

Article

Contribution to the Ethnobotanical Knowledge of Serre Calabre (Southern Italy)

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Abstract: This work presents the results of an ethnobotanical research carried out in the territory of Serre Calabre, province of Vibo Valentia (Calabria, southern Italy). In this territory, the bond between the residents and the rural environment is still strong, because the small urban centers are placed in a predominantly agricultural and forestry environment still managed in a traditional way. The survey took place between January 2019 and July 2021. Data were collected through semi-structured interviews with locals. As many as 17 informants were interviewed and a total of 185 interviews were recorded. Plant specimens were collected under the indication of the informants and then deposited at the herbarium of the Mediterranean University of Reggio Calabria (REGGIO). The data were stored on a digital database and then statistically analyzed some synthetic indexes have also been calculated, such as Relative Frequency of Citation (RFC) and the Cultural Importance Index (CI). The investigation allowed to identify 84 taxa belonging to 39 different families, among which the most represented are Lamiaceae (23 interviews, 9 taxa), Asteraceae (22 interviews, 12 taxa). The identified taxa were prevalently cited for alimentary (46 interviews, 32 taxa) and healing (55, 27) uses. The results obtained show how the traditional knowledge about plants in the Serre Calabre area is still alive, however it is exclusive heritage of elderly people and often only in one or just a few informants. In fact, many practices are no longer in use and will not be transferred to the new generations.

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1. Introduction

Ethnobotany is the science that studies the relationships between human beings and the plant world [1]. It deals with collecting and processing all the information about the traditional uses of plants, often related to the culture of a specific geographical area or ethnic group [2-5]. These traditions still survive mainly thanks to oral testimonies [6], handed down from one generation to another, and deserve to be fully recognized as Intangible Cultural Heritage as enshrined in the 2003 UNESCO Paris Convention [7]. Ethnobotany, with its interdisciplinary nature, makes it possible to study the same aspect from different technical and scientific perspectives and to examine complex interactions between human and natural systems [8]. All ethnobotanical knowledge is limited to a small number of people and linked to the perception that the inhabitants of a community have of the environment in which they live: hence, it represents a heritage indispensable for the survival of human societies, but also constantly threatened by the rapid socio-economic changes that accompany the disappearance of rural societies [9]. In Italy, plant and cultural diversity is high, along with the presence of many minor ethnic-linguistic groups such as Frank-Provençals, Occitans, Ladins, Arbërësh and Graecanics [10]

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contributing to the great overall richness of the national ethnobotanical knowledge [11,12]. Moreover, the “Mediterranean diet”, including legumes, cereals, and various vegetables, in addition to fish and other foods, has also been declared by UNESCO as an “Intangible Cultural Heritage of Humanity” [13]. The health aspect of the Mediterranean diet applies also to dishes made with wild herbs that are often mixed with typical local products, in diverse recipes and preparations [12,14,15]. Calabria region can be considered an “ecological and social edge” because of the encounter of so many different people in the past (Greeks, Romans, Byzantines, Arabs, Normans, etc.). It is not by chance that the places with the greatest linguistic diversity are also those hosting the greatest biological diversity; consequently, there is also an association between linguistic loss and Traditional Environmental Knowledge (TEK) loss [16]. Moreover, from a socio-economic point of view, Calabria is a region where the rural communities persist, the culture of “subsistence” resists and some archaic customs have been maintained [17]. In recent years, there has been an increase in botanical studies [18,19] and in those ethnobotanical [9,20-23], although the province of Vibo Valentia (central-southern Calabria) is very little investigated [6]. Within this province, the territory of the Serre Calabre was selected as the study area of this research. This is an area where the bond between the residents and the rural environment is still strong and the small urban centers are placed in a predominantly agricultural and forestry environment, still managed in a traditional, extensive way.

The aim of this work is to document the plant lore in the territory of Serre Calabre (Southern Italy), to identify the most frequently used taxa and analyze them quantitatively, in order to contribute to the ethnobotanical knowledge of Southern Italy and guarantee the conservation of this important cultural heritage.

2. Materials and Methods

2.1. Study area

The Serre Calabre Massif is located in the southern Apennines, between Sila and Aspromonte. The territory begins at the Limina Pass and ends up at the isthmus of Marcellinara, the narrowest point of the Italian Peninsula, where 35 kilometers separate the Ionian Sea from the Tyrrhenian Sea. The surveys concerned various municipalities, all falling within the administrative province of Vibo Valentia: Vellelonga, Simbario, Brognaturo, Capistrano, Maierato and Nardo di Pace Vecchio. The altitude of the study area ranges between 350 and 900 m a.s.l. (Figure 1).



Figure 1. Calabria region in the Italian territory and a zoom of the province of Vibo Valentia in which the investigated municipalities (marked in red) fall (Google© 2022).

2.2. Ethnobotanical surveys and data collection

The investigation was carried out respecting the principles of the Code of Ethics of the International Society of Ethnobiology [24]. The survey took place between January 2019 and July 2021, for an amount of 185 interviews. The data were collected through semi-structured interviews with locals, according to Musarella *et al.* [6]. The information was collected through an emic approach, always considering the point of view of the respondents and therefore the possibility of an unforeseen answer. The interviews have been integrated with samples of plants collected under the indication of the informants, in order to identify the distinctive morphological characteristics of each taxon. As the vernacular name often corresponds to several taxa, similar in the morphological characteristics (at least in the vegetative stage in which they are utilized), it is important to correlate the collected information with the samples object of the interviews. Each interviewed provided information on many taxa and contributed to the compilation of various interviews, and on each taxon often provided information on different uses. Information has been collected on traditional uses of both spontaneous and cultivated plants. Spontaneous plants include those introduced by man for agricultural or forestry purposes. The collected samples were pressed into newspaper sheets and dried up, each with an appropriate label to produce herbarium samples. Subsequently, the samples were identified; for the identification and for the systematic ordering of the taxa, reference was made to the Flora of Italy [25]; the nomenclature of the plant taxa cited in the text is according to The World Flora Online website [26]. Several additional data, such as family, life forms, chorotype, and origin were collected for each taxon during the species list compilation. The life forms and the chorotypes are reported according to Pignatti [27]. To the 9 chorological types proposed by this author, a tenth has been added to bring together the exotic taxa: 10. Alien - Exotic or non-native taxa.

To facilitate further elaborations, based on their origin, the taxa have been grouped into 3 different groups: Native, Alien, and Cryptogenic, according to the Portal of the Flora of Italy [28].

The samples identified, reporting labels with the scientific name, the location, the date, and the habitat of collection, collector and determinator, were deposited at the herbarium of the Mediterranean University of Reggio Calabria (REGGIO, acronym according to [29]). The information collected with the interviews was stored on an electronic database that takes the structure of the interview sheet, using the software "Microsoft Office Access"®. The information was then analyzed and processed statistically with the software "Microsoft Office Excel"®.

The standard interview sheet used for the interviews is divided into 5 sections which are detailed below, according to [6]:

1. The first section regards the informant's personal details (name, surname, age, current and/or past job, location of the interview).
2. The second section regards the names (scientific, Italian common and vernacular) of the plant, the family to which it belongs, the reference number of the herbarium sample and the photos taken, moreover location and period of collection. The vernacular name was provided by the informants during the interviews. The Italian common name was obtained from the Portal of the Flora of Italy [28], while the scientific one from The World Flora Online website [26]: both were found after the interviews.
3. The third section regards the uses and purposes specified in relation to the type of use. Category of use is defined as one of the following general typologies of use: Agro-pastoral, Alimentary, Aromatic, Cosmetic, Domestic, Forage, Handicraft, Ludic, Magical, Medicinal, Ornamental, Religious, Veterinary, Other Uses. It also highlights the used part of the plant (leaves, flowers, etc.), the method of use or administration (e.g.,

infusion, decoction), the techniques and timing of conservation, as well as the origin of the information on the use of the plant, i.e., if derived from a direct use made by the informants in the present or in the past or learned from other people. This section also deals with the frequency of use of the plant as usual (one or more than one times a week), recurring (one or more than one times a month), casual (few times a year) and rarely (one time a year or more rarely).

4. The fourth section is filled in only if the harvested plant is spontaneous, indicating the habitat in which it grows, its frequency and whether the harvest is for personal use or for business.
5. The fifth section is filled in only if the plant is cultivated, indicating the type of use (personal or for business) and the cultivation technique.

The most anthropological part of the ethnobotanical study also includes eventual place names with botanical references (phytotoponyms or plant place names), the occurrence of plants in myths, legends, rituals, songs, idioms, various cultural practices, etc.

One important aspect of ethnobotanical analysis is the use of quantitative techniques to highlight the importance of traditional uses in the study area. In the present study the following indexes have been calculated:

Relative Frequency of Citation (RFC): it represents how many times each taxon is mentioned by informants. The formula follows the system described by [30]:

$$\frac{FC}{N} \quad (1)$$

where FC is the number of informants who cited a certain taxon and N is the total number of the informants of this study. RFC ranges from zero (when nobody attributes a use for that taxon), to one (when all the informants use that taxon) ($0 < RFC \leq 1$)

Family Importance Value (FIV): it represents how many times each botanical family is cited by informants, and it is calculated as follows [31]:

$$\frac{FC (family)}{N} \times 100 \quad (2)$$

where FC (family) is the number of informants mentioning the family and N is the total number of the informants that took part in this study.

