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A great deal of ethnobotanical knowledge, passed down from generation to generation by oral tradition, is still preserved in the Mediterranean basin. Over the years, efforts have been made to collect this information to avoid losing thisthe knowledge heritage about local uses of plants. This work is a contribution towards the to the increase of the ethnobotanical knowledge of Calabria (southern Italy) through a survey on the Tyrrhenian side of the Aspromonte Massif in the metropolitan city of Reggio Calabria, an area that has been little studied from the ethnobotanical point of view. For this purpose, several semi-structured interviews were conducted with informants on the current and past use of spontaneous and cultivated plants in this study area; the data were collected in a Microsoft Excel® spreadsheet and then processed. Fifty-nine people were interviewed. Results show that the most frequently The most frequently used plant family is Asteraceae, the most mentioned taxon is *Anethum piperitum* (22 interviews), and the most recurrent use is use is culinary, for the preparation of side-dishesalimentary for the purpose of side-dishes. This work highlights the presence of cultures that have used plants in the past and represents a further useful contribution to the ethnobotanical knowledgeheritage of this region.

Keywords: Mediterranean basin; ethnobotany; biodiversity; cultural heritage; endemic species; native species; alien species.

1. Introduction

Ethnobotanical studies play a pivotal role in understanding the complex relationships between humans and the plant kingdom, providing invaluable insights into the traditional knowledge and sustainable utilisation of plant resources within diverse cultural contexts (Harshberger 1896; Zocchi et al. 2022). Since ancient times, humans have used a considerable diversity of wild plants for food, medicine, tool-makingtoolmaking, hunting, and improving domestic life (Tardío et al. 2006; Bhat et al. 2021), although some authors prefer to call them to talk about "non-crop plants" (Pieroni et al. 2005) or "non-crop food" (Bonet and Vallès 2002). Recent studies have also highlighted the importance of wild species closely related to crops (crop wild relatives): they often possess useful traits such as

disease resistance and can have several ~~benefits on human~~ benefits on human health and on environmental protection~~and environmental health~~ (Abenavoli et al. 2021; Perrino and Wagensommer 2021; Perrino, 2022).

Wild plants often play a central role in the Mediterranean diet~~Wild plants are also considered a central dish in the Mediterranean diet~~, according to Naska and Trichopoulou (2014), who defined it as a diet characterised by an abundance of plant foods, fruits, olive oil, and fish, and in smaller amounts by meat and wine.

Despite the evidence of the importance of plant species, several studies (Rivera et al. 2005; Rivera et al. 2006; de Cortes Sánchez-Mata and Tardío 2016; Tsioutsiou et al. 2017; La Rosa et al. 2021) and the consideration that the Mediterranean diet is an Intangible Cultural Heritage of Humanity by UNESCO (2013), the extent to which wild plants are consumed by most people living in the Mediterranean basin is largely unknown.~~the consumption of wild plants by most of the population in the Mediterranean basin is mostly unknown.~~ This is largely due to the sudden change in lifestyle in recent decades related to globalisation, which has resulted in the loss of ethnobotanical heritage handed down by our ancestors (Nebel et al. 2006; Musarella et al. 2019; Mattalia et al. 2020a).

Another important aspect of ethnobotany is the medicinal use of wild plants. Despite the advent of new technologies and new pharmaceutical products~~synthetic products~~, people prefer the use of less invasive, naturally derived compounds, in fact plant biodiversity has numerous bioactive compounds that can be the basis of many medicines that are more effective and safer than modern synthetic products (Shin et al. 2019; Costa et al. 2022). In addition, to prevent or treat SARS-CoV-2 infection, populations have been preparing to seek alternative solutions, and the use of medicinal plants has emerged as a promising alternative resource to boost immunity and counter COVID-19 (Benkhaira et al. 2021; Brahmi et al. 2022; Chebaibi et al. 2022; Odebunmi et al. 2022).

Other ethnobotanical uses related to crafts, magic, and cosmetics are also important and have been highlighted in many studies (Leporatti and Pavesi 1989; Arcidiacono et al. 2007; Costa et al. 2022).

The Mediterranean basin has a very diverse cultural history; its complexity is due to~~diverse cultural history and is complex due to~~ the many influences that have occurred over the centuries (Hammer et al. 1987). Hadjichambis et al. (2007) pointed out that in some rural areas of the Mediterranean, ancient ethnobotanical traditions are maintained, and wild plants play an essential role in daily nutrition. This important heritage has been passed on from generation to generation through oral testimonies (Singh et al. 2014; Verma 2014; Nyero et al. 2021). Today, knowledge about the use of wild plants is mostly held by older people who live in rural areas and have maintained a traditional way of life, while people who have adapted to urban contexts by following the rhythms of modern life tend not to be interested in this knowledge, which is often considered obsolete; therefore, ethnobotanical knowledge is gradually disappearing (Łuczaj et al. 2012; Maruca et al. 2019; Zarbà et al. 2019). Not only are traditions related to plant use lost, ~~but also the use~~but so is the use of ~~of~~ ancestral languages, mainly derived from Greek, Latin, and Arabic influences. Indeed, there is a correlation between the loss of language, traditional culture, and Traditional Ecological Knowledge (TEK) (Mühlhäusler 2001; Pieroni et al. 2002).

One of the regions that maintains these traditions is Calabria, located in southern Italy, which is renowned for its rich biodiversity (Brullo et al. 2001; Musarella and Tripodi 2004; Bernardo et al. 2011, –2012~~1~~; Spampinato 2014; Musarella 2020; Caruso 2022; Caruso et al. 2022; Spampinato et al. 2022; Capuano and Caruso 2023; Laface et al. 2023; Morabito et al. 2023) and a long history of human settlement, making it an intriguing area for ethnobotanical exploration~~-~~ (Spampinato et al. 2017, 2022). Over the years, several

scientific publications have contributed to unravelling the ethnobotanical knowledge of Calabria's inhabitants, shedding light on their traditional practices, beliefs, and the wide array of plant species used for various purposes (Barone 1963; Leporatti and Pavesi 1989; Iuliano et al. 2002; Nebel et al. 2006; Passalacqua et al. 2006; Leporatti and Impieri 2007; Tagarelli et al. 2010; Guarrera and Savo, 2013; Maruca et al. 2019; Mattalia et al. 2020a; Musarella et al. 2019; Motti 2021; Sicari et al. 2021; Gentile et al. 2022; Patti et al. 2022a, 2022b).

The aim of this study was to investigate one of the least ethnobotanically studied areas of Calabria, specifically the Tyrrhenian side of the Aspromonte Massif, in the metropolitan city of Reggio Calabria, to increase knowledge of the traditional uses of plants in this area and ensure that its ethnobotanical heritage is not lost.

