

HOMEGARDENS AND THEIR ROLE AS A MAIN SOURCE OF MEDICINAL PLANTS IN MOUNTAIN REGIONS OF CATALONIA (IBERIAN PENINSULA)¹

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Agelet, A., Bonet, M. À., and Vallès, J. (*Laboratori de Botànica, Facultat de Farmàcia, Universitat de Barcelona, Av. Joan XXIII, s/n, 08028 Barcelona, Catalonia*). HOMEGARDENS AND THEIR ROLE AS A MAIN SOURCE OF MEDICINAL PLANTS IN MOUNTAIN REGIONS OF CATALONIA (IBERIAN PENINSULA). *Economic Botany* 54(3):295–309, 2000. In this paper the validity of the homegardens in Catalonia is analyzed from data obtained in two ethnobotanical studies carried out in the districts (comarques) of Pallars Jussà and Pallars Sobirà (Pyrenees) and in the Montseny Massif (Catalan Prelittoral Range). We classified nine groups of plants by their uses and their situation in the homegarden. We centered our analysis on medicinal plants *lato sensu* (curative, palliative, symptomatic, prophylactic, used for diagnosis, placebos or with other health uses). More than 50% of the species used in these regions are in the homegardens, either expressly cultivated, wild, or indirectly favored by agricultural practices. If the whole range of human daily activity is considered (including the ruderal and weedy flora, and plants cultivated in fields and orchards) the proportion surpasses 80%.

LOS HUERTOS FAMILIARES Y SU PAPEL COMO FUENTE PRINCIPAL DE PLANTAS MEDICINALES EN ZONAS DE MONTAÑA DE CATALUÑA (PENÍNSULA IBÉRICA). En el presente trabajo analizamos la vigencia actual de los huertos familiares en Cataluña a partir de los datos que hemos obtenido en sendos estudios etnobotánicos llevados a cabo en las comarcas del Pallars Jussà y Pallars Sobirà (Pirineo) y el macizo del Montseny (Cordillera Prelitoral Catalana). Para realizar nuestro análisis de la estructura y el funcionamiento de los huertos familiares, hemos establecido nueve grupos de plantas según su uso y su situación en el espacio hortense. Centrándonos en las plantas medicinales en sentido amplio (curativas, paliativas, sintomáticas, profilácticas, usadas para diagnóstico, placebos o con algún otro tipo de uso sanitario), podemos afirmar que más del 50% de las especies utilizadas en las regiones investigadas se hallan en los huertos, ya sea expresamente cultivadas, ya sea silvestres, favorecidas por el propio ámbito hortense. Si consideramos todo el ámbito de la cotidianidad humana (incluyendo la flora ruderal y la segetal, así como las plantas cultivadas en los campos y vergeles) la proporción se eleva hasta superar el 80%.

Key Words: Catalonia; mountain regions; homegardens; Iberian Peninsula; medicinal plants.

The human species has always used plants, especially those that are easily assessable. In addition, since agriculture began, people have cultivated many and varying useful plants. As stated by Janzen (1999), “gardens—space and circumstances for our domesticates, the engineered living extensions of our genome—are an integrated part of *Homo sapiens*, and they are deeply imbedded in our genetic and cultural codes.” From ancient times, kitchen gardens, house gardens, or homegardens have played a fundamental role in the useful plant supply (Gispert, Gó-

mez, and Núñez 1993). In Catalonia, the homegarden has always been and continues to be an important institution. In the 1930s, the expression *la caseta i l'hortet* (little house and little garden) was popular. It was first used by a famous political leader, Francesc Macià, to indicate in a simplified way the aspirations of everyone in the country to have a house with a garden. Also, there is an old Catalan proverb that states, *sense casa, hort i porc, val més ésser mort* (without house, garden, and pig, you would be better off dead; Violant 1935). Nowadays, family horticultural systems still exist, not only in rural, but in urban zones. Evidence of this is seen in the rural character of the cities in the

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area studied (Vilà 1973). In Barcelona's metropolitan area, in which more than three million people live, there are homegardens, sometimes reduced to their minimal expression and with a role in which entertainment and pleasure has more weight than the exploitation of natural resources (Camós et al. 1983).

Medicinal plants do not occupy a pre-eminent place in the classical Greek and Roman homegardens (Eguaras 1988; Holgado 1988). Since the Middle Ages, explicit references to vegetables with medicinal properties are found, especially linked to monastic orders (Stuart et al. 1981). Father Miquel Agustí, prior of a monastery in Perpinyà (Perpignan, at that time not yet belonging to France), wrote an agriculture treatise (Agustí 1617) that enjoyed great success, first published in Catalan then in Spanish translation from 1617 to the first quarter of the nineteenth century, running to almost 20 editions. It was a well known and widely used book throughout the Iberian Peninsula and also in Spanish-speaking American countries (Soberanas 1988). One section is devoted to the gardens. After a short introduction in which royal and aristocratic gardens are discussed, he describes the homegarden in which 23 vegetable and 52 medicinal species are discussed, with the appropriate medicinal values and agricultural practices required for their cultivation. This illustrates the idea that homegardens have been used to cultivate not only vegetables, but for the supply of useful plants in general, with a relevant place for medicinal ones. This idea is valid today, the structure of present house gardens being basically the same as in medieval times.

Many studies on homegardens have been carried out in tropical regions (Dharmasena and Wijeratne 1996; Millat et al. 1996; Mpoyi et al. 1994; Padoch and de Jong 1991; Rugalema et al. 1995), especially in Mesoamerica and, in particular, Mexico (Caballero 1992; Gispert 1981; Gispert and Gómez 1986; Gispert, Gómez, and Núñez 1993; Herrera 1994; Rico-Gray et al. 1990). Hoogerbrugge and Fresco (1993), using data primarily from Southeast Asia, reviewed several agricultural and social aspects of the homegarden system and made proposals for their future development in the context of sustainable agriculture. In temperate regions, few studies have been conducted. In North America, the community gardens in a part of Manhattan in New York City have been studied from a so-

cial and urban development viewpoint (Schmelzkopf 1995) and a project on homegardens in South Carolina was started in 1994 (G.E. Wagner, pers. comm.). In Europe, the literature on this subject is also scarce; a general study on gardens with a description of the medicinal properties of their plants (Nowak-Nordheim 1982) and a phytocoenological approach to Swiss gardens (Brun-Hool 1980) may be cited. Recently H. Vibrans (pers. comm.) has started a comparison among homegardens in zones of Mexico and Germany. A study on family homegardens in the Barcelona region was carried out with an urban development approach (Camós et al. 1983). In these studies, there is almost nothing concerning the role of medicinal plants in homegardens. In the Iberian Peninsula, other agroecosystems such as pastures have been studied (Comité MaB español 1989; Fillat et al. 1984), but researches of homegardens have not yet been published, except for the above cited on urban gardens in Barcelona (Camós et al. 1983).

