Traditional knowledge in semi-rural close to industrial areas: ethnobotanical studies in western Gironès (Catalonia, Iberian Peninsula)

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Abstract

**Background:** The western Gironès is a district located in NE Catalonia (NE Iberian Peninsula). This area comprising 186.55 km² and 10,659 inhabitants is composed of 5 municipalities encompassing 29 villages, located in the hydrographic basins of the Ter and Llémena rivers.

**Methods:** Following the methodology based on the semi-structured interviews, we carried out 40 interviews with 57 informants, 31 were women and the remaining 26 were men, with an average age of 78.6 years.

**Results:** In the present study, data from 316 taxa (301 angiosperms, 8 gymnosperms, and 7 pteridophytes) belonging to 89 botanical families were collected. The interviewed informants referred 3776 UR of 298 taxa, 1933 (51.19%) of them corresponding to the food category, 949 (25.13%) to the medicinal ones, and 894 (23.68%) to other uses. In addition, 581 vernacular names for 306 species, subspecies, and varieties have also been collected.

**Conclusions:** These results reveal the validity of traditional knowledge in the studied area, which can be seriously threatened by the loss of its rural condition and its proximity to industrialized areas.

**Keywords:** Ethnobotany, Ethnoflora, Gironès, Medicinal uses, Plant uses, Traditional knowledge

Introduction

The Catalan-speaking territories constitute a cultural unity that has attracted the interest of researchers from various disciplines. Since two pioneering PhD theses [1, 2], several similar studies have been devoted to ethnobotanical research in these areas ([3–14], among others), and papers derived from these academic works) with the common objective of collecting, inventorying, preserving, and disseminating the popular uses of plants. The so-called acculturation process taking place in the industrialized areas, in other words the adoption of modern culture to the detriment of the traditional one [15], is the main cause of the loss of this knowledge, which must be available for future generations.

For this reason, the research that was initially focused on non-industrialized areas [16–22] has now been expanded in industrialized areas due to their rapid loss of traditional knowledge [23–27].

Although ethnobotany, as defined by Harshberger [28], was conceived to study the plants used by a particular human group—not limited to any type of use—most studies have placed special interest in medicinal plants [29–31] and secondly in those used for food purposes [32–36]. The studies comprising the whole ethnobotanical knowledge of an industrialized area are less frequent. This situation is explained, according to Gras et al. [37], due to the fact that medicinal and food uses are most related to human health, which is still valid despite the above-mentioned acculturation process. In addition, according to these authors, plants with medicinal and food uses are more susceptible to being potentially used or transformed into commercial products.
The district (in Catalan “comarca”) of Gironès is located in NE Catalonia (Fig. 1), in its turn situated in the NE Iberian Peninsula. Our study was centered on the western part of this district, considering the natural unit constituted by territories under the influence of the hydrographic basins of the Ter and Llémena rivers. The western Gironès is composed of 5 municipalities encompassing 29 villages. The study area comprises 186.55 km² and 10,659 inhabitants [38] representing a density of 57.14 inhabitants/km². The altitudes range from 102 m a.s.l. in the locality of Bescanó to 256 m a.s.l. in Sant Martí de Llémena.

The Gironès district has a Mediterranean climate with an irregular rain distribution with relatively wet springs and autumns and dry summers and winters. The mean rainfall increases in SE-NW direction, with values around 1000 mm per year in the North-Western edge. Winters are moderately cold and summers are hot, with an annual mean of 14.4 °C [39].

The landscape of the area was described by Girbal [40] and is very heterogeneous, the low areas are occupied by dry lands, with herbal communities from the alliances Diplostachion erucoidis and Secalion cerealis. In the mountainous regions, there is an altitudinal gradient, from the calcicolous scrubs of Rosmarino-Ericion with Pinus halepensis. in the lowlands to the beeches with Pyrenean squill (Scillo liliohyacinthi-Fagetum sylvaticae) in the highlands. The intermediate zones are occupied by holm oak forests (Viburno tini-Quercetum ilicis subass. pistacietosum and Asplenio-Quercetum ilicis) and by a narrow belt of oak (Quercus pubescens) in the upper part connecting with beech (Fagus sylvatica).

Economically, this area has evolved through different historical periods: prior to the industrial era, it was based on agriculture—mainly cereals—livestock, and forest management for timber and charcoal production and a second period based on textile industry. Currently, these villages do not have their own economy and they have become dormitories for people working in Girona, the capital of the district, with an important economic activity [38]. To sum up, western Gironès is still at least what can be called a semi-rural area, since agriculture is still alive there, but three of its municipalities (Aiguaviva, Bescanó, Sant Gregori) play the above-mentioned role of dormitory to the close metropolitan, industrial area. Additionally, the river Llémena valley hosts an important number of secondary residences for people from the neighboring territory, especially from Girona, the 11th biggest city in Catalonia, with a population very close to 100,000, and head of one of the four Catalan administrative units (province) including several districts, as among which the one here considered [38].

The main goals of the present study were (i) to collect plant uses and their vernacular names in a semi-rural area, to inventory and preserve this knowledge in order for it to be available to future generations, and (ii) to analyze the obtained results in order to establish some comparisons with similar territories.
Material and methods

Field work
The fieldwork took place from June 2013 to August 2014. We carried out 40 interviews to 57 informants: 23 were individual and 17 concerned 2 people, no one implying a bigger group. Out of the interviewed people, 31 (54%) were women and the remaining 26 (46%) were men. The methodology used was based on the semi-structured interviews avoiding closed questionnaires and direct questions that could have an implicit answer so as not to coerce informants’ answers (Fig. 2). Conversations were developed in the Catalan language, common to interviewers and interviewees. During the ethnobotanical surveys, we not only focused on medicinal and food uses but also asked for knowledge of plants with other uses. The popular names of plants, in Catalan, were also collected.

We have recorded information on both wild and cultivated plants, and also on plants that can be bought through commerce. Results are presented according to the classification of the folk uses of the species in three main categories: medicinal, food, and other uses. To define the types of medicinal plant uses, we basically follow Cook’s Economic Botany Data Collection Standard [42].

The plant taxa cited by the informants were identified using the Flora dels Països Catalans [43] and the Flora Manual dels Països Catalans [44], which we basically follow for nomenclature. The allocation of families has been done following the APG IV [45]. The herbarium vouchers have been deposited in the herbarium BCN (Centre de Documentació de Biodiversitat Vegetal, Universitat de Barcelona).

The field work respected the ethical principles of the International Society of Ethnobiology [46] and we had the prior oral informed consent of the informants [47].

Data analysis
The interviews were recorded and subsequently transcribed, and all the information obtained was entered into the database of our research group (www.etnobotanica.cat). The analyses were carried out with Excel (Microsoft Excel 2007) and XLSTAT (v2007.5, Addinsoft SARL) programs. To analyze the results, we have used the use report (hereinafter, UR) [48].

With the aim of assessing the state of knowledge, studies of quantitative ethnobotany were also performed and the following indices were calculated: ethnobotanicity index (EI; [49]), which is the quotient between the number of plants used and the total number of plants that constitute the flora of the territory, expressed as a
percentage; the informant consensus factor (FIC; [50]), which is the quotient between the number of medicinal use reports minus the number of used medicinal plants and the number of medicinal use reports minus one. This indicates the degree of reliability of the uses claimed (higher when closer to 1).

Number of medicinal plants used per informant (P/I), per inhabitant (P/H), and per unit of area (P/km²) were calculated, in order to compare with other territories from which this information is provided only for this kind of useful plants. The linguistic diversity index [51], obtained by dividing the number of folk names by the number of taxa reported, has been calculated to illustrate the cultural richness of the folk plant knowledge.

Finally, we calculated the recently proposed index of taxon usefulness in mixtures (ITUM; [52]), which is the quotient between the number of citation of this taxon in mixtures and its total citations, whether with simple or complex presentation. This index indicates the exclusiveness of taxa in mixtures when the value is one or closer to one.

**Results and discussion**
This study contributes information to complete the ethnobotanical knowledge in the North Eastern Catalan linguistic and cultural area, where still a territory is to be investigated before being able to perform a meta-analytic work. It also enlarges the ethnofloristic knowledge of the Iberian territories, which are among the most studied in Europe [27]. We believe that, in general, increasing data on Catalan and Iberian folk plant knowledge provides them with a bigger robustness, apart from contributing new or rare uses and taxa used. Plants having appeared not very long time ago in European folk phytotherapy constitute not the only but a good example of such additions that prospects as the present one can bring to the ethnoflora. Although when first contacting the informants we indicate that we are interested in orally-transmitted traditional uses, in some cases, they report to us that a certain knowledge on a plant use is recently acquired. Just as a case example, Aloe vera does not appear in the pioneering works on Catalan ethnobotany [1, 2], but is importantly present, with ten use reports, in this one. Even if these data may have not been considered in some occasions, a reflection should be initiated on the new incorporations to folk knowledge, which will become tradition and will lead to a renewed paradigm in plant uses.

**Characteristics of the interviewees**
The average age of the informants is 78.6 years, ranging from 58 to 92, the interval between 78 and 80 years being the one that accumulates a greater number of informants. This average is one of the highest values found in the recent studies carried out in similar areas and only surpassed in the island of Formentera [11].

Most informants were native (74%) and the remaining ones have lived in the area for more than half of their lives. Only 10% are native from the neighboring district of la Selva.

Regarding their work, most of the men have been farmers (18%) or shepherds (5%), while most of the women have combined the farm work with household affairs (23%). Other professions linked to the territory are textile (16%) and hotel (7%) industries, both important economic activities in this area.

**Plant species, use reports, and botanical families**
Data from 316 taxa (301 angiosperms, 8 gymnosperms, and 7 pteridophytes) belonging to 89 botanical families were collected in the present study. Thirteen taxa have only been determined at generic level and 19 present infraspecific categories. In the first case, taxa—in fact ethnotaxa—were referred to by the informants without specific category. It could be due to several or all species of the genus being used, or to the fact that they were not able to distinguish the taxa. The complete catalog of the recorded useful plants in the studied area is contained in Serrasolles [13], and the data concerning all plants, shown later, are synthesized, arranged by large use categories.

The five best represented families are Lamiaceae (12.39%), Poaceae (9.25%), Rosaceae (7.35%), Asteraceae (6.84%), and Fabaceae (5.55%), which partially coincides with the findings in other territories with similar characteristics [6, 10, 12, 53] and at the same time represents the most common botanical families, apart from Apiaceae and Rutaceae, of the Mediterranean flora [44]. This fact links with the idea that the closer to civilization a plant grows, the more it is used by local people [54–57].

The interviewed informants refer 3776 UR of 298 taxa, 1933 (51.19%) of them corresponding to the food category, 949 (25.13%) to the medicinal ones, and 894 (23.68%) to other uses. The mean of UR per informant is 66.25, and 5.23 taxa per informant are cited, but these values show very large deviations due to the differences in knowledge that exist between the informants.

Medicinal plants are the most reported in the majority of ethnobotanical works carried out in the Catalan Countries [6, 10, 58]. However, in the present study, food uses are the most cited by the informants due to the collection of a large number of recipes devoted to the preparation of ratafia (see comments on this beverage in 3.5). This traditional Catalan liqueur [59], prepared with the immature fruit of Juglans regia and numerous species of preferably aromatic plants, is still consumed in areas close to the study area [60].
Quantitative ethnobotany
Some quantitative ethnobotany indexes concerning ten territories (the one here studied included) of the Catalan linguistic area are presented in Table 1. The ethnobotanicty index, not having into account the 50 taxa of allochthonous plants recorded, is 22.56% for the studied area; this roughly meaning that between one-fifth and one-quarter of the plants of the area have been claimed as useful by the informants. It occupies an intermediate position in the range of the values obtained for other Catalan-language studied areas. The informant consensus factor ($F_{IC}$) of medicinal information obtained for our interviewees (0.86) is close to the highest values in the quoted areas. Interestingly, this value, accounting for the consistency (thus, reliability) of plant use within a cultural and geographical group, which is an indicative of a generationally transmitted knowledge is higher to those obtained in Mexican areas (0.75, 0.79; [61, 62]). Recently, an ethnobotanical study of medicinal foods used by practitioners in an Indian area shows $F_{IC}$ for the different ailments treated ranging from 0 to 1, but low in mean value (0.26; [63]). The results are similar (with a highest value of 0.72) in a study of medicinal plants in the Greek Aegean Islands [64]. This indicates that the traditional pool of knowledge on plant use and management is still alive in the studied area. Consequently, we can state that there is a high consistency in folk plant knowledge in the industrial European zone considered, where it could have been hypothesized it would be lower, even as compared with less industrialized Asian or American territories, where ethnobiological data are a priori supposed to be high, robust, and less eroded.

Medicinal uses
Our informants mentioned 137 species with medicinal uses and 949 use reports, 81.66% of which are referring to human medicine, 7.06% to veterinary, and 1.37% to both human and veterinary medicines (Table 2). No information was reported for the remaining 9.91%. The mean of medicinal taxa cited by informant is 2.40. This number of medicinal plants, quoted by the 57 informants, is close (slightly lower in ratio taxa/informant) to the one found in an area covering a part of the island of Mallorca, with a comparable number of interviewees as well: 121 taxa quoted by 42 informants [57]. Conversely, a recent study in a Turkish region [65] reports 92 taxa (35% of which with medicinal uses) quoted by 123 informants, i.e., a clearly lower ratio. Similarly, a research in a Myanmar area [66] records 75 medicinal taxa cited by 206 informants. This is also the case in Europe: in the Greek Aegean Islands, 200 informants reported uses of 109 medicinal plants [64]; the authors state that these plants are used, but they do not mention any other plant quoted by the informants and not currently used. This reinforces the above-exposed argument that the ethnobotanical corpus is still relevant in industrialized areas, even in comparison with non- or less-industrialized territories, where the weight of this knowledge is a priori supposed to be higher. There is still time left (probably in its very end) to collect the traditional knowledge on plant uses in industrialized zones, which is basic in order to reintroduce it to the younger generations, or to use certain information to develop a new useful product of higher reach.

The 20 most cited species are included in Table 3. *Sambucus nigra* and *Thymus vulgaris*, with 81 and 78 UR, respectively, are the species heading the ranking. These taxa are among the most cited in other Catalan territories [6, 10, 12, 53, 58]. Concerning the families, Lamiaceae (164 UR; 17.28%) and Adoxaceae (81 UR; 8.54%) are the most reported ones followed by Asteraceae (79 UR; 8.32%), Rutaceae (48 UR; 5.06%), and Oleaceae (41 UR; 4.32%). Lamiaceae and Asteraceae have a high number of representatives in the Mediterranean flora and Rutaceae include the citrus fruit species, whereas Adoxaceae is among the most cited families

Table 1 Quantitative ethnobotany indexes in ten territories (in italic, the one here studied) in the Catalan linguistic area. El: ethnobotanicty index; $F_{IC}$: informant consensus factor; MP: number of medicinal plants

| Territory                  | El     | $F_{IC}$ | MP/informant | MP/inhabitant | MP/km²  |
|----------------------------|--------|----------|--------------|--------------|---------|
| Alt Empordà [10]           | 25.90  | 0.91     | 1.88         | 0.28×10⁻²    | 0.25    |
| Castelló [1]               | 15.00  | –        | 2.34         | 0.06×10⁻²    | 0.06    |
| Cerdanya [2, 7]            | –      | 0.93     | 1.11         | 0.82×10⁻²    | 0.23    |
| Segarra [76]               | –      | –        | 3.17         | 0.54×10⁻²    | 0.13    |
| Eastern Mallorca [57]      | 15.51  | 0.71     | 2.68         | 0.38×10⁻²    | 0.51    |
| Western Gironès (this paper)| 22.56  | 0.86     | 2.40         | 1.29×10⁻²    | 0.73    |
| Guilleries [4]             | 20.00  | –        | 5.64         | 0.58×10⁻²    | 0.27    |
| Montseny [6]               | 23.20  | 0.91     | 1.95         | 0.44×10⁻²    | 0.42    |
| Pallars Jussà and Pallars Sobirà [5] | 29.10  | 0.87     | 1.66         | 2.32×10⁻²    | 0.16    |
| Ripollès [58]              | 28.60  | 0.96     | 1.73         | 1.10×10⁻²    | 0.29    |
Table 2: Medicinal plants reported in the studied area