2. Materials and Methods

2.1. Study area

The study area is the Tyrrhenian side of the Aspromonte Massif in the metropolitan city of Reggio Calabria (Calabria, sSouthern Italy). This area includes several municipalities, eight of which were considered in the present study: Delianuova, Polistena, San Ferdinando, Sant'Eufemia d'Aspromonte, Santa Cristina, Santo Stefano in Aspromonte, Scilla, and Villa San Giovanni (Figure 1). The altitude of the study area is between 0 and 1300 m a.s.l. According to the classification of Pesaresi et al. (2017), the bioclimate is Mediterranean pluvioseasonal oceanic with thermotypes ranging from Lower and Upper ThermoMediterranean in the coastal zone, Lower and Upper Mesomediterranean in the hilly and lower submoumtain belts, while belts, and only a small area in the mountain belts is Lower Supramediterranean.

<figure 1 here>

2.2. Ethnobotanical surveys and data collection

To gather information, we conducted semi-structured interviews in the field with different people living in the study area. We selected people who live~~The selection of the population to be interviewed was made by selecting people who live~~ in rural areas far from the effects of globalization, ~~and~~ who still have as their custom the use of wild plants and who are not influenced~~not influenced~~ by personal studies or books but based solely on their cultural tradition. In addition, using the word-of-mouth system, starting with the informants, we obtained other possible informants ~~of their acquaintances to indicate other possible people to interview~~. Interviews took place at different times of the year, between 2012 and 2022.

The interviews were conducted in accordance with the Code of Ethics of the International Society of Ethnobiology (ISE), which aims to promote ethical practice and equitable relationships (ISE, 2006).~~.~~

The interviews were done following the model of Musarella et al. (2019) in Italian and in the local dialect, so that the informants could answer the questions freely and not feel judged.

During the field surveys, we collected numerous samples and took several photographs of the reported plants to ensure correct identification of the species.~~ in the laboratory.~~

In the laboratory, we dried the plant samples collected during the interviews by ~~pressing them~~ pressing them between newspaper sheets ~~into newspapers~~ and placing them in an aerated environment at 42°C. Once dried, we made ~~a~~an herbarium, and species

identification was carried out through the use of dichotomous keys found within the Flora of Italy (Pignatti 2017a, b, 2018, 2019). The nomenclature used was in accordance with the Portal of the Flora of Italy (2023).

The biological form was determined according to the model of Raunekiaer (1934), whereas the chorologicalchronological type followed Pignatti (1982). The chorological types "Cryptogenic" and "Alien" Alien' follow the glossary of Pysek et al. (2009). For the plants that were considered "cultivated", information was taken objectively during the interviews.

The collected plant samples were deposited in the Herbarium of the Mediterranean University of Reggio Calabria (REGGIO, acronym according to Thiers (2023)).

The informations from the ethnobotanical surveys wasere stored in a database using Microsoft Access® software, in which a digital copy showing all the fields of the ethnobotanical form used in the area was created, and the results were exported to Microsoft Excel® software for qualitative statistical processing.

The data on medicinal uses was classified, according to Cook (1995), into nine different groups based on the diseases and the type of generic disorder. The data on medicinal use were divided into groups of diseases, in accordance with Cook (1995), to include the different diseases in nine different groups according to the type of generic disorder.

Quantitative indexes were calculated to statistically analyze the weight of each taxon or family in the total data collection to better highlight their ethnobotanical value.

The

indexes were calculated as follows:

- Cultural Importance Index (CI), in accordance with Tardío and Pardo-de-Santayana (2008) and Whitney et al. (2018), which calculates the cultural importance of plants.
- Family Importance Value (FIV), according to Vitalini et al. (2013), which represents the number of times a botanical family is mentioned by informants.
- Frequency of Citation (FC), according to Prance et al. (1987), was used to calculate the frequency with which a taxon is cited by informants.
- Relative Frequency of Citation (RFC), according to Tardío and Pardo-de-Santayana (2008), which has the same function as the FC index but is related to the total number of informants and is a value between 0 and 1.
- Relative Importance index (RI), according to Tardío and Pardo-de-Santayana (2008), was used to calculate the relative importance of each species.
- Use Value (UV), according to Tardío and Pardo-de-Santayana (2008), was used to calculate the use value of each species.

These indexes were calculated using R software, version 4.3.1 (R Core Team, 2022), with the EthnobotanyR package, version 0.1.9, that was produced by Whitney (2022) following the indications of~~through the directions of~~ Tardío and Pardo-de-Santayana (2008); the FIV index, instead~~ded~~, was calculated by Microsoft Excel®.~~-~~

In addition, within the "ethnobotanyR" package, the "EthnoChord" function was used to create chord diagrams, whose function was to display the totality of the information collected, highlighting which of them were the most relevant (Whitney et al. 2018; Haq et al. 2022). The purpose of the diagram is not only to show which species are used for each purpose (a detailed description of the different uses is provided in the following sections) but also to show which species are most widely used for various purposes and~~–~~, therefore, ~~therefore~~ carry more weight than others at the ethnobotanical level.

3. Results and Discussions

Fifty-nine informants were interviewed, 38 women (64%) and 21 men (36%), who were aged between 21 and 102 years; the age of the informants was divided into three groups in order to assess the number of people interviewed in each age group (Figure 2): most informants were between 51 and 80 years old (59%), 24% were between 20 and 50 years old, and 17% were over 81 years old.

<Figure 2 here>

Figure 2. Age of informants divided into three range: 20-50, 51-80 and >81 years old.

Overall, 381 interviews were conducted within the study area. A total of 126 taxa, belonging to 47 families, were identified. The complete database with family, taxon, Italian common name, local dialect name, biological form and growth mode, chorological type, part used, use, purpose, and the U, UR, FC, RFC, CI, RI, and UV indices is given in Table S1.

In addition, the relationship between the age of the informants and their level of ethnobotanical knowledge was assessed using the number of interviews conducted and the number of taxa cited during the interviews (Figure 3).

From Figure 3, it can be seen that the range 51-80 has more informants (35) and also more ethnobotanical knowledge (corresponding to the number of interviews, 268); the ratio between these two values is 1:7. If we compare the ratios of the other two age groups (21-50 equal to 1:4; >81 equal to 1:5), we can see that the ratio of the age group 51-80 is significantly higher from the point of view of ethnobotanical knowledge. These results were also confirmed by the higher presence of taxa recorded in the age range 51-80 (106).

<Figure 3 here>

Figure 3. Relationship between the age of informants and their level of ethnobotanical knowledge (number of interviews and number of cited taxa).

The informants interviewed and the number of interviews were categorized by municipality considered (Table 1). As can be seen, the number of people interviewed was greater in the

municipalities of Scilla (19) and San Ferdinando (16); consequently, the number of interviews recorded was greater in these two municipalities.

Table 1. Number of interviews and informants by municipality.