Three main questions are addressed in the present study: 1) to what extent homegardens are at present a functioning system in the mountains of Catalonia; 2) the status of medicinal plants in these systems; and 3) the degree of conservation of plant cultivation and use in homegardens in comparison with the first half of the present century and before.

STUDY AREAS

Both territories studied are located in mountain zones of northern Catalonia (northeastern Iberian Peninsula) (Fig. 1). Pallars is a region of 2457 km² and 19 000 inhabitants, divided into two administrative districts (*comarques*), the prepyrenean Pallars Jussà or Baix Pallars and the pyrenean Pallars Sobirà or Alt Pallars. Montseny is a massif belonging to the Catalan Prelittoral Range, with 715 km² and 60 000 inhabitants. In both areas there is an altitudinal vegetation gradient ranging from Mediterranean to Alpine communities (the latter scarce in Montseny). Lower altitudes are dominated by different kinds of holm-oak (*Quercus ilex* L.) and cork-oak (*Quercus suber* L.) forests and their series; in altitudinal progression, we find deciduous forests with oaks (*Quercus humilis*, *Q. faginea* Lam. and *Q. cerrioides* Willk. et Costa) and beeches (*Fagus sylvatica* L.) as the predominant trees. In Montseny, the highest points are oc-



Fig. 1. Location of the study areas.

cupied by subalpine meadows and just below them we can see the southernmost spruce (*Abies alba* Mill.) forests in Europe. In Pallars, the highest points have black pine [*Pinus mugo* Turra subsp. *uncinata* (Ramond ex DC. in Lam. et DC.) Domin] communities and alpine meadows. Peasants continue living there and natural resources are still exploited traditionally in these zones. Nonetheless, in the last few decades they have suffered severe rural depopulation and the affluence of mass tourism due to the mountain (and particularly skiing) facilities in Pallars and to the proximity of Barcelona (Catalonia's capital, only 50 km from Montseny). The massif of Montseny is a natural park listed since 1978 as

a biosphere reserve in UNESCO's Man and Biosphere (MaB) program.

METHODS

The present work is part of a broader ethnobotanical research project carried out in the study areas, with the aim of cataloging the respective local ethnofloras, with particular emphasis on medicinal plants. Field work and interviews started in 1991 in Pallars and in 1992 in Montseny. We interviewed (usually two to five times) 200 people in Pallars and 150 in Montseny. Interviews were conducted as general conversations, with the avoidance of direct questions so as not to affect the people's spontaneity

and direct their answers. With the permission of the people interviewed, their explanations were recorded on cassettes. In the laboratory, interviews were transcribed and plants were determined and prepared. Whenever possible herbarium vouchers were collected with the informants and are deposited in the Herbarium BCF (Laboratori de Botànica, Facultat de Farmàcia, Universitat de Barcelona). Taxonomy and nomenclature follow Bolòs et al. (1993). Gardens (49 in Montseny and 96 in Pallars) were visited with the informants, who were asked to talk on the present and past cultivation of medicinal and other useful plants. Garden holders, and for the most part our informants, were born in the regions studied or they have lived there most of their lives. Most of them are not formally trained in science and most work as peasants, cattle dealers, or shepherds. Their mean age is 69 years (range: 31–96) and women constitute 69% of the group. Ethnobotanical inventories in the homegardens were carried out and sketches of the gardens were drawn to establish the distribution of plants within the garden. Although called homegarden, the space analyzed covered all the informants' daily life space, i.e., the homegarden in the narrow sense and the remaining environs of the house, even if these are not as well organized as the kitchen garden. On this point we followed Gispert (1981), who defined the family homegarden as all the space surrounding the house, in which plants required by the inhabitants are planted. The concept of medicinal plant is considered in the broad sense proposed by Peters (1987), including plants that were curative, palliative, symptomatic, prophylactic, used for diagnoses, placebos, and other health uses.

RESULTS AND DISCUSSION

DEFINITION, STRUCTURE, AND PRESENT VITALITY OF HOMEGARDENS

The main function of the homegarden is to hold food plants, mainly vegetables and fruit trees; the former usually occupy the central part of the garden and the latter are planted on the margins or at specific points to provide or avoid shade, necessary or harmful for different plants. In addition, two other kinds of useful plants play relevant roles in the garden: medicinal and ornamental. Some plants are cultivated specifically as medicinal, often along the edges of the gar-

den, such as at the feet of the rocky walls delimiting the space. In the same position we can also find ornamental plants. Both medicinal and ornamental species are also cultivated in pots or in small areas surrounding the house. It is worth mentioning that in the highest parts of mountain regions gardens are often situated in difficult topographic positions. Three to six different vertical strata are recognized in tropical homegardens (Caballero 1992; Gispert, Gómez, and Núñez 1993; Millat et al. 1996) and a similar situation may be found in desert oases (Baayaoui et al. 1986). However, Mediterranean gardens do not show this complex vertical structure and their stratification is usually limited to a lower stratum of herbs and shrubs and a higher one of trees. In addition a well-defined distribution pattern of the different taxa in the garden does not exist, unlike the pattern for tropical regions stated by Caballero (1992). Hoogerbrugge and Fresco (1993) defined the homegarden as "a small-scale, supplementary food production system by and for household members that mimics the natural, multi-layered ecosystem." We agree with this definition, but our findings suggest it should be enlarged to include the role of medicinal plants.

Homegardens in the broad sense appeared to be a basic agroecosystem in both areas studied. People living in villages and those living in isolated houses (called *mas* or *masia*) care for the homegarden primarily as a means of satisfying needs of home consumption. The present vitality of the homegarden is similar in the mountain regions studied, to at least the last century, even though agricultural practices and tools are more modern. As in the past, women play an important role in cultivating the homegarden, as occurs in many other zones (Hoogerbrugge and Fresco 1993). According to ethnobotanical research we carried out in other Catalan areas (Bonet 1991, 1993; Bonet, Blanché, and Vallès 1992; Bonet et al. 1999; Muntané 1991, 1994; Parada, 1997; Raja 1995; Raja, Blanché, and Vallès 1997; Selga 1998), we believe that the above comments may be generalized to the whole of Catalonia.

In the last few decades we have witnessed in Catalonia—as in Western Europe in general—major socioeconomic and cultural changes that caused, among other things, the migration of young people from rural to urban areas and the mechanization of agriculture. In addition, the

work capability of people remaining in rural zones, usually elderly, has diminished. This process did not imply the collapse of homegardening—even in regions like Montseny, close to big cities—but led to specialization of agricultural tasks and a loss of genetic diversity; an impoverishment of traditional homegardens has occurred. Many of our informants remembered clearly that they cultivated many more crop varieties in their homegardens 25–40 years ago. We will come back in more detail to the question of the erosion both of plant diversity and of knowledge of its uses concerning medicinal plants.

