazote	F s	Leaf
		M a	Root +
Ch. botrys L.	Epazote extranjero	M a	Root +
Ch. amaranticolor Cost & Rey.	Epazote vermifugo,	M a	
	epazote zorrillo	M d	Leaf +
EUPHORBIACEAE			
Sapoim macrocarpum Muell. Arg.	Amate capulin, tomatillo	S	Tree
Acalypha wilkesiana Muell. Arg.	Arbol colorado	O	Leaf
Croton nitens S.W.	Cascarillo	C	Stem
		I	Branch
C. glabellus L.	Cascarillo	I	Branch
Codiaeum variegatum var. *pictum* M.	Cola de gallo	O	Leaf
Acalypha hispida Burm.	Cola de gallo	O	Leaf, Flower
Euphobia splendens	Corona de Cristo	O	Plant
Breynia nivosa Small.	Hierba pinta, arbolito verde	O	Leaf

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. (continued)

Family and Scientific Name	Common Name	Use	Part Used
Ricinus comunis L.	Higuerilla	M a	Latex
		M r	Leaf*
		M i	Leaf*
		M birds	Seed
Acalypha sp.	Hoja morada	O	Leaf
Codiaeum vanegatum var *pictum* Muell.	Manguito	O	Leaf
		R c	Branch
Euphorbia pulcherrima Willd.	Nochebuena (poinsettia)	O	Flower
Euphorbia sp.	Pinito	O	Plant
Jatropha crucas L.	Pinon	E	Stem
		M c	Latex
Manihot esculenta Crantz.	Yuca (cassava)	F v	
Pedilanthus tithymaloides L. Por.	Zapatito, mayorga	O	Flower
		M g	Leaf*
		M th	Latex*
		M mumps	Latex*
		M se	Leaf*
FLAVOURTIACEAE			
Zuelania guidonia (SW) Britt & Mill	Nopotapeste	S	Tree
GERANIACEAE			
Pelargonium zonale Ait.	Geranio, capote	O	Flower
P. radula L'Her	Geranio, capote (geranium)		Flowers
GESNERIACEAE			
Haberna rhodopensis Friv	Lazo, mono	O	Flower
GRAMINEAE			
Saccharum officinarum L.	Caha de Azucar (sugar cane)	F v	Stem
Guadua aculeata	Cana Otate	C	Stem
Cynodon plectostachyus (Schum) Pil	Estrella de Africa	A W	Leaf
Zea mays L.	Maiz (maize, corn)	F v	Fruit
Arundo donax L.	Tarro, carrizo	C	Stem
		E	Stem

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. [continued]

Family and Scientific Name	Common Name	Use	Part Used
Cymbapogon citratus Stepf.	Te limon	M s	Leaf +
	(lemon grass)	F g	Leaf +
Paspalum conjugatum Bergius	Zacate grama	A	Leaf
		W	
Axonopus compressus (Sw.) Beauv.	Zacae grama	W	Leaf
GUTTIFERAE			
Rheedia edulis Triana (Planch.	Limoncillo	F f	Fruit
		C	Stem
HIPPOCRATACEAE			
Salacia impressifolia (Miers) SM	Tengualala	F f	Fruit
IRIDACEAE			
Sisyrinchium johnstonni Standl.	Cebollin	F s	Bulb
LABIATAE			
Ocimum basilicum L.	Albaca	R c	Branch
	(basil)	M s uterus	Leaf +
		M t	Leaf +
Hyptis mutabilis (Rch.) Briq.	Hierba martina	M s	Leaf
		M b	Root*
		W	
H. verticillata Jacq.	Hierba martina	W	Root*
Coleus blumei Benth.	Hoja pinta	O	Leaf
Salvia coccinea Juss. ex Mutt.	Mirto	O	Flower
Melampodium divaricatum Rich ex D.D.	Mozote amarillo	O	Flower
Pogostemon heyneanus Benth.	Pechulin	D wc	Leaf
		D wp	Leaf
Coleus thyrsoideus Baker	Purpura	O	Leaf
LAURACEAE			
Persea americana Mill.	Aquacate morado	F f	Fruit
	(avocado)	M d	Leaf +
P. schiedeana Nees x americana	Aguacate negro	M d	Leaf +
Persea schiedeana Nees.	Chinine, pagua	F f	Leaf +

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. (continued)