Municipalities	N° of interviews	N° of informants
Delianuova	28	9
Polistena	3	2
San Ferdinando	161	16
Sant'Eufemia d'Aspromonte	10	1
Santa Cristina	2	2
Santo Stefano in Aspromonte	18	9
Scilla	154	19
Villa San Giovanni	7	1

Table 2 shows the list of families with the number of interviews and the number of taxa for each. The most frequently mentioned families were Asteraceae (52 interviews and 21 taxa), Lamiaceae (37, 11) and Apiaceae (34, 7).

Table 2. The botanical families are listed in alphabetical order with the number of interviews (out of a total of 381 interviews), the number of taxa (out of a total of 129 taxa) for each, the FC value (the number of informants mentioning the family) and the Family Index - Value (FIV) which indicates the frequency of mention of the families.

Family	Interviews	Taxa	FC (Family)	FIV %
Aizoaceae	2	2	2	4.26
Amaranthaceae	2	2	2	4.26
Amaryllidaceae	9	4	5	10.64
Apiaceae	34	6	16	34.04
Asparagaceae	8	4	5	10.64
Asphodelaceae	8	2	8	17.02
Aspleniaceae	1	1	1	2.13
Asteraceae	52	20	21	44.68
Boraginaceae	7	1	5	10.64
Brassicaceae	13	7	10	21.28
Cactaceae	11	1	6	12.77
Caryophyllaceae	1	1	1	2.13
Convolvulaceae	1	1	1	2.13

Cucurbitaceae	4	4	4	8.51
Equisetaceae	2	1	2	4.26
Ericaceae	2	1	2	4.26
Euphorbiaceae	3	1	1	2.13
Fabaceae	19	7	12	25.53
Fagaceae	7	3	6	12.77
Juglandaceae	3	1	3	6.38
Lamiaceae	37	10	15	31.91
Lauraceae	21	1	13	27.66
Lythraceae	1	1	1	2.13
Malvaceae	5	1	4	8.51
Moraceae	12	1	9	19.15
Myrtaceae	3	2	2	4.26
Oleaceae	2	1	2	4.26
Oxalidaceae	3	1	3	6.38
Papaveraceae	3	2	3	6.38
Phytolaccaceae	1	1	1	2.13
Plantaginaceae	2	2	2	4.26
Poaceae	16	5	11	23.40
Polypodiaceae	1	1	1	2.13
Portulaceae	2	1	2	4.26
Ranunculaceae	1	1	1	2.13
Rhamnaceae	1	1	1	2.13
Rosaceae	22	5	11	23.40
Rubiaceae	2	2	2	4.26
Rutaceae	4	2	2	4.26
Salicaceae	1	1	1	2.13
Scrophulariaceae	2	1	1	2.13
Solanaceae	21	6	15	31.91
Tamaricaceae	1	1	1	2.13
Urticaceae	13	3	8	17.02
Viburnaceae	2	1	4	8.51
Violaceae	2	1	1	2.13
Vitaceae	4	1	3	6.38

According to the FIV index, the most common botanical families were Asteraceae (44.68 %), Apiaceae (34.04 %), and Lamiaceae (31.91 %) (Table 2).

The biological spectrum (Figure 4) shows that Therophytes (T) were the most common life forms (28 %), followed by Phanerophytes ~~Phaenorophytes~~ (P) (25 %), and Hemicryptophytes (H) (25 %).

<Figure 4 here>

Figure 4. Biological spectrum of the species recorded during the interviews. Ch- Chamaephytes; G- Geophytes; H- Hemicryptophytes; NP- Nanophanerophytes; P- Phanerophytes; T- Therophytes.

The c~~C~~horological analysis (Figure 5) showed that the most common species had a Mediterranean chorotype *sensu lato* (37%), subdivided into Stenomediterranean (24%) and Eurimediterranean (13%), followed by cultivated plants (21%), Eurasian (16%), and Cosmopolitan (12%). Other chronological types were less widespread.

<Figure 5 here>

Figure 5. Chorological spectrum of the taxa recorded from the interviews.

Taxa were also classified ~~To identify the origin of the taxa, they were classified~~ according to exoticity as native, alien, or cryptogenic (Figure~~.~~ 6). Most of the recorded species were native (69%), followed by alien (29%) and to a small extent cryptogenic (2%). Of all the alien taxa, 65% were cultivated species. The use of various alien species is not surprising, since their presence in the Calabrian territory has been established for centuries and has been increasing in recent years, and some of them have spread to other habitats from cultivated fields (Laface et al. 2020; Musarella et al. 2020; Spampinato et al. 2022; Musarella et al. 2024).~~The 65% of the alien taxa were cultivated species.~~

<Figure 6 here>

Figure 6. Origin of the taxa divided in Alien, Cryptogenic and Native.

In the interviews, the most used plant parts were the leaves (36%), fruits (21%), and aerial parts (17%); all other parts were used by less than 10% (Figure 7).

<Figure 7 here>

Figure 7. Parts of plants used by informants.

During the interviews, ~~a large number of~~many different uses of the plants were recorded: ~~alimentary~~food, medicinal, domestic (uses for cleaning and home care), handicraft, agro-pastoral, cosmetic, ornamental, magical, forage, religious and ludic (Figure 8). The most common uses were alimentary (182 interviews and 81 taxa) and medicinal (126 interviews and 47 taxa). Other uses are less common, but still interesting, and are discussed in detail below.

<Figure 8 here>

Figure 8. Number of interviews and taxa by category of use, sorted by number of interviews.

According to the FC index, which calculates the number of informants mentioning the same species, only a few taxa were mentioned by more than one informant: *Laurus nobilis* L. was the most mentioned taxon with 13 informants, *Anethum piperitum* Ucria was mentioned by 11 different informants, but was the most cited taxon (highest number of interviews, UR=22), and *Ficus carica* L. was mentioned by nine informants (Table 3). Two taxa were mentioned by seven people and five taxa by five people. Most of the species were mentioned by only one person (70 taxa). Other indices were calculated to show the frequency of mention of the different species (RFC), cultural importance of the plants (CI, RI), and their utility value (UV). Based on the RFC index, the most frequently mentioned species were *L. nobilis* (RFC=0.22), *A. piperitum* (RFC=0.19), and *F. carica* (RFC=0.15). The remaining

indices also confirm that these are the most common taxa during the interviews: CI (0.37; 0.37; 0.20), RI (0.80; 0.72; 0.65) and UV (0.31; 0.25; 0.15).

Opuntia ficus-indica (L.) Mill. Has an RFC value of 0.10 but is the species with the highest variability of use; it is used for five different use categories (U), as shown by the high RI value of 0.73. The other species with high U were *Robinia pseudoacacia* L. (U=4; RFC=0.08) and *Urtica dioica* L. (U=4; RFC=0.08).

Table 3. Most recurrent taxa sorted according to RFC index. Several statistical indices were calculated to highlight the weight of each taxon.