MEDICINAL PLANTS IN THE HOMEGARDENS

Two hundred fifty medicinal plant species are found in homegardens in the areas studied. They are listed in Table 1 in nine groups comprising the plants expressly cultivated as medicinal, the medicinal wild plants favored by homegarden structure and care, and seven kinds of horticultural plants with complementary medicinal applications. One hundred eighty-six medicinal plant species are present in Pallars homegardens, which represents 42.6% of the 437 species with medicinal uses detected in the zone (Agelet 1999). For Montseny, 149 of the 212 (70.3%) medicinal plants of the territory grow in gardens (Bonet, Blanché, and Vallès 1999). We calculated that if one counted the plants that were utilized from ruderal and weedy floras, as well as from fields and orchards, the percent of medicinal plants maintained or cultivated could reach 80. This indicates that the majority of species of medicinal use are found close to human habitations. These figures are similar to those reported from other regions, in which medicinal plants represent a considerable part of the flora close to human habitats. Mpoyi et al. (1994) inventoried 273 species maintained or cultivated as domestic flora in the Democratic Republic of the Congo (Zaire), and reported 27% were grown for medicinal purposes. Padoch and de Jong (1991) reported of the 168 plant species grown in Peruvian Amazon homegardens; the mean percentage of medicinal plants in the different gardens sampled by these authors was 27. For absolute number of species, plant diversity in Catalan mountain homegardens is high. Because only plants with medicinal uses were considered in our study the total number of plant species in homegardens is greater than 250. Soemarwoto

et al. (1985) listed 179 species in Java, which is considered to have the most diversified homegardens on earth (Fernandes and Nair 1986); Rico-Gray et al. (1990) reported 188 species growing in Mayan homegardens; these authors indicated that some of these plants are medicinal, but they do not give indication of their number or percentage.

Not all the medicinal plants used by the informants grow in gardens. Species that are not ecologically adapted to the garden need to be collected from the wild or purchased. Also of importance is the belief in the special powers of particular places (e.g., near hermitages)—a given species is much better or good only if it comes from specific sites—or the tradition of picking a plant in a certain place (they do not say that it is better there, but that they have always picked it there) may cause people to travel to harvest plants they could obtain closer to home or cultivate in their gardens.

The total number of plants with medicinal uses present in one garden ranges from 30 to 60. Three of the nine medicinal plant groups considered in Table 1 are outstanding because of the number of species they include. Before discussing these groups, we must note that a reasonably high number of plants are polyvalent and can be included in more than one ensemble, *Mentha piperita*, *M. spicata*, *Ocimum basilicum*, and *Sedum telephium* in particular. The largest group is made up of wild medicinal plants that thrive in the garden space. The rocky walls delimiting the garden, horticultural practices (such as irrigation and fertilization), and protection from cold and other factors are elements that may favor the presence in a homegarden of a great part of the local medicinal flora. The second largest group includes the strictly medicinal species grown close to the house. Often these are wild plants in the area but not in the immediate vicinity of the users, or plants from other floristic regions. The third group is medicinal vegetables, primarily cultivated for food and secondarily used as medicinal plants. According to Gispert (1981), in Balzapote's homegardens (tropical Mexico), both naturally occurring wild plants and deliberately introduced plants are cultivated. The wild species, in this case, represent 27.5% of the total for this area. We found the same situation in the regions that we studied, with wild plants reaching 44.2%.

Homegardens and particularly the medicinal

TABLE 1. MEDICINAL PLANT SPECIES GROWING IN HOMEGARDENS IN MONTSENY (M) AND PALLARS (P). THE DIFFERENT KINDS OF PLANTS ARE INDICATED AS FOLLOWS: 1, MEDICINAL VEGETABLES; 2, MEDICINAL FRUITING TREES; 3, MEDICINAL FODDER PLANTS; 4, PLANTS EXPRESSLY CULTIVATED AS MEDICINAL; 5, MEDICINAL SPICES; 6, MEDICINAL WILD PLANTS FAVORED BY THE HOMEGARDEN STRUCTURE; 7, MEDICINAL ORNAMENTAL PLANTS; 8, MEDICINAL TIMBER PLANTS; 9, OTHER MEDICINAL PLANTS. ASTERISK (*) INDICATES THE PLANTS SOLD IN LOCAL MARKETS. CROSSES INDICATE PLANTS NO LONGER PRESENT IN GARDENS: ONE CROSS (+) MEANS LOSS OF THE SPECIES IN APPROXIMATELY 50% OF GARDENS WHERE IT USED TO BE PRESENT AND TWO CROSSES (++) EXPRESS THE SAME SITUATION IN APPROXIMATELY 75% OF GARDENS. FREQUENCY: PERCENTAGE OF GARDENS WHERE THE TAXON WAS FOUND IN ONE OR BOTH TERRITORIES. VOUCHER SPECIMENS ARE DEPOSITED IN HERBARIUM BCF (LABORATORY OF BOTANY, FACULTY OF PHARMACY, UNIVERSITY OF BARCELONA).