Cultural Importance Index (CI): it is calculated by using the formula suggested in [30]:

$$\frac{UR}{N} \quad (3)$$

where UR is the total number of use citations for each taxon (each interviewed could have done more than one interview for each taxon) and N is the total number of informants.

3. Results and Discussion

Seventeen informants were interviewed, 8 men and 9 women, ranging in between 42 and 98 years of age; 7 of them are aged between 40-65 and 10 are aged between 66-99. Most of them are retired and housewives. Elderly women are the main keepers of traditional knowledge in the domain of local food and medicinal plants, while men that mostly worked as farmers and forestry workmen, play an important role in gathering plants for agro-pastoral and handicraft uses. A total of 185 interviews were recorded.

The surveys led to the identification of 84 plant taxa belonging to 39 different families. The complete list with Family, Taxon, Status, Local Vernacular Name, Life forms, Part used, Category of Use, Purpose, FC, RFC, UR, and CI can be found in the Table S1.

Regarding the reported families, were highlighted the most cited (i.e., those with a higher number of interviews) and the most represented, with a higher number of taxa (Table 1).

The most cited and represented families are Lamiaceae (23 interviews, 9 taxa), Asteraceae (22 interviews, 12 taxa), Fabaceae (13 interviews, 7 taxa) and Rosaceae (12 interviews, 6 taxa). The other families recorded less than 10 interviews and less than 4 taxa (Table 1).

Table 1. Botanical families reported in alphabetical order with the number of interviews (over a total of 185 interviews) and number of taxa (over a total of 84 taxa) for each.

| Family | Interviews | Taxa |
|------------------|------------|------|
| Adoxaceae | 9 | 2 |
| Anacardiaceae | 2 | 1 |
| Apiaceae | 9 | 2 |
| Apocynaceae | 1 | 1 |
| Araliaceae | 2 | 1 |
| Asparagaceae | 2 | 2 |
| Asteraceae | 22 | 12 |
| Boraginaceae | 5 | 3 |
| Brassicaceae | 1 | 1 |
| Cactaceae | 1 | 1 |
| Caprifoliaceae | 2 | 1 |
| Caryophyllaceae | 1 | 1 |
| Convolvulaceae | 3 | 2 |
| Crassulaceae | 7 | 3 |
| Dennstaedtiaceae | 1 | 1 |
| Dryopteridaceae | 2 | 1 |
| Equisetaceae | 4 | 1 |
| Ericaceae | 8 | 2 |
| Euphorbiaceae | 1 | 1 |
| Fabaceae | 13 | 7 |
| Fagaceae | 3 | 1 |
| Hypericaceae | 2 | 1 |
| Juglandaceae | 2 | 1 |
| Juncaceae | 2 | 1 |
| Lamiaceae | 23 | 9 |
| Lauraceae | 4 | 1 |
| Lythraceae | 2 | 1 |
| Malvaceae | 6 | 1 |
| Myrtaceae | 3 | 1 |
| Oleaceae | 1 | 1 |
| Papaveraceae | 2 | 2 |
| Plantaginaceae | 6 | 3 |
| Poaceae | 9 | 3 |
| Ranunculaceae | 2 | 1 |
| Rosaceae | 12 | 6 |
| Scrophulariaceae | 1 | 1 |
| Thymelaeaceae | 1 | 1 |
| Urticaceae | 6 | 2 |
| Verbenaceae | 2 | 1 |

The most common botanical family, based on the calculated FIV index is Asteraceae with 52.9%, followed by Lamiaceae with 35.3% (Table 2).

Table 2. Botanical families reported with the Family Importance Value (FIV) index that represents how many times each botanical family is cited by the informants and FC (Family) is the number of informants mentioning the family.

| Family | FC (Family) | FIV |
|------------------|-------------|------|
| Asteraceae | 9 | 52.9 |
| Lamiaceae | 6 | 35.3 |
| Adoxaceae | 5 | 29.4 |
| Fabaceae | 5 | 29.4 |
| Apiaceae | 4 | 23.5 |
| Ericaceae | 4 | 23.5 |
| Malvaceae | 4 | 23.5 |
| Poaceae | 4 | 23.5 |
| Rosaceae | 4 | 23.5 |
| Boraginaceae | 3 | 17.6 |
| Crassulaceae | 3 | 17.6 |
| Urticaceae | 3 | 17.6 |
| Anacardiaceae | 2 | 11.8 |
| Asparagaceae | 2 | 11.8 |
| Convolvulaceae | 2 | 11.8 |
| Hypericaceae | 2 | 11.8 |
| Myrtaceae | 2 | 11.8 |
| Oleaceae | 2 | 11.8 |
| Plantaginaceae | 2 | 11.8 |
| Ranunculaceae | 2 | 11.8 |
| Apocynaceae | 1 | 5.9 |
| Araliaceae | 1 | 5.9 |
| Brassicaceae | 1 | 5.9 |
| Cactaceae | 1 | 5.9 |
| Caprifoliaceae | 1 | 5.9 |
| Caryophyllaceae | 1 | 5.9 |
| Dennstaedtiaceae | 1 | 5.9 |
| Dryopteridaceae | 1 | 5.9 |
| Equisetaceae | 1 | 5.9 |
| Euphorbiaceae | 1 | 5.9 |
| Fagaceae | 1 | 5.9 |
| Juglandaceae | 1 | 5.9 |
| Juncaceae | 1 | 5.9 |
| Lauraceae | 1 | 5.9 |
| Lythraceae | 1 | 5.9 |
| Papaveraceae | 1 | 5.9 |
| Scrophulariaceae | 1 | 5.9 |
| Thymelaeaceae | 1 | 5.9 |
| Verbenaceae | 1 | 5.9 |

Regarding the taxa surveyed, the corresponding life form spectrum (Figure 2) shows the prevalence of Hemicryptophytes (32.5%), followed by Phanerophytes (21.7%).

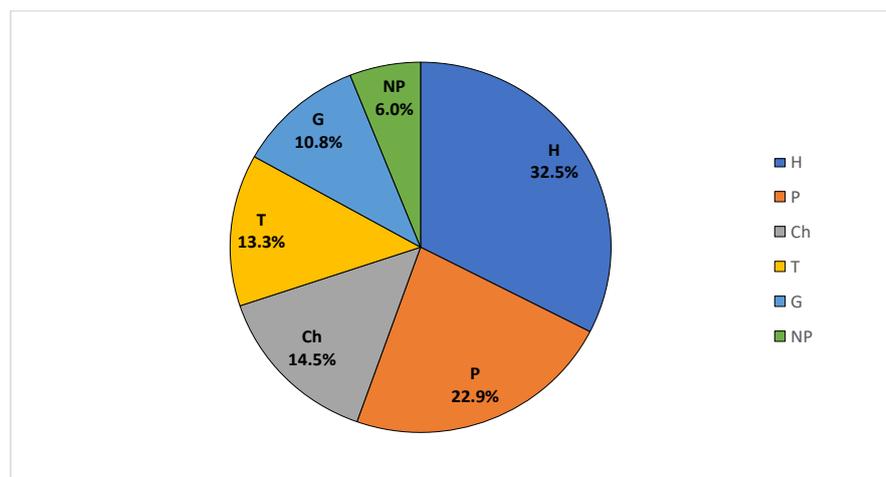


Figure 2. Life form spectrum of the taxa recorded from the interviews. H- Hemicryptophytes; P- Pharenophytes; Ch- Chamaephytes; T- Therophytes; G- Geophytes; NP- Nanopharenophytes.

The chorological spectrum (Figure 3) shows that the Mediterranean plants are the most represented, on an average, the Mediterranean taxa are about the half of the recorded taxa. In particular, the Stenomediterranean chorotype, represent 28.9% of the total. Also, Eurasian species are highly represented (27.7%) and are more abundant than Euro-Mediterranean ones: this is justified by the fact that the study area has a wetter microclimate in which there are cold, wet winters and hot but not dry summers.

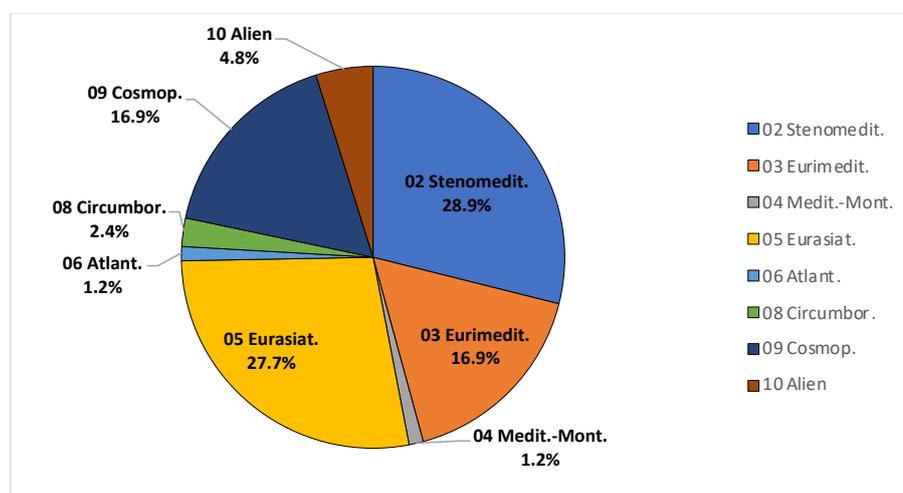


Figure 3. Chorological spectrum of the taxa recorded from the interviews. 02 Stenomediterranean - Taxa distributed along the coasts of the Mediterranean; 03 Eurimediterranean - Taxa distributed along the coasts of the Mediterranean but with ample inland irradiations; 04 Mediterranean-Mountain - Taxa of the circum-Mediterranean mountains; 05 Eurasiatic - Eurasian taxa; 06 Atlantic - Taxa found on the Atlantic coasts of Europe; 08 Circumboreal - Taxa found in the cold and temperate-cold areas of Eurasia and North America; 09 Cosmopolitan - Taxa widespread in almost all areas of the world and cultivated; 10 Alien - Exotic or non-native taxa.