	Basic value			Indexes			
Taxa	**UR**	**U**	**FC**	**RFC**	**CI**	**RI**	**UV**
Laurus nobilis L.	21	3	13	0.22	0.37	0.80	0.31
Anethum piperitum Ucria	22	2	11	0.19	0.37	0.72	0.25
Ficus carica L.	12	3	9	0.15	0.20	0.65	0.15
Clinopodium nepeta (L.) Kuntze subsp. *nepeta*	7	1	7	0.12	0.10	0.33	0.10
Solanum tuberosum L.	7	1	7	0.12	0.12	0.37	0.12
Hypochaeris radicata L.	7	1	6	0.10	0.12	0.33	0.10
Opuntia ficus-indica (L.) Mill.	11	5	6	0.10	0.19	0.73	0.12
Rubus ulmifolius Schott	13	3	6	0.10	0.20	0.53	0.15
Zea mays L. subsp. *mays*	6	3	6	0.10	0.07	0.45	0.07
Borago officinalis L.	7	1	5	0.08	0.02	0.14	0.02
Robinia pseudoacacia L.	6	4	5	0.08	0.10	0.59	0.09
Sambucus nigra L.	9	3	5	0.08	0.17	0.59	0.14
Urtica dioica L.	8	4	5	0.08	0.14	0.59	0.10
Aloë vera (L.) Burm.f.	4	1	4	0.07	0.07	0.25	0.07
Asphodeline lutea (L.) Rchb.	4	1	4	0.07	0.02	0.14	0.02
Capsicum annuum L.	4	3	4	0.07	0.02	0.14	0.02
Castanea sativa Mill.	5	2	4	0.07	0.05	0.28	0.05
Malva sylvestris L.	5	1	4	0.07	0.09	0.25	0.07
Mentha ×piperita L.	8	2	4	0.07	0.02	0.14	0.02
Solanum lycopersicum L.	7	2	4	0.07	0.07	0.45	0.07
Sonchus oleraceus L.	4	2	4	0.07	0.07	0.35	0.07

Basic value: UR= Number of interviews ('citations'); U= Number of different categories of use. FC= Frequency of Citation.
Indexes: RFC= Relative Frequency of Citation; CI=Cultural Importance index; RI= Relative Importance index; UV= Use Value.

Owing to the high heterogeneity of the data obtained, a method was used to assess the taxa that are more important than others in terms of use and the diversity of their potential. To do this, a chord diagram (ethnoChord, R software, version 0.1.9) was created to show the relationships between the matrices (taxa) and use categories (Figure 9). This diagram is a graphical representation of the indexes listed in Table 3. The ~~most commonly used~~most used category is alimentary (almost all species are used for this purpose), followed by medicine, and handicrafts.

As can be seen, the most relevant species are highlighted more prominently (they are thicker than the others), such as *Anetum piperitum*, *Laurus nobilis*, *Rubus ulmifolius* Schott, *Sambucus nigra* L. and *Opuntia ficus-indica*. The graph also shows that the different species have multiple uses; for example, *A. piperitum*, is used for both food and medicinal purposes; *O. ficus-indica*, on the other hand, has a more diversified use; in fact, the categories of use associated with it are agro-pastoral, alimentary, handicraft, cosmetic, and medicinal.

<Figure 9 here>

Figure 9. Chord diagram relating all taxa mentioned during the interviews to the category of use, processed with R software version 2023.06.0+421 + 'ethnobotanyR' package.

3.1. Alimentary use

For the food category, 182 interviews were conducted, involving 81 different taxa (Figure~~.~~ 8). The category includes various types of plant use, such as those used for food (omelettes, first courses, side dishes) and those used for flavoring, seasoning, or preparing liquors (Figure 10). Most of the food species surveyed are already documented in the ethnobotanical literature of ~~the~~ Calabria ~~region~~. However, the use of *Reichardia crassifolia* (Willk.) Guarino & Pignatti, a native species previously reported only in Sicily (Pignatti et al. 2019), is a new finding for the Italian peninsula.

One of the most common uses of the harvested plants in the study area is as a side dish (60 citations). The leaves are typically fried in a pan with oil, salt, and garlic, or simply boiled. The most commonly used species for this purpose are *Hypochaeris radicata* L. (Hadjichambis et al. 2008; Cornara et al. 2009; Guarrera 2009; Geraci et al. 2018; Gentile et al. 2022;) and *Borago officinalis* L. (Scherrer et al. 2005; Passalacqua et al. 2006; Lentini and Venza 2007; Passalacqua et al. 2007; Hadjichambis et al. 2008; Signorini et al. 2008; Guarino et al. 2008; Signorini et al. 2009; Arcidiacono et al. 2010; Aleo et al. 2013; Cornara et al. 2014; Bellusci 2017; Musarella et al. 2019; Mattalia et al. 2020a).

<Figure 10 here>

Figure 10. Different purposes within the alimentary use category sorted by number of interviews.

The leaves of many other species are still used as a side dish, such as *Amaranthus retroflexus* L. (Salerno and Guarrera 2008), *Helminthotheca echioides* (L.) Holub (Cornara et al. 2009; Mattalia et al. 2020a), *Portulaca oleracea* L. (Montesano et al. 2012), *Reichardia crassifolia*, *Reichardia picroides* (L.) Roth (Pieroni 1999; Lentini 2000; Lentini and Venza 2007; Signorini et al. 2008; Cornara et al. 2009; Savo, 2009; Arcidiacono et al. 2010; Idolo et al. 2010; Vanzani et al. 2011; Cornara et al. 2014), *Scolymus hispanicus* L. (Guarrera and Leporatti 2007; Leporatti and Guarrera 2007) and *Sonchus asper* (L.) Hill (Pieroni 1999; Nebel et al. 2006; Lentini and Venza 2007; Savo 2009; Biscotti et al. 2018). *Raphanus raphanistrum* L. subsp. *landra* is today eaten as a side dish. This use was reported in the 19th century by some authors for the area of Pavia and its surroundings (Gambini 1850; Moretti and Chiolini 1828), and until now it seemed to be an abandoned use, as reported by Ardenghi et al. (2017); therefore, it can be considered as a traditional use recovered over time and new in southern Italy.

For the preparation of salads, the leaves of *B. officinalis* (Passalacqua et al. 2006; Lancioni et al. 2007; Passalacqua et al. 2007 Leporatti and Guarrera 2007; Arcidiacono et al.