Taxon	Herbarium voucher (BCF)	Territory and kind of plant	Frequency	Main medicinal use
Agavaceae				
<i>Agave americana</i> L.	38319	M, 7	41%	Anticatarrhal
Aizoaceae				
<i>Carpobrotus edulis</i> (L.) N. E. Br. in Philips	44423	M, 7	10%	Cicatrizing
Amaryllidaceae				
<i>Amaryllis belladonna</i> L.	44380	M, 7	2%	Resolutive
Anacardiaceae				
<i>Pistacia lentiscus</i> L.	44387	M, 6	20%	Antialgic
Apiaceae				
<i>Anethum graveolens</i> L.	40493	P, 4, +	1%	Intestinal antiseptic
<i>Angelica sylvestris</i> L.	44398	M, 6	4%	Anticancerigene
<i>Apium graveolens</i> L. var. <i>rapaceum</i> (Mill.) DC.	38310	M, P, 1, *	14%	Diuretic
<i>Carum carvi</i> L.	44410	P, 4	2%	Digestive
<i>Chaerophyllum temulum</i> L.	37505	P, 6	1%	Resolutive
<i>Daucus carota</i> L. ssp. <i>carota</i>	37526	P, 6	2%	Anticatarrhal
<i>Daucus carota</i> L. ssp. <i>sativus</i> (Hoffm.) Arcang.	38304	M, P, 1, *	90%	Antialgic
<i>Eryngium campestre</i> L.	37556	M, 6	41%	Parturition coadjuvant (animals)
<i>Foeniculum vulgare</i> Mill.	44416	M, P, 4, 5, 6	8%	Carminative
<i>Petroselinum crispum</i> (Mill.) Hill.	38253	M, P, 5, *	22%	Diuretic
<i>Pimpinella anisum</i> L.	44418	P, 4, 5, ++	2%	Carminative
Apocynaceae				
<i>Vinca difformis</i> Pourr.	44389	M, 4, 7	20%	Uterine antihæmorrhagic
<i>Vinca minor</i> L.	37521	P, 4, 7	4%	Buccopharyngeal antiseptic
Araceae				
<i>Arum italicum</i> Mill.	38339	M, P, 4, 6, +	7%	Antipyrotic
Araliaceae				
<i>Hedera helix</i> L.	38022	M, P, 6	73%	Antiseptic
Asteraceae				
<i>Anthemis cotula</i> L.	40494	P, 6	2%	Digestive
<i>Anacyclus clavatus</i> (Desf.) Pers.	43667	P, 6	1%	Intestinal antiseptic
<i>Arctium minus</i> Bern.	38246	M, P, 6	53%	Antiasthmatic
<i>Artemisia absinthium</i> L.	44394	M, P, 4, +	8%	Anthelmintic
<i>Artemisia chamaemelifolia</i> Vill.	38014	P, 4, ++	1%	Bechic
<i>Artemisia vulgaris</i> L.	38241	P, 6	5%	Anticatarrhal
<i>Calendula arvensis</i> L.	37917	M, P, 6	14%	Vitaminic
<i>Calendula officinalis</i> L.	37916	P, 4, 7	1%	Vitaminic
<i>Centaurea aspera</i> L.	38229	M, 6	2%	Hypoglycemiant
<i>Centaurea calcitrapa</i> L.	38325	M, P, 6	2%	Antipyretic

TABLE 1. CONTINUED.

Taxon	Herbarium voucher (BCF)	Territory and kind of plant	Frequency	Main medicinal use
<i>Centaurea pectinata</i> L. ssp. <i>pectinata</i>	44408	M, 6	20%	Antitumoric
<i>Chondrilla juncea</i> L.	44401	M, 6	41%	Vulnerary
<i>Cichorium endivia</i> L.	39927	M, 1, *	82%	Buccopharyngeal antiseptic and anti-inflammatory
<i>Cichorium intybus</i> L.	36179	M, 6	41%	Hepatoprotector
<i>Cirsium arvense</i> (L.) Scop.	41789	P, 6	1%	Anti-inflammatory (animals)
<i>Cynara cardunculus</i> L.	39729	M, P, 9, *, +	14%	Abortive
<i>Cynara scolymus</i> L.	38276	M, P, 1, *	5%	Hepatoprotector
<i>Helichrysum stoechas</i> (L.) Moench	44422	M, 7	10%	Digestive
<i>Hieracium pilosella</i> L.	38021	M, 6	41%	Antimycotic
<i>Lactuca sativa</i> L.	38305	P, 1, *	50%	Hypnotic
<i>Lactuca serriola</i> L.	40415	M, P, 6	17%	Antiverrucose
<i>Matricaria recutita</i> L.	37565	M, P, 4, *	38%	Digestive
<i>Pallenis spinosa</i> (L.) Cass.	44379	M, P, 6	6%	Antialgic and anti-inflammatory
<i>Pulicaria dysenterica</i> (L.) Bernh.	38239	P, 6	2%	Vulnerary
<i>Reichardia picroides</i> (L.) Roth.	44404	M, 6	41%	Hypoglycemic
<i>Santolina chamaecyparissus</i> L.	44386	M, 4	11%	Digestive
<i>Senecio vulgaris</i> L.	38261	P, 6	1%	Antialgic and anti-inflammatory
<i>Sonchus oleraceus</i> L.	37915	P, 6	9%	Blood depurative
<i>Tagetes minuta</i> L.	44414	M, 4, +	4%	Digestive
<i>Tanacetum balsamita</i> L.	38301	M, P, 4, ++	2%	Anthelmintic
<i>Tanacetum parthenium</i> (L.) Schultz. Bip.	37516	M, P, 4, 6, 7, *	76%	Intestinal antiseptic
<i>Tanacetum vulgare</i> L.	36328	P, 4, ++	3%	Digestive
<i>Taraxacum officinale</i> Weber in Wiggers	37898	M, P, 6	60%	Blood depurative
<i>Xanthium spinosum</i> L.	44381	M, 6	20%	Hepatoprotector
Betulaceae				
<i>Corylus avellana</i> L.	37567	P, 2	2%	Antidiarrheal
Boraginaceae				
<i>Borago officinalis</i> L.	37215	M, P, 1, 4, 6,	20%	Hypotensive
<i>Cynoglossum creticum</i> Mill.	40414	+	1%	Vulnerary
<i>Echium vulgare</i> L.	37515	P, 6	1%	Antihemorrhagic
<i>Lithospermum officinale</i> L.	37514	P, 6	10%	Lithotriptic
<i>Symphytum officinale</i> L.	37569	M, P, 4, +	2%	Hypoglycemic
		P, 1, 4, +		
Brassicaceae				
<i>Brassica napus</i> L.	44400	M, 1, *	31%	Antipyretic
<i>Brassica oleracea</i> L. ssp. <i>oleracea</i>	38272	M, P, 1, *	61%	Antipyretic
<i>Capsella bursa-pastoris</i> (L.) Medic.	37557	P, 6	1%	Lithotriptic
<i>Cheiranthus cheiri</i> L.	38249	P, 4, 6	1%	Aromatic stimulant
<i>Lepidium latifolium</i> L.	37885	P, 4, +	1%	Lithotriptic
<i>Lepidium graminifolium</i> L.	38296	P, 6	2%	Digestive
<i>Raphanus raphanistrum</i> L. ssp. <i>sativus</i> (L.) Domin	44436	M, P, 1, *	7%	Hypocholesterolaemic
<i>Rorippa nasturtium-aquaticum</i> (L.) Hayek	44409	M, 6	20%	Hepatoprotector
Cactaceae				
<i>Opuntia ficus-barbarica</i> A. Berger	44431	M, P, 2, 4, 7, +	8%	Ocular antiseptic
Campanulaceae				
<i>Jasione montana</i> L.	44390	M, 6	2%	Antimycotic

TABLE 1. CONTINUED.