Concerning the origin, most of the taxa (92.4%) are native, while the alien ones are just 6.5%. In addition to these ones, we identified a very small percentage of cryptogenic (1.1%).

Plants of ethnobotanical interest were collected in 8 different habitats (Figure 4). The following graph shows in which habitat the taxa of ethnobotanical interest are mostly found during the interviews. The taxa of the uncultivated lands, meaning ruderal taxa from marginal areas, courtyards, and roadsides, formed the largest portion (39.1%); in fact, eighty-one out of the 84 taxa grow wild and only three are cultivated, followed by the typical taxa of the Mediterranean scrub (19.0%) and the taxa growing in cultivated and pastures (10.6% each).

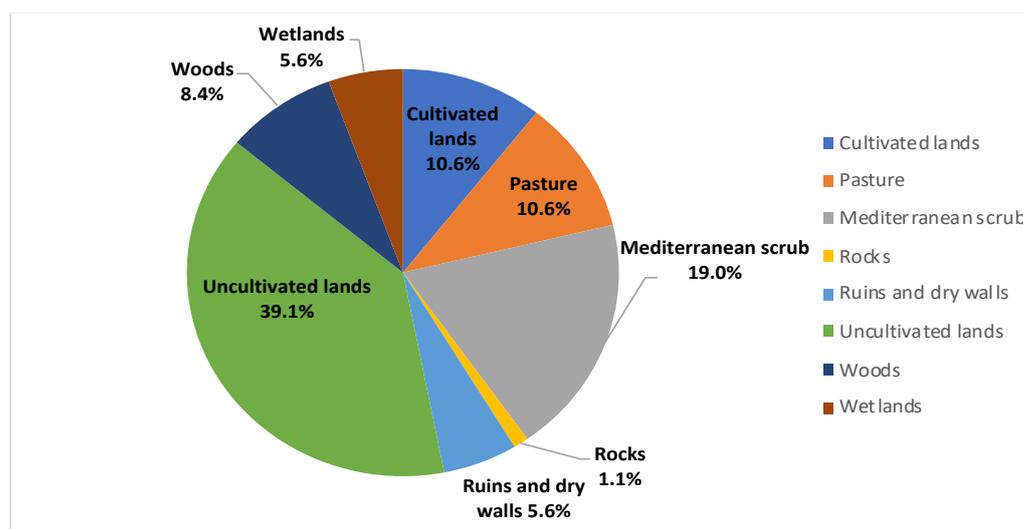


Figure 4. Habitats of the taxa recorded from the interviews.

Regarding the used parts of the plants, in general categories of use, the most common parts were leaves (36.4%), followed by flowers (25.0%) (Figure 5).

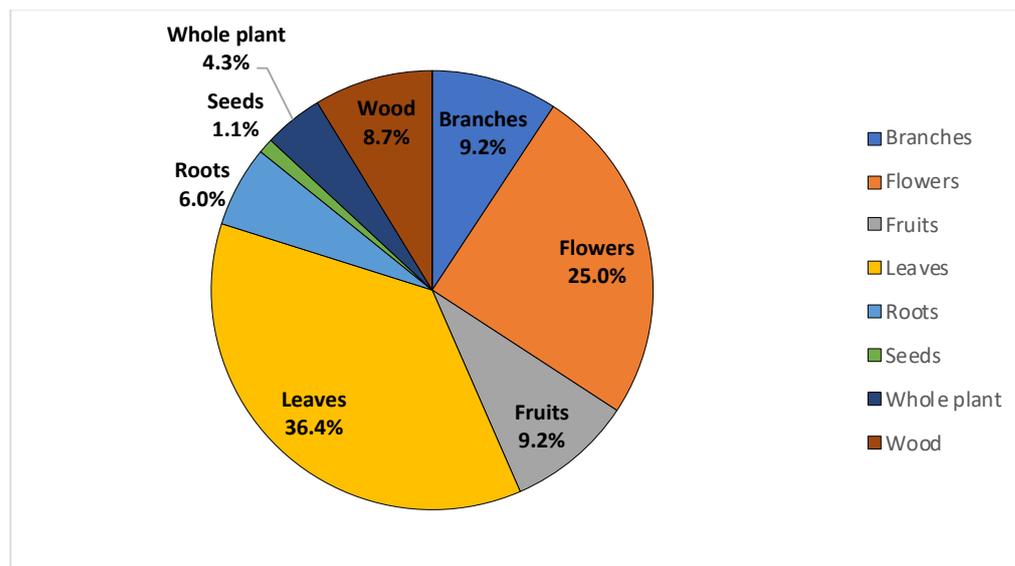


Figure 5. Used part(s) of the plants.

The gathering of wild greens is seasonal and therefore the frequency of use of the taxa is reduced to a few times a year (casual e.g., few times a year). Among the identified taxa, the prevalent uses are the alimentary one (46 interviews, 32 taxa), the medicinal one (55, 27); also, the religious (13, 12) and the aromatic ones (15, 8) proved to be remarkably frequent, while the other uses play a minor role (Figure 6). With the term “Other uses” we

intend the ones that do not fall within the general “Category of use” like repellent use and tobacco substitute use.

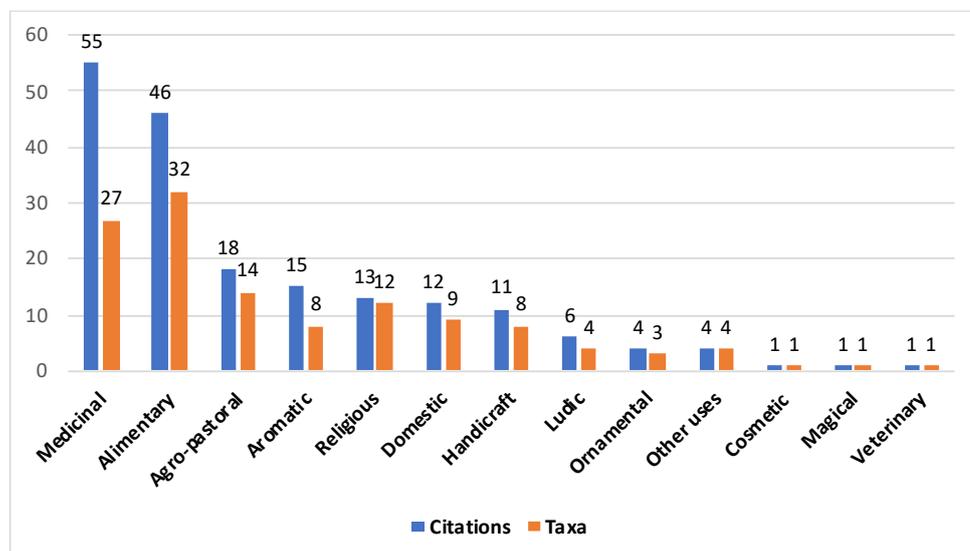


Figure 6. Number of citations and taxa for each category of use.

The knowledge on traditional uses of plants was heterogeneous and only 6 taxa were mentioned by three or more informants and only 13 were mentioned by 2 informants (Table 3). This result reflects the unevenness, hence the high risk of disappearance, of specific traditional knowledge in the whole investigated area.