| Family            | Taxon (voucher) | Catalan vernacular names | Medicinal use                                                                 | Part used | Pharmaceutical form                                                                 | UR  |
|-------------------|-----------------|--------------------------|-------------------------------------------------------------------------------|-----------|------------------------------------------------------------------------------------|-----|
| Adoxaceae         | Sambucus nigra L. (BCN113959) | Sabuquer. Saüc. Saüquer | Anticatarrhal. anti-diarrhoeal. anti-inflammatory. antipyretic. buccal antiseptic. external antiseptic. for amygdalitis. for earache. for headache. emmenagogue. expectorant. not reported. ocular antiseptic. refrigerant. stomachic. | Fruit. inflorescence. not reported | Aerosol. bath. essence. eyedrops. fumigation. medicinal wine. not reported. poultice. syrup. tisane | 81  |
| Amaranthaceae     | Beta vulgaris L. subsp. vulgaris var. crassa (Alef.) Helm (BCN50761) | Bleda. Polpa (elaborated product). Remolatxa. Sucre (elaborated product). Sucre candi (elaborated product) | Against taeniasis. anticatarrhal. antihelminthic. expectorant. | Root | Decoction. direct use. ointment | 8  |
| Amaryllidaceae    | Allium cepa L. (BCN28655) | Ceba | Antitussive. expectorant. for aphonia. not reported. resolutive. | Bulb | Direct use. gargle. poultice | 7  |
| Apiaceae          | Conium maculatum L. (BCN32171) | Cicuta | Anticolic. digestive. galactogene a. internal antiseptica. laxative. postpartum coadjuvanta. stomachic b. | Aerial part | Bath | 1  |
| Anacardiaceae     | Pistacia lentiscus L. (BCN29907) | Llentiscle | Anticolic. antidiarrhoeal. digestive. galactogene c. internal antisepticc. laxative. postpartum coadjuvantd. stomachicd. | Aerial part | Direct use. emulsion. tisane | 15 |
| Asparagaceae      | Agave americana L. (BCN46860) | Figuerassa | Not reported. | Leaf | | 1  |
| Araliaceae        | Hedera helix L. (BCN29869) | Xària. Xèrria | Antihypertensive. antipyretic. | Leaf | Poultice. tisane | 3  |
| Asparagaceae      | Ruscus aculeatus L. (BCN29939) | Galzeran. Galleranc | Cardiotonic. | Root | Not reported | 1  |
| Asphodelaceae     | Aloe maculata All. (BCN50760) | Aloe. Àloe vera | Antipyretic. laxative. vulnerary. | Leaf. inflorescence | Direct use. embrocation | 10 |
| Aspleniacceae     | Ceterach officinarum DC. in Lam. et DC. (BCN29850) | Dauradella | Antihypertensive. blood pressure regulator. | Frond | Not reported. tisane | 2  |
| Asteraceae        | Achillea ageratum L. (BCN113701) | Herba del fàstic | Purgative. | Inflorescence | Tisane | 1  |
| Arálieae          | Hedera helix L. (BCN29869) | Xària. Xèrria | Antihypertensive. antipyretic. | Leaf | Poultice. tisane | 3  |
| Asparagaceae      | Agave americana L. (BCN46860) | Figuerassa | Not reported. | Leaf | Not reported | 1  |
| Asphodelaceae     | Aloe maculata All. (BCN50760) | Aloe. Àloe vera | Antipyretic. laxative. vulnerary. | Leaf. inflorescence | Direct use. embrocation | 10 |
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| Asteraceae        | Achillea ageratum L. (BCN113701) | Herba del fàstic | Purgative. | Inflorescence | Tisane | 1  |
| Arálieae          | Hedera helix L. (BCN29869) | Xària. Xèrria | Antihypertensive. antipyretic. | Leaf | Poultice. tisane | 3  |
| Asparagaceae      | Agave americana L. (BCN46860) | Figuerassa | Not reported. | Leaf | Not reported | 1  |
| Family          | Taxon (voucher) | Catalan vernacular names | Medicinal use                                                                 | Part used | Pharmaceutical form | UR |
|-----------------|-----------------|--------------------------|--------------------------------------------------------------------------------|-----------|---------------------|----|
| Boraginaceae    | L.              | Camamilla, Camamilla     | Analgesic, anti-catarhral, anti-helminthic, anti-nauseating, digestive, external antiseptic, internal antiseptic, ocular antiseptic, stomachic | Aerial part, inflorescence, not reported | Bath, emulsion, tisane | 46 |
| Cruciferae      | Brassica oleracea | Bròquil, Col, Col aloma  | Analgesic | Leaf | Direct use | 2 |
| Cannabaceae     | Canabis sativa   | Lledó (fruit), Lledoner  | Anticholesterolemic, antihypertensive, blood pressure regulator, cardiotonic | Fruit, leaf | Not reported, tisane | 7 |
| Boraginaceae    | L.              | Herba pedrera            | Hepatic lithotriptic | Aerial part | Tisane | 1 |
| Brassicaceae    | Brassica napus L. | Nap, Nap de bou, Nap del camp | Restorative² | Root | Direct use | 1 |
| Brussaia lutea | L.              | Bròquil, Col, Col aloma  | Analgesic | Leaf | Direct use | 2 |
| Buxaceae        | Buxus sempervirens L. | Boix | For skin disorders² | Aerial part | Bath | 1 |
| Cannabaceae     | Celtis australis L. | Lledó (fruit), Lledoner  | Anticholesterolemic, antihypertensive, blood pressure regulator, cardiotonic | Fruit, leaf | Not reported, tisane | 7 |
| Valerianaceae   | L.              | Valeriana                | Abortive, sedative | Root | Tisane | 2 |
| Brassicaceae    | Brassica napus L. | Nap, Nap de bou, Nap del camp | Restorative² | Root | Direct use | 1 |
| Brussaia lutea | L.              | Bròquil, Col, Col aloma  | Analgesic | Leaf | Direct use | 2 |
| Buxaceae        | Buxus sempervirens L. | Boix | For skin disorders² | Aerial part | Bath | 1 |
| Cannabaceae     | Celtis australis L. | Lledó (fruit), Lledoner  | Anticholesterolemic, antihypertensive, blood pressure regulator, cardiotonic | Fruit, leaf | Not reported, tisane | 7 |
| Valerianaceae   | L.              | Valeriana                | Abortive, sedative | Root | Tisane | 2 |
| Brassicaceae    | Brassica napus L. | Nap, Nap de bou, Nap del camp | Restorative² | Root | Direct use | 1 |
| Brussaia lutea | L.              | Bròquil, Col, Col aloma  | Analgesic | Leaf | Direct use | 2 |
| Buxaceae        | Buxus sempervirens L. | Boix | For skin disorders² | Aerial part | Bath | 1 |
| Cannabaceae     | Celtis australis L. | Lledó (fruit), Lledoner  | Anticholesterolemic, antihypertensive, blood pressure regulator, cardiotonic | Fruit, leaf | Not reported, tisane | 7 |
| Valerianaceae   | L.              | Valeriana                | Abortive, sedative | Root | Tisane | 2 |
| Family         | Taxon (voucher) | Catalan vernacular names | Medicinal use                                      | Part used  | Pharmaceutical form      | UR |
|---------------|-----------------|--------------------------|---------------------------------------------------|------------|--------------------------|----|
| Caryophyllaceae | *Herniaria glabra* L. (BCN113577) | Herba de les mil granes. Mil granes | Diuretic, renal anti-inflammatory                   | Aerial part | Tisane                    | 4  |
| Cistaceae     | *Cistus monspeliensis* L. (BCN36740) | Estepa. Mòdega            | Antidiarrhoeal                                     | Leaf       | Tisane                    | 1  |
| Clusiaceae    | *Hypericum perforatum* L. (BCN113597) | Flor de Sant Joan. Herba de cop. Herba de Sant Joan | Anti-ecchymotic, antipyrotic. gastric anti-inflammatory. renal anti-inflammatory. vulnerary | Aerial part, flower. not reported | Embrocation. liniment. lotion. not reported | 32 |
| Cneoraceae    | *Cneorum tricoccon* L. (BCN113589) | Olivereta                 | Antihypertensive                                   | Leaf       | Tisane                    | 1  |
| Crassulaceae  | *Sedum sediforme* (Jacq.) Pau (BCN29792) | –                          | Cicatrizant                                        | Leaf       | Direct use                | 1  |
|               | *Sedum telephium* L. (BCN24995) | Bàlsam                    | Antipyrotic                                        | Leaf       | Direct use                | 1  |
| Cucurbitaceae | *Cucumis sativus* L. (BCN46850) | Cogombre (fruit)          | Antihaeorrhoidal. antivaricose. gastric anti-inflammatory | Fruit      | Liniment                  | 3  |
|               | *Cucurbita pepo* var. *pepo* (BCN49858) | Carbassa (fruit). Carassera. Rabequet (fruit) | Antihelminthic. for abscesses. for skin disorders. prostate anti-inflammatory. renal lithotriptic | Fruit. seed | Not reported. ointment     | 6  |
| Cupressaceae  | *Juniperus communis* L. (BCN113589) | Ginebre. Ginebró          | Analgesic. for scabies*                           | Fructification. root | Liniment. lotion. poultice | 3  |
|               | *Juniperus oxycedrus* L. (BCN29879) | Cádec                     | Not reported                                       | Aerial part | Not reported              | 1  |
| Equisetaceae  | *Equisetum arvense* L. (BCN24767) | Cua de cavall. Sangnua    | Diuretic. not reported                             | Aerial part | Direct use. not reported  | 2  |
|               | *Equisetum sp.* | Cua de cavall. Sangnua    | Analgesic. antihypertensive. buccal antisepic. diuretic. urinary antisepic | Arial part  | Collutorium. tisane       | 12 |
|               | *Equisetum telmateia* Ehrh. (BCN113581) | Cua de cavall. Sangnua    | Diuretic. for iron-deficiency, renal lithotriptic. salutiferous | Aerial part | Tisane                    | 8  |
| Euphorbiaceae | *Euphorbia sp.* | Lletdetereses. Lletdetresa | For warts                                          | Latex      | Direct use                | 4  |
|               | *Mercurialis annua* L. (BCN29896) | Blet. Murcarol            | Laxative                                          | Aerial part | Tisane                    | 1  |
|               | *Ricinus communis* L. (BCN46089) | Oli de rici (elaborated product) | Purgative                                        | Fruit      | Direct use                | 1  |
| Fabaceae      | *Ceratonia siliqua* L. (BCN32177) | Garrofa (fruit)           | Salutiferous*                                     | Fruit      | Direct use                | 1  |
|               | *Medicago sativa* L. (BCN29891) | Userda                    | Analgesic. anti-ecchymotic. not reported           | Aerial part | Poultice                  | 4  |
|               | *Spartium junceum* L. (BCN29956) | Ginesta                   | Anti-ecchymotic. insects repellent*               | Flower     | Liniment                  | 2  |
| Fagaceae      | *Quercus ilex* L. (BCN113730) | Aglà (fruit). Alzina. Aulina. Glà (fruit) | Antibronchitic. antidiarrhoeal*. cicatrizing* for amygdalitis | Bark. in situ living plant. leaf. stem | Bath. colloidal solution. direct use | 5  |
| Gesneriaceae  | *Ramonda myconi* (L.) Reichenb. (BCN46088) | Orella d’os              | Anticitarrhal. antihaeorrhoidal. antiherpes. antipneumonic. antipyretic. antitussive. pharyngeal anti-inflammatory. postpartum coadjuvant*. stomachic | Aerial part. leaf | Embrocation. not reported. tisane | 15 |

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| Family          | Taxon (voucher) | Catalan vernacular names                  | Medicinal use                      | Part used | Pharmaceutical form     | UR |
|-----------------|-----------------|-------------------------------------------|------------------------------------|-----------|-------------------------|----|
| Juglandaceae    | Juglans regia L. (BCN29877) | Noguer. Nou (fruit). Nou verda (fruit) | Antialopecia. antihypertensive     | Leaf      | Bath. tisane            | 2  |
| Lamiaceae       | Hyssopus officinalis L. (BCN29709) | Hisop | Anticatarrhal              | Aerial part | Tisane | 1           |
|                 | Lavandula dentata L. (BCN29715) | Lavanda | Anti-inflammatory          | Flower | Direct use              | 1  |
|                 | Lavandula stoechas L. (BCN113714) | Cap d'ase. Tomanyí | Stomachic                   | Flower | Tisane | 2          |
|                 | Melissa officinalis L. (BCN113713) | Melissa. Tarongina | Tranquilizer   | Aerial part | Tisane | 1          |
|                 | Mentha xipiperita L. (BCN113813) | Menta. Menta de la xocolata. Menta piperita. Menta romana | Stomachic | Aerial part | Tisane | 1          |
|                 | Mentha pulegium L. (BCN113598) | Poliol. Poniol | Antidiarrhoeal. antihypertensive, digestive. intestinal anti-inflammatory. tranquilizer | Aerial part, flower | Tisane | 24         |
|                 | Mentha spicata L. (BCN113812) | Menta. Menta de la sopa. Menta silvestre. Menta espicata. Menta verdadera | Emmenagogue, for stings. intestinal anti-inflammatory | Aerial part, leaf | Direct use, emulsion, poultice, tisane | 8  |
|                 | Origanum majorana L. (BCN113585) | Marduix | For earache               | Aerial part | Embrocation, not reported | 2  |
|                 | Origanum vulgare L. (BCN113705) | Orenge | Restorative. stomachic   | Aerial part | Tisane | 3          |
|                 | Prunella vulgaris L. (BCN113578) | Herba del traíder | Anti-acne    | Aerial part | Tisane | 1          |
|                 | Rosmarinus officinalis L. (BCN113599) | Romaní | Analgesic. anticatarrhal. antidepressant. anti-ecchymotic | Aerial part | Liniment, lotion, medicinal wine, tisane | 14 |
|                 | Salvia officinalis L. subsp. officinalis (BCN113583) | Sàlvia. Sàlvia de fulla ampla | Analgesic, antihypertensive, for fatigue. hematocathartic. not reported. sedative | Aerial part, not reported | Collutorium, not reported, tisane | 10|
|                 | Salvia verbenaca L. (BCN113580) | Herba de les iaies | Antipyretive    | Flower | Tisane | 1          |
|                 | Satureja calamíntha (L.) Scheele (BCN113737) | Menta blava | Digestive           | Aerial part | Tisane | 1          |
|                 | Satureja montana L. (BCN113741) | Sajolida | Hematocathartic | Aerial part | Tisane | 1          |
|                 | Sideritis hiruta L. (BCN113582) | Herba de Sant Antoni | Vasotonic | Aerial part | Tisane | 1          |
|                 | Stachys byzantina C. Koch (BCN113707) | Fulles de la mare de Déu. Planta de vellut | Antipyretic. cicatrizing. vulnerary | Leaf | Direct use. embrocation | 8  |
|                 | Stachys officinalis (L.) Trevisan (BCN25011) | Brotònica | Antihypertensive | Aerial part | Tisane | 2          |
|                 | Teucrium chamadrys L. (BCN20806) | Brotònica | Anticatarrhal          | Aerial part | Not reported | 1          |
|                 | Thymus serpyllum L. (BCN113719) | Farigola de pastor. Farigoleta. Salsa de pastor | Internal antiseptic. not reported. stomachic | Aerial part | Bath. collutorium, direct use, emulsion | 78 |
|                 | Thymus vulgaris L. (BCN113590) | Farigola | Anticitarrhal. anti-inflammatory. buccal antiseptic | Aerial part | Bath. collutorium, direct use, emulsion | 78 |
| Family      | Taxon (voucher)                | Catalan vernacular names                        | Medicinal use                                                                 | Part used       | Pharmaceutical form          | UR  |
|-------------|--------------------------------|------------------------------------------------|-------------------------------------------------------------------------------|-----------------|-------------------------------|-----|
| Lauraceae   | *Cinnamomum zeylanicum* Nees (BCN47283) | Canyella                                        | Anticholesterolic                                                             | Bark            | Direct use 1                   |     |
|             | *Laurus nobilis* L. (BCN113717)   | Llorer. Llort                                   | Analgesic. Anticatarrhal. Expectorant. Not reported                          | Leaf            | Aerosol. Bath. Not reported   | 6   |
|             | *Lilium candidum* L. (BCN46841)   | Lliri de Sant Antoni. Lliri de Sant Josep       | Antipyretic. Antiseptic. External. Antiseptic.                                | Flower. Leaf    | Embrocation. Not reported      | 8   |
|             | *Linum usitatissimum* L. (BCN47281) | Farina de Liluet (elaborated product). Liluet   | Antidiarrhoeal. Buccal Antiseptic. Antiseptic.                                | Seed            | Decotion. Poul Tide            | 15  |
| Lythraceae  | *Punica granatum* L. (BCN29764)   | Magrana (fruit). Magraner. Magraner agr. Magraner bord. Magraner dolç | Antihelminthic                                                             | Fruit. Root     | Decotion. Direct use 3         |     |
| Malvaceae   | *Althaea officinalis* L. (BCN113799) | Malvi                                          | Not reported                                                               | Root            | Not reported 1                 |     |
|             | *Malva sylvestris* L. (BCN29889)  | Malva. Malva rosa                              | Anticatarrhal. Antipyretic. Not reported                                     | Aerial Part. Flower. Leaf | Not reported. Poul Tide | 3   |
|             | *Theobroma cacao* L. (BCN30763)   | Xoculata (elaborated product)                   | Antihelminthic                                                             | Seed            | Direct use 1                   | 1   |
| Tiliaceae   | *Tilia cordata* Mill. (BCN26784)  | Til-la                                         | For headache. Not reported. Tranquilizer                                    | Bract with Inflorescence | Tisane                     | 5   |
|             | *Tilia platyphyllos* Scop. (BCN113739) | Tei. Tilla. Tiller de bosc                     | Anticatarrhal. Antihypertensive. Tranquilizer                              | Bract with Inflorescence | Tisane                     | 8   |
| Moraceae    | *Ficus carica* L. (BCN24887)      | Figa (infructescence). Figa de Alacant (infructescence). Figa de Coll de Senyora (infructescence). Figa de Coll Larg Blanca (infructescence). Figa de Coll Larg Negra (infructescence). Figa de Pot de Cavall (infructescence). Figa de Sant Joan (infructescence). Figa Negra (infructescence). Figuera (infructescence). Figuera de Coll de Senyora | For Warts | Latex | Direct use 5 |             |
| Myrtaceae   | *Eucalyptus globulus* Labill. (BCN29696) | Eucaliput. Eucaliput | Anticatarrhal. Expectorant. For Respiratory Disorders | Leaf | Aerosol. Tisane | 18 |
| Oleaceae    | *Olea europaea* L. subsp. *europaea* (BCN29898) | Oli (elaborated product). Oli d’Oliva (elaborated product). Olivera. Oliva (fruit) | Antihelminthic. Antihypertensive. Antipyretic. Blood Pressure Regulator. Cicatrizant. External Antiseptic. For Earache. For Mastitis. For Skin Disorders. Vulnerary | Flower. Fruit. Leaf | Direct use. Embrocation. Emulsion. Fumigation. Not Reported. Ointment. Tisane | 41 |
| Paeoniaceae | *Paeonia officinalis* L. (BCN29320) | Peònia                                         | Not reported                                                               | Root            | Not reported 1                 | 1   |
| Papaveraceae| *Chelidonium majus* L. (BCN113742) | Berruguer. Celoni. Herba de les orenetes. Llet de Santa Teresa | For Warts | Latex | Direct use 4 | 4   |
| Family               | Taxon (voucher)                          | Catalan vernacular names | Medicinal use                                      | Part used          | Pharmaceutical form       | UR  |
|---------------------|-----------------------------------------|--------------------------|---------------------------------------------------|--------------------|--------------------------|-----|
| Papaver              | Papaver rhoeas L. (BCN29903)            | Gallaret, Pipiripip, Quiquiriquí, Rosella | Analgesic, sedative                               | Seed               | Direct use, not reported  | 2   |
|                     | Papaver somniferum L. (BCN24941)        | Cascall                  | Analgesic, sedative                               | Flower, fruit, seed | Collutorium, direct use, not reported, tisane | 10  |
| Pinaceae            | Pinus halepensis Mill. (BCN113592)      | Pi, Pi blanc, Pi bord, Pi de pinya llarga, Pi petit, Pinya (fructification) | Antibranchitic, anticatarhal, antipneumonic, antiinvasive, expectorant for abscesses, not reported, vulnerary* | Aerial part, flower, fruit, gum/resin, leaf, pollen | Decoction, fumigation, liniment, lotion, not reported, syrup, tisane | 33  |
|                     | Pinus pinaster Ait. (BCN36559)          | Pi bord, Pi melis        | Antibranchitic, antirheumatic                      | Fruit              | Decoction, syrup          | 2   |
|                     | Pinus pinea L. (BCN26751)               | Pi, Pi de llei, Pi de pinya, Pi pinyer | Antibranchitic                                    | Fruit, leaf        | Aerosol, syrup            | 2   |
|                     | Pinus sp.                               | Pi, Trementina (elaborated product) | Anti-ecchymotic                                   | Gum/resin          | Not reported              | 1   |
| Plantaginaceae      | Plantago lanceolata L. (BCN32138)       | Plantatge de fulla estreta, Plantatge estret | Gingival antiseptic                               | Leaf               | Collutorium               | 2   |
|                     | Plantago major L. (BCN29910)            | Plantatge, Plantatge ample, Plantatge de fulla ampla | Buccal antiseptic, external antiseptic, for amygdalitis, gingival antiseptic, not reported, vulvar anti-inflammatory | Aerial part, leaf | Bath, collutorium, gargle, not reported | 8   |
| Poaceae             | Arundo donax L. (BCN29825)              | Canya, Canya americana, Canyer | For trauma                                        | Stem               | Direct use                | 1   |
|                     | Phleum phleoides (L.) Karsten (BCN113804) | Herba de les pedres     | Analgesic                                         | Inflorescence      | Tisane                    | 1   |
|                     | Triticum aestivum L. (BCN29963)         | Blat, Farina (elaborated product), Pa (elaborated product), Falia (elaborated product), Segó (bran) | Antidiarrhoeal, antihelminthic, internal antiseptic, postpartum coadjuvant, restorative | Bran, fruit        | Direct use, emulsion, poultice, solution | 14  |
|                     | Zea mays L. (BCN298630)                 | Blat de morassa, Blat de moret, Blat de moro, Farro (elaborated product) | Diuretic, renal anti-inflammatory, renal lithotriptic, urinary antiseptic | Styles and stigmas | Tisane                    | 20  |
| Ranunculaceae       | Anemone hepatica L. (BCN29834)          | Herba fetgera            | For undetermined illnesses, hepatoprotectiveb      | Flower, leaf       | Direct use, not reported, tisane | 11  |
|                     | Clematis flammula L. (BCN29856)         | Viadella, Virobella      | For warts, not reported                           | Leaf               | Direct use, poultice      | 3   |
| Rosaceae            | Agrimonia eupatoria L. (BCN-E-193)      | Herba cuquera            | Antihelminthic                                    | Flower             | Tisane                    | 2   |
|                     | Crataegus monogyna Jacq. (BCN29858)     | Arç, Arç blanc          | Antihypertensive, cardiotonic                     | Flower             | Tisane                    | 3   |
|                     | Cydonia oblonga Mill. (BCN46849)        | Codony (fruit), Codonyat (elaborated product), Codonyer | Antidiarrhoeal, antiinvasive, not reported, stomachic | Fruit             | Alcoholic tincture, decoction, not reported, syrup | 15  |
|                     | Potentilla reptans L. (BCN29754)        | Gram negre               | Antihypertensive                                  | Root               | Tisane                    | 1   |
|                     | Prunus avium (L.) L. (BCN29827)         | Cirera, Cinerer          | Diuretic, for the influenza                       | Stem               | Tisane                    | 2   |
|                     | Pyrus malus L. subsp. mits (Wallr.) O.Bolòs et J.Vigo (BCN46830) | Poma (fruit), Poma aspa (fruit), Poma cambusina (fruit), Poma camosa (fruit), Poma capçana (fruit) | Anticatarhal, restorative | Fruit             | Direct use                | 3   |
Table 2  Medicinal plants reported in the studied area (Continued)