Family and Scientific Name	Common Name	Use	Part Used
Hectandra ambigens (Blak) CK. All	Laurel aguacatillo	C	Stem
H. loeseneriі Mes	Laurel	C	Stem
		M ps	Leaf +
LEGUMINOSAE			
(non identified)	Arrocillo	E	Tree
Caesalpinia pulcherrima (L) Sw.	Caballera	O	Flower
Arachis hypogaea L.	Carahuate (peanut)	F	Seed
Delonix regia (Boj.) Raf.	Cochimbo, framboyan,	O	Flower
	arbol del fuego	R c	Flower
Gliricidia sepium (Jack) Sted.	Cocuite	C	Stem
		E	Stem
Acacia comigera (L.) Willd.	Cornizuelo	M d	Leaf +
Dalbergia glomerata Hemsl.	Chagane	C	Stem
Inga punctata Willd.	Dhalahuite	F f	Seed
		S	Tree
Pisum sativum L.	Chicharo	F v	Seed
	(pea)		
Diphysa robinoides Benth.	Chipile	C	Stem
		M g	Leaf*
Pithecellobium sp.	Chiquipile	D t	Branch
Mimosa pudica L.	Dormilona	M l	Root
	tapavergenzas	W	
Acacia farnesiana (L.) Willd.	Flor de aroma	O	Flower
		D f	Flower
		M	
Phaseolus vulgaris L.	Frijol (bean)	F v	Seed
Clitoria ternata L.	Gallito	O	Flower
Erythrina sp.	Gasparito, iquimite,	E	Stem
	cosquelite	F v	Flower
		D p	Seed
E. caribeae Krukoff & Barn.	cosquelite	D p	Seed
Leucaena leucocephala (Lam) Wit.	Guajillo	F f	Seed
Pachyrrhizus erosus (L.) Urb.	Jicama	F v	Root
Lonchocarpus guatemalensis Benth	Palo gusano, gallito	I	Branch

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. (continued)

Family and Scientific Name	Common Name	Use	Part Used
L. santarosanus Dom.	Palo gusano, gallito	I	Branch
Dialium swartizia	Paqui	C	Stem
Tamarindus indica L.	Tamarindo	F f	Fruit
		S	Tree
		E	Tree
Inga sapindioides Willd.	Vaina chica	F f	Seed
		S	Tree
I. brevipedicellata Harms.	Vaina grande	S	Tree
I. jinicuil Schlecht.	Vaina grande	S	Tree
Inga sp.	Vaina mediana	S	Tree
LILIACEAE			
Allium sativum L.	Ajo	F s	Leaf
	(garlic)	M s	Leaf +
Allium cepa L.	Cebolla (onion)	F s	Bulb
Asparagus sefaceus (Kun) Jess.	Esparrago (asparagus)	F v	Stem
Hemerocallis dumortieri Mill.	Lirio amarillo	O	Flower
Aloe barbadensis Mill.	Sabila	M tumours	Leaf*
LOBELIACEAE			
Lobelia aff. *fulgens* Willd.	Cola de gato	O	Flower
LOGANACEAE			
Buddleja sp.	Tepozan	M g	Leaf*
LYTHRACEAE			
Lagerstroemia indica L.	Astronomica	O	Flower
MALPIGHIACEAE			
Bunchosia lanceolata Turez.	Zapotillo, zapote domingo	F f	Fruit
Byrsonima crassifolia (L) HBK	Nanche (Nanee)	F f	Fruit
		M r	Leaf**
		M d	Stem +
Malpighia glabra L.	Manzanita	O	Flower, Fruit
MALVACEAE			
Pavonia schiedeana Stendel	Cadillo	W	

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. (continued)