2010; Montesano et al. 2012; Bellusci 2017; Mattalia et al. 2020a; Musarella et al. 2019; Tavilla et al. 2022), *H. echioides* (Biscotti et al. 2018), *P. oleracea* (Scherrer et al. 2005; Nebel et al. 2006; Lentini and Venza 2007; Signorini et al. 2008; Guarino et al. 2008; Salerno and Guarrera 2008; Savo 2009; Arcidiacono et al. 2010; Idolo et al. 2010; Aleo et al. 2013; Bellusci 2017; Biscotti et al. 2018; Maruca et al. 2019; Mattalia et al. 2020a; Musarella et al. 2019), *R. crassifolia*, *R. picroides* (Corsi et al. 1980; Pieroni 1999; Lancioni et al. 2007; Signorini et al. 2008; Savo 2009; Signorini et al. 2009; Arcidiacono et al. 2010; Idolo et al. 2010; Vanzani et al. 2011; Cornara et al. 2014; Biscotti et al. 2018), *S. hispanicus* (Lentini and Venza 2007) and *S. asper* (cleaned of thorny parts) (Pieroni 1999; Lentini and Venza 2007; Savo 2009) are also used; in the past, the flowers of *Papaver rhoeas* L. were utilized for the same purpose.

The fruits of *Vicia pseudocracca* Bertol. are used for another food purpose, the preparation of tasty first courses. This is the first recorded mention of this species in the ethnobotany literature, although it has been studied nutritionally (Pastor-Cavada et al. 2013).

Snack use is another common purpose (17 interviews). The fruits are usually picked and eaten directly in the field, such as *Ceratonia siliqua* L., *Solanum villosum* Mill., and *Ficus carica* L. Although *S. villosum* is considered toxic due to the presence of a toxic alkaloid (Zepigi 2023), scientific studies have shown that the fruits of this species have been consumed in the past (Maundu et al. 1999; Schippers 2002; Zahara et al. 2019). In the past, the apical parts of the stems of *Chondrilla juncea* L. were also consumed ~~as they are~~raw, as they are generally more tender. This practice was already known in Italy (Nebel et al. 2006; Signorini et al. 2009). Additionally, the fresh flowers of some species, such as *Cichorium intybus* L., were commonly consumed and~~.~~ still are today. ~~are still in use today.~~ The use of *Oxalis latifolia* Kunth is noteworthy. The bulbs are collected and cooked over the fire~~on fire~~, like roast chestnuts. This same use was found in Sicily for *Oxalis pes-caprae* L.

(Arcidiacono et al. 2010). —In the study area, this species is also used as an after-dinner snack. The stem with the flowers ~~is~~ is chewed after meals~~collected to be chewed after meals~~ to remove the taste left in the mouth, thanks to its bitter taste, as previously reported in Sicily (Arcidiacono et al. 2010).

Opuntia ficus-indica (L.) Mill is still used to prepare two types of appetizers. The first involves grilling the cleaned cladodes, a method previously documented in other studies (Gouws et al. 2019; Sinicropi et al. 2022). The second involves frying the cleaned peels of the fruit, a method already known in the Campania region of southern Italy (Salerno and Guarrera 2008). The flower petals of this species have also been used in the past to prepare a fresh drink, obtained by filtering a decoction of the petals.

The preparation of liqueurs is a widespread practice (15 citations), and many taxa are used for this purpose, including *Sambucus nigra* L., *Anethum piperitum*, *Juglans regia* L., *Myrtus communis* L., and *Fragaria vesca* L. subsp. *vesca*. These liqueur solutions are commonly consumed as an after-dinner drink and as a digestive aid. In Calabria, *Fragaria vesca* subsp. *vesca* is a popular choice for this purpose (Mattalia et al. 2020b). A traditional drink with a moderate alcoholic content, called "*rosoli*", can be made using the ~~petals of the~~ petals of *Rosa* cultivars.~~Rosa ev.~~

Two very particular uses linked to ancient traditions are the use of plants to prepare bread and coffee substitutes: centuries ago, not everyone could afford coffee or bread~~, foods that today are available to everyone~~; therefore, plants were used to prepare products that resembled them (substitutes), as also reported by Zocchi et al. (2022).

In the past, the ripe fruits of *Ceratonia siliqua* L. were used to make bread; de Castro and Rivera Núñez (1991) confirm the same use in the Murcia region of Spain. In Spain, this type of bread is known as "famine bread" (Łuczaj et al. 2012). The acorns of *Quercus*

pubescens Willd. subsp. *pubescens*, on the other hand, were used to make coffee substitutes: in summer they were harvested, peeled, roasted, and ground; the coffee was then brewed in a pot with water. The same use is reported in Mattalia et al. (2020b).

3.2. Medicinal use

For medicinal use, 126 interviews were conducted with 47 taxa (Figure 8). Medicinal purposes were divided into nine categories of disease groups (Cook 1995), and a chord diagram (ethnoChord, R software, version 0.1.9) was produced to show the distribution of taxa in the different categories (Figure 11).

<Figure 11 here>

Figure 11. Chord diagram representing all medicinal taxa found during the interviews with the 9 categories of medicinal use, processed with R software version 2023.06.0+421 "ethnobotany" package. 1-Digest.— Diseases of the digestive system; 2-Skin.— Diseases of the skin-ears-hair and wounds; 3-System.— Systemic diseases; 4-Genito.— Diseases of the genito-urinary system; 5-Respirat.— Diseases of the respiratory system; 6-Nerv.— Diseases of the nervous system; 7-Cardio-circ.— Diseases of the cardio-circulatory system; 8-Muscular-skeletal.— Diseases of the musculoskeletal system; 9-Metabolic— Metabolic diseases.

The most relevant taxon for this purpose in the study area is *Anethum piperitum*, which is used more frequently in the group of digestive disorders (1- digestive disorders). Fruits are often used in herbal infusions and decoctions as a digestive aid or for the treatment of abdominal pain. The leaves, boiled and made into an infusion to be drunk hot or eaten as a vegetable, are also used to relieve gastric pain. This species is also known to treat gastrointestinal disorders in Campania (Scherrer et al. 2005), Tuscany (Corsi et al. 1980), and Sicily (Tavilla et al. 2022) as a digestive and carminative, respectively. This use is also known for other Mediterranean territories, such as the mountains of Palestine and (Ali-Shtayeh et al. (2000). *Helminthotheca echioides* has the same use. The stem of *Sonchus oleraceus* L. was harvested, the outer part was removed (as if peeling), and the juice was

aspirated to relieve gastritis. *Anethum piperitum* is also used for skin conditions (2- skin-ears-eyes-hair diseases and wounds): wild fennel is harvested in bunches and rubbed directly on the eyes to treat the styes. However, this has not been reported in other studies. The second most used taxon is *Laurus nobilis*, the dried leaves of which are mainly used to prepare decoctions for digestive and anti-inflammatory purposes. Decoctions are also used as expectorants (5- respiratory system diseases), which can be found in the Serre Calabre (Gentile et al. 2022).