| Family      | Taxon (voucher)           | Catalan vernacular names            | Medicinal use                                                                 | Part used       | Pharmaceutical form | UR  |
|-------------|---------------------------|-------------------------------------|-------------------------------------------------------------------------------|-----------------|---------------------|-----|
|             |                           |                                     |                                                                                |                 |                     |     |
| **Rosaceae**| Rosa canina L. (BCN29772) | Poma del ciri groga (fruit).         | Anticatarrhal                                                                | Fruit           | Tisane              | 1   |
|             |                           | Poma del ciri vermella (fruit).      |                                                                                |                 |                     |     |
|             |                           | Poma golden (fruit).                 |                                                                                |                 |                     |     |
|             |                           | Poma rodona (fruit).                 |                                                                                |                 |                     |     |
|             |                           | Poma royal (fruit).                  |                                                                                |                 |                     |     |
|             |                           | Pomer. Pomer del ciri.               |                                                                                |                 |                     |     |
|             |                           | Pomer del ciri.                      |                                                                                |                 |                     |     |
|             |                           |                                     |                                                                                |                 |                     |     |
|             | Rubus ulmifolius Schott (BCN29938) | Bardissa. Mora (fruit). Mora negra (fruit). Romeguera | Antidiarrhoeal, for stings. pharyngeal anti-inflammatory. vulenerary | Leaf, young shoot | Direct use, gargle  | 4   |
|             | Sanguisorba minor Scop. (BN113728) | Esparcet bord | Antidiarrhoeal | Aerial part | Tisane | 1   |
| **Rubiaceae**| Asperula cynanchica L. (BCN29634) | Herba prima | Diuretic. intestinal anti-inflammatory. renal lithotriptic. urinary antiseptic | Aerial part | Tisane | 16  |
|             | Coffea arabica L. (BCN46852) | Café | Antihypotensive | Seed | Tisane | 2   |
| **Rutaceae**| Citrus limon (L.) Burm. (BN46853) | Llimona (fruit). Llimoner | Anticatarrhal, anti-ecymotic. antihypertensive. digestive. for amygdalitis. restorative | Fruit | Direct use, gargle. not reported. tisane | 9   |
|             | Citrus sinensis (L.) Osbeck (BN24752) | Taronger. Taronger dolç. Taronja (fruit) | Anticatarrhal | Fruit | Direct use | 1   |
|             | Ruta chalepensis L. (BCN29940) | Ruda | Abortive\(^a\), analgesic\(^b\), antihelminthic\(^c\), anti-inflammatory/antiseptic/cicatrizing mucronal\(^d\), diuretic. for amygdalitis. for respiratory disorders. laxative\(^e\), not reported. ocular antiseptic. ruminant antistatic\(^a\), stomachic | Aerial part | Bath, direct use, liniment, poultice. not reported. tisane | 38  |
| **Smilacaceae**| Smilax aspera L. (BCN29951) | Arítjol | Analgesic. anti-hypertensive | Root | Decoction, liniment | 2   |
| **Solanaceae**| Nicotiana tabacum L. (BCN48711) | Tabac | Antihelminthic. antitussive | Leaf | Direct use, fumigation | 3   |
|             | Solanum melongena L. (BCN25004) | Albergínia | For warts | Fruit | Direct use | 1   |
|             | Solanum tuberosum L. (BCN29797) | Patata. Patatera. Trumfera | Antipyrotic | Tuber | Direct use | 1   |
| **Thymelaeaceae**| Daphne gnidium L. (BCN29687) | – | Antidiarrhoeal\(^a\) | Aerial part | Direct use | 1   |
| **Ulmaceae**| Ulmus minor Mill. (BN113729) | Om | Anticholesterolmic, antipyretic | Bark. leaf | Bath, tisane | 3   |
| **Urticaceae**| Parietaria officinalis L. subsp. judaica (L.) Béguinot (BN113715) | Blet de paret. Mollerosa | Analgesic, antiacarrelhal. antihaemorrhoidal. buccal antiseptic. digestive. for digestive disorders. for stings. for uirticaria. postpartum coadjuvant. urinary antiseptic. vaginal antiseptic | Aerial part | Bath, collutorium, direct use, not reported. poultice. tisane | 15  |
|             | Urtica dioica L. (BCN29814) | Ortiga | Against prurigo. antieritematous. antihypertensive. emmenagogue. | Aerial part. root | Bath, decoction, direct use, not reported. tisane | 10  |
because of the medicinal importance of *Sambucus nigra*. Although *Olea europaea*, the most relevant species of the Oleaceae, presents medicinal uses as antihypertensive and antihelminthic among others, its high number of use reports is mainly due to the properties of its fruit’s oil as an excipient. One of the 20 top medicinal plants, *Hypericum perforatum*, is illustrated, prepared for use, in Fig. 2.

Our informants referred 50 (36.5%) allochthonous taxa with medicinal uses. This high percentage of allochthonous taxa in the western Gironès is an evidence of both the acculturation process and global market influence.

| Table 2 Medicinal plants reported in the studied area (Continued) |
|-------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Family | Taxon (voucher) | Catalan vernacular names | Medicinal use | Part used | Pharmaceutical form |
|---|---|---|---|---|---|
| Adoxaceae | *Urtica urens* L. (BCN29966) | Ortiga de fulla petita | Anticatarrhal | Aerial part | Tisane 1 |
| Lamiaceae | *Lippia triphylla* (L’Hér.) O. Kuntze (BCN29886) | Mariallusa | Digestive. emmenagogue. for headache. laxative. not reported. postpartum coadjuvant. stomachic | Leaf | Decocction. emulsion. tisane 21 |
| Asteraceae | *Viola alba* Besser (BCN27286) | Viola. Violeta | For the influenza | Flower | Tisane 1 |
| Vitaceae | *Vitis vinifera* L. (BCN29972) | Ràim (fruit). Sarment. Vi (elaborated product). Vinagre (elaborated product). Vinya | Analgesic. anticholesterolemic. antieritematous. antipyretic. antitussive. for abscesses. for blood disorders. for stings. partum coadjuvant. | Fruit. leaf | Bath. collutorium. direct use. medicinal wine. poultice. tisane 14 |

*a*Ethnoveterinary  
*b*Human medicine and ethnoveterinary. No superscripted letter: human medicine  
*c*In our country, most coffee industrial presentations are based on *C. arabica*. the other taxa, such as *C. canephora* Pierre ex A.Froehner and *C. liberica* Hiern being clearly minority

| Table 3 List of the 20 most cited species, representing 61.12% of use reports |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Taxon | Herbarium voucher | Family | UR | % |
|---|---|---|---|---|
| *Sambucus nigra* L. | BCN113595 | Adoxaceae | 81 | 8.54 |
| *Thymus vulgaris* L. | BCN113590 | Lamiaceae | 78 | 8.22 |
| *Matricaria recutita* L. | BCN113594 | Asteraceae | 46 | 4.85 |
| *Olea europaea* L. | BCN29898 | Oleaceae | 41 | 4.32 |
| *Ruta chalepensis* L. | BCN29940 | Rutaceae | 38 | 4.00 |
| *Pinus halepensis* Mill. | BCN113592 | Pinaceae | 33 | 3.48 |
| *Hypericum perforatum* L. | BCN113597 | Hypericaceae | 32 | 3.37 |
| *Allium sativum* L. | BCN29832 | Amaryllidaceae | 29 | 3.06 |
| *Mentha pulegium* L. | BCN113598 | Lamiaceae | 24 | 2.53 |
| *Lippia triphylla* (L’Hér.) Kuntze | BCN29886 | Verbenaceae | 21 | 2.21 |
| *Zea mays* L. | BCN29830 | Poaceae | 20 | 2.11 |
| *Eucalyptus globulus* Labill. | BCN29696 | Myrtaceae | 18 | 1.90 |
| *Asperula cynanchica* L. | BCN29634 | Rubiaceae | 16 | 1.69 |
| *Cydonia oblonga* Mill. | BCN46849 | Rosaceae | 15 | 1.58 |
| *Foeniculum vulgare* Mill. | BCN26350 | Apioaceae | 15 | 1.58 |
| *Linum usitatissimum* L. | BCN47281 | Linaceae | 15 | 1.58 |
| *Parietaria officinalis* L. | BCN113715 | Urticaceae | 15 | 1.58 |
| *Ramonda myconi* (L.) Rchb. | BCN46088 | Gesneriaceae | 15 | 1.58 |
| *Rosmarinus officinalis* L. | BCN113599 | Lamiaceae | 14 | 1.48 |
| *Triticum aestivum* L. | BCN29963 | Poaceae | 14 | 1.48 |
About two-thirds (32) of allochthonous plants recorded are archaeophytes, and only ca. one-third are neophytes (15) or plants not present in the territory and purchased through commerce (three). This nuances the effect of globalization, which is, nevertheless, significant, with 18 out of 137 taxa (13.1%) having been introduced in relatively recent times. In addition, some taxa that could be classified as archaeophytes, since their expansion is not related to the Columbian exchange [67], have been recently introduced, in fact, in popular medicine. This is the case of Aloe vera and other species of the genus used for similar purposes, which could have been introduced as ornamental (and in some cases escaped to the wild) in rather remote times, but are used as medicinal only in recent times; in some cases surely by direct essay in plants cultivated as ornamental and in other cases probably influenced by commercial products based on these plants. In any case, the presence of so-called exotic (allochthonous) plants in European folk medicine would undoubtedly be a good subject for further studies.

The results from the most reported parts are concordant with other Catalan language areas [5, 6, 12], the aerial part being the most cited (306 UR; 32.24%), including young aerial, sterile aerial, flowering aerial, and fructified aerial parts; followed by flowers and inflorescences (213; 22.44%), and fronds or leaves (147; 15.49%).

A total of 101 types of medicinal uses have been compiled, in which antitussive (59 UR; 6.22%) and stomachtic (58; 6.11%) are the most frequent. Conversely, grouped by organic systems disorders, the first positions are exchanged, i.e., digestive system disorders occupy the first position, followed by respiratory system disorders (Fig. 3). The seven first histograms in this figure, altogether accounting for almost three-quarters (73.2%) of medicinal uses, basically represent the kind of remedies mostly used in pharmaceutical ethnobotany or folk medicine and in phytotherapy in general, importantly focused on chronic and usually not very severe illnesses [50, 68, 69]. This does not at all preclude ethnobotany from being a solid basis for drug development, as already stated by Chadwick & Marsh [70] and recently confirmed, for instance, with the application of artemisinin and derivatives as the most important antimalarial drugs [71]. In this respect, some of the uses recorded in the present study, apart from those addressing mild ailments—which are also important for everyday life—could be worthy of further research related to the development of drugs against cardiovascular, mental or immune system disorders, or as a cancer preventive.

The mode of preparation is not very variable. With just two preparation forms, we collect almost 50% of reports. Tisane, including infusion and decoction, is the most commonly used form, reported 324 times, and represents 34.14% of forms, followed by remedies without pharmaceutical form (146; 15.38%).

The number of medicinal plants per informant (MP/I) is 2.40, comparable to the results obtained in Castelló and Ripollès, but lower than in Guilleries (Table 1). This is due to the fact that the number of medicinal plants cited does not increase proportionally to the number of informants but, as the sample grows, the citation of new species becomes less and less frequent. In the same direction, the average of citations for plants does not grow when we increase the number of informants, but tends to stabilize [72].