Table 3. The knowledge distribution on traditional uses of plants shows the number of taxa known by one or more informants.

| Taxa | Informants mentioning the taxa |
|---|--------------------------------|
| <i>Malva sylvestris</i> L. | 4 |
| <i>Sambucus nigra</i> L. | 4 |
| <i>Ampelodesmos mauritanicus</i> (Poir.) T. Durand & Schinz | 3 |
| <i>Erica arborea</i> L. | 3 |
| <i>Matricaria chamomilla</i> L. | 3 |
| <i>Spartium junceum</i> L. | 3 |
| <i>Anethum foeniculum</i> L. | 2 |
| <i>Calystegia silvatica</i> Griseb. | 2 |
| <i>Clematis vitalba</i> L. | 2 |
| <i>Daucus carota</i> L. | 2 |
| <i>Genista monspessulana</i> (L.) L.A.S.Johnson | 2 |
| <i>Hypericum perforatum</i> L. | 2 |
| <i>Myrtus communis</i> L. | 2 |
| <i>Picris hieracioides</i> L. | 2 |
| <i>Pistacia lentiscus</i> L. | 2 |
| <i>Prunus spinosa</i> L. | 2 |

| | |
|-----------------------------------|---|
| <i>Sedum cepaea</i> L. | 2 |
| <i>Thymus longicaulis</i> C.Presl | 2 |
| <i>Urtica dioica</i> L. | 2 |

The most mentioned taxa were *Malva sylvestris* L. and *Sambucus nigra* L. (4 informants each), as shown in the Table 5 (Basic value FC), that reports the results of quantitative analysis for the 20 most relevant and useful taxa in the area, as cited by the informants. While FC represents the number of informants mentioning the taxon, UR considers the number of interviews or citations. Indeed, rating UR, besides *M. sylvestris* and *S. nigra*, also *Ampelodesmos mauritanicus* (Poir.) T. Durand & Schinz, *Erica arborea* L. and *Matricaria chamomilla* L. had the highest number of interviews. *Malva sylvestris* was cited 6 times for the same medicinal use that will be discussed later. The taxa with a higher number of completely different uses (U) are: *Urtica dioica* L. (4), *A. mauritanicus* (4) [32], *S. nigra* (4), *Lavandula angustifolia* Mill. (3), *Laurus nobilis* L. (3), *Robinia pseudoacacia* L. (3), *Myrtus communis* L. (3) and *Spartium junceum* L. (3) (Table 4).

Table 4. Most recurrent taxa sorted by Relative Frequency of Citation (RFC).

| Taxa | Basic value | | | | Indices | |
|--|-------------|---|----|----|---------|------|
| | UR | U | NC | FC | CI | RFC |
| <i>Sambucus nigra</i> L. | 7 | 4 | 5 | 4 | 0.41 | 0.24 |
| <i>Malva sylvestris</i> L. | 6 | 1 | 4 | 4 | 0.35 | 0.24 |
| <i>Erica arborea</i> L. | 7 | 2 | 6 | 3 | 0.41 | 0.18 |
| <i>Ampelodesmos mauritanicus</i> (Poir.) T. Durand & Schinz | 6 | 4 | 5 | 3 | 0.35 | 0.18 |
| <i>Matricaria chamomilla</i> L. | 6 | 2 | 4 | 3 | 0.35 | 0.18 |
| <i>Spartium junceum</i> L. | 3 | 3 | 3 | 3 | 0.18 | 0.18 |
| <i>Urtica dioica</i> L. | 5 | 4 | 4 | 2 | 0.29 | 0.12 |
| <i>Anethum foeniculum</i> L. | 5 | 2 | 5 | 2 | 0.29 | 0.12 |
| <i>Daucus carota</i> L. | 4 | 2 | 4 | 2 | 0.24 | 0.12 |
| <i>Lavandula angustifolia</i> Mill. | 5 | 3 | 5 | 1 | 0.29 | 0.06 |
| <i>Equisetum telmateia</i> Ehrh. | 4 | 2 | 3 | 1 | 0.24 | 0.06 |
| <i>Umbilicus rupestris</i> (Salisb.) Dandy | 4 | 1 | 3 | 1 | 0.24 | 0.06 |
| <i>Laurus nobilis</i> L. | 4 | 3 | 4 | 1 | 0.24 | 0.06 |
| <i>Robinia pseudoacacia</i> L. | 3 | 3 | 3 | 1 | 0.18 | 0.06 |
| <i>Hypochaeris radicata</i> L. | 3 | 1 | 3 | 1 | 0.18 | 0.06 |
| <i>Mentha pulegium</i> L. | 3 | 1 | 3 | 1 | 0.18 | 0.06 |
| <i>Plantago major</i> L. | 3 | 2 | 3 | 1 | 0.18 | 0.06 |
| <i>Quercus ilex</i> L. | 3 | 2 | 3 | 1 | 0.18 | 0.06 |
| <i>Rosa sempervirens</i> L. | 3 | 2 | 3 | 1 | 0.18 | 0.06 |
| <i>Salvia officinalis</i> L. | 3 | 2 | 3 | 1 | 0.18 | 0.06 |

¹ Basic values: UR = Number of interviews ('citations'); U = Number of different categories of use. NC = Number of different purposes; FC = Number of informants mentioning the taxon. Indexes: CI = Cultural Importance Index.

Highest RFC was obtained for *S. nigra* and *M. sylvestris* (RFC=0.24) that result to be the most used taxa; also, *S. nigra*, together with *E. arborea*, are the most culturally significant (CI=0.41). *Erica arborea* is also the taxon with the highest number of completely different uses, considering the purposes of each use (NC=6). When considering the purposes of each use, the medicinal category is the one that have the greatest number of different purposes (24), followed by the handicraft and aromatic ones (10) (Figure 7).

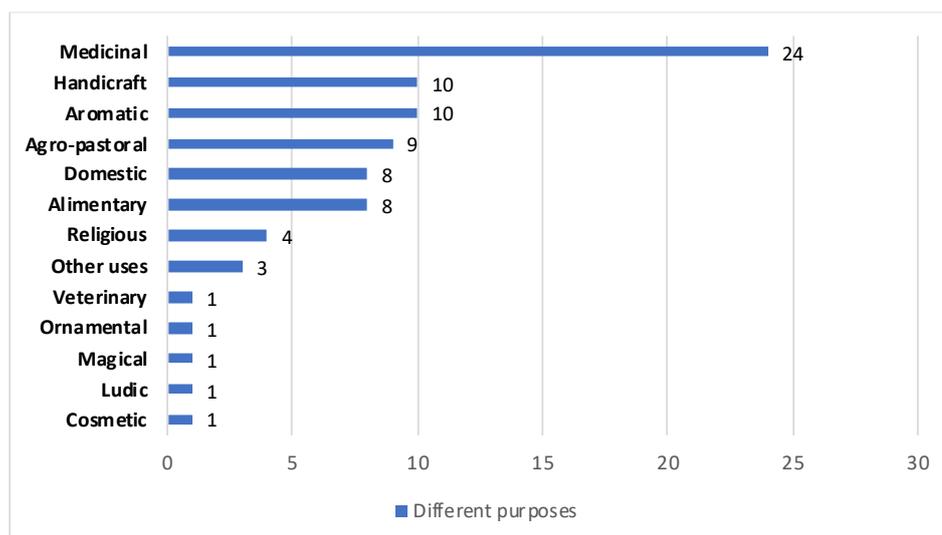


Figure 7. Number of purposes for each category of use.

3.1. Medicinal plants

Within the medicinal category, among the 27 taxa identified, the most cited are *M. sylvestris*, *M. chamomilla*, *S. nigra* and *Umbilicus rupestris* (Salisb.) Dandy (Figure 8). Seven taxa were cited to treat pain and 6 were cited as anti-inflammatory, purifying and calming purposes: most of them were boiled in infusion or decoction (Figure 9). The flowers of *M. chamomilla* were the most used to treat general pain, in infusion with the leaves of *L. nobilis* to treat abdominal ailments; this practice survives and is still used today. The roots of *M. sylvestris*, with dry figs added to sweeten, were used in decoction with anti-inflammatory purposes both for gastric problems and inflammation of the teeth and mouth; regarding this use, it was found a popular proverb that recites: “*eppe la bronchita e mi guarivi cu li malohj gugghjuti, mi dozzeru li denti e mi passaru cu la malohjia; quandu mi vene la cimorra mi pigghju nu tazzoni de maluohj; chi borrhissi de chju?*” (English version: “I had bronchitis, and I was cured with cooked mallow, my teeth ached, and I was cured with mallow, when I have a cold, I drink a cup of mallow; what else do you want?”).

Dry flowers of *S. nigra* were infused and applied to soothe red eyes or in case of conjunctivitis and in decoction to purify the kidneys; these uses, and plants are commonly shared in the traditional medicine of Calabria and Sicily (see [9,33] for Calabria; [34-35] for Sicily). Fresh leaves of *U. rupestris* were used to heal cyst, pimples, calluses and the locally so-called “giraditu”. i.e., an inflammation of the fingers; the same use is also reported for the Reventino Massif area (Central Calabria) [9]. Another taxon whose fresh leaves are used for the same topical purpose, is *Cotyledon orbiculata* L.: the leaves are heated and peeled, i.e., deprived of the superficial epidermis and used to heal cyst. Until today, this use was unknown for Calabria: in fact, no other information was found in regional literature; the same use was found in the work of Camangi & Tomei [36] that investigated the province of Livorno (Tuscany, Northern Italy). Among the 55 interviews, 35 reported boiling as preparation method; on the contrary, according to Hadjichambis et al. [37], the species perceived as healthy were consumed raw more often than cooked. The

same plant taxa might be consumed cooked in one season and raw in another season (e.g., tender shoots vs. old leaves) [12].