Cynodon dactylon (L.) Pers. and *Malva sylvestris* L. have been used to treat stomach pain. For the former~~For the first taxon~~, the whole plant was used, the rhizome removed and boiled: the "mil" or "spear grass ~~wate~~water" was then drunk. For the second, the leaves and flowers were decocted and filtered, and the mixture was drunk hot. These two species were also collected individually to prepare two different hot diuretic infusions, a use already known for *C. dactylon*, especially with its rhizome, in other Italian regions (Corsi et al. 1980; Uncini Manganelli and Tomei 1996; Ansaldi and Tomei 1997; Loi et al. 2002; Camangi and Tomei 2003; Maccioni et al. 2004; Leporatti and Guarrera 2007; Signorini et al. 2008, Montesano et al. 2012; Arcidiacono et al. 2010; Aleo et al. 2013; Cornara et al. 2014) but also in Calabria (Passalacqua et al. 2007; Tagarelli et al. 2010), for example in the municipalities of Arbëreshë e Occitane (Mattalia et al. 2020a), in the area of Monte Reventino (province of Catanzaro) (Maruca et al. 2019), in the area of Poro and Calabrian Preserre (Vibo Valentia province) (Musarella et al. 2019), in the High Tyrrhenian area (Cosenza province) (Leporatti and Impieri 2007). The use of *Malva* species is common throughout the Italian Peninsula (Guarrera, 2006): *M. sylvestris* leaves were used in Liguria for the preparation of diuretic decoctions or infusions (Cornara et al. 2009), which was also

found in Sardinia (Bullitta et al. 2007; Lancioni et al. 2007), in Sicily (Aleo et al. 2013) and in Tuscany (Corsi et al. 1980; Uncini Manganelli and Tomei 1996; Camangi and Tomei 2003; Signorini et al. 2008). All these uses are already known in other Italian- administrative regions, such as ~~areas, such as the~~ Abruzzo, Lazio, and Molise ~~regions~~ (Idolo et al. 2010) and Campania (Salerno and Guarrera 2008; Savo 2009). In ~~the~~ Molise ~~region~~, it was found to have a similar analgesic purpose as an antispasmodic (Menale et al. 2006).

It is interesting to note that the leaves of *Brassica oleracea* L. were boiled and placed on cloths previously soaked in hot oil, then wrapped around the affected parts of the body, with the leaves in contact with the body and the cloths on the outside, acting as a thermal gauze for muscular pain (8- muscular-skeletal diseases). A similar use was reported in another Italian region (Idolo et al. 2010). Two similar uses were found in Tuscany: the first method used the leaves of *B. oleracea* subsp. *oleracea* var. *acephala* DC. f. *serotina*, where it was necessary to use them raw and greased with butter, and then applied to the affected area of the body to alleviate any pain (Corsi et al. 1980). The second method used fresh leaves of *B. oleracea*, crushed, and then applied to the affected area (Uncini Manganelli and Tomei 1996).

Expectorant is the medicinal use most frequently found in the study area; many remedies ~~Among the medicinal purposes most frequently found in the study area is expectorants, for which many remedies~~ are still prepared, some of which combine several species already mentioned in this study for other purposes. An example is the decoction of *Cydonia oblonga* Mill fresh fruit. The use of *C. oblonga* fruits for the treatment of sore throat and dry cough has been reported in Campania (Guarino et al. 2008). The dried fruit of *Ficus carica* L., with the addition of the leaves (fresh or dried) of *Laurus nobilis* L. could be administered both as food and as a tisane, and honey was added to sweeten the taste. This remedy has also been reported in Sardinia (Signorini et al. 2009). Another expectorant

remedy was prepared by boiling the root of *Malva sylvestris*, leaves of *Anethum piperitum*, rhizome of *C. dactylon*, ear of *Hordeum murinum* L., and dried fruits of *F. carica* in a litre of water for an hour: the mixture was filtered and used as a cough syrup. Similar remedies have been found in Abruzzo, Lazio, and Molise National Park (Idolo et al. 2010). Interestingly, the decoction, or infuse, of *M. sylvestris* roots, leaves, and/or flowers is well known to treat inflammation of the respiratory system in many Italian regions (Corsi et al. 1980; Ansaldi and Tomei 1997; Perno et al. 1997; Ballero et al. 1998; Ballero et al. 2001; Maccioni et al. 2001; Scherrer et al. 2005; Bullitta et al. 2007; Lancioni et al. 2007; Leporatti and Guarrera 2007; Salerno and Guarrera 2008; Signorini et al. 2008; Savo 2009; Signorini et al. 2009; Arcidiacono et al. 2010; Aleo et al. 2013; Cornara et al. 2014) and Calabria (Leporatti and Impieri 2007; Passalacqua et al. 2007; Bellusci 2017; Maruca et al. 2019; Mattalia et al. 2020a). The use of dried *F. carica* fruits to treat cough or respiratory disease has also been found in other Italian regions (Corsi et al. 1980; Perno et al. 1997; Lentini 2000; Maccioni et al. 2001; Loi et al. 2002; Menale et al. 2006; Leporatti and Guarrera 2007; Guarino et al. 2008; Salerno and Guarrera, 2008; Cornara et al. 2009; Savo 2009; Aleo et al. 2013) and Calabria (Leporatti and Impieri 2007; Passalacqua et al. 2007; Maruca et al. 2019; Mattalia et al. 2020a). A study has highlighted that *M. sylvestris* and *F. carica* are used to also treat animal cough (Viegi et al. 2001). The expectorant capacity of *C. dactylon* rhizomes is known in Molise (Menale et al. 2006; Savo 2009), Liguriay (Cornara et al. 2009), and Tuscany (Signorini et al. 2008), whereas the whole plant is used in other areas (Di Sanzo et al. 2013). The use of the leaves of *L. nobilis* to treat sore throat or cough is also known in Campania; in particular, a leaves-based decoction is known, to which honey can also be added (Guarino et al. 2008; Savo 2009) or not (Salerno and Guarrera 2008; Scherrer et al. 2005); while in Sardinia the infusion of *L. nobilis* leaves is known (Ballero et al. 2001;

Lancioni et al. 2007) in association with other plants and ingredients for the same purpose (Ballero et al. 1998).

Clinopodium nepeta subsp. *nepeta*, on the other hand, is used mainly for anti-inflammatory purposes, but also for disinfecting and healing skin wounds. Its leaves are plucked fresh, crushed by hand, or with stones, and the poultice is rubbed on insect bites or wounds. Singh et al. (2012) confirmed that the essential oil of this species contains 64 pharmacologically active compounds with antibacterial, antioxidant, and anti-inflammatory properties. The only species identified for anthelmintic purposes is *Cucurbita maxima* Duchesne. Its seeds are collected, dried in the sun, and eaten as they are to treat intestinal tapeworms. In other Italian regions, this remedy is used mainly for children ~~this purpose has been found mainly in children~~ (Salerno and Guarrera 2008; Aleo et al. 2013; Cornara et al. 2014). However, in Calabria, the use of *Cucurbita pepo* L. seeds for the same purpose has been reported (Passalacqua et al. 2007). *Solanum tuberosum* L. is a taxon that is unusually used as a remedy for migraine and ~~other~~ muscular pains: the tuber is sliced, and, in the case of headaches, the slices are tied to the head with a band. The same use is reported for other areas of Calabria: Acri (Cosenza), Cirò (Crotone) and Gioia Tauro (Reggio Calabria) (Passalacqua et al. 2007). Tavilla et al. (2022) reported the use of cut tubers for the treatment of burns.