Family and Scientific Name	Common Name	Use	Part Used
Cyathula sp.	Cadillo	W	
Hampea nutricia Fryxell	Caimito,	M b	Latex*
	tecolixtle, tapaculo	F f	Fruit
Sida rhombifolia L.	Escobilla, malva	D b	Branch
	de cochino	A	Leaf
		W	
S. acuta Burm		W	
		M iv	
Robinsonella Mirandae Gomez P.	Manzanillo	C	Stem
Hibiscus calcynus Willd.	Tulipan amarillo	O	Flower
	(hibiscus)	M r	Flower +
H. schizopetalus Hook.	Tulipan canastito	M r	Flower +
Hibiscus sp. (hybride)	Tulipan clavelito	M r	Flower +
H. rosa-sinensis L.	Tulipan rojo	M r	Flower +
		R c	Flower
H. syriacus L.	Tulipan rosa	O	Flower
MELIACEAE			
Cedrella odorata L.	Cedro	C	Stem
	(cedar)	M mr	Cortex*
Guarea glabra Vahl.	Gaga	C	Stem
Trichilia lavanensis Jacq.	Rama tinaja	M ves	Leaf +
MONIMIACEAE			
Siparuna andina (Tul.) A.D.C.	Limoncillo	S	Tree
MORACEAE			
Poulsenia armata (Mig) Standl.	Agabasgabi	F f	Fruit
Cecropia obtusifolia Bertol.	Chancarro	C	Stem
		l	
		M db	Leaf +
Brosimum alicastrum Sw.	Ojochi	D p	Fruit
Pseudolmedia oxyphyllaria Donn.	Tomatillo	C	Stem
MUSACEAE			
Heliconia collinsiana Gelggs.	Hoja de berijao	F s	Leaf

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. (continued)

Family and Scientific Name	Common Name	Use	Part Used
Musa acuminata (Grupo AA)	Platano ciento en	F f	Fruit
	boca	F s	Leaf
	(banana)	F s	Fruit
		M r	Fruit +
M. acuminata x balbisiana (G. ABB)	Platano cuadrado	M r	Fruit +
M. acuminata (Grupo AA, Subgrupo Cavendish)	*Platano enano-gigante*	*M r*	*Fruit +*
M. acuminata x balbisiana (G. ABB)	Platano cuadrado	M r	Fruit +
M. acuminata (Grupo AA, Subgrupo Cavendish)	*Platano enano-gigante*	*M r*	*Fruit +*
M. acuminata x balbisiana (G. AAB, Subgrupo Plantain)	Platano hembra o dominico, Platano macho.	M r	Fruit +
M. acuminata x balbisiana (G. AAB)	Platano manzano	M r	Fruit +
M. acuminata Colla (G. AAA) Simmond	Platono morado, guineo, roatan, injerto, indio.	M r	Fruit +
Heliconia latispatha Benth.	Platanillo	O	Flower
		F s	Leaf
MYRTACEAE			
Sysygium jambos Alston.	Pomarrosa	F f	Fruit
Pimienta dioica (L.) Merrill	Pimienta	F s	Fruit
	(pepper)	M t	Leaf +
Psidum guajava L.	Guayaba	F f	Fruit
	(guava fruit)	M r, s	Stem*
		M d	Leaf +
		M g	Leaf*
		D t	Branch
		F s	Leaf
		S	Tree
Eugenia capuli Berg.	Escobilla	O	Flower
MYRSINACEAE			
Ardisia nigropunctata Oerst.	Capulin	F f	Fruit
Ardisia compressa H.B.K.	Capulin de Mayo	F f	Fruit
Ardisia aff. *belizensis* Lundell	Chagalapoli	F f	Fruit
Parathesis psychotrioides Lund.	Silling	F f	Fruit
		S	Tree

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. [continued]

Family and Scientific Name	Common Name	Use	Part Used
NYCTAGINACEAE			
Bougainvillea spectabilis Willd.	Bugamibilia [bougainvillea]	O	Flower
Mirabilis jalapa L.	Maravilla	O	Flower
		M g	Leaf*
OLEACEAE			
Jasminum sambac Ait.	Jazmin [jasmin]	O	Flower
ORCHIDACEAE			
Oncidium sphacelatum Lindl.	Parasita	O	Flower
Epidendrum paniculaum Ruiz & Pavon	Parasita	O	Flower
Oncidium ascendens Lindl.	Parasita	O	Flower
O. luridum Lindl.	Parasita	O	Flower
Encyclia cochleata [L] Lemee	Parasita	O	Flower
PALMAE			
Cocos nucifera L.	Coco	F f	Fruit
	[coconut]	S	Tree
Astrocaryum mexicanum Liebm.	Chocho	C	Stem
PEDIALIACEAE			
Sesamum indicum L.	Ajonjolf [sesame]	F s	Seed
PHYTOLACCACEAE			
Rivina humulis L.	Lluvia	O	Flower
		W	
PIPERACEAE			
Piper auritum H.B.K.	Acuyo	F s	Leaf
		M p	Leaf*
Piper amalago L.	Cordoncillo	M ps	Leaf*
PLUMBAGINACEAE			
Plumbago capensis Thumb.	Lluvita	O	Flower
POLYGONACEAE			
Coccoloba barbadensis Jack.	Uvero	S	Tree