The number of medicinal plants per inhabitant is slightly higher value than neighboring areas such as Cerdanya or Ripollès and lower than Alt Empordà (Table 1). The number of medicinal plants per km² (MP/km²) is 0.73, much bigger than those calculated in Cerdanya, Alt Empordà, les Guilleries, Ripollès, and Montseny. We believe that these data are useful to compare territories,
but it has to be taken into account that they do not basically depend on the informant sampling but on the total population or extension of each studied area.

This study has also inventoried 55 plant mixtures with 80 different taxa; the 3 most reported species are *Thymus vulgaris* with 16 citations and present in a 29.09% of mixtures, *Triticum aestivum* (14; 25.45%) and *Rosmarinus officinalis* (13; 23.64%). These mixtures were used to treat 28 diseases, and if we group the diseases by organic system disorders, respiratory, and pregnancy, birth and puerperal disorders are ranked in first position, both with 20% of mixtures. The first disorder is associated with human use and the second one with veterinary use as a postpartum coadjuvant, results that in accordance with those mentioned in Gras et al. [52]. The number of species per mixture varies largely from 1 mixture to another, ranging from 2 to 28 species per mixture and the average number of taxa or ingredients is 3.31. The mixture with the highest number of taxa is a poultice for pneumonia treatment.

The informant consensus factor ($F_{IC}$) for mixtures data is 0.56, a lower value than in the recent before-mentioned study, devoted to plant mixtures in two Catalan territories [52]. The index of taxon usefulness in mixtures (ITUM), calculated for all taxa with more than three use reports in mixtures, is lower than 0.50 in almost all cases, except in *Triticum aestivum* (0.50) and *Lavandula stoechas* (0.67). The results show that there is not a trend of exclusiveness of taxa use in mixtures, but taxa used in mixtures are also employed alone.

**Food uses**

Food uses are the most reported by the informants in this area: 224 taxa belonging to 66 families constitute an important dataset, accumulating 1933 use reports. Six of these taxa have only been determined at the genus level, and from the remaining 218 ones, 3 of them have infraspecific categories. All of these results show a clear difference with other studied areas, where the medicinal uses predominate over food uses [6, 10, 58]. We do not have a clear hypothesis that explains this surprising result, but although some biases could have occurred in the interviewing process, the importance of crops and the proximity of the markets are two factors that need to be taken into account in this area.

Concerning the destination, a 70.67% of these taxa are used in human food, a 28.30% in animal feed, and there is no information for the remaining 1.03%. The mean of food taxa cited by informant is 3.42 for human food and 1.42 for animal feed.

The most reported families for human food consumption (Table 4) are Lamiaceae (272 UR), Rosaceae (174 UR), and Asteraceae (126 UR). These are families well represented in the Mediterranean flora as in the case of medicinal plants, and some of them comprising relevant categories for human food such as aromatic plants and fruit trees. The rare families concerning both the number of species and number of use reports usually correspond to taxa acquired through commerce. The five species that have received more citations are *Mentha spicata* (50 UR), *Reichardia picooides* (37 UR), *Laurus nobilis* (36 UR), *Arbutus unedo* (35 UR), and *Rubus ulmifolius* (34 UR). These are wild species, but *Laurus nobilis* is also very frequently cultivated near houses. Additionally, *Reichardia picooides*, one of the most well-known food (and also feed) plants in the Catalan linguistic area [34, 58] and in other Mediterranean areas [32, 73], is a wild species, which, as reported by Maggini et al. [74] in a study in Tuscany involving cultivation of several ecotypes, seems to be a promising vegetable crop, with nutraceutical properties. Further research in this sense in different areas would be desirable to confirm this point.

Fruit (including fructification in the gymnosperms) and infructescence are the most used plant parts (29.28%), followed by aerial part, including the whole plant sometimes used in the same way by our informants (27.6%), flower and inflorescence (17.28%), and leaf (14.2%). Regarding the preparation forms, two of them are nearly tied at the top of the ranking; the first one, the beverage prepared with alcohol (39.02%) for the importance of traditional liqueur called *ratafia*, and the second one, the raw plant (20.79%), which is not really a form of preparation because it implies the direct use of raw material. The plant cooked in several ways (16.76%) and condiments (16.25%) are the two categories that follow them.

As an example of alcoholic beverages, apart from punctual quotations, we collected 6 complete receipts of *ratafia* in the studied area, the most diverse in terms of plant taxa comprising 76 species. All of them (including the young *Juglans regia* fruits with a few incisions made) are put together in maceration in a big glass bottle with an anisate alcohol, conserved typically 40 days in an external part of the house, and then filtered and, if necessary, corrected in sugar. After this, and with a final graduation around 23°, it may be consumed as a pleasure and medicinal liqueur. Some of the plants ready to prepare *ratafia* are shown in Fig. 2.

To illustrate a few food elaborations, *Urtica dioica*, usually known as a medicinal plant—also employed as such in the studied area—appears as one of the wild plants with more variation: it may be scalded and then either seasoned and consumed as a vegetable or prepared in omelet, and it may be boiled and eaten in soup. *Sambucus nigra* flowers are consumed in a very common way in northeast Catalanian areas [10,..]
| Family         | Taxon (voucher) | Catalan vernacular names                  | Preparation                                                                 | Used part                  | Wild (W)/ cultivated (C) | Use reports |
|---------------|----------------|------------------------------------------|----------------------------------------------------------------------------|----------------------------|--------------------------|-------------|
| Adoxaceae     | Sambucus nigra L. (BCN113595) | Sabuquer. Sauc. Saüquer                | Alcoholic beverage made with wine. Cooked in oil. Cooked in wine. Cooked with sugar. High-grade alcoholic beverage | Fruit, Inflorescence     | W 15                      |             |
| Amaranthaceae | Beta vulgaris L. subsp. vulgaris var. crassa (Alef) Helm (BCN50761) | Bleda. Polpa (elaborated product). Remolatxa. Sucre (elaborated product). Sucre candi (elaborated product) | Air dried. Alcoholic beverage made with wine. High-grade alcoholic beverage | Root                      | C 9                       |             |
| Amarillidaceae| Allium cepa L. (BCN28655) | Ceba                                    | Boiled in water. Cooked. Raw                                            | Bulb                       | C 4                       |             |
| Apiaceae      | Apium nodiflorum (L.) Lag. (BCN113736) | Créixec. Créixen                      | Raw                                                                        | Aerial part               | W 4                       |             |
|              | Carum carvi L. (BCN29642) | Corni                                   | High-grade alcoholic beverage                                            | Flower                     | W 1                       |             |
|              | Cuminum cyminum L. (BCN-E-194) | Comí                                    | High-grade alcoholic beverage                                            | Seed                       | W 1                       |             |
|              | Daucus carota L. subsp. sativus (Hoffm.) Arcang. (BCN46847) | Pastanaga                              | Boiled in water. Condiment, Cooked in oil, Raw                          | Root                       | C 1                       |             |
|              | Eryngium campestre L. (BCN31274) | Espinacal                              | High-grade alcoholic beverage                                            | Flower                     | W 1                       |             |
|              | Foeniculum vulgare Mill. (BCN26350) | Fonoll                                 | Boiled in water. Condiment, High-grade alcoholic beverage               | Aerial part, Inflorescence | W 27                      |             |
|              | Petroselinum crispum (Mill.) Hill (BCN29905) | Julivert                              | Condiment                                                                | Leaf                       | C 4                       |             |
|              | Pimpinella anisum L. (BCN47278) | Anís verd. Matafaluga                  | Condiment, High-grade alcoholic beverage                                 | Fruit                      | C 6                       |             |
| Apocynaceae   | Vinca major L. (BCN25039) | Vinca. Vincapervinca                   | High-grade alcoholic beverage                                            | Flower                     | W 2                       |             |
| Asparagaceae  | Aphyllanthes monspeliensis L. (BCN29627) | Llonsa. Pa de cicut                    | Raw                                                                       | Aerial part, Flower        | W 3                       |             |
|              | Asparagus acutifolius L. (BCN29976) | Espàrgol. Esparreguera. Espàrrec      | Cooked in oil. High-grade alcoholic beverage                            | Leaf, Young shoot          | W 12                      |             |
|              | Asplenium adiantum-nigrum L. (BCN113596) | Fulleta                                | High-grade alcoholic beverage                                            | Frond                      | W 1                       |             |
| Asteraceae    | Achillea ageratum L. (BCN113701) | Herba del fàstic                      | High-grade alcoholic beverage                                            | Inflorescence              | W 1                       |             |
|              | Achillea millefolium L. (BCN113708) | Cordonet. Herba de les milfulles      | High-grade alcoholic beverage                                            | Aerial part                | W 1                       |             |
|              | Aschidium minus Bernh. (BCN113727) | –                                       | Boiled in water                                                          | Stem                       | W 1                       |             |
|              | Artemisia abrotanum L. (BCN31263) | Broida                                 | Condiment                                                                | Leaf                       | W 1                       |             |
| Family           | Taxon (voucher)                     | Catalan vernacular names       | Preparation                  | Used part | Wild (W)/ cultivated (C) | Use reports |
|------------------|------------------------------------|--------------------------------|------------------------------|-----------|--------------------------|-------------|
| Betulaceae       | **Corylus avellana** L. (BCN29831) | Avellana (fruit), Avellana del queixal (fruit), Avellaner. Avellaner negret | Cooked. Raw | Fruit | W | 7 |
| Brassicaceae     | **Brassica napus** L. (BCN46856)   | Nap. Nap de bou. Nap del camp  | Boiled in water | Root | C | 1 |
|                  | **Brassica oleracea** L. subsp. oleracea (BCN32181) | Bròquill. Col. Col aloma | Preserved in salt and water | Leaf | C | 1 |
|                  | **Capsella bursa-pastoris** (L.) Medic. (BCN46079) | Bossa de pastor. Caps blancs | High-grade alcoholic beverage. Raw | Aerial part | W | 2 |
|                  | **Raphanus raphanistrum** L. subsp. sativus (L.) Domin (BCN49860) | Rave | Raw | Stem | C | 1 |
|                  | **Silibum marianum** (L.) Gaertn. (BCN29958) | Card | Boiled in water | Stem | W | 1 |
|                  | **Sanchochus sp.** | Llepsó. Lletissó. Llistó | Raw | Aerial part | W | 1 |
|                  | **Stevia rebaudiana** (Bertoni) Bertoni (BCN30644) | Estèvia | Not reported | Leaf | C | 1 |
|                  | **Taraxacum officinale Weber in Wiggers** (BCN25948) | Dent de lleó. Xicoia | Beverage made with water. High-grade alcoholic beverage. Raw | Leaf. Not reported. Root | W | 3 |
| Grass et al.     | **Matricaria recutita** L. (BCN113594) | Camamilla. Camamilla romana | High-grade alcoholic beverage | Aerial part. Inflorescence | W | 11 |
|                  | **Pallis spinosa** (L.) Cass. (BCN31291) | Mala mare | High-grade alcoholic beverage | Inflorescence | W | 2 |
|                  | **Reichardia picroides** (L.) Roth (BCN113704) | Cosconilla | High-grade alcoholic beverage. Raw | Leaf | W | 37 |
|                  | **Santolina** chamaecyparissus L. (BCN113706) | Espernallac. Santolina | High-grade alcoholic beverage. Milk-based beverage | Inflorescence | W | 2 |
|                  | **Helichrysum stoechas** (L.) Moench (BCN29872) | Mançanilla. Sempreviva | High-grade alcoholic beverage | Aerial part. Inflorescence | W | 3 |
|                  | **Hischchyten endivias** L. (BCN46854) | Escarola | Condiment | Leaf | C | 1 |
|                  | **Cichorium intybus** L. (BCN29660) | Carma-roja. Xicoia. Xicoina. Xicòria | Raw | Leaf | W | 6 |
|                  | **Cynara cardunculus** L. (BCN-E-192) | Herba presonera. Presó. Presonera. Presora | Condiment | Inflorescence | C | 18 |
|                  | **Calendula officinalis** L. (BCN29977) | Calèndula | High-grade alcoholic beverage | Inflorescence | C | 2 |
|                  | **Aerva aspera** L. (BCN113579) | Caps de burro. Flor del sucere. Travalerà | High-grade alcoholic beverage | Inflorescence | W | 2 |
|                  | **Chondrilla juncea** L. (BCN29852) | Màstec | Preserved in vinegar. Raw | Leaf | W | 29 |
|                  | **Chondrilla juncea** L. (BCN29852) | Artemisa. Donzell | High-grade alcoholic beverage | Aerial part | W | 1 |
|                  | **Bellis perennis** L. (BCN31264) | Margaridoia | Raw | Leaf | W | 2 |
|                  | **Calendula officinalis** L. (BCN29977) | Calèndula | High-grade alcoholic beverage | Inflorescence | C | 2 |
|                  | **Cynara cardunculus** L. (BCN-E-192) | Herba presonera. Presó. Presonera. Presora | Condiment | Inflorescence | C | 18 |
|                  | **Helichrysum stoechas** (L.) Moench (BCN29872) | Mançanilla. Sempreviva | High-grade alcoholic beverage | Aerial part. Inflorescence | W | 3 |
|                  | **Hischchyten endivias** L. (BCN46854) | Escarola | Condiment | Leaf | C | 1 |
|                  | **Cichorium intybus** L. (BCN29660) | Carma-roja. Xicoia. Xicoina. Xicòria | Raw | Leaf | W | 6 |
|                  | **Cynara cardunculus** L. (BCN-E-192) | Herba presonera. Presó. Presonera. Presora | Condiment | Inflorescence | C | 18 |
|                  | **Helichrysum stoechas** (L.) Moench (BCN29872) | Mançanilla. Sempreviva | High-grade alcoholic beverage | Aerial part. Inflorescence | W | 3 |
|                  | **Hischchyten endivias** L. (BCN46854) | Escarola | Condiment | Leaf | C | 1 |
|                  | **Cichorium intybus** L. (BCN29660) | Carma-roja. Xicoia. Xicoina. Xicòria | Raw | Leaf | W | 6 |
|                  | **Cynara cardunculus** L. (BCN-E-192) | Herba presonera. Presó. Presonera. Presora | Condiment | Inflorescence | C | 18 |
|                  | **Helichrysum stoechas** (L.) Moench (BCN29872) | Mançanilla. Sempreviva | High-grade alcoholic beverage | Aerial part. Inflorescence | W | 3 |
|                  | **Hischchyten endivias** L. (BCN46854) | Escarola | Condiment | Leaf | C | 1 |
|                  | **Cichorium intybus** L. (BCN29660) | Carma-roja. Xicoia. Xicoina. Xicòria | Raw | Leaf | W | 6 |
|                  | **Cynara cardunculus** L. (BCN-E-192) | Herba presonera. Presó. Presonera. Presora | Condiment | Inflorescence | C | 18 |
|                  | **Helichrysum stoechas** (L.) Moench (BCN29872) | Mançanilla. Sempreviva | High-grade alcoholic beverage | Aerial part. Inflorescence | W | 3 |
|                  | **Hischchyten endivias** L. (BCN46854) | Escarola | Condiment | Leaf | C | 1 |
Table 4 Food plants reported in the studied area (Continued)