Allium sativum L. has many medicinal uses as an anti-inflammatory, analgesic, and decongestant, and is also used to regulate blood pressure; informants told us that to lower high blood pressure, the bulbs were harvested in summer, cleaned of the outer membrane, cut into cloves, and swallowed whole. However, to treat earache, garlic cloves have been inserted into the ear canal; these uses have also been reported by other authors in Italy (Camangi and Tomei 2003; Passalacqua et al. 2007) and other territories (Qaseem et al. 2019; Usman et al. 2021; Ullah et al. 2023). The medicinal use of this taxon has been

confirmed phytochemically by the presence of several bioactive compounds, such as alliin, ajoene, allyl sulphide, and ~~1,2-vinyldithiynes,~~ 1,2-vinyldiithin, which are responsible for its antioxidant and cardioprotective properties (Martins et al. 2016).

Two species have been mentioned as relaxing and/or sedatives. *Papaver rhoeas*, whose flowers were decocted and then a cloth moistened with the water of the decoction, was given to children to suck on in order to relax them until they fell asleep, which was also found in other Italian regions (Corsi et al. 1980; Perno et al. 1997; Loi et al. 2002; Camangi and Tomei 2003; Scherrer et al. 2005; Menale et al. 2006; Signorini et al. 2008; Cornara et al. 2009; Savo 2009; Signorini et al. 2009; Idolo et al. 2010; Aleo et al. 2013; Bellusci 2017; Maruca et al. 2019). The second species is *Coleostephus myconis* (L.) Cass. ex Rchb. f., whose decoction was used to promote sleep.

The cladodes of *O. ficus-indica* are utilized for the treatment of varicose veins, and a preparation which can be applied to the legs has been obtained. For the same purpose, the leaves of *Vitis vinifera* L. are still used for the preparation of two remedies: the first consists of boiling the leaves, pressing them, and applying them to the legs; the second consists of preparing an infusion of the leaves to be drunk hot. A remedy using the leaves of *V. vinifera* for the treatment of varicose veins was cited in Sicily, where the fresh leaves were ground and a kind of compress was created to be applied on the legs, which was also useful for circulatory disorders and fragility of capillaries (Aleo et al. 2013), as was found in Campania (De Feo et al. 1992), while in Passalacqua et al. (2007) *Brassica oleracea* L. was used in this study.

Other examples of medicinal uses found sporadically are abortive and laxative (*Petroselinum crispum* (Mill.) Fuss), analgesic (*Salvia officinalis*), anti-hemorrhoidal (*Solanum tuberosum*), anti-itching, anti-allergic (*Parietaria judaica* L.), and laxative (*Ricinus communis* L.).

Another interesting example is the use of dried and boiled ears of *Zea mays* L. to prepare an infusion to drink to promote renal cleansing, and it is known that the stigmas of *Z. mays* also have diuretic effects (Corsi et al. 1980; Maccioni et al. 2004; Menale et al. 2006; Leporatti and Impieri 2007; Guarino et al. 2008; Di Sanzo et al. 2013).

3.3. Handicraft use

For handicraft use, 21 interviews were conducted with 13 taxa (Figure 12).

<Figure 12 here>

Figure 12. Handicraft purposes sorted by number of interviews and number taxa used.

The most common uses include making containers (three~~3~~ citations) baskets (3), brooms (2) and stuffing mattresses (3).

The most cited species was *Castanea sativa* Mill. (4 citations), which is used to make trellises for drying food, lobster pots, and baskets.

It is still a tradition to dry some foods in the sun in August. For this purpose, the tools of the past are still used and have been handed down from generation to generation, such as the *"cannizza"*, made with the stems of *Arundo donax* L., and the "*farlazza"*, made with wood fragments of *C.* ~~*astanea*~~ *sativa*. ~~Mill.~~ Similar artefacts made with *A. donax* to dry figs in the sun (Salerno and Guarrera 2008) and baskets made with *C. sativa* wood have also been found in Campania, where they are called "coffe" and are used to contain the caught fish (Savo and Caneva 2009)~~where those made with *C. sativa* called *"coffe"* to contain the caught fish are interesting (Savo and Caneva 2009)~~, and in other Italian regions (Cornara et al. 2014). In Calabria, the use of *A. donax* to make artefacts for drying food, such as *"cannicciati"*, is not new (Musarella et al. 2019). Stems of the same species are also used to

make skewers for stacking dried figs or dried tomatoes. Another handicraft product still used and handed down by ancestors is the "*panaru*". It is a specific type of basket with a handle, usually used for harvesting figs (*F. carica* leaves are placed at the bottom to avoid damage to the fruit) or, in smaller sizes, for collecting fresh eggs. In other areas of Italy, baskets are also made ~~baskets have also been made~~ with *S. alba* branches (Corsi et al. 1980; Scherrer et al. 2005; Savo 2009; Savo and Caneva 2009; Arcidiacono et al. 2010; Idolo et al. 2010) or with other species of the genus *Salix* L. (Menale et al. 2006; Passalacqua et al. 2006; Salerno and Guarrera 2008; Signorini et al. 2008; Di Sanzo et al. 2013; Cornara et al. 2014; Maruca et al. 2019). In the past, to quickly create a container, the largest leaves of *F. carica* were used, inside which the objects were placed and then closed with thin branches of *S. junceum*, as if they were small bags.

Another typical use of *S. junceum* in southern Italy is to procure textile fibres: the plant was harvested and beaten with sticks to break and fray, and when the textile fibre was ready, it was placed in the loom and blankets were made. The stems of *S. junceum* are also used to make brooms: the same use is recorded in other areas of Calabria (Passalacqua et al. 2006), in the Cilento National Park (Salerno and Guarrera 2008), in Sicily (Arcidiacono et al. 2007), in Basilicata (Salerno et al. 2005), in Marche (Guarrera 1990) and in Trentino Alto-Adige (Pedrotti and Bertoldi 1930).

Ancient use of the cladodes of *O. ficus-indica* by farmers has been found; they usually stripped the cladodes from the plant to use them as a meal during work breaks after removing the thorns. A long time ago, the tools of today did not exist and it was common to prepare ink for writing at home by grinding the ripe fruits (which are ~~(~~black~~))~~ of *Phytolacca americana* L.; this use has already been found in Tuscany (Corsi et al. 1980). There were fewer colours to choose from for fabrics, since they were all natural and handmade, so the fruits of *Solanum melongena* L. were boiled so that the peel released the colour into the

water. Once the fruits were removed, the fabrics, especially curtains, were dipped in the water so that they took on a characteristic purple colour; this use was not reported in any other ethnobotanical work.; ~~once the fruits were removed, a broth remained in which the fabrics, especially the curtains, were dipped, which took on a characteristic purple colour, which was not found in any other ethnobotanical work.~~

3.4. Cosmetic use

For cosmetic purposes, 12 interviews were conducted with 11 taxa (Figure 13).-

<Figure 13 here>

Figure 13. Cosmetic purposes sorted by number of interviews.