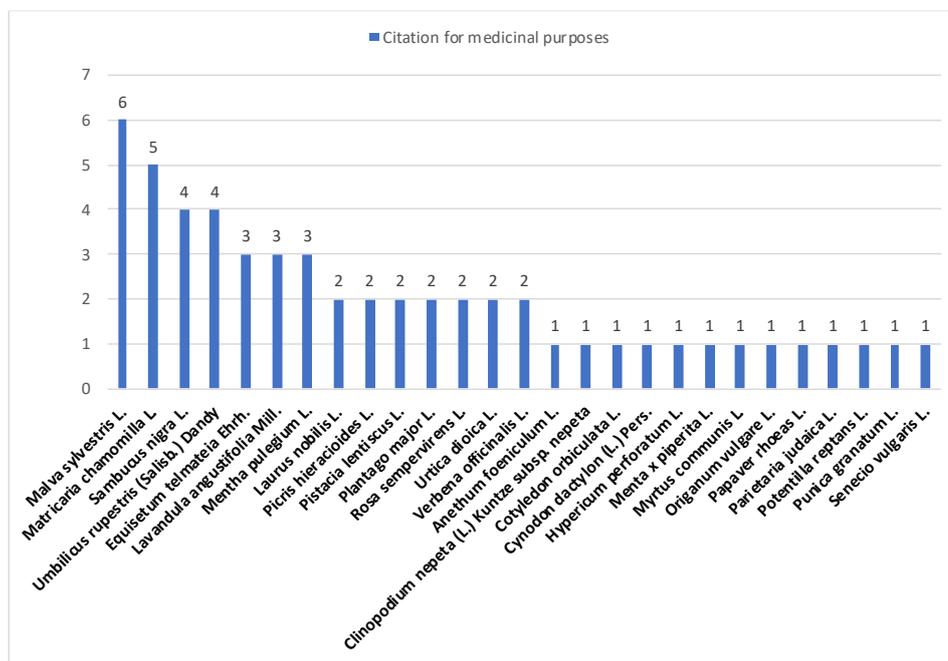


Figure 8. Most cited taxa for medicinal purposes.

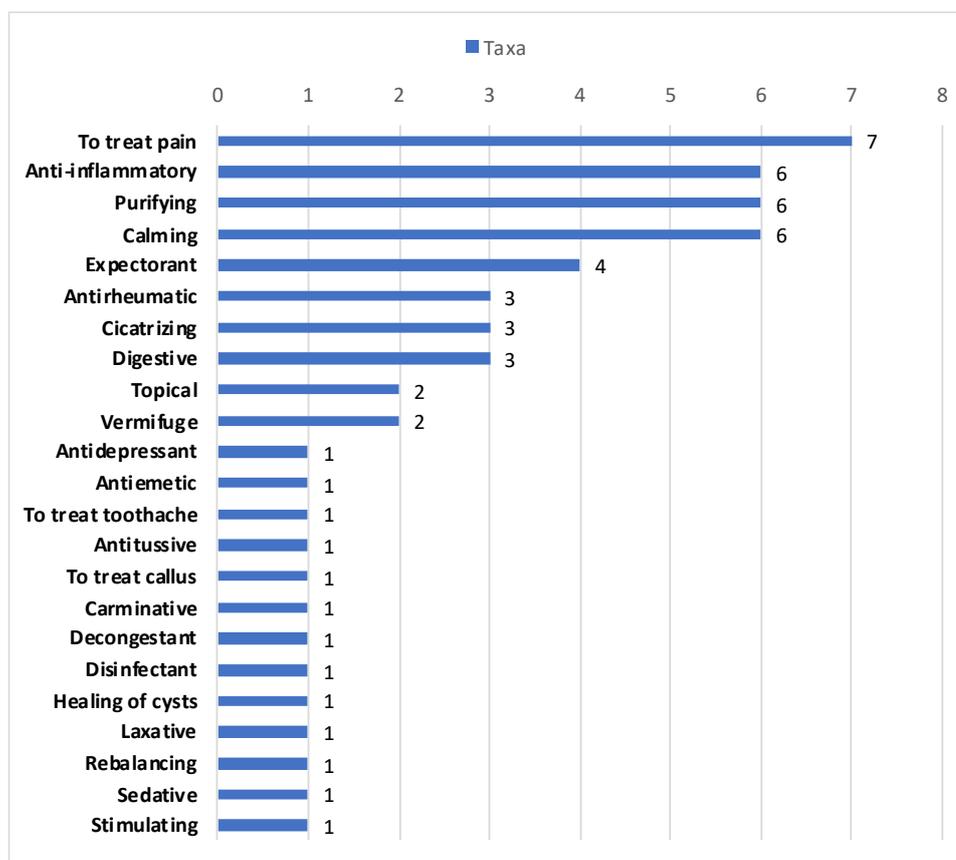


Figure 9. Number of medicinal taxa used to treat various ailments.

3.2. Alimentary plants

Among the alimentary use, most of the informants use the taxa for side dishes and rural snacks (Figure 10).

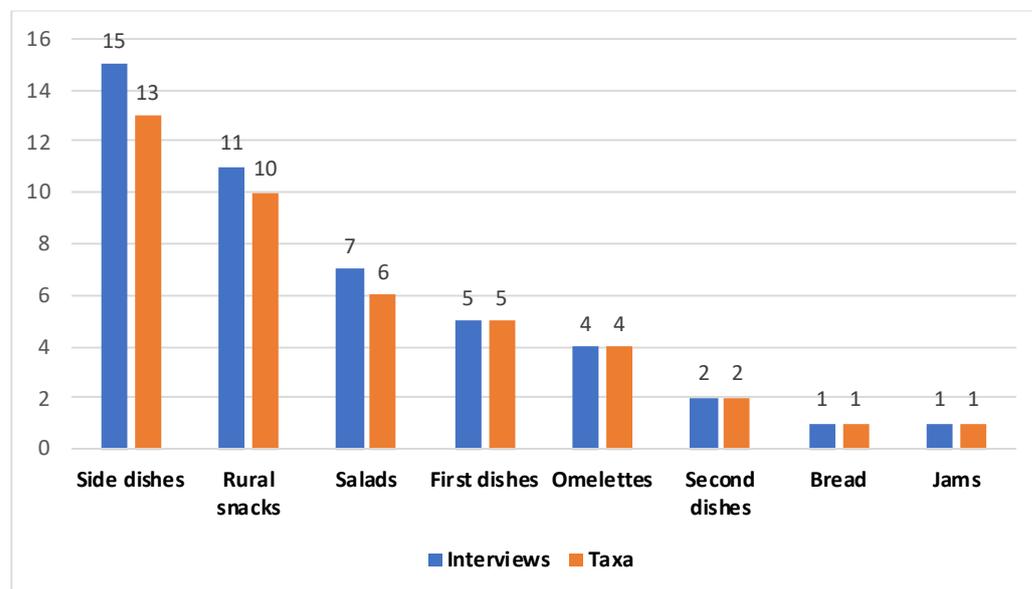


Figure 10. Number of interviews and taxa for each purpose of the alimentary category of use.

The most mentioned alimentary taxa were: *Borago officinalis* L., *Daucus carota* L., *Galactites tomentosus* Moench, *Hypochaeris radicata* L. (3 mentions each). The leaves that, usually, are harvested in spring and consumed at the juvenile stage, are mostly boiled, or consumed raw, alone or in association with other vegetables, as side dishes. *Borago officinalis* is according to Ghirardini et al. [38] the most quoted taxa in both the Southern and the Northern Italian sites. Also, Tavilla et al. [39] report numerous food uses of *B. officinalis*. Moreover, in the present study were also reported alimentary uses for *Asparagus acutifolius* L. and *Cichorium intybus* L., that are the most quoted wild food taxa in Southern Italy along with *Anethum foeniculum* L. (= *Foeniculum vulgare* Mill. subsp. *vulgare*), *Reichardia picroides* (L.) Roth and *Sonchus* spp., according to Ghirardini et al. [38]. Regarding our study, *A. foeniculum* appears only in the aromatic category of use, in which it is the most cited taxon. *Anethum foeniculum* was cited between the most common 16 taxa in Italy concerning the aromatic use, due to its phytochemical profile (the ability to stimulate the excretion of digestive enzymes, carminative properties) [40]. *Sonchus asper* (L.) Hill and *Crepis biennis* L. are both referred with the same vernacular name as “Jùncu”, and were cooked the same way (boiled) as well as *C. intybus*, *H. radicata*, and *Hypochaeris laevis* L. Many taxa of the Asteraceae family are referred to by the vernacular name “Cicuori” as well as “Jùncu”; all of them are more or less bitter herbs, consumed as cooked vegetables, collected at the stage of basal rosette, and often found in different types of agricultural and marginal environments. *Cichorium intybus*, *S. asper* and *Picris hieracioides* L. are widely used all over Calabria as edible but also as medicinal plants according to Marrelli et al. [41], who studied the phytochemical content of these taxa. In the present work, *P. hieracioides*, was mentioned only in the medicinal category of use: the leaves reduced to mush were applied to wounds to cicatrize. Also, *H. radicata* and *H. laevis* are known to be used traditionally both in the alimentary and in the medicinal category of use in Southern Italy [9,12,42]; their phytochemical content and bioactivity, together with *Hyoseris radiata* L., and *Hyoseris lucida* subsp. *taurina* (Pamp.) Peruzzi & Vangelisti, was studied and compared to fresh plant materials and residual blanching water by Sicari et al. [43]. The results of this study demonstrated the healthy effect of these wild plants, and that the blanching water should be repurposed in food preparation. In fact, because it is a

good source of bioactive compounds, its consumption should be recommended to increase the absorption of micronutrients.