| Family       | Taxon (voucher) | Catalan vernacular names | Preparation | Used part | Wild (W)/ cultivated (C) | Use reports |
|--------------|----------------|--------------------------|-------------|-----------|--------------------------|-------------|
| Rorippa nasturtium-aquaticum (L.) Hayek subsp. nasturtium-aquaticum (BCN29771) | Créixec. Creixen | Raw | Aerial part | W | 6 |
| Cactaceae    | Opuntia maxima Mill. (BCN46078) | Figuera de moro | Condiment | Leaf | C | 1 |
| Campanulaceae | Campanula rapunculus L. (BCN50763) | Repunxó | Raw | Leaf, Root, Whole plant | W | 22 |
| Cannabaceae  | Celtis australis L. (BCN29845) | Lledó (fruit), Lledoner | High-grade alcoholic beverage, Raw | Fruit | C | 15 |
| Caprifoliaceae | Lonicera impexa Ait. (BCN113802) | Lligabosc, Mareselva, Xuclamel | High-grade alcoholic beverage, Raw | Aerial part, Flower | W | 13 |
| | Scabiosa atropurpurea L. (BCN29947) | Escabiosa | High-grade alcoholic beverage | Flower | W | 5 |
| | Valerianella locusta (L.) Laterade (BCN49861) | Margarideta, Margaridoia, Marieta | Raw | Leaf | w | 5 |
| Caryophyllaceae | Dianthus caryophyllus L. (BCN31272) | Clavell, Clavell domèstic | High-grade alcoholic beverage | Flower | C | 4 |
| | Dianthus seguieri Vill. (BCN113734) | Clavell de pastor | High-grade alcoholic beverage | Flower | W | 1 |
| | Hermania glabra L. (BCN113577) | Herba de les mil granes, Mil granes | High-grade alcoholic beverage | Aerial part | W | 5 |
| | Silene vulgaris (Moench) Garcke (BCN29948) | Culivells | Boiled in water | Leaf | W | 5 |
| Cistaceae    | Cistus salviifolius L. (BCN36767) | Estepa, Mòdega | High-grade alcoholic beverage | Flower | W | 2 |
| Clusiaceae   | Hypericum perforatum L. (BCN113597) | Flor de Sant Joan, Herba de cop. Herba de Sant Joan | High-grade alcoholic beverage | Aerial part, Flower | W | 12 |
| Convolvulaceae | Convolvulus arvensis L. (BCN29663) | Corretjola | High-grade alcoholic beverage | Flower | W | 2 |
| Crassulaceae | Sempervivum tectorum L. (BCN26780) | Matífoc | High-grade alcoholic beverage | Leaf | W | 1 |
| Cucurbitaceae | Citrullus lanatus (Thunb.) Matsumara et Nakai (BCN29662) | Sindria, Xindria | Cooked with sugar | Epicarp, Fruit | C | 2 |
| | Cucumis melo L. (BCN46851) | Meló (fruit) | Cooked with sugar, Raw | Fruit | C | 6 |
| | Cucurbita ficifolia C.D.Bouché in Verh. (BCN29980) | Carabassa de cabell d’àngel | Cooked with sugar | Fruit | C | 1 |
| | Cucurbita pepo L. var. oblonga Link (BCN29859) | Carabassó (fruit) | Boiled in water, Cooked in oil | Flower, Fruit | C | 4 |
| | Cucurbita pepo L. var. pepo (BCN49858) | Carbassa (fruit), Carbassera, Rabequet (fruit) | Boiled in water | Fruit | C | 2 |
| Cupressaceae | Juniperus communis | Ginebre, Ginebró | Air dried. Alcoholic | Fruit | W | 12 |
| Family         | Taxon (voucher) | Catalan vernacular names | Preparation | Used part | Wild (W)/ cultivated (C) | Use reports |
|---------------|-----------------|--------------------------|-------------|-----------|--------------------------|-------------|
| L. (BCN113589) |                 | beverage made with wine. Condiment. High-grade alcoholic beverage |             |           | W 1                       |             |
| Juniperus oxycedrus L. (BCN29879) | Cadec | High-grade alcoholic beverage | Fruit | W | 1 |
| Equisetaceae  | Equisetum arvense L. (BCN24767) | Cua de cavall. Sangnua | Aerial part | W | 1 |
| Equisetum sp. | Cua de cavall. Sangnua | Aerial part | W | 4 |
| Equisetum telmateia Ehrh. (BCN113581) | Cua de cavall. Sangnua | Aerial part | W | 3 |
| Ericaceae     | Arbutus unedo L. (BCN29836) | Arboç. Bola d’arboç (fruit). Cirera d’arboç (fruit). Cirerer d’arboç | Cooked with sugar. High-grade alcoholic beverage. Raw | Fruit | W 35 |
| Castanea sativa Mill. (BCN29844) | Castanya (fruit). Castanyer | Boiled in water. Cooked | Fruit | C | 9 |
| Quercus ilex L. (BCN113730) | Aglà (fruit). Alzina. Aulina. Glà (fruit) | Cooked. High-grade alcoholic beverage | Flower. Fruit | W | 7 |
| Quercus suber L. (BCN46829) | Suro. Alzina surera | Air dried | Fruit | W | 1 |
| Gesneriaceae  | Ramonda myconi (L.) Reichenb. (BCN46088) | Orella d’os | Aerial part. Leaf | W | 4 |
| Hydrangeaceae | Philadelphus | Xeringuilla | High-grade alcoholic beverage | Flower | C | 2 |
### Table 4 Food plants reported in the studied area (Continued)

| Family      | Taxon (voucher) | Catalan vernacular names | Preparation | Used part | Wild (W)/ cultivated (C) | Use reports |
|-------------|-----------------|--------------------------|-------------|-----------|--------------------------|-------------|
| Iridaceae   | Crocus sativus L. (BCN32170) | Safrà | Condiment | Styles and stigmas | C | 1 |
| Juglandaceae| Juglans regia L. (BCN29877) | Noguer. Nou (fruit). Nou verda (fruit) | Air dried. Alcoholic beverage made with wine. Condiment. High-grade alcoholic beverage | Fruit. Leaf | C | 29 |
| Lamiaceae   | Hyssopus officinalis L. (BCN29709) | Hisop | High-grade alcoholic beverage | Aerial part. Flower | W | 5 |
|             | Lamium flexuosum Ten. (BCN26731) | Ortiga blanca | High-grade alcoholic beverage | Flower | W | 2 |
|             | Lavandula dentata L. (BCN29715) | Lavanda | High-grade alcoholic beverage | Flower | W | 1 |
|             | Lavandula latifolia Medic. (BCN113740) | Barbellò. Espígol. Lavanda | High-grade alcoholic beverage | Aerial part | W | 4 |
|             | Lavandula stoechas L. (BCN113714) | Cap d'ase. Tomanyí | High-grade alcoholic beverage | Aerial part. Flower | W | 6 |
|             | Melissa officinalis L. (BCN113713) | Melissa. Tarongina | High-grade alcoholic beverage | Aerial part. Leaf | C | 12 |
|             | Mentha xipiperta L. (BCN113813) | Menta. Menta de la xocolata. Menta piperita. Menta romana | Condiment. High-grade alcoholic beverage | Aerial part | C | 15 |
|             | Mentha pulegium L. (BCN113598) | Poliol. Poniol | High-grade alcoholic beverage | Aerial part. Flower | W | 8 |
|             | Mentha spicata L. (BCN113812) | Menta. Menta de la sopa. Menta silvestre. Menta espicata. Menta verdadera | Boiled with water. Condiment. High-grade alcoholic beverage | Aerial part | W | 50 |
|             | Mentha suaveolens Ehrh. (BCN113810) | Menta blanca | High-grade alcoholic beverage | Aerial part | W | 3 |
|             | Nepeta cataria L. (BCN113798) | Gatera. Nepta | High-grade alcoholic beverage | Aerial part | W | 3 |
|             | Ocimum basilicum L. (BCN29897) | Alfàbrega | High-grade alcoholic beverage | Aerial part | C | 6 |
|             | Origanum majorana L. (BCN113585) | Marduix | Condiment. High-grade alcoholic beverage | Aerial part. Flower | C | 27 |
|             | Origanum vulgare L. (BCN113705) | Orenya | Condiment. High-grade alcoholic beverage. Not reported | Aerial part | W | 18 |
|             | Prunella grandiflora (L.) Scholler (BCN24956) | Herba del traïdor | High-grade alcoholic beverage | Flower | W | 1 |
|             | Prunella laciniata (L.) L. (BCN29481) | Herba del traïdor | High-grade alcoholic beverage | Flower | W | 1 |
|             | Prunella vulgaris L. (BCN113578) | Herba del traïdor | High-grade alcoholic beverage | Flower | W | 2 |
|             | Rosmarinus officinalis L. (BCN113599) | Romaní | Condiment. High-grade alcoholic beverage. Raw | Aerial part. Flower | W | 27 |
|             | Salvia microphylla Humb., Bonpl. & Kunth (BCN113718) | Menta. Menta americana. Menta romana | High-grade alcoholic beverage | Aerial part | C | 4 |
|             | Salvia officinalis L. subsp. lavandulifolia (Vahl) Gams (BCN29780) | Sàlvia de fulla estreta | High-grade alcoholic beverage | Aerial part | W | 1 |
| Family       | Taxon (voucher)       | Catalan vernacular names                  | Preparation                      | Used part          | Wild (W)/cultivated (C) | Use reports |
|--------------|-----------------------|-------------------------------------------|----------------------------------|--------------------|-------------------------|-------------|
| Caryophyllaceae | *Salvia officinalis* L. subsp. officinalis (BCN113583) | Sàlvia. Sàlvia de fulla ampla | Condiment; High-grade alcoholic beverage | Aerial part. Flower. Leaf | C 11 | |
|              | *Satureja montana* L. (BCN113741) | Sajolida | Condiment; High-grade alcoholic beverage | Aerial part | W 12 |
|              | *Sideritis hirsuta* L. (BCN113582) | Herba de Sant Antoni | High-grade alcoholic beverage | Aerial part | W 1 |
|              | *Stachys byzantina* C. Koch (BCN113707) | Fulles de la mare de Déu. Planta de velut | High-grade alcoholic beverage | Leaf | C 3 |
|              | *Stachys officinalis* (L.) Trevisan (BCN25011) | Brotònica | High-grade alcoholic beverage | Flower | C 2 |
|              | *Teucrium chamaedrys* L. (BCN29806) | Brotònica | High-grade alcoholic beverage | Aerial part | W 1 |
|              | *Thymus xcitridorus* (Pers.) Schreber (BCN113803) | Farigola de xocolata. Farigola Ilimonera | High-grade alcoholic beverage | Aerial part | C 1 |
|              | *Thymus serpyllum* L. (BCN113719) | Farigola de pastor. Farigoleta. Salsa de pastor | Boiled in water. Condiment; High-grade alcoholic beverage | Aerial part | W 11 |
|              | *Thymus vulgaris* L. (BCN113590) | Farigola | Condiment; High-grade alcoholic beverage | Aerial part | W 34 |
| Lauraceae    | *Cinnamomum zeylanicum* Nees (BCN47283) | Canyella | Condiment; High-grade alcoholic beverage | Bark | C 10 |
|              | *Laurus nobilis* L. (BCN113717) | Llord. Llorer | Condiment; High-grade alcoholic beverage | Aerial part. Leaf | C 36 |
| Liliaceae    | *Lilium candidum* L. (BCN46841) | Lliri de Sant Antoni. Lliri de Sant Josep | High-grade alcoholic beverage | Flower | C 4 |
| Lythraceae   | *Punica granatum* L. (BCN29764) | Magnar (fruit). Magraner. Magraner agre. Magraner bord. Magraner dolç | Cooked with sugar. High-grade alcoholic beverage. Raw | Flower. Fruit | C 6 |
| Magnoliaceae | *Magnolia grandiflora* L. (BCN64396) | Magnòlia | High-grade alcoholic beverage | Flower | C 2 |
| Malvaceae    | *Althaea officinalis* L. (BCN113799) | Malví | High-grade alcoholic beverage | Root | W 1 |
|              | *Malva sylvestris* L. (BCN29889) | Malva. Malva rosa | High-grade alcoholic beverage | Flower | W 8 |
|              | *Theobroma cacao* L. (BCN30763) | Xocolata (elaborated product) | Condiment | Seed | C 1 |
|              | *Tilia cordata* Mill. (BCN26784) | Til·la | High-grade alcoholic beverage | Bract with inflorescence | W 5 |
|              | *Tilia platyphyllos* Scop. (BCN113739) | Tei. Til·la. TiHler de bosc | High-grade alcoholic beverage | Bract with inflorescence | W 7 |
| Moraceae     | *Ficus carica* L. (BCN24887) | Figa (infructescence). Figa d’Alacant (infructescence). Figa de coll de senyora (infructescence). Figa de coll llarg blanca (infructescence). Figa de coll llarg negra (infructescence). Figa de pota de cavall (infructescence). Figa de Sant Joan (infructescence). Figa negra (infructescence). Figuera. Figuera de coll de senyora | Air dried. Cooked with sugar. Raw | Infructescence | C 11 |
| Myristicaceae | *Myristica fragrans* Houtt. (BCN50769) | Nou moscada | High-grade alcoholic beverage | Fruit | C 6 |
| Myrtaceae    | *Eucalyptus globulus* | Eucaliptu. Eucaliptus | High-grade alcoholic beverage | Leaf | C 2 |
| Family       | Taxon (voucher) | Catalan vernacular names                  | Preparation          | Used part | Wild (W)/ cultivated (C) | Use reports |
|--------------|----------------|------------------------------------------|-----------------------|-----------|-------------------------|-------------|
| Labill.      | Syzygium aromaticum (L.) Merr. et Perry (BCN47279) | Clau d’espècia. Clau de pot. Clavell. Clavell d’espècia | High-grade alcoholic beverage | Floral bud | C                         | 7           |
| Oleaceae     | Ligustrum vulgare L. (BCN24915) | Olivereta | High-grade alcoholic beverage | Flower | W                         | 2           |
|              | Olea europaea L. subsp. europaea (BCN29898) | Oli (elaborated product). Oli d’oliva (elaborated product). Olivera. Oliva (fruit) | Condiment. Boiled in water. High-grade alcoholic beverage. Preserved in salt and water. Raw | Aerial part. Flower. Aerial part. Flower. Flower. Aerial part. Flower. | C     | 22          |
|              | Syringa vulgaris L. (BCN29959) | Liïa | High-grade alcoholic beverage | Flower | C                         | 2           |
| Papaveraceae | Papaver rhoes L. (BCN29903) | Gallaret. Pipiripip. Quiquiriquil. Rosella | Boiled in water. High-grade alcoholic beverage. Raw | Aerial part. Leaf | W                         | 4           |
| Pinaceae     | Papaver somnilferum L. (BCN24941) | Cassall | High-grade alcoholic beverage | Aerial part | W                         | 2           |
| Pinus holmlii Mill. (BCN113592) | Pi. Pi blanc. Pi bord. Pi de pinya llarga. Pi petit. Pinya (fructification) | High-grade alcoholic beverage | Flower. Fructification. Young shoot | Flower. Flower. Flower. | W             | 10          |
| Pinus pinaster Alt. (BCN36559) | Pi bord. Pi melis | Air dried. High-grade alcoholic beverage | Flower. | W                         | 2           |
| Pinus pinea L. (BCN26751) | Pi. Pi de llei. Pi de pinya. Pi pinyer | High-grade alcoholic beverage | Fructification | W | 1           |
| Plantaginaceae | Plantago lanceolata L. (BCN32138) | Plantatge de fulla estreta. Plantatge estret | High-grade alcoholic beverage | Flower. Leaf | W                         | 4           |
|           | Plantago major L. (BCN29910) | Plantatge. Plantatge ample. Plantatge de fulla ampla | High-grade alcoholic beverage | Flower. Leaf | W                         | 5           |
| Poaceae      | Avena barbata Pott ex Link in Schrad. (BCN49867) | Avena. Cugula | High-grade alcoholic beverage | Fruit | W                         | 2           |
| Avena sativa L. (BCN29839) | Civada | High-grade alcoholic beverage | Fruit | C | 2 | 2           |
| Briza media L. (BCN113733) | Belluguets | High-grade alcoholic beverage | Flower | W | 2 | 2           |
| Hordeum vulgare L. (BCN46843) | Ordi | Cooked | Fruit | C | 1 | 1           |
| Panicum millaceum L. (BCN12911) | Mill | Air dried. | Fruit | C | 2 | 2           |
| Saccharum officinarum L. (BCN50771) | Rom (elaborated product). Sucre roig (elaborated product) | Alcoholic beverage made with wine. High-grade alcoholic beverage | Stern | C | 4 | 4           |
| Secale cereale L. (BCN46828) | Ségol. Ségal | Boiled in water. Cooked | Fruit | C | 7 | 7           |
| Sorghum bicolor (L.) Moench (BCN31310) | Melca. Sorgo | Cooked | Fruit | C | 1 | 1           |
| Triticum aestivum L. (BCN29963) | Blat. Farina (elaborated product). Pa (elaborated product). Palla (elaborated product). Segò (bran) | Air dried. Boiled in water. Cooked. High-grade alcoholic beverage | Bran. Fruit. Spike | C | 21 | 21          |
| Zea mays L. (BCN29830) | Blat de morassa. Blat de moret. Blat de moro. Farro (elaborated product) | Air dried. Boiled in water. Cooked. High-grade alcoholic beverage | Fruit. Styles and stigmas | C | 26 | 26          |
| Polygonaceae | Fagopyrum | Fajol | Boiled in water. Cooked | Seed | C | 16 | 16          |
| Family       | Taxon (voucher) | Catalan vernacular names | Preparation | Used part | Wild (W)/cultivated (C) | Use reports |
|--------------|-----------------|--------------------------|-------------|-----------|-------------------------|-------------|
| Portulacaceae| *Portulaca oleracea* L. (BCN46835) | Verdolaga | Boiled in water. High-grade alcoholic beverage. | Aerial part | W | 23 |
| Ranunculaceae| *Anemone hepatica* L. (BCN29834) | Herba fetgera | High-grade alcoholic beverage | Aerial part. Leaf | W | 5 |
|             | *Clematis recta* L. (BCN113720) | Viadella | High-grade alcoholic beverage | Flower | W | 1 |
| Rhamnaceae  | *Ziziphus jujuba* Mill. (BCN113700) | Ginjol (fruit). Ginjoler | Raw | Fruit | C | 3 |
| Rosaceae    | *Agrimonia eupatoria* L. (BCN-E-193) | Herba cuquera | High-grade alcoholic beverage | Flower | W | 2 |
|             | *Crataegus monogyna* Jacq. (BCN29858) | Arç. Arç blanc | Cooked in oil. High-grade alcoholic beverage | Flower | W | 4 |
|             | *Cydonia oblonga* Mill. (BCN46849) | Cotony (fruit). Cotonyat (elaborated product). Cotony | Cooked with sugar. High-grade alcoholic beverage | Fruit | C | 24 |
|             | *Fragaria vesca* L. (BCN29697) | Maduixa (infructescence). Maduixa de bosc (infructescence). Maduixa petita (infructescence). Maduixer. | Raw | Infructescence | W | 16 |
|             | *Fragaria viridis* Weston (BCN26727) | Marrans | Raw | Infructescence | C | 1 |
|             | *Mespilus germanica* L. (BCN50768) | Nespler. Nesple de bosc. Nespra. Nespro | Raw | Fruit | C | 9 |
|             | *Prunus avium* (L.) L. (BCN29827) | Cirera (fruit). Ciner | High-grade alcoholic beverage. Raw | Flower. Fruit | C | 6 |
|             | *Prunus domestica* L. subsp. domestica (BCN46834) | Pruna (fruit). Pruner. Pruna claudia (fruit). Pruna de colló de fraire (fruit) | Cooked with sugar. High-grade alcoholic beverage. Raw | Flower. Fruit | C | 10 |
|             | *Prunus dulcis* (Mill.) Weeb. (BCN46833) | Ametller | High-grade alcoholic beverage | Flower | C | 1 |
|             | *Prunus persica* (L.) Batsch (BCN46832) | Préssec (fruit). Préssec cardinal (fruit). Préssec de coure (fruit). Préssec duran (fruit). Préssec groc (fruit). Préssec groc d’agost (fruit). Préssec mollar (fruit). Préssec sang de llebre (fruit). Préssec de Sant Joan (fruit). Préssec de Sant Pere (fruit). Presseguer | Cooked with sugar. High-grade alcoholic beverage. Raw | Flower. Fruit | C | 9 |
|             | *Prunus spinosa* L. (BCN30005) | Aranyó (fruit). Aranyoner. Arç. Arç negre. Arçà | Cooked with sugar. High-grade alcoholic beverage. Raw | Fruit | W | 13 |
|             | *Pyrus communis* L. subsp. communis (BCN46831) | Pera (fruit). Pera conference (fruit). Pera de Sant Joan (fruit). Pera rogija (fruit). Perer. Perer mau | Alcoholic beverage made with wine. Cooked with sugar. High-grade alcoholic beverage. Raw | Flower. Fruit | C | 8 |
|             | *Pyrus malus* L. subsp. mitis (Wallr.) O’Bolos et J.Vigo (BCN46830) | Poma (fruit). Poma aspra (fruit). Poma cambusina (fruit). Poma camosa (fruit). Poma del ciri (fruit). Poma del ciri groga (fruit). Poma del ciri vermella (fruit). Poma golden (fruit). Poma rodonia (fruit). Poma royal (fruit). Pomer. Pomer del ciri. Pomena. Pomena del ciri | Cooked with sugar. High-grade alcoholic beverage. Raw | Flower. Fruit | C | 24 |
| Family          | Taxon (voucher)                       | Catalan vernacular names                        | Preparation                              | Used part                  | Wild (W)/cultivated (C) | Use reports |
|-----------------|---------------------------------------|------------------------------------------------|------------------------------------------|----------------------------|------------------------|--------------|
| **Roscaceae**   | *Rosa canina* L. (BCN29772)            | Rosa. Rosa de pastor. Roser                    | High-grade alcoholic beverage            | Flower                     | W 6                    |              |
|                 | *Rosa sp.*                             | Rosa. Rosa de jardi. Roser                     | High-grade alcoholic beverage            | Flower. Leaf               | C 2                    |              |
| **Rosaceae**    | *Rubus idaeus* L. (BCN29774)           | Gerd (fruit)                                   | Cooked with sugar. Raw                   | Fruit                      | W 3                    |              |
|                 | *Rubus ulmifolius* Schott (BCN29938)  | Bardissa. Mora (fruit). Mora negra (fruit). Romeguera | Cooked with sugar. High-grade alcoholic beverage. Raw | Flower. Fruit. Young shoot | W 34                   |              |
| **Rosaceae**    | *Sorbus domestica* L. (BCN46827)      | Server                                         | Raw                                      | Fruit                      | C 1                    |              |
|                 | *Sorbus torminalis* (L.) Crantz (BCN43294) | –                                              | Raw                                      | Fruit                      | W 1                    |              |
| **Rubiaceae**   | *Asperula cynanchica* L. (BCN29634)    | Herba prima                                    | High-grade alcoholic beverage            | Aerial part                | W 1                    |              |
|                 | *Coffea arabica* L. (BCN46852)*        | Café                                           | Beverage made with water. High-grade alcoholic beverage | Seed                       | C 9                    |              |
| **Rutaceae**    | *Citrus aurantium* L. (BCN46080)      | Taronger agre. Taronger amarg. Taronger bord. Taronja agra (fruit) | Condiment. Cooked with sugar. High-grade alcoholic beverage. Leaf. Fruit | Leaf. Fruit               | C 4                    |              |
|                 | *Citrus japonica* Thunb. (BCN113966)  | Llimona de Xipre                               | High-grade alcoholic beverage            | Fruit                      | C 1                    |              |
|                 | *Citrus limon* (L.) Burm. (BCN46853)  | Llimona (fruit). Llimoner                      | Condiment. High-grade alcoholic beverage. Raw | Epicarp. Fruit. Leaf       | C 19                   |              |
|                 | *Citrus sinensis* L. Osbeck (BCN24752) | Taronger. Taronger dolç. Taronja (fruit)       | Condiment. Cooked with sugar. High-grade alcoholic beverage. Epicarp. Flower. Fruit | Epicarp. Flower. Fruit    | C 15                   |              |
| **Rutaceae**    | *Ruta chalepensis* L. (BCN29946)      | Ruda                                           | Condiment. High-grade alcoholic beverage. Raw | Aerial part. Leaf          | W 17                   |              |
| **Schisandraceae** | *Illicium verum* Hook.f. (BCN47282) | Anís estrellat                                 | High-grade alcoholic beverage            | Fruit                      | C 4                    |              |
| **Scrophulariaceae** | *Verbascum* sp. | Cua de guilla                                 | High-grade alcoholic beverage            | Flower                     | W 1                    |              |
| **Solanaceae**  | *Capsicum annuum* L. (BCN42737)       | Bitxo                                          | Cooked in oil. Preserved in salt and water | Fruit                      | C 12                   |              |
|                 | *Solanum lycopersicum* L. (BCN29952)  | Tomata (fruit). Tomata de guardar (fruit). Tomata de la meta (fruit). Tomata de penjar (fruit). Tomata dels tres cantos (fruit). Tomata plena (fruit). Tomata poma (fruit) | Cooked in oil. Preserved in salt and water. Cooked with sugar. Raw | Fruit                      | C 12                   |              |
|                 | *Solanum tuberosum* L. (BCN29797)     | Patata. Patatera. Trumfera                     | Boiled in water. Cooked                 | Tuber                      | C 3                    |              |
| **Ulmaceae**    | *Ulmus minor* Mill. (BCN113729)       | Om                                             | Boiled in water                          | Leaf                       | W 1                    |              |
| **Urticaceae**  | *Parietaria officinalis* L. subsp. judaica (L.) Béguinot (BCN113715) | Blet de paret. Mollerosa                      | High-grade alcoholic beverage            | Aerial part                | W 5                    |              |
|                 | *Urtica dioica* L. (BCN29814)         | Ortiga                                         | Boiled in water                          | Aerial part                | W 4                    |              |
| **Verbenaceae** | *Lippia triphylla* (L’Hér.) O.Kuntze (BCN29886) | Marialluïsa                                   | High-grade alcoholic beverage            | Aerial part. Leaf          | C 12                   |              |
34], the so-called brunyols or bunyols. These are kind of pastry prepared coating the flowers with a pasta made with floor and water, frying them in very hot oil, and finally seasoning them with salt or sugar, depending on the use of the product with salty food or as a dessert. Additionally, and more originally, the flowers (optionally together with tender leaves) of this species are prepared and consumed in omelet.