Taxon	Herbarium voucher (BCF)	Territory and kind of plant	Frequency	Main medicinal use
Caprifoliaceae				
<i>Lonicera implexa</i> Ait.	44375	M, 6	10%	Sedative
<i>Sambucus nigra</i> L.	37893	M, P, 4, 6	24%	Anticatarrhal
Caryophyllaceae				
<i>Herniaria glabra</i> L.	44430	M, 6	10%	Diuretic
<i>Herniaria hirsuta</i> L.	38664	P, 6	1%	Intestinal antiseptic
<i>Saponaria officinalis</i> L.	38307	P, 4, ++	2%	Antialgic
<i>Silene saxifraga</i> L.	36325	P, 4	1%	Lithotriptic
Chenopodiaceae				
<i>Beta vulgaris</i> L. ssp. <i>vulgaris</i> var. <i>vulgaris</i>	39214	M, P, 1, *	28%	Laxative
<i>Chenopodium ambrosioides</i> L.	40330	M, 6	10%	Digestive
<i>Spinacia oleracea</i> L.	40492	P, 1, *	1%	Salutiferous
Clusiaceae				
<i>Hypericum perforatum</i> L.	37555	M, 6	20%	Antiechimotic
Convolvulaceae				
<i>Convolvulus arvensis</i> L.	38952	P, 6	10%	Antihaemorrhagic
Crassulaceae				
<i>Sedum dasyphyllum</i> L.	38238	M, P, 6	10%	Antialgic and anti-inflammatory
<i>Sedum rupestre</i> L.	38202	P, 6	1%	Ocular antiseptic
<i>Sedum telephium</i> L.	37559	M, P, 4, 6, 7,	14%	Vulnerary
<i>Sempervivum tectorum</i> L.	37529	*, + M, P, 4, 6, 7, +	6%	Antialgic and anti-inflammatory
<i>Umbilicus rupestris</i> (Salisb.) Dandy	37527	M, P, 6	20%	Vulnerary
Cucurbitaceae				
<i>Bryonia cretica</i> L. ssp. <i>dioica</i> (Jacq.) Tutin	37531	M, P, 4, 6, ++	7%	Purgative
<i>Cucumis sativus</i> L.	44428	M, P, 1, *	16%	Lithotriptic
<i>Cucurbita pepo</i> L.	37906	M, P, 1, *	31%	Anthelmintic
<i>Ecballium elaterium</i> (L.) A. Richard in Bory	37890	M, P, 6	10%	Intestinal anti-inflammatory
Cyperaceae				
<i>Scirpus holoschoenus</i> L.	38278	M, 6, +	10%	Buccal antiseptic
Dipsacaceae				
<i>Scabiosa atropurpurea</i> L.	39715	M, P, 6	14%	For measles
<i>Scabiosa columbaria</i> L.	37503	M, P, 6	10%	For measles
Equisetaceae				
<i>Equisetum arvense</i> L.	44397	M, P, 6, *	20%	Antihaemorrhagic
<i>Equisetum ramosissimum</i> L.	38332	M, P, 6	10%	Diuretic
Ericaceae				
<i>Arbutus unedo</i> L.	37500	M, 6	10%	Hypocholesterol-aemic
Euphorbiaceae				
<i>Euphorbia helioscopia</i> L.	38096	M, P, 6	20%	Antiverrucose
<i>Euphorbia lathyris</i> L.	37496	P, 4, +	32%	Purgative
<i>Euphorbia serrata</i> L.	37217	P, 6	4%	Antiverrucose
Fabaceae				
<i>Astragalus baeticus</i> L.	BC 78920	P, 4, ++	3%	Laxative
<i>Cerantonia siliqua</i> L.	38093	M, 2, *	2%	Antidiarrheal
<i>Glycyrrhiza glabra</i> L.	38662	M, 4, *	4%	Gastric antiulcerous
<i>Lathyrus sativus</i> L.	39725	P, 1, *, ++	1%	Analeptic
<i>Medicago sativa</i> L. ssp. <i>sativa</i>	44391	M, P, 3, *	10%	Antiechimotic
<i>Phaseolus vulgaris</i> L.	40419	M, P, 1, *	90%	Hypoglycemicant

TABLE 1. CONTINUED.

Taxon	Herbarium voucher (BCF)	Territory and kind of plant	Frequency	Main medicinal use
<i>Trigonella coerulea</i> (L.) Ser. in DC.	38317	P, 4, +	1%	Anticephalalgic
<i>Vicia faba</i> L.	39717	M, P, 1, *	70%	Cicatrizing
Fagaceae				
<i>Quercus ilex</i> L. ssp. <i>ilex</i>	37894	M, 8	82%	Antidiarrheal
<i>Quercus suber</i> L.	5103	M, 8	10%	Antidiarrheal
Geraniaceae				
<i>Erodium cicutarium</i> (L.) L'Hér. in Aiton	38265	P, 6	2%	Salutiferous
Hippocastanaceae				
<i>Aesculus hippocastanum</i> L.	38270	M, 7	4%	Antihaemorrhoidal
Iridaceae				
<i>Crocus sativus</i> L.	38661	M, P, 4, 5, +	7%	Resolutive
<i>Iris germanica</i> L.	38273	P, 4, 7, +	6%	Antihelmintic
Juglandaceae				
<i>Juglans regia</i> L.	36237	M, P, 2, *	11%	Antialgic and anti-inflammatory
Lamiaceae				
<i>Ballota nigra</i> L.	38232	P, 6	6%	Antipruriginous
<i>Hyssopus officinalis</i> L.	37260	M, P, 4, 5, *,	3%	Antinauseous
<i>Lamium flexuosum</i> Ten.	44419	+	20%	Intestinal anti-inflammatory
		M, 6		
<i>Lavandula angustifolia</i> Mill.	37267	P, 4, 7	1%	Antialgic and anti-inflammatory
<i>Lavandula latifolia</i> Medic.	37928	M, 4, 7	41%	Antialgic
<i>Lavandula stoechas</i> L.	40324	M, 6	31%	Gastric antilcerous
<i>Marrubium vulgare</i> L.	37892	M, P, 6	16%	Anticholagogue
<i>Melissa officinalis</i> L.	44421	M, P, 4, 7, *	18%	Sedative
<i>Mentha longifolia</i> (L.) Huds.	44383	P, 4, 6	2%	Digestive
<i>Mentha x piperita</i> L.	38931	M, P, 4, 5, *	24%	Digestive
<i>Mentha pulegium</i> L.	40329	M, P, 4	15%	Intestinal antiseptic
<i>Mentha spicata</i> L.	38949	M, P, 4, 6, 7, *	51%	Digestive
<i>Mentha suaveolens</i> Ehrh.	44378	M, 6	41%	Antidiarrheal (animals)
<i>Nepeta cataria</i> L.	44412	M, P, 4, 5, +	8%	Anti-dysmenorrhoeic
<i>Ocimum basilicum</i> L.	37895	M, P, 4, 5, 7, *	15%	Antialgic
<i>Origanum majorana</i> L.	37914	M, P, 4, 5, *, +	18%	Antialgic
<i>Origanum vulgare</i> L.	38207	M, 5, 6, *	41%	Anticatarrhal
<i>Rosmarinus officinalis</i> L.	37920	M, P, 4, 7, *	21%	Antialgic
<i>Salvia officinalis</i> L.	37528	M, P, 4, 7, *	30%	Antialgic
<i>Salvia sclarea</i> L.	37570	M, P, 4, ++	1%	Ocular antiseptic and antialgic
<i>Salvia verbenaca</i> L.	37934	P, 6	2%	Ocular antiseptic
<i>Satureja calamintha</i> (L.) Scheele	40339	M, 6	41%	Digestive
<i>Satureja fruticosa</i> (L.) Briq.	37925	P, 6, *	1%	Digestive
<i>Stachys byzantina</i> C. Koch	42885	M, 4, 7	41%	Vulnerary
<i>Stachys recta</i> L.	44417	M, 6	41%	Hypotensive
<i>Thymus vulgaris</i> L.	37518	M, 4, 5, 6, 7, *	41%	Antiseptic
Lauraceae				
<i>Laurus nobilis</i> L.	37936	M, P, 5, 7, *	6%	Anticephalalgic
Liliaceae				
<i>Allium cepa</i> L.	38211	M, P, 1, *	95%	Antiseptic
<i>Allium porrum</i> L.	38341	P, 1*	16%	Diuretic
<i>Allium sativum</i> L.	38258	M, P, 1, *	95%	Antihelmintic
<i>Lilium candidum</i> L.	38222	M, P, 4, 6, +	62%	Vulnerary