Among the 46 interviews, 24 reported cooking (boiled) as preparation method. In a study carried out in seven countries over the Mediterranean area [37], the predominant preparation method for leafy vegetables greens is cooking (54%) [10]. Ten taxa have been pointed out as “rural snacks”, probably because most of the informants worked closely to the natural environment and picked up the fruits directly from the plant, for example *Arbutus unedo* L., *Prunus spinosa* L. and *Rubus ulmifolius* Schott. The same use has also been found in the Peloritani Mounts (NE Sicily) [39]. Many vegetable food products contain a high concentration of polyphenols (e.g., [44,45]), but also flavonoids (e.g., [46,47]) and omega3 fatty acids [12,48]. It is the case of *A. foeniculum*, *U. dioica*, *B. officinalis*, *H. radicata*, *A. acutifolius*.

According to Jordana [49], to be traditional, a product must be linked to a territory, and it must also be part of a set of traditions, which will necessarily ensure its continuity over time. Many wild edible plants reported in this study can be defined as food–medicine due to the presence of different classes of natural products (e.g., [50–52]) or active compounds (e.g., [53–55]). Since several of these molecules have antioxidant properties and are contained in large quantities in vegetables, the role of these plants in the diet has been reevaluated [12]. Moreover, wild food species contribute to local food systems and to the local gastronomy, playing an important role in the economy of small communities [40].

3.3. Religious plants

The informants have reported 10 taxa as being used for various religious rituals, like to decorate the villages’ streets during religious processions like *Anchusella cretica* (Mill.) Bigazzi, E. Nardi & Selvi, or like torches (*Verbascum thapsus* L.) or small candle floating on water (*Pseudodictamnus mediterraneus* Salmaki & Siadati) (Figure 11), especially during the Easter period. *Hypericum perforatum* L. was reported for a specific religious use: on June 24, St. John’s Day, it was customary to collect it as a gift to friends in order to establish or reinforce fraternal bonds.



Figure 11. *Pseudodictamnus mediterraneus* Salmaki & Siadati. The calyx of flowers was used as small candle floating on water.

3.4. Agro-pastoral plants

Fourteen interviews contained information concerning agro-pastoral use: among them, there are 7 different purposes. A very peculiar use concerns *Euphorbia lathyris* L. (Figure 12): in the past it was a very common plant species, used for several purposes in southern Italy and Sicily [56]. In the territory of the Serre Calabre, *E. lathyris* is still used as a mole (“surici uòrvu” = blind rat) repellent by planting it in their burrows: it was noted that during seeds production, moles leave them.



Figure 12. *Euphorbia lathyris* L. with fruits used as mole repellent.

Another interesting purpose among agro-pastoral uses regards *Daphne gnidium* L.: the roots were used in the past for the illegal fishing of eels (“angide”). Similar uses were found in numerous papers regarding Sardinia, Sicily, and other Italian regions [57-60].

A typical agro-pastoral use is to make ropes, ties, and cattle collars with the stems of *A. mauritanicus* (Figures 13 a,b); the same use has been found in several works concerning the southern Italian area [39,61-63].



Figure 13. (a) Rope and (b) tie for *Vitis vinifera* L. made with stems of *Ampelodesmos mauritanicus* (Poir.) T. Durand & Schinz.

3.5. Most culturally significant taxa

3.5.1. *Sambucus nigra* L.

As already illustrated, in addition of being the most used taxon, the elder is also the most culturally significant: indeed, the informants provided 4 different categories of use for it: medicinal, aromatic, domestic and handicraft. The medicinal category of use was cited 4 times and as already described in the previous paragraphs, it concerned the flowers, also used to flavor the bread in a typical preparation of the area, called "Pitta de fiuri" or "Pitta china". The bread is filled with hot pepper, anchovies, olives, and onion. The fruits were used to extract ink and to color the homemade soap.

3.5.2. *Erica arborea* L.

This taxon registered the highest number of different purposes (6) within two different categories of use: domestic and handicraft. The roots, collected and cleaned, are still used today to make jewelry and pipes by local artisans. During the study it emerged that this is the only taxon collected for commercial purposes and not only for personal and family uses. The artisanal creation of pipes with the briar root of *E. arborea* is a traditional peculiarity of Serre Calabre area, which over time has become a real commercial activity aimed at a market niche that refers to fans of this way of smoking. To make pipes the briar is boiled and left aside for 20 years and then it is carved. The tree heath produces lignotubers that are highly valued for making smoking pipes also in the Peloritani Mountains of northeastern Sicily as reported by La Mantia *et al.* [64]. The wood is also used to make traditional musical instruments. With this aim, it is dried for 10 years and then carved to make the melody reeds of the bagpipe known in Calabria as "zampogna". A very similar use was found in [39] where *E. arborea* wood is used to make the different parts of the "ciaramedda" (bagpipe). Regarding this taxon, it was found a popular proverb that recites: "Quandu hjiure la bruvera, arrivau la vera primavera" (english version: "When the tree heat blooms, the true spring has arrived"). Moreover, the branches were used to make kitchen tools and like a rudimentary broom to clean the outside yard and as firewood for the oven to prepare homemade bread together with

Fraxinus ornus L. (vernacular name: *mijriu*), *Pistacia lentiscus* L. (*scinu*) and *Quercus ilex* L. (*ilici*) A popular proverb about the firewood use was reported by informants: “*Io su lu scinu e fazzu lu luci finu, io su lu mijriu e cchiu finu lu fazzu io, io su l’ilici gravu pe tridici e ajrumu pe quattuardici*” (English version: I am the mastic tree and I make the fire weak, I am the manna tree and I make it weakest, I am the evergreen oak and I weigh for thirteen and I heat for fourteen”).

4. Conclusions

The results obtained show how the traditional knowledge about plants in the Serre Calabre area is still alive, both in terms of uses and in terms of vernacular names, rhymes, proverbs, and rituals. However, it is exclusive heritage of elderly people who have grown up following the rhythm of nature and in close contact with their land, where they have learned to take advantage of all the resources it can offer. They saw nature not only as the main survival source, but also as a stimulus for creativity, from simple games for children up to handcrafted works. This information is often reported only by one or few informants, as suggested by the large number of plants cited by fewer than 3 informants. Moreover, many practices are no longer in use and survive only as memories or in the form of family lexicon and small daily habits. The change in lifestyle has meant that, even in small countries and rural environments such as those studied, this information is no longer transmitted to the new generations, and the people interviewed are not aware of the huge patrimony of which they are the last holders. Concerning the traditional phytotherapeutic remedies, they were more popular and widespread in the past when medicines were not easily available. On the contrary, in addition to being the most cited category of use, the alimentary use is still popular, with several edible wild plants used both as delicacies and as the ingredients of local specialties.

This work involved a few municipalities in the study area: deepening the work could be the beginning of a larger research in this territory which is still very little investigated from this point of view. In agreement with Gracia et al. [65], the diversification of production using such resources could be a socio-economically sustainable activity in areas with non-optimal farming conditions by contributing to population stabilization in rural areas.

In conclusion, this study has the purpose to preserve this knowledge as a cultural heritage that characterizes the identity of the territory, and make sure it will not be lost; highlighting, where possible, taxa of value and suggesting scientific insights for little-known taxa in relation to their use.

Supplementary Materials: The following are available online at <https://www.scipublications.com/Supplementary-Materials/389/tables1.xlsx>, Table S1: List of the taxa of ethnobotanical interest recorded in the Serre Calabre territory. Status: C (cultivated), W (wild). FC: number of informants who cited a certain taxon; RFC: Relative Frequency of Citation; UR: total number of use citations for each taxon; CI: Cultural Importance Index.

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Human and animal rights: This research involved human participants who gave a verbal informed consent prior to the interview.