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. (continued)

Family and Scientific Name	Common Name	Use	Part Used
		C	Stem
		F f	Fruit
		M d	Fruit +
POLYPODACEAE			
(non identified)	Palmitas	O	Leaf
PORTULACACEAE			
Portulaca oleracea L. var *sativa* D.C.	Mananita, verdolaga	O	Flower
		F v	Leaf
P. grandiflora Hook.	Mananita, amor de un rato	O	Flower
PUNICACEAE			
Punica granatum L.	Granada	F f	Fruit
		M d	Fruit +
ROSACEAE			
Eriobotrya japonica (Thumb) Lindl	Nispero	F f	Fruit
Rosa moschata Herm.	Rosa blanca chica	O	Flower
R. odorata Sucet.	Rosa carton, rosa blanca	O	Flower
R. chinensis Jacq.	Rosa concha, rosa roja y amarilla	O	Flower
R. multiflora Thumb.	Rosa nina, rosa carolina	O	Flower
R. damascena Mill.	Rosa roja (roses)	O	Flower
		R c	Flower
RUBIACEAE			
Coffea arabica L	Café (coffee)	F t	Seed
		M t	Leaf
Hamelia patens Jacq.	Coyolillo	M ps	Leaf*
Calycophyllum candidissimum DC.	Dagame, agame, palo colorado	C	Stem
Ixora coccinea L.	Flor roja	O	Flower
Gardenia augusta L.	Gardenia (gardenia)	O	Flower
		M o	Flower
Crusea hispida (Mill) Rob.	Nueva cimarrona	W	

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. (continued)

Family and Scientific Name	Common Name	Use	Part Used
Dioidia brasiliensis var. *angulata* Benth Stand.	Romerillo	D b W	Branch
Richardia scobra L.	Roseta	O	Flower
Rondeletia leucophylla HBK	Roseta	O	Flower
RUTACEAE			
Citrus aurantifolia (Christm) Sw.	Limon agrio chico,	F f	Fruit
	limon injerto	M o	Leaf +
	(lemon)		
C. limonia Osbeck	Limon agrio grande,	F f	Fruit
	limon real	F s	Leaf
Murraya paniculata (L.) Jack.	Limonaria	O	Flower
Citrus limon Burm.	Limon canario	F f	Fruit
	F s	Leaf	
C. limetta Risso	Limon dulce, lima	F f	Fruit
	limon, lima		
Citrus sinensis Osbeek	Naranja dulce	F f	Fruit
	(orange)	M s	Leaf +
C. aurantium L.	Naranja mateca,	F f	Fruit
	naranja agria	M l	Leaf +
		M o	Leaf +
		M o	Leaf +
		S	Tree
		A	Fruit
C. nobilis Lour	Naranja reina, mandarina	F f	Fruit
	china, tangerina	M a	Leaf +
Citrus paradisi Maaf.	Pomelo	F f	Fruit
		M mr	Leaf +
Ruta chalepensis L.	Ruda	R c	Branch
		M s	Leaf* +
Citrus maxima (Burm) Merrill	Toronja (grapefruit)	F f	Fruit
SAPINDACEAE			
Cupania glabra Swartz.	Guacamayo, tronador	S	Tree

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. (continued)

Family and Scientific Name	Common Name	Use	Part Used
C. macrophylla A. Rich	Guacamayo	S	Tree
		C	Stem
Cupania dentata D.C.	Tronador	I	Branch
SAPOTACEAE			
Pouteria mamosa Cronquist.	Mamey	F f	Fruit
		M f	Seed
		D f	Seed
Chrysophyllum mexicanun Brand & Standl.	Pistillo, pischahuite	F f	Fruit
Pouteria campechiana (HBK) Baeh.	Zapote agrio	F f	Fruit
SAXIFRAGACEAE			
Hydrangea macrophylla (Thumb) DC	Hortensia (hydrangea)	O	Flower
SCROPHULARIACEAE			
Russelia equisetiformis Schl & Chm.	Campanita de Oro	O	Flower
Bacopa procumbens (Mill) Greenm.	Chotete, hojita	M ar	Plant**
	de quebranto	M r, s	Leaf +
Angelonia ciliaris Rob.	Espuela	O	Flower
SOLANACEAE			
Solanum torvum Swarz.	Berenjena	D wd	Leaf
		M mr	Leaf*
S. chiapasense Roe	Berenjenilla	D wd	Leaf
		W	
S. umbellatum Mill	Berenjenilla	W	Leaf
Capsicum annuum var *aviculare*	Chile bolita	F s	Fruit
	(capsicum, chilli)		
C. frutescens L.	Chile santanera,	F s	Fruit
	chile veneno		
C. annuua L. var *minium* Mill.	Chilpaya, chiltepin	F s	Fruit
		M v	Leaf + +
Datura suaveolens Humb. & Bonpl.	Florinfundio	O	Flower
		M o	Leaf +
Cestrum racemósum R & P	Huele de Noche	O	Flower