For human food, the use of cultivated and wild plants is similar in percentages: 44.62% of the taxa used are cultivated and 55.38% are wild. Contrarily to what one could expect, with crops dominating the market, the relevance of wild food plants is high.

Concerning animal fodder (Table 5), the most reported families are Poaceae (153 UR), Fabaceae (105 UR), and Brassicaceae (70 UR) the five more cited species being Zea mays (56 UR), Brassica napus (46 UR), Quercus ilex (37 UR), Medicago sativa (34 UR), and Triticum aestivum (28 UR). In general, these species are consumed raw (43.88%) or air-dried and preserved (39.12%). The most used parts of plants are the aerial part that sometimes includes the whole plant (41.68%), leaves (19.74%), and seeds (14.1%). These grains can be given directly to the animals or processed in order to obtain flour or fodder.

For animal feed, the percentage repartition is similar than for human food: 44.44% of taxa used are cultivated and 55.56% are wild, again accounting for the importance of food plants in the region considered.

Other uses
This category, arranged in Table 6, includes uses that are neither medicinal or food. This is a melting pot with numerous subcategories. Most probably, in societies currently much more dependent on natural resources at an ethnobotanical level, many subcategories could be treated independently, because they would receive a big number of use reports, but we have realized that in our cultural area, where many uses have only few reports based on ancient memories, it is practical to treat all of them together (Gras et al. 2016). We have collected 894 UR concerning 125 taxa, 8 of them only determined at the genus level. These taxa belong to 47 plant families, Fagaceae (136 UR, 15.21%), Poaceae (117 UR; 13.09%), Ericaceae (109 UR; 12.19%), Cannabaceae (69 UR; 7.72%), and Fabaceae (48 UR; 5.37%) being the most cited.

The five most reported species are Quercus ilex (66 UR; 7.38%), Celtis australis (63 UR; 7.05%), Arundo donax (48 UR; 5.37%), Erica scoparia (44 UR; 4.92%), and Laurus nobilis (39 UR; 4.36%). This top list reflects the persistency of a rural bottom still alive in the studied territory, since these plants are importantly used for agricultural practices, e.g., Arundo to grow Lycopersicon esculentum or Phaseolus vulgaris plants, Celtis to elaborate forks and Erica (as its specific epithet claims, indicating an old use) to make brooms (Fig. 2).

Even if we treat all of them in a single category, thus comparable with the medicinal and food ones, the different uses (subcategories) are also addressed, and those regarding the present study can be observed in Fig. 4. We emphasize the importance of the artisanal uses (231 UR, 25.84%) comprising the making of shoes, toys, and brooms among others, agrosilvopastoral management (170 UR, 19.02%) and timber (127 UR, 14.21%). Some of these categories correspond to professions that no longer exist but that have had a lot of relevance in the past and are, in some cases, transformed to sell their products as touristic objects.

Regarding the parts of plant used, which are closely related with their uses, the most reported are the stem and trunk (364 UR; 40.72%), followed by the aerial part and the whole plant (253 UR; 28.3%), and the fruit and infructescence (65 UR; 7.72%).

Vernacular names
In this study, 581 vernacular names for 306 species, subspecies, and varieties have been collected, comprising 2892 reports. Ten taxa have been mentioned by the informants without any popular name. This is a very small percentage of the phytonyms recorded, and reflects that, in a few cases, the informants do not know (or, more often, do not remember) the name of a plant. The most reported taxa are those with a single or a few vernacular names as a general trend, as is the case of thyme (Thymus vulgaris),

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**Table 4 Food plants reported in the studied area (Continued)**

| Family    | Taxon (voucher) | Catalan vernacular names | Preparation | Used part | Wild (W)/cultivated (C) | Use reports |
|-----------|-----------------|--------------------------|-------------|-----------|------------------------|-------------|
| Violaceae | Viola tricolor L. (BCN25041) | Pensaments | High-grade alcoholic beverage | Flower | W | 2 |
| Vitaceae  | Vitis vinifera L. (BCN29972) | Raim (fruit), Sarment. Vny (elaborated product). Vinya | Condiment. Cooked with sugar. Preserved in vinegar. Raw | Fruit | C | 12 |