References

- [1] Harshberger, J.W. The purposes of ethno-botany. *Bot. Gaz.* **1896**, *21*(3), 146-154. ISSN: 00068071
- [2] Novais, M.H.; Santos, I.; Mendes, S.; Pinto-Gomes, C. Studies on pharmaceutical ethnobotany in Arrábida Natural Park (Portugal). *J. Ethnopharmacol.* **2004**, *93*, 183-195. <https://doi.org/10.1016/j.jep.2004.02.015>
- [3] Abdul Aziz, M.; Ullah, Z.; Pieroni, A. Wild Food Plant Gathering among Kalasha, Yidgha, Nuristani and Khowar Speakers in Chitral, NW Pakistan. *Sustainability* **2020**, *12*(21), 9176. <https://doi.org/10.3390/su12219176>
- [4] Bhat, M.N.; Singh, B.; Surmal, O.; Singh, B.; Shivgotra, V.; Musarella, C.M. Ethnobotany of the Himalayas: Safeguarding medical practices and traditional uses of Kashmir regions. *Biology* **2021**, *10*, 851. <https://doi.org/10.3390/biology10090851>
- [5] Singh, B.; Singh, B.; Kishor, A.; Singh, S.; Bhat, M.N.; Surmal, O.; Musarella, C.M. Exploring plant-based ethnomedicine and quantitative ethnopharmacology in protected area: Ethnobotanical study of medicinal plants utilized by population of Jasrota Hill in Western Himalaya, India. *Sustainability* **2020**, *12*, 7526. <https://doi.org/10.3390/su12187526>
- [6] Musarella, C.M.; Paglianiti, I.; Cano-Ortiz, A.; Spampinato, G. Indagine etnobotanica nel territorio del Poro e delle Preserre Calabresi (Vibo Valentia, S-Italia). *Atti Soc. Toscana Sci. Nat. Mem. B* **2019**, *126*, 13-28. <https://doi.org/10.2424/ASTSN.M.2018.17>
- [7] UNESCO. Representative list of the Intangible cultural heritage. UNESCO Publication 2003, Paris. Available online: <https://ich.unesco.org/en/convention> (accessed on 30/07/2022)
- [8] Prance, G.T. What is ethnobotany today? *J. Ethnopharmacol.* **1991**, *32*(1-3), 209-216. [https://doi.org/10.1016/0378-8741\(91\)90120-3](https://doi.org/10.1016/0378-8741(91)90120-3)
- [9] Maruca, G.; Spampinato, G.; Turiano, D.; Laghetti, G.; Musarella, C.M. Ethnobotanical notes about medicinal and useful plants of the Reventino Massif tradition (Calabria region, Southern Italy). *Genet. Resour. Crop Evol.* **2019**, *66*(5), 1027-1040. <https://doi.org/10.1007/s10722-019-00768-8>
- [10] Bruni, P. Ministero Beni e Attività Culturali. Comitato Nazionale Minoranze Etnico-linguistiche in Italia, Manduria (TA) (Ed.), 2005.
- [11] Guarrera, P.M. *Usi e Tradizioni della Flora Italiana. Medicina Popolare ed Etnobotanica*. Aracne, Rome, Italy, 2006. ISBN:978-88-548-0964-2
- [12] Guarrera, P.M.; Savo, V. Perceived health properties of wild and cultivated food plants in local and popular traditions of Italy: A review. *J. Ethnopharmacol.* **2013**, *146*, 659-680. <https://doi.org/10.1016/j.jep.2013.01.036>
- [13] UNESCO. Representative List of the Intangible Cultural Heritage of Humanity, 2010. Available online: <https://ich.unesco.org/doc/src/ITH-10-5.COM-CONF.202-6-EN.pdf> (accessed on 03/08/2022).
- [14] Biscotti, N.; Pieroni, A. The hidden Mediterranean diet: wild vegetables traditionally gathered and consumed in the Gargano area, Apulia, SE Italy. *Acta Soc. Bot. Pol.* **2015**, *84*(3). <https://doi.org/10.5586/asbp.2015.031>
- [15] Motti, R.; Bonanomi, G.; Lanzotti, V.; Sacchi, R. The contribution of wild edible plants to the Mediterranean Diet: An ethnobotanical case study along the coast of Campania (Southern Italy). *Econ. Bot.* **2020**, *74*(3), 249-272. <https://doi.org/10.1007/s12231-020-09504-1>
- [16] Pieroni, A.; Nebel, S.; Quave, C.; Münz, H.; Heinrich, M. Ethnopharmacology of liakra: traditional weedy vegetables of the Arbëreshë of the Vulture area in southern Italy. *J. Ethnopharmacol.* **2002**, *81*(2), 165-185. [https://doi.org/10.1016/S0378-8741\(02\)00052-1](https://doi.org/10.1016/S0378-8741(02)00052-1)
- [17] Passalacqua, N.G.; De Fine, G.; Guarrera, P.M. Contribution to the knowledge of the veterinary science and of the ethnobotany in Calabria region (Southern Italy). *J. Ethnobiol. Ethnomed.* **2006**, *2*(1), 1-14. <https://doi.org/10.1186/1746-4269-2-52>
- [18] Caruso, G. *Anthyllis hermanniae* L. subsp. *brutia* Brullo & Giusso (Fabaceae): population survey and conservation tasks. *RJEES*, **2022**, *2*(4), 92-102. <https://doi.org/10.31586/rjees.2022.339>
- [19] Caruso, G. Calabrian Native Project: Botanical Education Applied to Conservation and Valorization of Autochthonous Woody Plants. *RJEES*, **2022**, *2*(2), 47-59. <https://doi.org/10.31586/rjees.2022.387>
- [20] Leporatti, M.L.; Pavesi, A. Usi nuovi, rari o interessanti di piante officinali di alcune zone della Calabria. *Webbia* **1989**, *43*(2), 269-289. <https://doi.org/10.1080/00837792.1989.10670455>
- [21] Leporatti, M.L.; Impieri, M. Ethnobotanical notes about some uses of medicinal plants in Alto Tirreno Cosentino area (Calabria, Southern Italy). *J. Ethnobiol. Ethnomed.* **2007**, *3*(1), 1-6. <https://doi.org/10.1186/1746-4269-3-34>
- [22] Iuliano, L.; Grotteria, M.; Pascali, D.; Rispoli, P.; Sigilli, A.; Sirianni R.M. Le piante della tradizione calabrese. ARSSA Calabria. 2002 Available online: http://www.arsacweb.it/wpcontent/uploads/2017/07/Le-piante-della-tradizione-Calabrese_ARSAC_1.pdf (accessed on 30/05/2022)
- [23] Patti, M.; Musarella, C.M.; Spampinato, G. An update of ethnobotanical knowledge on plant species used for food purposes in Calabria (S-Italy) **2022**, pp. 73-74. In: Musarella C.M., Spampinato G. (Eds.) 2022. XIV International Seminar Biodiversity Management and Conservation - "Biodiversity and Sustainability: two important keywords for the future". Book of abstracts