TABLE 1. CONTINUED.

Taxon	Herbarium voucher (BCF)	Territory and kind of plant	Frequency	Main medicinal use
<i>Lilium martagon</i> L.	37268	P, 4, 6, ++	6%	Antialgic and anti-inflammatory
<i>Lilium pyrenaicum</i> Gouan	39731	P, 4, ++	1%	Resolutive
Linaceae				
<i>Linum usitatissimum</i> L.	38287	P, 4, *, ++	2%	Laxative
<i>Urginea maritima</i> (L.) Baker	44396	M, 4, 7, +	10%	Resolutive
Lythraceae				
<i>Lythrum salicaria</i> L.	38205	P, 6	1%	Antidiarrheal
Magnoliaceae				
<i>Magnolia grandiflora</i> L.	44429	M, 5, 7	10%	Digestive
Malvaceae				
<i>Althaea cannabina</i> L.	38225	P, 4, +	3%	Anticatarrhal
<i>Althaea officinalis</i> L.	38242	M, P, 4, +	8%	Anticatarrhal
<i>Malva neglecta</i> Wallr.	37538	P, 6	2%	Laxative
<i>Malva sylvestris</i> L.	37547	M, P, 6, *	76%	Anticatarrhal
Marchantiaceae				
<i>Marchantia paleacea</i> Bertol.	44411	M, 6, +	4%	Anticatarrhal
Moraceae				
<i>Ficus carica</i> L.	37908	M, P, 2, *	24%	Antiverrucose
Myrtaceae				
<i>Eucalyptus globulus</i> Labill.	37940	M, P, 4, 7, *	5%	Anticatarrhal
Oleaceae				
<i>Jasminum officinale</i> L.	39732	P, 4, 7, ++	1%	Anticephalgic
<i>Fraxinus angustifolia</i> Vahl	38308	M, P, 3, 8	8%	Antiophidic
<i>Fraxinus excelsior</i> L.	37257	M, P, 3, 8	56%	Antiophidic
<i>Olea europaea</i> L.	37905	M, 2, 6, *	41%	Antihypertensive
<i>Phillyrea angustifolia</i> L.	44407	M, 6	10%	Antiodontalgic
<i>Syringa vulgaris</i> L.	38269	P, 4, 7, +	7%	Gastrointestinal anti-septic
Papaveraceae				
<i>Chelidonium majus</i> L.	36180	M, P, 6	41%	Antiverrucose
<i>Fumaria officinalis</i> L.	38097	P, 6	5%	Hypotensive
<i>Papaver somniferum</i> L.	38279	M, P, 6, 7, ++	12%	Antiodontalgic
Pinaceae				
<i>Abies alba</i> Mill.	44435	M, 7	20%	Anticatarrhal
<i>Pinus pinea</i> L.	37490	M, 1, 8, *	20%	Anticatarrhal
Plantaginaceae				
<i>Plantago coronopus</i> L.	44433	M, 6	20%	Anticatarrhal
<i>Plantago lanceolata</i> L.	37510	M, P, 6	41%	Antimycotic
<i>Plantago major</i> L.	37897	M, P, 6	2%	Anticatarrhal
<i>Plantago media</i> L.	43670	P, 6	1%	Vulnerary
Poaceae				
<i>Arundo donax</i> L.	38951	M, P, 9	16%	Antiulcerous
<i>Cynodon dactylon</i> (L.) Pers.	38231	M, P, 4, 6	19%	Diuretic
<i>Secale cereale</i> L.	37513	P, 2, +	1%	Laxative
<i>Setaria viridis</i> (L.) Beauv.	38642	P, 6	1%	Salutiferous
<i>Zea mays</i> L.	38340	M, P, 3, *	20%	Diuretic
Polygonaceae				
<i>Polygonum aviculare</i> L.	37539	M, P, 6	15%	Antidiarrheal (animals)
<i>Rumex crispus</i> L.	39736	M, P, 6	8%	Antianorectic
<i>Rumex longifolius</i> DC. in Lam. et DC.	39724	P, 6	1%	Vulnerary
<i>Rumex obtusifolius</i> L.	5776	M, 6	20%	Vulnerary

TABLE 1. CONTINUED.