*In our country, most coffee industrial presentations are based on C. arabica, the other taxa, such as C. canephora Pierre ex A.Froehner and C. liberica Hiern being clearly minority
| Family          | Taxon (voucher)                                         | Catalan vernacular names | Preparation          | Used part      | Wild (W)/ cultivated (C) | Use reports |
|-----------------|--------------------------------------------------------|--------------------------|----------------------|----------------|--------------------------|-------------|
| Amaranthaceae   | *Beta vulgaris* L. subsp. *vulgaris* var. *crassa* *(Alef.) Helm (BCN50761)* | Bleda. Polpa (elaborated product). Remolatxa. Sucre (elaborated product) | Air dried, Boiled in water. Raw | Root. Whole plant | C 25                      |             |
|                 | *Beta vulgaris* L. subsp. *vulgaris* var. *vulgaris* *(BCN46075)* | Bleda | Boiled in water | Aerial part | C 3                      |             |
| Apiaceae        | *Foeniculum vulgare* Mill. (BCN26350)                  | Fonoll                   | Raw                  | Aerial part | W 4                      |             |
| Aquifoliaceae   | *Ilex aquifolium* L. (BCN29876)                        | Grèvol                   | Raw                  | Leaf         | W 1                      |             |
| Araceae         | *Arum italicum* Mill. (BCN32338)                      | Xària. Xèrria            | Boiled in water. Raw | Root. Whole plant | W 4                      |             |
| Araliaceae      | *Hedera helix* L. (BCN29869)                          | Heura. Heura d'alzina    | Raw                  | Leaf         | W 3                      |             |
| Asparagaceae    | *Agave americana* L. (BCN46860)                        | Figuerassa               | Boiled in water. Leaf | Leaf         | W 5                      |             |
|                 | *Aphyllanthes monspeliensis* L. (BCN29627)            | Llonsa. Pa de cucut      | Raw                  | Aerial part | W 3                      |             |
| Asteraceae      | *Centaurea jacea* L. (BCN21907)                       | Caps de burro            | Raw                  | Aerial part | W 1                      |             |
|                 | *Chondrilla juncea* L. (BCN29852)                     | Mástec                   | Raw                  | Aerial part | W 2                      |             |
|                 | *Cichorium endivia* L. (BCN46854)                     | Escarola                 | Raw                  | Leaf         | C 1                      |             |
|                 | *Cichorium intybus* L. (BCN29660)                     | Cama-roja. Xicoia. Xicoina. Xicòria | Raw               | Aerial part | W 2                      |             |
|                 | *Reichardia picroides* *(L.) Roth* (BCN113704)        | Cosconilla               | Raw                  | Leaf         | W 6                      |             |
|                 | *Silybum marianum* *(L.) Gaertn.* (BCN29958)          | Card                     | Raw                  | Aerial part | W 1                      |             |
|                 | *Sonchus oleraceus* L. (BCN113723)                    | Lletissò. Llipsò. Llistò | Air dried. Raw      | Aerial part | W 5                      |             |
|                 | *Sonchus sp.*                                         | Llepsò. Lletissò. Llistò | Raw                  | Aerial part | W 5                      |             |
|                 | *Sonchus temminckii* L. (BCN29954)                    | Lletissò. Llitsò         | Raw                  | Aerial part | W 3                      |             |
|                 | *Taraxacum officinale* Weber in Wiggers (BCN25948)    | Dent de lleó. Xicoia    | Raw                  | Aerial part | W 2                      |             |
| Brassicaceae    | *Brassica napus* L. (BCN46856)                        | Nap. Nap de bou. Nap del camp | Boiled in water. Raw | Root. Whole plant | C 46                     |             |
|                 | *Brassica oleracea* L. subsp. *oleracea* *(BCN32181)* | Bròquil. Col. Col aloma  | Boiled in water. Raw | Leaf         | C 22                     |             |
|                 | *Capsella bursa-pastoris* *(L.) Medic.* (BCN46079)    | Bossa de pastor. Caps blancs | Raw      | Aerial part | W 1                      |             |
|                 | *Raphanus raphanistrum* L. subsp. *sativus* *(L.) Domin (BCN49860) | Rave | Raw | Whole plant | C 1                      |             |
| Cannabaceae     | *Celtis australis* L. (BCN29845)                      | Lledó (fruit). Lledoner  | Boiled in water. Raw | Leaf         | C 10                     |             |
| Family       | Taxon (voucher) | Catalan vernacular names | Preparation | Used part | Wild (W)/cultivated (C) | Use reports |
|--------------|----------------|--------------------------|-------------|-----------|------------------------|-------------|
| Caprifoliaceae | Scabiosa atropurpurea L. (BCN29947) | Escabiosa | Raw \( ^{d} \) | Aerial part | W | 1 |
| Convolvulaceae | Convolvulus arvensis L. (BCN29663) | Corretjola | Raw \( ^{d} \) | Aerial part | W | 6 |
| Cucurbitaceae | Cucumis melo L. (BCN46851) | Meló (fruit) | Raw \( ^{a} \) | Epicarp. Fruit | C | 6 |
| | Cucurbita maxima Duch. in Lam. (BCN-S-1499) | Rabequet (fruit), Carabassa (fruit) | Boiled in water \( ^{a} \) | Fruit | C | 1 |
| | Cucurbita pepo L. var. oblonga Link (BCN29859) | Carabassó (fruit) | Raw \( ^{a} \) | Fruit | C | 1 |
| | Cucurbita pepo L. var. pepo (BCN49858) | Carbassa (fruit), Carbasera, Rabequet (fruit) | Boiled in water \( ^{a} \) | Fruit | C | 12 |
| Equisetaceae | Equisetum arvense L. (BCN24767) | Cua de cavall. Sangnua | Raw \( ^{d} \) | Aerial part | W | 1 |
| | Equisetum sp. | Cua de cavall. Sangnua | Raw \( ^{a, d} \) | Aerial part | W | 3 |
| Ericaceae | Calluna vulgaris (L.) Hull (BCN113722) | Bronsa. Bronsó | Raw \( ^{a} \) | Aerial part | W | 1 |
| Fabaceae | Ceratonia siliqua L. (BCN32177) | Garrofa (fruit) | Air-dried \( ^{a, d} \) | Fruit | C | 8 |
| | Lupinus albus L. (BCN64375) | Llobí | Raw \( ^{a, e} \) | Seed | C | 3 |
| | Medicago sativa L. (BCN29891) | Userda | Air-dried \( ^{a, d, e, f} \), Boiled in water \( ^{a} \), Raw \( ^{e} \) | Aerial part | C | 34 |
| | Onobrychis vicifolia Scop. (BCN113732) | Esparcet. Trepadella | Air-dried \( ^{a, f, g} \), Raw \( ^{a} \), Not reported \( ^{f} \) | Aerial part | C | 20 |
| | Pisum sativum L. (BCN32140) | Pèsol | Raw \( ^{a} \) | Fruit | C | 1 |
| | Robinia pseudoacacia L. (BCN31298) | Acàcia. Acàcia de jardi | Raw \( ^{a} \) | Leaf | C | 1 |
| | Spartium junceum L. (BCN29956) | Ginesta | Raw \( ^{a} \) | Aerial part | W | 1 |
| Trifolium incarnatum L. (BCN25026) | Fenc | Air-dried \( ^{a, d} \), Boiled in water \( ^{a} \), Raw \( ^{d} \) | Aerial part | C | 23 |
| | Trifolium pratense L. (BCN29811) | Trèfola. Trèfoga | Air dried \( ^{a} \), Raw \( ^{a} \) | Aerial part | W | 4 |
| | Trigonella foenum-graecum L. (BCN32120) | Senigrec | Raw | Aerial part | W | 1 |
| Vicia faba L. (BCN46826) | Fava | Air-dried \( ^{a, e}, \) Seed | C | 6 |
| Vicia sativa L. (BCN47746) | Veça | Raw \( ^{a, f} \) | Aerial part | C | 3 |
| Fagaceae | Castanea sativa Mill. (BCN29844) | Castanya (fruit), Castanyer | Raw \( ^{a} \) | Fruit | C | 1 |
| Quercus ilex L. (BCN113730) | Aglà (fruit), Alzina. Aulina. Gla (fruit) | Air dried \( ^{a} \), Boiled in water \( ^{a} \), Cooked \( ^{a} \), Raw \( ^{a, e, f} \) | Fruit, Leaf | Young shoot | W | 37 |
| Family          | Taxon (voucher) | Catalan vernacular names | Preparation | Used part | Wild (W)/cultivated (C) | Use reports |
|-----------------|-----------------|--------------------------|-------------|-----------|------------------------|-------------|
| **Quercus pubescens** | Willd. (BCN30007) | Roure | Raw<sup>a</sup> | Aerial part | W 3 |
| **Quercus suber** | L. (BCN46829) | Suro. Alzina surera | Raw<sup>a</sup> | Leaf | W 2 |
| **Linaceae** | *Linum usitatissimum* L. (BCN47281) | Farina de llinet (elaborated product). Llinet | Air dried<sup>b</sup> | Seed | C 1 |
| **Malvaceae** | *Malva sylvestris* L. (BCN29889) | Malva. Malva rosa | Raw<sup>f</sup> | Leaf | W 1 |
| **Moraceae** | *Ficus carica* L. (BCN24887) | Figa (infructescence). Figa d’Alacant (infructescence). Figa de coll de senyora (infructescence). Figa de coll llarg blanca (infructescence). Figa de coll llarg negra (infructescence). Figa de pota de cavall (infructescence). Figa de Sant Joan (infructescence). Figa negra (infructescence). Figuera. Figuera de coll de senyora | Raw<sup>a</sup> | Infructescence | C 1 |
| **Oleaceae** | *Fraxinus excelsior* L. (BCN46844) | Freixa | Raw<sup>a</sup> | Leaf | W 2 |
| **Passifloraceae** | *Passiflora caerulea* L. (BCN29747) | Flor de crist | Raw<sup>d</sup> | Aerial part | C 1 |
| **Plantaginaceae** | *Plantago lanceolata* L. (BCN32138) | Plantatge de fulla estreta. Plantatge estret | Raw<sup>f</sup> | Aerial part | W 1 |
| **Poaceae** | *Arundo donax* L. (BCN29825) | Canya. Canya americana. Canyer | Raw<sup>a</sup> | Leaf | W 2 |
| **Plantago major** | L. (BCN29910) | Plantatge. Plantatge ample. Plantatge de fulla ampla | Raw<sup>f</sup> | Aerial part | W 6 |
| **Digitaria sanguinalis** | (L.) Scop. (BCN113745) | Forcadella. Xereix | Raw<sup>f</sup> | Aerial part | W 2 |
| **Hordeum vulgare** | L. (BCN46843) | Ordi | Air dried<sup>k</sup>. Boiled in water<sup>e</sup> | Aerial part. Fruit | C 10 |
| **Lolium perenne** | L. (BCN12911) | Mill | Air dried<sup>c</sup>. Boiled in water<sup>e</sup> | Aerial part | C 10 |
| **Phalaris arundinacea** | L. (BCN51675) | – | Raw<sup>k</sup> | Aerial part | C 1 |
| **Secale cereale** | L. (BCN46828) | Sègol. Sègal | Air dried<sup>f</sup>. Boiled in water<sup>e</sup> | Aerial part. Fruit | C 6 |
| **Sorghum bicolor** | (L.) Moench (BCN31310) | Melca. Sorgo | Air dried<sup>k</sup>. Boiled in water<sup>e</sup> | Aerial part | C 6 |
| **Triticum aestivum** | L. (BCN29963) | Blat. Farina (elaborated product). Pa (elaborated product). Palla (elaborated product). Segò (bran) | Air dried<sup>k</sup>. Boiled in water<sup>c</sup>. Cooked<sup>1</sup> | Aerial part. Bran. Fruit | C 28 |
| **Zea mays** | L. (BCN29830) | Blat de morassa. Blat de moret. Blat de moro. Farro (elaborated product) | Air dried<sup>k</sup>. Boiled in water<sup>e</sup>. Raw<sup>a</sup> | Aerial part. Bract. Fruit | C 56 |
which has been mentioned 52 times with a unique popular name (farigola in Catalan language). In contrast, the species designated with more vernacular names are the cultivated ones, due to the names of landraces of several taxa that have also been quoted by the informants.

The ethnophytonymy index [53] shows a high value (32.6%), meaning that roughly one-third of the plants in the studied area have at least one folk name, comparable to the results from other Catalan territories, such as 35% in the Pallars district [5], 31% in Alt Empordà district [10], 29.8% in the island of Mallorca [12], 28% in the Montseny mountain massif [6], and 18% in Castelló province [1]. The allochthonous ethnophytonymy index proposed by Carrió [12] calculates the rate between taxa having a vernacular name in non-Catalan languages (even for those taxa having also some Catalan names) and the total number of collected taxa. In the present study, the value is very small (4.7%, due to a few Spanish names) as compared with the one obtained in Mallorca (27.8, due to some names in Spanish and French languages; [12]), indicating a more culturally homogeneous informants’ pool.

The linguistic diversity index, which expresses the linguistic richness of a territory independently of its flora, reaches a value of 1.90 (almost two names per plant), comparable to those obtained in Alt Empordà (1.94) [10], Navarra (1.87) [75], and Montseny (1.76) [6]. It is interesting to remark that a certain number of folk plant names are linked to their uses. For instance, Achillea ageratum is called in Catalan language herba del fàstic (“disgusting herb”), since it incites vomiting; herba cuquera (“worm’s herb”) and herba fetgera (“liver’s herb”) allude, respectively, to the antihelminthic use of Agrimonia eupatoria and the hepatoprotective use of Anemone hepatica (the latter bearing the same indication in its specific epithet); Centaurea aspera, an hypoglycemiant plant, is named flor del sucre (“sugar’s flower”); nap de bou (“cow’s rape”) announces the use of Brassica napus to feed cattle; bruç d’escombrs (“broom’s heather”)

| Table 5 | Fodder plants reported in the studied area (Continued) |
| --- | --- |
| Family | Taxon (voucher) | Catalan vernacular names | Preparation | Used part | Wild (W)/cultivated (C) | Use reports |
| **Polygonaceae** | Fagopyrum esculentum Moench (BCN24886) | Fajol | Boiled in water | Seed | C | 1 |
| **Portulacaceae** | Portulaca oleracea L. (BCN46835) | Verdolaga | Raw | Aerial part | W | 11 |
| **Primulaceae** | Anagallis arvensis L. (BCN29974) | Marruc | Raw | Aerial part | W | 2 |
| **Ranunculaceae** | Anemone hepatica L. (BCN29834) | Herba fetgera | Raw | Leaf | W | 2 |
| | Clematis flammula L. (BCN29856) | Viadella. Virobella | Air dried | Leaf | W | 3 |
| | Clematis recta L. (BCN113720) | Viadella | Air dried | Aerial part | W | 1 |
| | Clematis vitalba L. (BCN29857) | Ridorta | Air dried | Leaf | W | 2 |
| **Rosaceae** | Rubus ulmifolius Schott (BCN29938) | Bardissa. Mora (fruit). Mora negra (fruit). Romeguera | Raw | Young shoot | W | 1 |
| **Smilacaceae** | Sanguisorba minor Scop. (BCN113728) | Esparcet bord | Raw | Aerial part | W | 1 |
| | Smilax aspera L. (BCN29951) | Artijol | Raw | Aerial part | W | 3 |
| **Solanaceae** | Solanum lycopersicum L. (BCN29952) | Tomata (fruit). Tomata de guardar (fruit). Tomata de la meta (fruit). Tomata dels tres cantos (fruit). Tomata plena (fruit). Tomata poma (fruit) | Raw | Fruit | C | 1 |
| | Solanum tuberosum L. (BCN29797) | Patata. Patatera. Trumfera | Boiled in water | Tuber | C | 5 |
| **Ulmaceae** | Ulmus minor Mill. (BCN113729) | Om | Boiled in water | Leaf | W | 10 |

Fodder destination: *Cows, Goats, Hens, Horses and mares, Pigs, Rabbits, Sheep; without superscripted letter: animal destination is not clear
Table 6: Plant with other uses reported in the studied area