- and Field trips guide. Serra San Bruno, Vibo Valentia (Italy) June 6-11, 2022. Mediterranean University of Reggio Calabria, Italy. ISBN: 978-88-99352-67-7
- [24] ISE. International Society of Ethnobiology Code of Ethics, 2006. Available online: http://www.ethnobiology.net/wp-content/uploads/ISECodeofEthics_Italian.pdf (accessed on 15/06/2022)
- [25] Pignatti, S.; Guarino, R.; La Rosa, M. *Flora d'Italia: In 4 Volumi*. Volume 4: Flora d'Italia & Flora Digitale, 2nd ed.; Edagricole-Edizioni Agricole di New Business Media srl: Milano, Italy, 2019. ISBN 978-88-506-5245-7
- [26] WFO (2022): World Flora Online. Published on the Internet. Available online: <http://www.worldfloraonline.org> (accessed on 04/10/2022)
- [27] Pignatti, S. *Flora d'Italia*. Edagricole, Bologna. 1982
- [28] Portale della Flora d'Italia. 2021. Available online: <http://dryades.units.it/floritaly/?procedure=contacts> (accessed on 30/06/2022)
- [29] Thiers, B. Index Herbariorum: A Global Directory of Public Herbaria. New York Botanical Garden's Virtual Herbarium. Available online: <http://sweetgum.nybg.org/ih/> (accessed on 08/07/2022).
- [30] Tardío, J.; Pardo-De-Santayana, M. Cultural Importance Indices: A Comparative Analysis Based on the Useful Wild Plants of Southern Cantabria (Northern Spain) *Econ. Bot.* **2008**, *62*(1), 24-39. <https://doi.org/10.1007/s12231-007-9004-5>
- [31] Vitalini, S.; Iriti, M.; Puricelli, C.; Ciuchi, D.; Segale, A.; Fico, G. Traditional knowledge on medicinal and food plants used in Val San Giacomo (Sondrio, Italy)—An alpine ethnobotanical study. *J. Ethnopharmacol.* **2013**, *145*(2), 517-529. <https://doi.org/10.1016/j.jep.2012.11.024>
- [32] Patti, M.; Musarella, C.M.; Laface, V.L.A.; Cano-Ortiz, A.; Quinto-Canas, R.; Spampinato G. The use of plants for building purposes in the popular tradition. In: Calabrò, F., Della Spina, L., Bevilacqua, C. (eds.) *New Metropolitan Perspectives*. ISHT **2022**. Smart Innovation, Systems and Technologies, vol 101. Springer, Cham. https://doi.org/10.1007/978-3-031-06825-6_160
- [33] Bellusci, F. *Le piante officinali del Parco Nazionale del Pollino*. 2017.
- [34] Pasta, S.; La Rosa, A.; Garfi, G.; Marcenò, C.; Gristina, A.S.; Carimi, F.; Guarino, R. An updated checklist of the Sicilian native edible plants: Preserving the traditional ecological knowledge of century-old agro-pastoral landscapes. *Front. Plant Sci.* **2020**, *11*, 388. <https://doi.org/10.3389/fpls.2020.00388>
- [35] Aleo, M.; Cambria, S.; Bazan, G. Tradizioni etnofarmacobotaniche in alcune comunità rurali dei Monti di Trapani (Sicilia occidentale). *Quad. Bot. Amb. Appl.* **2013**, *24*(24), 27-38.
- [36] Camangi, F.; Tomei, P.E. Tradizioni etno-farmacobotaniche nella provincia di Livorno: il territorio della Valle Benedetta. *Inf. Bot. It.* **2003**, *35*(1), 41-54.
- [37] Hadjichambis, A.C.; Paraskeva-Hadjichambis, D.; Della, A.; Giusti, M.E.; De Pasquale, C.; Lenzarini, C.; Censorii, E.; Gonzales-Tejero, M.R.; Sanchez-Rojas, C.P.; Ramiro-Gutierrez, M.; Skoula, M.; Johnson, C.; Sarpaki, A.; Hmamouchi, M.; Jorhi, S.; El-Demerdash, M.; El-Zayat, M.; Pieroni, A. Wild and semidomesticated food plant consumption in seven circum-Mediterranean areas. *Int. J. Food Sci. Nutr.* **2008**, *59*, 383-414. <https://doi.org/10.1080/09637480701566495>
- [38] Ghirardini, M.P.; Carli, M.; Del Vecchio, N.; Rovati, A.; Cova, O.; Valigi, F.; ...; Pieroni, A. The importance of a taste. A comparative study on wild food plant consumption in twenty-one local communities in Italy. *J. Ethnobiol. Ethnomed.* **2007**, *3*(1), 1-14. <https://doi.org/10.1186/1746-4269-3-22>
- [39] Tavilla, G.; Crisafulli, A.; Ranno, V.; Picone, R.M.; Redouan, F.Z.; Giusso del Galdo, G. First contribution to the ethnobotanical knowledge in the Peloritani Mounts (NE Sicily). *RJEES* **2022**, 1-34. <https://doi.org/10.31586/rjees.2022.201>
- [40] Motti, R. Wild Plants Used as Herbs and Spices in Italy: An Ethnobotanical Review. *Plants* **2021**, *10*, 563. <https://doi.org/10.3390/plants10030563>
- [41] Marrelli, M.; Conforti, F.; Araniti, F.; Casacchia, T.; Statti, G. Seasonal and environmental variability of non-cultivated edible Cichorioideae (Asteraceae). *Plant Bios.* **2018**, *152*(4), 759-766. <https://doi.org/10.1080/11263504.2017.1330778>
- [42] Guarrera, P.M.; Savo, V. Wild food plants used in traditional vegetable mixtures in Italy. *J. Ethnopharmacol.* **2016**, *5*, 202-234. <https://doi.org/10.1016/j.jep.2016.02.050>
- [43] Sicari, V.; Loizzo, M.R.; Sanches Silva, A.; Romeo, R.; Spampinato, G.; Tundis, R.; Leporini, M.; Musarella, C.M. The Effect of Blanching on Phytochemical Content and Bioactivity of *Hypochaeris* and *Hyoseris* Species (Asteraceae), Vegetables Traditionally Used in Southern Italy. *Foods* **2021**, *10*, 32. <https://doi.org/10.3390/foods10010032>
- [44] Heimler, D.; Vignolini, P.; Dini, M.G.; Vincieri, F.F.; Romani, A. Antiradical activity and polyphenol composition of local Brassicaceae edible varieties. *Food Chem.* **2006**, *99*, 464-469. <https://doi.org/10.1016/j.foodchem.2005.07.057>
- [45] Heimler, D.; Isolani, L.; Vignolini, P.; Romani, A. Polyphenol content and antiradical activity of *Cichorium intybus* L. from biodynamic and conventional farming. *Food Chem.* **2009**, *114*, 765-770. <https://doi.org/10.1016/j.foodchem.2008.10.010>
- [46] Justesen, U.; Knuthsen, P. Composition of flavonoids in fresh herbs and calculation of flavonoid intake by use of herbs in traditional Danish dishes. *Food Chem.* **2001**, *73*, 245-250. [https://doi.org/10.1016/S0308-8146\(01\)00114-5](https://doi.org/10.1016/S0308-8146(01)00114-5)
- [47] Heimler, D.; Isolani, L.; Vignolini, P.; Tombelli, S.; Romani, A. Polyphenol content and antioxidative activity in some species of freshly consumed salads. *J. Agric. Food Chem.* **2007**, *55*, 1724-1729. <https://doi.org/10.1021/jf0628983>
- [48] Simopoulos, A. Omega-3 fatty acids and antioxidants in edible wild plants. *Biol. Res.* **2004**, *37*, 263-277. <https://doi.org/10.4067/S0716-97602004000200013>
- [49] Jordana, J. Traditional foods: Challenges facing the European food industry. *Int. Food Res. J.* **2000**, *33*, 147-152. [https://doi.org/10.1016/S0963-9969\(00\)00028-4](https://doi.org/10.1016/S0963-9969(00)00028-4)

- [50] The Local Food-Nutraceuticals Consortium. Understanding local Mediterranean diets: a multidisciplinary pharmacological and ethnobotanical approach. *Pharmacol. Res.* **2005**, *52*, 353-366. <https://doi.org/10.1016/j.phrs.2005.06.005>
- [51] Heinrich, M.; Nebel, S.; Leonti, M.; Rivera, D.; Obón, C. 'Local Food Nutraceuticals': bringing the gap between local knowledge and global needs. *Forum Nutr.* **2006**, *59*, 1-17. <https://doi.org/10.1159/000095205>
- [52] Sánchez-Mata, M.C.; Cabrera Loera, R.D.; Morales, P.; Fernández-Ruiz, V.; Cámara, M.; Díez Marqués, C.; ...; Tardío, J. Wild vegetables of the Mediterranean area as valuable sources of bioactive compounds. *Genet. Resour. Crop Evol.* **2012**, *59*, 431-443. <https://doi.org/10.1007/s10722-011-9693-6>
- [53] Agradi, E.; Vegeto, E.; Sozzi, A.; Fico, G.; Regondi, S.; Tome, F. Traditional healthy Mediterranean diet: estrogenic activity of plants used as food and flavoring agents. *Phytother. Res.* **2006**, *20*(8) 670-675. <https://doi.org/10.1002/ptr.1931>
- [54] Araruna, K.; Carlos, B. Anti-inflammatory activities of triterpene lactones from *Lactuca sativa*. *Phytopharmacol.* **2010**, *1*, 1-6.
- [55] Pereira, C.; Barros, L.; Carvalho, A.M.; Ferreira, I.C. Nutritional composition and bioactive properties of commonly consumed wild greens: potential sources for new trends in modern diets. *Food Res. Int.* **2011**, *44*, 2634-2640. <https://doi.org/10.1016/j.foodres.2011.05.012>
- [56] Pasta, S.; Troia, A. From common and used to rare and forgotten: past and present distribution of the archaeophyte *Euphorbia lathyris* L. (Euphorbiaceae) in southern Italy and Sicily. *Atti Soc. Toscana Sci. Nat. Mem. B* **2019**, *126*, 5-12. <https://doi.org/10.2424/ASTSN.M.2018.16>
- [57] Bruni, A.; Ballero, M.; Poli, F. Quantitative ethnopharmacological study of the Campidano Valley and Urzulei district, Sardinia, Italy. *J. Ethnopharmacol.* **1997**, *57*(2), 97-124. [https://doi.org/10.1016/S0378-8741\(97\)00055-X](https://doi.org/10.1016/S0378-8741(97)00055-X)
- [58] Viegi, L.; Pieroni, A.; Guarrera, P.M.; Maccioni, S. Piante usate in Italia in medicina veterinaria popolare. *Ann. Fac. Med. Vet. Pisa*, **2001**, *54*, 405-420. <https://doi.org/10.1016/j.jep.2003.08.003>
- [59] Atzei, A.D.; Orioni, S.; Sotgiu, R. Contributo alla conoscenza degli usi etnobotanici nella Gallura (Sardegna). *Boll. Soc. Sarda Sci. Nat.* **1991**, *28*(1990/91), 137-177. ISSN:0392-6710
- [60] Guarrera, P.M. Le piante nelle tradizioni popolari della Sicilia. *Erbor. Domani* **2009**, *46*, 46-55.
- [61] Guarrera, P.M. Il patrimonio etnobotanico del Lazio. *Plant Bios.* **1994**, *128*(1), 446-446. <https://doi.org/10.1080/11263509409437253>
- [62] Leporatti, M.L.; Guarrera, P.M. Ethnobotanical remarks in Capitanata and Salento areas (Puglia, southern Italy). *Etnobiologia* **2007**, *5*(1), 51-64. ISSN-e:1665-2703
- [63] Signorini, M.A.; Piredda, M.; Bruschi, P. Plants and traditional knowledge: An ethnobotanical investigation on Monte Ortobene (Nuoro, Sardinia). *J Ethnobiol. Ethnomed.* **2009**, *5*,6. <https://doi.org/10.1186/1746-4269-5-6>
- [64] La Mantia, T.; Giaini, G.; Veca, D.S.L.M.; Pasta, S. The role of traditional *Erica arborea* L. management practices in maintaining northeastern Sicily's cultural landscape. *For. Ecol. Manag.* **2007**, *249*(1-2), 63-70. <https://doi.org/10.1016/j.foreco.2007.05.029>
- [65] Gracia, A.; Sánchez, A.M.; Jurado, F.; Mallor, C. Making Use of Sustainable Local Plant Genetic Resources: Would Consumers Support the Recovery of a Traditional Purple Carrot? *Sustainability* **2020**, *12*(16), 6549. <https://doi.org/10.3390/su12166549>