Taxon	Herbarium voucher (BCF)	Territory and kind of plant	Frequency	Main medicinal use
<i>Rumex pulcher</i> L.	37558	M, P, 6	8%	Antipyrotic
Polypodiaceae				
<i>Adiantum capillus-veneris</i> L.	37904	M, P, 6	3%	Abortive
<i>Asplenium trichomanes</i> L.	37546	P, 6	5%	Hypotensive
<i>Ceterach officinarum</i> DC. in Lam. et DC.	44406	M, P, 6	16%	Anticatarrhal
<i>Dryopteris filix-max</i> (L.) Schott	37562	P, 4, 7, +	1%	Hypotensive
<i>Phyllitis scolopendrium</i> (L.) Newm.	44413	M, 7	2%	Splenetic anti-inflammatory
<i>Polypodium vulgare</i> L.	37544	P, 6	1%	Hypotensive
Portulacaceae				
<i>Portulaca oleracea</i> L.	37891	P, 6	1%	Blood depurative
Primulaceae				
<i>Anagallis arvensis</i> L.	39215	P, 6	1%	Salutiferous (animals)
Punicaceae				
<i>Punica granatum</i> L.	38250	M, P, 2, *	7%	Anthelmintic
Ranunculaceae				
<i>Anemone hepatica</i> L.	38095	P, 4, ++	1%	Hepatoprotector
<i>Consolida ajacis</i> (L.) Schur.	40091	P, 4, 7, ++	1%	Parasiticide
<i>Ranunculus bulbosus</i> L.	37545	P, 6	2%	Antialgic
Rosaceae				
<i>Agrimonia eupatoria</i> L.	44420	M, P, 6	31%	Hypotensive
<i>Crataegus monogyna</i> Jacq.	37930	M, 6, *	10%	Cardiotonic
<i>Cydonia oblonga</i> Mill.	37537	M, P, 2, *	6%	Antidiarrhoeic
<i>Prunus avium</i> (L.) L.	37541	M, P, 2, *	17%	Diuretic
<i>Prunus domestica</i> L. ssp. <i>domestica</i>	38309	P, 2, *	1%	Laxative
<i>Prunus domestica</i> L. ssp. <i>insititia</i> (L.) Poiret	38244	P, 2, *, +	1%	Laxative
<i>Prunus dulcis</i> (Mill.) Weeb.	37919	M, 2, *	41%	Anticatarrhal
<i>Prunus persica</i> (L.) Batch	37913	P, 2, *	4%	Anthelmintic
<i>Pyrus communis</i> L. ssp. <i>communis</i>	43673	P, 2, *	1%	Laxative
<i>Pyrus malus</i> L. ssp. <i>mitis</i> (Wallr.) O. Bolòs et J. Vigo	37912	M, P, 2, *	20%	Antidiarrheal
<i>Rosa arvensis</i> Huds.	38204	P, 4, +	3%	Antihaemorrhoidal
<i>Rosa canina</i> L.	38644	M, 6	20%	Buccopharyngeal antiseptic
<i>Rosa canina</i> L. x <i>R. gallica</i> L.	39710	P, 4, ++	1%	Ocular antiseptic
<i>Rosa</i> x <i>centifolia</i> L.	38651	M, P, 4, 7, +	39%	Ocular antiseptic
<i>Rosa</i> x <i>damascena</i> Mill.	38649	P, 4, 7, +	2%	Ocular antiseptic
<i>Rubus ulmifolius</i> Schott	38223	M, 6	20%	Buccopharyngeal antiseptic
<i>Sanguisorba minor</i> Scop.	44388	M, 6	20%	Buccopharyngeal antiseptic
<i>Sorbus domestica</i> L.	37552	M, P, 8, +	3%	Antidiarrheal
Rubiaceae				
<i>Galium aparine</i> L.	39723	P, 6	1%	Hypotensive
<i>Galium lucidum</i> All.	37525	M, 6	10%	Hypotensive
<i>Rubia peregrina</i> L.	38334	M, P, 6	9%	Gastric antialgic
<i>Rubia tinctorum</i> L.	37564	P, 4, ++	1%	Anticholagogue
Rutaceae				
<i>Citrus limon</i> (L.) Burm.	43671	M, 2, *	10%	Antidiarrheal
<i>Citrus sinensis</i> (L.) Osbeck	44425	M, 2, *	10%	Laxative
<i>Ruta chalepensis</i> L.	44395	M, P, 4, 7, +	28%	Ocular antiseptic
<i>Ruta graveolens</i> L.	38291	M, P, 4, 7, +	3%	Ocular antiseptic

TABLE 1. CONTINUED.

Taxon	Herbarium voucher (BCF)	Territory and kind of plant	Frequency	Main medicinal use
Salicaceae				
<i>Populus nigra</i> L.	40496	P, 8	1%	Anticatarrhal
Saxifragaceae				
<i>Saxifraga vayredana</i> Luiz.	44415	M, 4, 7	41%	Anticatarrhal
Scrophulariaceae				
<i>Scrophularia alpestris</i> Gay ex Benth. in DC.	39733	P, 6, ++	1%	Resolutive
<i>Verbascum sinuatum</i> L.	38275	M, 6	16%	Antieczematous
<i>Verbascum thapsus</i> L.	36337	M, 6	41%	Vulnerary
Smilacaceae				
<i>Smilax aspera</i> L.	41161	M, 6	16%	Diuretic (animals)
Solanaceae				
<i>Capsicum annuum</i> L. var <i>annuum</i>	38099	M, P, 1, 5, 7, *	7%	Antialgic
<i>Datura stramonium</i> L.	38306	M, P, 6	16%	Antiasthmatic
<i>Hyoscyamus niger</i> L.	38274	M, P, 4, 6, +	8%	Antiodontalgic
<i>Nicotiana rustica</i> L.	37563	P, 4, ++	1%	Antialgic
<i>Nicotiana tabacum</i> L.	43676	P, 4, ++	1%	Acaricide (animals)
<i>Physalis alkekengi</i> L.	44432	M, 7	6%	Diuretic
<i>Solanum dulcamara</i> L.	18255	P, 6	2%	Antiseptic
<i>Solanum lycopersicum</i> L.	37509	M, P, 1, *	90%	Ocular antiseptic
<i>Solanum melongena</i> L.	40418	M, P, 1, *	61%	Antiverrucose
<i>Solanum nigrum</i> L.	38206	M, P, 6	16%	Antihaemorrhoidal
<i>Solanum tuberosum</i> L.	39726	M, P, 1, *	41%	Antipyrotic
Taxaceae				
<i>Taxus baccata</i> L.	44384	M, 7, *	10%	Antipyrotic
Tiliaceae				
<i>Tilia platyphyllos</i> Scop.	38245	M, P, 4, 7, *	15%	Sedative
Ulmaceae				
<i>Celtis australis</i> L.	37929	M, P, 8	41%	Hypocholesterol-aemic
<i>Ulmus glabra</i> Huds.	38098	P, 3, 8	1%	Antipyrotic
Urticaceae				
<i>Parietaria officinalis</i> L.	37896	M, P, 6	61%	Laxative
<i>Urtica dioica</i> L.	37903	M, P, 6	51%	Antialgic
<i>Urtica urens</i> L.	37924	P, 6	1%	Antialgic
Valerianaceae				
<i>Valeriana officinalis</i> L.	40326	P, 6, ++	1%	Sedative
Verbenaceae				
<i>Lippia triphylla</i> (L'Hér.) O. Kuntze	36246	M, P, 4, 7, *	21%	Digestive
<i>Verbena officinalis</i> L.	44399	M, P, 6	51%	Antialgic
Violaceae				
<i>Viola alba</i> Bess.	39220	M, 6	41%	Anticatarrhal
<i>Viola sylvestris</i> Lam.	39722	M, 6	10%	Anticatarrhal
Vitaceae				
<i>Vitis vinifera</i> L.	37542	M, P, 3, *	12%	Antialgic and anti-inflammatory