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. (continued)

Family and Scientific Name	Common Name	Use	Part Used
		R c	Leaf
Datura stramonium L.	Toluache, hoja de	M	Leaf*
	tapa	M paralysis	Leaf
Lycopersicum esculentum (Dora]) Gray & Syn	Tomate (tomato)	F v	Fruit
STERCULIACEAE			
Guazuma ulmifolia Lam.	Guasimo	F f	Fruit
		I	Branch
		D t	Branch
		M e	Stem
TILIACEAE			
Triumfetta semitriloba Jacq.	Cadillo	W	
Heliocarpus appendiculatus Turcz.	Jonote	C	Stem
ULMACEAE			
Trema micrantha (L) Blume	Togalapoli	F f	Fruit
		C	Stem
UMBELLIFERAE			
Pimpinella anisum L.	Anis	Fc	Leaf
	(anise)	M c	Leaf +
Coriandrum sativum L.	Cilantro (coriander)	F s	Leaf
Eryngium foetidum L.	Cilantro extranjero	F s	Leaf
Petroselinum crispum (Mill) Nym	Perejil (parsley)	F s	Leaf
URTICACEAE			
Myriocarpa longipes Liebm.	Palo de agua	E	Stem
VERBENACEAE			
Clerodendrum thomsoniae Balt.	Enredadera, clorodendo	O	Flower
C. aspeciasum D'Ombrain	Enredadera, clorodendo	O	Flower
Clerodendrum japonicum Sweet	Flor roja, copa de oro	O	Flower
Duranta repens L. var *alba* Bail.	Lluvia	O	Flower
Lippia sp.	Orcgano (oregano)	F s	Leaf
		M se	Leaf*
		M p	Leaf + +

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. (continued)

Family and Scientific Name	Common Name	Use	Part Used
Lippia hypoleia Brig.	Palo gusano	S	Tree
		I	Branch
		D h	Tree
Verbena teucrifolia Mort & Gal.	Pizarrina	O	Flower
Lippia graveolens HBK	Salvia	M tet	Leaf*
Lippia alba (Mill) Brown ex	Salvia, manrubio,	M o	Leaf +
Britt & Wilson.	hoja de salvia	M s	Branch +
		M erysipela	Leaf*
Holmskioldia sanguinea Retz.	Sombrerito chino	O	Flower
Petrea volubilis L.	Tachicon	O	Flower
Duranta repens L.	Tres lomos	S	Tree
		A	Fruit
		F f	Fruit
Stachytarpheta jamaicensis (L.) Vahl.	Verbena	M toothache	Leaf*
		O	Flower
VIOLACEAE			
Viola odorata L. Sweet	Violeta (violet)	O	Flower
ZYNGIBERACEAE			
Hedichium coronarium Koenig. Ret.	Chilalaga	O	Flower
Kaempferia rotunda L.	Huerfanita	O	Flower
NON IDENTIFIED			
	Cochinilla	D p	
	Chichin	D i	Flower
	Espino blanco	S	Tree
		M	Leaf
	Hoja cuchara	C	Stem
	Ilama	F f	Fruit
	Lagana	D ch	Leaf, Flower
	Matanche	M ves	Leaf +
		M r	Leaf +
	Olozapote	S	Tree
	Palo dulce	D t	Stem

APPENDIX 1. Uses and parts used of the plant species of the Home Gardens of Balzapote, Veracruz. (continued)

Family and Scientific Name	Common Name	Use	Part Used
	Primavera	C	Stem
	Romero	M s uterus	Leaf +
		M cold	Leaf**
	Rosablanca	C	Stem
	Sabina	C	Stem
	Tabema	O	Flower
	Veveta	O	Flower
	Viudita	O	Flower