| Family         | Taxon (voucher) | Catalan vernacular names | Use                                | Used part | Use reports |
|----------------|-----------------|--------------------------|------------------------------------|-----------|-------------|
| Adoxaceae      | Sambucus nigra L. (BCN11395) | Sabuquer. Saüc. Saüquer | Artisanal. Fuel obtaining          | Stem      | 14          |
|                | Viburnum tinus L. (BCN30012) | Marfull                  | Ornamental                         | Whole plant | 1           |
| Apiaceae       | Pimpinellia anium L. (BCN47278) | Anís verd. Matafaluiga    | Repellent                          | Whole plant | 1           |
| Araceae        | Arum italicum Mill. (BCN32338) | Xària. Xèria              | Agrosilvopastoral management      | Flower    | 1           |
| Araliaceae     | Hedera helix L. (BCN29869) | Heura. Heura d'alzina     | Ornamental                         | Whole plant | 1           |
| Arecaceae      | Phoenix dactylifera L. (BCN52783) | Palma                     | Magic and religious beliefs and practices | Leaf      | 5           |
| Asparagaceae   | Agave americana L. (BCN46860) | Fiquerassa                | Unclassified                       | Inflorescence | 1           |
|                | Asparagus acutifolius L. (BCN19076) | Espàrgol. Esparreguera. Espàrrec | Folk oral literature. Ornamental | Aerial part. Young shoot | 2 |
|                | Ruscus aculeatus L. (BCN29939) | Galzeran. Galleranc        | Ornamental                         | Aerial part | 3           |
|                | Yucca aloifolia L. (BCN2898) | –                        | Ornamental. Unclassified           | Whole plant | 2           |
| Asteraceae     | Carina acanthifolia All. (BCN24738) | Cardina. Carlina. Carolina | Domestic. Ornamental               | Whole plant | 8           |
|                | Helichrysum stoechas (L. Moench (BCN29872) | Mançanilla. Sempreviva     | Ornamental                         | Aerial part | 2           |
|                | Mentisa salmantica (L.) Briq. et Cavill. (BCN49229) | Baleja                     | Artisanal                          | Aerial part | 1           |
|                | Santolina chamaecyparissus L. (BCN13709) | Espenallac. Santolina      | Ornamental                         | Whole plant | 1           |
|                | Sonchus sp. | Llepsó. Lletissó. Llistó | Agrosilvopastoral management. Unclassified | Aerial part. Whole plant | 2 |
|                | Taraxacum officinale Weber in Wiggers (BCN25948) | Dent de  lidó. Xicoia    | Ludic                              | Infructescence | 2 |
| Begoniaceae    | Begonia sp. | Tamaia                    | Ornamental                         | Whole plant | 1           |
| Betulaceae     | Alnus glutinosa (L.) Gaertn. (BCN29620) | Vern                      | Artisanal. Timber                 | Stem      | 4           |
|                | Corylus avellana L. (BCN29831) | Avellana (fruit). Avellana del queixal (fruit). Avellaner. Avellaner negret | Agrosilvopastoral management. Artisanal. Fuel obtaining. Timber | Stem | 15 |
| Boraginaceae   | Lithospermum officinale L. (BCN13376) | Herba pedrera             | Ornamental                         | Aerial part | 1           |
| Buxaceae       | Buxus sempervirens L. (BCN29843) | Boix                      | Agrosilvopastoral management. Artisanal. Timber | Aerial part. Stem | 14 |
| Cannabaceae    | Cannabis sativa L. (BCN24735) | Cànam. Camm               | Artisanal. Textile                 | Stem      | 6           |
|                | Celtis australis L. (BCN29845) | Lledó (fruit). Lledoner   | Agrosilvopastoral management. Artisanal. Timber | Fruit. Stem | 63 |
| Cistaceae      | Cistus lathyris L. (BCN36672) | Estepa                    | Smoking plant                      | Leaf      | 1           |
|                | Cistus monspeliensis L. (BCN36740) | Estepa. Mòdega             | Artisanal                          | Aerial part | 2           |
|                | Cistus salviifolius L. (BCN36767) | Estepa. Mòdega             | Artisanal. Domestic                | Aerial part | 4           |
| Coriariaceae   | Coriaria myrtifolia L. | Roldor                    | Agrosilvopastoral management. Artisanal. | Aerial part. Stem | 7 |
| Family          | Taxon (voucher) | Catalan vernacular names                                      | Use                                      | Used part | Use reports |
|-----------------|-----------------|---------------------------------------------------------------|------------------------------------------|-----------|-------------|
| Cucurbitaceae   | Cucumis pepo L. var. pepo (BCN49858) | Carbassa (fruit), Carbassera, Rabequet (fruit)                | Magic and religious beliefs and practices | Artisanal | Fruit 1     |
| Cupressaceae    | Cupressus sempervirens L. (BCN35770) | Xiprer                                                        | Folk oral literature                      | Whole plant 2 |
|                 | Juniperus communis L. (BCN113589) | Ginebre, Ginebró                                               | Timber                                    | Stem 1     |
|                 | Juniperus oxycedrus L. (BCN29879)  | Cadec                                                         | Artisanal, Domestic, Timber               | Fruit, Stem 4 |
| Dennstaedtiaceae| Pteridium aquilinum (L.) Kuhn (BCN13735) | Falguera                                                      | Agrosilvopastoral management             | Frond 5    |
| Dryopteridaceae | Dryopteris file-mas (L.) Schott (BCN29629) | Falguera                                                      | Agrosilvopastoral management             | Frond 8    |
| Equisetaceae    | Equisetum arvense L. (BCN24767) | Cua de cavall, Sangnua                                        | Agrosilvopastoral management             | Aerial part 1 |
|                 | Equisetum sp.    | Cua de cavall, Sangnua                                        | Agrosilvopastoral management             | Aerial part 1 |
| Ericaceae       | Arbutus unedo L. (BCN29836) | Arboç, Bola d’arboç (fruit), Cixer d’arboç (fruit), Cixer d’arboç | Agrosilvopastoral management, Artisanal, Fuel obtaining | Stem 11 |
|                 | Calluna vulgaris (L.) Hull (BCN113722) | Bronsa, Bronsó                                                 | Agrosilvopastoral management, Fuel obtaining | Aerial part 4 |
|                 | Erica arborea L. (BCN13993) | Bruc, Bruc boal, Bruc bord, Bruc d’ull de bou, Bruc de bou, Bruc de llei | Agrosilvopastoral management, Artisanal, Fuel obtaining | Aerial part, Root, Stem 38 |
|                 | Erica multiflora L. (BCN29864) | Bruc                                                         | Agrosilvopastoral management             | Aerial part 4 |
|                 | Erica scoparia L. (BCN113724) | Bruc, Bruc bord, Bruc d’escombres, Bruc de llei              | Agrosilvopastoral management, Artisanal, Fuel obtaining, Unclassified | Aerial part, Stem, Whole plant 44 |
|                 | Erica sp.        | Bruc                                                         | Agrosilvopastoral management             | Aerial part, Stem, Whole plant 8 |
| Fabaceae        | Genista scorpius (L.) DC. in Lam. et DC. (BCN39891) | Argelaga, Espines                                             | Agrosilvopastoral management, Fuel obtaining | Aerial part 13 |
|                 | Medicago sativa L. (BCN27292) | Userda                                                       | Agrosilvopastoral management             | Aerial part 1 |
|                 | Onobrychis vicilis Scop. (BCN13732) | Esparcat, Trepadella                                         | Agrosilvopastoral management             | Flower 1   |
|                 | Phaseolus vulgaris L. (BCN46837) | Fesol de full marron, Fesol de full negre, Fesol de Santa Pau, Fesol del bitxet gros, Fesol de bitxet petit, Fesol menut, Fesola, Mongeta | Agrosilvopastoral management             | Whole plant 1 |
|                 | Robinia pseudacacia L. (BCN31298) | Acàcia, Acàcia de jardi                                      | Agrosilvopastoral management, Ornamental, Timber | Stem, Whole plant 13 |
|                 | Spartium junceum L. (BCN29956) | Ginesta                                                      | Agrosilvopastoral management, Fuel obtaining, Magic and religious beliefs and practices, Timber | Aerial part, Flower, Stem 12 |
|                 | Trifolium incarnatum L. (BCN25026) | Fenc                                                        | Agrosilvopastoral management             | Aerial part, Flower 2 |
|                 | Trigonella foenum-groseum L. (BCN32120) | Senigrec                                                    | Repellent                                  | Whole plant 1 |
|                 | Ulex parviflorus Pourr. (BCN33001) | Gatosa                                                      | Agrosilvopastoral management, Fuel obtaining | Aerial part 3 |
|                 | Wisteria sinensis (Sims) Sweet (BCN30014) | Lìlì                                                     | Ornamental                                  | Whole plant 1 |
| Castanea sativa Mill. | Castanya (fruit), Castanyer | | Agrosilvopastoral management, Artisanal, Stem 28 | |
| Family          | Taxon (voucher) | Catalan vernacular names                  | Use                                      | Used part     | Use reports |
|-----------------|----------------|-------------------------------------------|------------------------------------------|---------------|-------------|
| Fagaceae        | Fagus sylvatica L. (BCN464845) | Faig                                      | Timber                                   | Stem          | 1           |
|                 | Quercus coccaifera L. (BCN29765) | Garrigues                                 | Domestic                                 | Aerial part   | 1           |
|                 | Quercus ilex L. (BCN113730) | Aglà (fruit), Alzina. Aulina. Gla (fruit) | Agrosilvopastoral management. Artisanal. Dyer. Fuel obtaining. Ludic. Magic and religious beliefs and practices. Not reported. Tannery. Timber. Unclassified | Aerial part. Bark. Flower. Fruit. Leaf. Stem | 66          |
|                 | Quercus pubescens Wild. (BCN30007) | Roure                                     | Agrosilvopastoral management. Folk oral literature. Fuel obtaining. Timber | Fruit. Leaf. Stem | 25          |
|                 | Quercus suber L. (BCN46829) | Suro. Alzina surera                        | Agrosilvopastoral management. Domestic. Fuel obtaining. Ludic. Textile. Timber. Unclassified. | Bark. Stem. Whole plant | 15          |
| Geraniaceae     | Pelargonium sp. | Gerani                                     | Ornamental                               | Whole plant   | 1           |
| Juglandaceae    | Juglans regia L. (BCN29877) | Noguer. Nou (fruit), Nou verda (fruit)    | Dyer. Folk oral literature. Magic and religious beliefs and practices | Fruit. Whole plant | 5           |
| Juncaceae       | Juncus effusus L. (BCN39991) | Jonc                                      | Agrosilvopastoral management            | Stem          | 1           |
| Lamiaeae        | Lavandula latifolia Medic. (BCN113740) | Barballó. Espigol. Lavanda               | Cosmetic. Domestic. Ornamental          | Aerial part. Whole plant | 5           |
|                 | Ocimum basilicum L. (BCN29897) | Alfábregra                                | Agrosilvopastoral management. Repellent | Whole plant   | 4           |
|                 | Origanum vulgare L. (BCN113703) | Oregà                                     | Folk oral literature                     | Whole plant   | 2           |
|                 | Rosmarinus officinalis L. (BCN113599) | Romani                                   | Domestic. Folk oral literature. Magic and religious beliefs and practices | Aerial part. Whole plant | 14          |
|                 | Salvia farinacea Benth. (BCN113718) | Sàlvia de jardi                          | Ornamental                               | Whole plant   | 1           |
|                 | Salvia officinalis L. subsp. officinalis (BCN113583) | Sàlvia. Sàlvia de fulla ampla            | Ornamental                               | Whole plant   | 1           |
|                 | Thymus xcitriodorus (Pers.) Schieber (BCN113803) | Farigola de xocolata. Farigola illmonera | Ornamental                               | Whole plant   | 1           |
| Lauraceae       | Laurus nobilis L. (BCN113717) | Llior. Llior                             | Magic and religious beliefs and practices | Aerial part. Whole plant | 39          |
| Lythraceae      | Punica granatum L. (BCN29764) | Magrana (fruit). Magraner. Magraner agre. Magraner bord. Magraner dol. | Artisanal. Magic and religious beliefs and practices | Aerial part. Whole plant | 21          |
| Moraceae        | Ficus carica L. (BCN24887) | Figa (infructescence), Figa d’Alacant (infructescence). Figa de coll de seryona (infructescence). Figa de coll llarg blanca (infructescence). Figa de coll llarg negra (infructescence). Fige de pota de cavall (infructescence). Figa de Sant Joan (infructescence). Figa negra (infructescence). Figuera. Figuera de coll de seryona | Magic and religious beliefs and practices. Folk oral literature | Infructescence. Whole plant | 7           |
|                 | Morus alba L. (BCN25288) | Morera                                   | Agrosilvopastoral management             | Stem          | 2           |
|                 | Morus nigra L. (BCN31289) | Arça. Morera                             | Agrosilvopastoral management. Fuel obtaining | Stem          | 3           |
| Myrtaceae       | Eucalyptus globulus Labill. (BCN29696) | Eucalíptu. Eucaliptus                   | Ornamental                               | Aerial part. Whole plant | 1           |
| Oleaceae        | Fraxinus excelsior L. (BCN46844) | Freixà                                   | Timber                                   | Stem          | 3           |
|                 | Olea europaea L. subsp. europaea (BCN29898) | Oli (elaborated product). Oli d’oliva (elaborated product). Olivera. Oliva (fruit) | Artisanal. Domestic. Folk oral literature. Fuel obtaining. Magic and religious beliefs and practices. Timber | Aerial part. Fruit. Stem | 10          |
| Family       | Taxon (voucher) | Catalan vernacular names | Use                                      | Used part | Use reports |
|--------------|-----------------|--------------------------|-----------------------------------------|-----------|-------------|
| Papaveraceae | Papaver rhoeas L. (BCN29903) | Gallaret. Pipiripip. Quiquiriquí. Rosella | Ludic. Magic and religious beliefs and practices | Flower    | 13          |
| Pinaceae     | Pinus halepensis Mill. (BCN113592) | Pi. Pi blanc. Pi bord. Pi de pinya llarga. Pi petit. Pinya (fructification) | Agrosilvopastoral management. Artisanal. Folk oral literature. Fuel obtaining. Timber | Aerial part. Bark. Fructification. Stem. Whole plant | 20 |
|              | Pinus pinaster Ait. (BCN36559) | Pi bord. Pi melis | Agrosilvopastoral management. Fuel obtaining | Stem      | 4           |
|              | Pinus pinea L. (BCN26751) | Pi. Pi de llei. Pi de pinya. Pi pinyer | Fuel obtaining | Fructification | 1          |
|              | Pinus sp. | Pi. Trementina (elaborated product) | Agrosilvopastoral management. Artisanal. Domestic. Fuel obtaining. Timber | Aerial part. Cortical parenchyma. Leaf. Stem | 9           |
| Poaceae      | Avena barbata Pott ex Link in Schrad. (BCN49867) | Avena. Cugula | Agrosilvopastoral management. Artisanal | Leaf. Stem. Whole plant | 48 |
|              | Avena sativa L. (BCN29839) | Cividada | Agrosilvopastoral management. Ludic | Aerial part. Fruit | 5           |
|              | Briza media L. (BCN113733) | Belluguets | Ornamental | Flower | 2           |
|              | Panicum miliaceum L. (BCN12911) | Mill | Magic and religious beliefs and practices | Fruit | 1           |
|              | Phragmites australis (Cav.) Steudel (BCN27104) | – | Artisanal | Stem | 1           |
|              | Secale cereale L. (BCN46828) | Ségol. Ségal | Agrosilvopastoral management | Aerial part | 2           |
|              | Sorghum bicolor (L.) Moench (BCN11310) | Melca. Sorgo | Artisanal | Aerial part | 2           |
|              | Sêpa tenacissima L. (BCN46091) | Espart | Textile | Aerial part. Stem | 3           |
|              | Triticum aestivum L. (BCN29963) | Blat. Farina (elaborated product). Pa (elaborated product). Palla (elaborated product). Segó (brian) | Agrosilvopastoral management | Fruit | 6           |
|              | Zea mays L. (BCN29830) | Blat de morassa. Blat de moret. Blat de moro. Farro (elaborated product) | Agrosilvopastoral management. Artisanal. Domestic. Folk oral literature. Fuel obtaining. Ludic. Ornamental. Textile | Bract. Fruit. Inflorescence. Stem. Styles and stigmas | 31 |
| Ranunculaceae | Clematis flammula L. (BCN29856) | Viadella. Vrobell | Agrosilvopastoral management | Aerial part | 2           |
|              | Clematis vitalba L. (BCN29857) | Ridorta | Agrosilvopastoral management. Domestic. Textile | Aerial part. Stem | 6           |
| Rosaceae     | Cistus monogyrus Jacq. (BCN29858) | Arç. Arç blanc | Agrosilvopastoral management. Fuel obtaining | Stem. Whole plant | 5           |
|              | Cydonia oblonga Mill. (BCN46849) | Codony (fruit). Codonyat (elaborated product). Codonyer | Agrosilvopastoral management | Whole plant | 3           |
|              | Mespilus germanica L. (BCN50768) | Nespler. Nespla de bosc. Nespra. Nespro | Agrosilvopastoral management | Whole plant | 1           |
|              | Prunus armeniaca L. (BCN48712) | Abricoc (fruit). Albercoc (fruit). Albercoquer | Agrosilvopastoral management. Artisanal | Endocarp. Whole plant | 3           |
|              | Prunus avium (L.) L. (BCN29827) | Cirera (fruit). Cirerer | Agrosilvopastoral management | Stem. Whole plant | 2           |
|              | Prunus dulcis (Mill.) Webb. (BCN46833) | Ametzler | Agrosilvopastoral management | Whole plant | 1           |
|              | Prunus persica (L.) Batsch (BCN46832) | Préssec (fruit). Préssec cardinal (fruit). Préssec de courre (fruit). Préssec duran (fruit). Préssec groc (fruit). Préssec groc d’agost (fruit). Préssec moller (fruit). Préssec sang de llebre (fruit). Préssec de Sant Joan (fruit). Préssec de Sant Pere (fruit). Préssecuer | Agrosilvopastoral management | Whole plant | 3           |
confirms the specific epithet of *Erica scoparia*, which is used, as other *Erica* species, for broom elaboration. All kind of plant uses are reflected in some vernacular names. We believe that an in-depth research on folk phytonyms (in different areas of a language and in different languages) and of scientific plant names that reflect plant

Table 6 Plant with other uses reported in the studied area (Continued)

| Family          | Taxon (voucher) | Catalan vernacular names | Use            | Used part | Use reports |
|-----------------|-----------------|--------------------------|----------------|-----------|-------------|
| Prunus spinosa L. (BCN30005) | Aranyó (fruit), Arançoner, Arç, Arç negre, Arça | Domestic | Whole plant | 1 |
| Pyrus communis L. subsp. communis (BCN46831) | Pera (fruit), Pera conferece (fruit), Pera de Sant Joan (fruit), Pera roigja (fruit), Perer, Perer mau | Agrosilvopastoral management | Whole plant | 2 |
| Pyrus malus L. subsp. mitis (Waldr.) O’Bolós et J.Vigo (BCN46830) | Poma (fruit), Poma aspra (fruit), Poma cambuisina (fruit), Poma camossa (fruit), Poma capçana (fruit), Poma del ciri (fruit), Poma del ciri groça (fruit), Poma del ciri vermella (fruit), Poma golden (fruit), Poma rodora (fruit), Poma royal (fruit), Pomer, Pomer del ciri | Agrosilvopastoral management, Domestic | Fruit, Whole plant | 11 |
| Rosa sp. | Rosa, Rosa de jardi, Roser | Ornamental | Whole plant | 1 |
| Rubus ulmifolius Schott (BCN29938) | Bardissa, Mora (fruit), Mora negra (fruit), Romeguera | Folk oral literature, Fuel obtaining | Aerial part, Young shoot | 2 |
| Rutaceae | Citrus aurantium L. (BCN46080) | Taronger agre, Taronger amarg, Taronger bord, Taronja ag (fruit) | Agrosilvopastoral management | Fruit, Whole plant | 3 |
| Citrus japonica Thumb. (BCN113966) | Llimona de Xipre | Ornamental | Whole plant | 1 |
| Citrus limon (L.) Burm. (BCN46853) | Llimona (fruit), Llimoner | Agrosilvopastoral management | Fruit | 1 |
| Citrus sinensis (L.) Osbeck (BCN4752) | Taronger, Taronger dolç, Taronja (fruit) | Agrosilvopastoral management | Whole plant | 1 |
| Ruta chalepensis L. (BCN29940) | Ruda | Domestic, Folk oral literature, Magic and religious beliefs and practices | Aerial part, Whole plant | 3 |
| Salicaceae | Populus xcanadensis Moench (BCN113967) | Arbre, Pollancre | Timber | Stem | 1 |
| Populus nigra L. (BCN113746) | Arbre, Arbre bord, Pollancre | Agrosilvopastoral management, Artisanal, Timber | Stem | 3 |
| Salix aotla L. (BCN29777) | Sàlix, Saule | Artisanal | Stem | 7 |
| Salix fragilis L. (BCN31305) | Vímbera, Vímec, Vimequera, Vím | Artisanal | Stem | 17 |
| Sapindaceae | Aesculus hippocastanum L. (BCN29618) | Castanyer bord | Timber | Stem | 1 |
| Saxifragaceae | Bergenia sp. | Hortensia d’hivern | Ornamental | Whole plant | 1 |
| Smilacaceae | Smilax asper L. (BCN29951) | Artjol | Fuel obtaining | Aerial part | 1 |
| Solanaceae | Nicotiana tabacum L. (BCN46711) | Tabac | Agrosilvopastoral management, Repellent, Smoking plant | Leaf | 3 |
| Solanum tuberosum L. (BCN29797) | Patata, Patatera, Trumfera | Agrosilvopastoral management, Domestic, Smoking plant | Leaf, Tub, Whole plant | 4 |
| Typhaceae | Typha latifolia L. (BCN31314) | Balca | Agrosilvopastoral management, Artisanal | Stem | 10 |
| Ulmaceae | Ulmus minor Mill. (BCN113729) | Om | Agrosilvopastoral management, Artisanal, Timber | Stem | 13 |
| Urticaceae | Urtica dioica L. (BCN29814) | Ortega | Agrosilvopastoral management, Folk oral literature, Not reported | Aerial part, Whole plant | 9 |
| Violaceae | Viola albí Besser (BCN27388) | Viola, Violeta | Ornamental | Aerial part | 1 |
| Vitaceae | Vitis vinifera L. (BCN29972) | Raïm (fruit), Sarment, Vi (elaborated product), Vinagre (elaborated product), Vinya | Not reported | Fruit | 1 |
uses is an interesting field of research, still scarcely or not at all addressed in ethnobotany.

**Concluding remarks**

This study has revealed that traditional knowledge is persisting in the studied area if we take into account the numbers of taxa quoted and of use reports, as well as the values of the calculated indexes and despite the proximity to the highly urbanized areas. We have detected a significant number of allochthonous useful plants, and we believe that this subject should be particularly addressed in ethnobotanical studies in other areas throughout the world. The food plant use dataset is particularly important. Conversely, although the knowledge remains in the memory of our informants, the medicinal use of plants is substantially smaller than it used to be (informants often speak in the past of these uses) in their daily life, proving the erosive process in plant traditional knowledge and use that our industrialized societies are experiencing. In this sense, our research helps to alleviate this deterioration and to inventory this heritage, making ready for dissemination and reintroduction to younger generations of the society, who have suffered acculturation, and also for further studies in drug or other useful products development. In any case, even though the current ethnopharmacological pool is eroded and less employed as opposed to some decades ago, as we have shown, the number of medicinal plants and uses recorded are clearly higher than in less industrialized areas, where uses are more persistent. This applies, even more, for the food ethnobotanical corpus and, again to a lesser extent, to the ethnobotany of non-food and non-medicinal plant uses, finally showing the general solidity of ethnobotanical tradition in the area studied, which is now recorded and, thus, protected.

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**Authors’ contributions**

TG and JV coordinated the study. All authors (AG, GS, JV, and TG) participated in the design of the research, data collection, and results discussion. All authors wrote the manuscript and they read and approved the final manuscript.

**Ethics approval and consent to participate**

All the authors agree with the manuscript and consent to participate in it. Concerning the informants, they gave the informed consent (see "Material and Methods" section).

**Consent for publication**

The authors give their consent for publication of this manuscript.
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