plants growing in them play an important role in the relationships between rural people in Catalonia. This social role is not limited to the markets, traditionally considered the typical places for these material and immaterial exchanges (Provansal 1995). People from the same village

or from different villages exchange medicinal plants, and a complex neighbor network is set in motion when it is necessary to find some plant to treat serious or unusual illnesses. The relationships created last beyond their original raison d'être. Some homegarden plants exceed the

basic role of supplying the household and are cultivated for commercial purposes: 42 medicinal plant species in Pallars, and 61 in Montseny (marked with an asterisk (*) in Table 1). Although selling medicinal plants from homegardens in the local markets is common, it is a small-scale trade that may represent a significant supplemental income.

Variation in species composition was large throughout the 145 gardens studied in Pallars and Montseny (Table 1). Because food supply is the primary aim of the homegarden, vegetables and some fruit trees are the most frequent plants, with percentages in some cases almost reaching 100%. Fifty-two species (20.8%) are present only in one garden and 98 species (39.2%) are found in five or fewer plots. Only 20 taxa (8%) grow in 50% or more of the gardens studied. In Amazonian house gardens, 38.7% of species were found in only one garden and 13.1% were present in more than half (Padoch & de Jong 1991). In Mayan homegardens, 21.8% of the species are present in more than 50% of gardens in the Yucatecan zones studied by Rico-Gray et al. (1990).

Among the strictly medicinal plants expressly cultivated in Catalan homegardens, the frequent occurrence of *Tanacetum parthenium* (76% of the gardens), a plant used as an intestinal antiseptic, is remarkable. *Lilium candidum* (62%) is another frequent species, with vulnerary use. *Quercus ilex* subsp. *ilex*, the most common tree in Mediterranean low altitude systems, is frequent (82%) in Montseny.

LOSS OF DIVERSITY OF USEFUL PLANTS AND OF KNOWLEDGE ABOUT THEM

We tried to evaluate to what extent a decrease in the number of cultivated medicinal plants had occurred in homegardens during the present century. Many of our informants were over 60, so could remember at least 40 years previously. In addition some were older (up to 101) and could remember further back. Information was also garnered from the informants' memories of lore passed down from their parents or grandparents. We deduced that the utilization of medicinal plant species remained important until the beginning of the second half of the present century. From 1950 onwards the number of medicinal species cultivated in gardens declines rather steeply. We calculated that, as a mean, slightly more than 50% (20–65%) of the medicinal plant

species cultivated and used in the 1960s have disappeared from the homegardens or have fallen into disuse. The plants for which we detected a decrease of presence in gardens of approximately 50% are indicated with a cross (+) in Table 1. Those that suffered a more severe abandonment are marked with two crosses in the same Table. These two groups include 56 taxa, 22.4% of the total; a decline in the cultivation of almost a quarter of medicinal plants present in kitchen gardens in the zones studied. Sometimes the taxa that were used as medicinal by past generations are still cultivated, but have lost their original uses and have become ornamental, e.g., various garden roses (like *Rosa x centifolia*), *Arum italicum*, *Lilium martagon*, *L. candidum*, *Iris germanica*, and *Dryopteris filix-mas*. Other plants traditionally cultivated as medicinal grow now in marginal situations in the gardens and are occasionally used, but have lost their original importance, e.g., *Artemisia absinthium*, *Arum italicum*, *Euphorbia lathyris*, *Foeniculum vulgare*, and *Rubia tinctorum*. These are examples of the aculturation to which rural communities have been subjected by the industrialization of Iberian regions and in Europe in general. A similar situation was reported from Mayan homegardens by Rico-Gray et al. (1990) and Caballero (1992) and in a Moroccan oasis (Bellakhdar et al. 1987). For some species, e.g., *Tanacetum balsamita*, many people remember that the plant was at time frequently utilized and, even if they do not cultivate and use it at present, they mention it as one of the important medicinal plants in the territory.

We found different reasons that could explain the decrease in medicinal plant cultivation in the homegardens. Some of the medicinal plants that are no longer cultivated are ruderal, continue growing around the garden and are, consequently, easily accessible; *Tanacetum vulgare*, *Artemisia absinthium*, and *Foeniculum vulgare* are examples. Other taxa—*Linum usitatissimum* and *Pimpinella anisum*—are presently purchased. The decrease of cattle raising has diminished the presence of nitrophilous plants, as *Hyoscyamus niger*. The death of people with particular knowledge on cultural requirements of some plants has caused their decline, such as *Valeriana officinalis* and *Carum carvi*. Changes in dietary habits also have been the cause of the marginalization of some taxa, e.g., *Lathyrus sativus* and *Prunus domestica* ssp. *insititia*.

Irrespective of the decrease in the number of medicinal plant species in the gardens from the last century, it's worth mentioning that at least some herbal species appear to have been persistent in homegardens since medieval times. Comparing the list of Agustí (1617) with ours, we find that more than half the species that were grown and used at the beginning of the seventeenth century continue to be relevant today (61% in Pallars and 56% in Montseny). We did not find information on recent introduction of medicinal plants into the homegardens. New varieties have appeared over the years in the kitchen gardens, but no plants cultivated for medicinal purposes are among them.

CONCLUSIONS

Homegardens have played and continue to play a prominent role in peasant daily life in Catalonia. Apart from food plants, in Catalan rural regions most plants used for health purposes grow close to houses, thanks to the structure of the homegarden in which a great number and variety of useful species are actively or passively maintained. This is why we propose to modify slightly the definition of the homegarden by Hoogerbrugge and Fresco (1993) to include at least the cultivation of medicinal plants as one of the primary objectives of this system. This particular agroecosystem is not fragile as a whole, but we found a rapid loss of plant biodiversity in two ways. First, there has been, as reported by our informants, a loss of many autochthonous varieties of crop plants, especially fruiting trees. Second, the number of medicinal plants cultivated and used has dramatically decreased in two generations. This means that both species richness and plant uses have decreased, i.e., there has been both genetic and cultural erosion. Homegardens are, as stated by Padoch and de Jong (1991) and Torquebiau (1992), sustainable systems that should be promoted not only in the tropics, where they are prevalent, but also in other geographical regions. We believe that efforts should be made in Europe and the Mediterranean region to study and to maintain this agroecosystem, which may be important as a source of plant usage in the future.

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