The most prevalent cosmetic application is the creation of body perfumes (four4 interviews). Among these, the flowers of *Rosa* sp. flowers are the most utilized to produce rose-scented "rose water". The flowers were soaked in either cold or hot water for a few hours, then filtered to create the fragrant water used for washing. The *Rosa* L. genus is also mentioned for this purpose in the Campania (Savo 2009) and Marche (Pieroni et al. 2004) regions.

In the past, castor beans from *Ricinus communis* L. were crushed to release their oil, which was then applied as a hair mask. Meanwhile, the nettle plant (*Urtica dioica* L.) was boiled and crushed, with the resulting poultice applied to the hair to make it shine. This use is also documented for *U. dioica* in the Marche region (Pieroni et al. 2004; Taffetani 2005). Other species of *Urtica* L. are utilized for hair washing in Tuscany (Ansaldi and Tomei 1997; Camangi et al. 2003) and Spain (Akerreta et al. 2007).-

3.5. Magical use

The use of magical practices in Calabria and southern Italy is still popular, particularly for addressing health and family issues. Only three instances of magical use were recorded, involving two rituals to ward off the evil eye and a ritual to remove warts. In the former case~~To ward off the evil eye~~, *Capsicum annuum* L. fruit was kept in a pocket, while a plant of *Agave americana* L. ~~while *Agave americana* L. plant~~ was placed at the entrance of the house. *Aloë arborescens* Mill. is typically used for this purpose, but the informant in this case claimed to be able to distinguish the two species and use them in the same way. *Spartium junceum* is used in a magical ritual to remove warts by tying knots in a branch behind the back, with the number of knots corresponding to the number of warts. The branch is then given to a person who hides it in a location not frequented by the person with warts, and when the person with warts passes by, the warts are believed to magically fall off.~~.~~

3.6. Other less frequent uses~~Other uses less frequent~~

~~We provide a report on several species and their occasional uses in the studied region.~~ Occasionally, ~~Specifically,~~ *Convolvulus soldanella* L., *Carpobrotus acinaciformis* (L.) L. Bolus, and *Tamarix gallica* L. were collected from the beach for ornamental purposes. Today, the flowering branches of *Retama raetam* subsp. *gussonei* (Webb) Greuter are still collected for use in floral compositions, particularly for bridal bouquets or as gifts. In the past, activities such as breeding were more common, and agricultural production was carried out using outdated methods compared to those used today. In Italy, this species is endemic to Calabria and Sicily (Peruzzi and Cesca 2003; Ferrauto et al. 2015), but there are no other known uses~~to the Calabria and Sicily regions, and there are no other known uses~~ for it. Elsewhere in the world, the plant is used for medicinal purposes (Pieroni et al. 2006; Karous et al. 2021). Rabbits were also bred in the region, and their feed consisted of small leaves of

Robinia pseudo-acacia, a use that has been previously reported in Liguria (Cornara et al. 2014) and Tuscany (Viegi et al. 1999).

In the production of dairy products, various plant parts from *Ficus carica*, including young branches and fresh fruits, were gathered, and mixed with milk to curdle it, a practice that has been documented in various regions such as Campania (Scherrer et al. 2005; Savo 2009), Sicily (Arcidiacono et al. 2010), and Calabria (Musarella et al. 2019). Similarly, the largest flowers of *Scolymus hispanicus* were collected, dried in the sun, and then boiled in milk to produce vegetable rennet. ~~rennet.~~ *Achillea maritima* (L.) Ehrend. & Y.P.Guo, also known as sea daisy, is commonly found on beaches and was traditionally used to cleanse the body of tar by rubbing it on the affected areas.

Other uses for these plants are less common, including construction (*Robinia pseudoacacia*), entertainment (*Avena barbata* Pott ex Link), and religious purposes (*Asparagus acutifolius* L.).

4. Conclusions

The study carried out on the Tyrrhenian side of the Aspromonte Massif has shown that there are still people who use ~~there is still people that use~~ plants in a variety of ways, or at least preserve the memory of these uses~~maintain their memory~~, confirming the hypothesis that ethnobotanical traditions in southern Italy are preserved over time.

Food uses are the most common: in fact, plants are often associated with food, as an essential source of vitamins and various nutraceutical elements. Medicinal uses are also very common: the medicinal recipes handed down by the local population seem to be very effective, and this is often confirmed by the fact that bioactive molecules are extracted. ~~the use of active ingredients extracted from plants for the preparation of synthetic medicines.~~

The results of this research have shown that many of the uses recorded in the study area were already known in other areas of Calabria and other Italian regions, and in some cases abroad. This confirms how, over time, humans have selected ~~man has been able to select~~ the most effective plants (many of which are common to areas that are sometimes very distant from each other) to ~~satisfy his various essential vital needs~~satisfy their essential needs (food, health and well-being) and others of secondary importance, and were able to share this information by word-of-mouth.~~importance and to share this information without the use of current mass media.~~

During ~~the ethnobotanical~~ our survey, two taxa were found that are not previously reported for the region of Calabria: *Reichardia crassifolia* (Willk.) Guarino & Pignatti, a native species reported for the first time in peninsular Italy and used as a food plant, and *Tetragonia tetragonioides* (Pall.) Kuntze, an alien species reported here for the first time in Calabria and used for the preparation of omelettes.

Uses not previously mentioned in the literature include *Agave americana* L. placed at the entrance to the house to ward off the "evil eye" (*malocchio*, in the local dialect), as was already known for *Aloë arborescens*; *Raphanus raphanistrum* L. subsp. *landra*, a taxon used as a ~~garnish~~ garnish, as previously reported for northern Italy~~already used only in northern Italy~~; *Solanum melongena* L., used to obtain a purple colour from a decoction of the rind used for dyeing textiles.

The presence of a good number of alien species among the several native ones, confirms the well-established tradition of using them for several purposes, as already highlighted by several scholars.

Unfortunately, the percentage of people who still have this knowledge is very low, as most of them are elderly and- many of them have died without passing on this knowledge.~~no longer can pass on their knowledge.~~

Globalization, changing lifestyles and work that is no longer tied to agriculture have meant that the link with the rural environment is increasingly weakened in favour of quick and ready-made foods, synthetic medicines and manufactured goods that can be bought in shops.

However, unless the importance of the cultural heritage preserved in places where the use of plants is still alive is emphasized, this information will be lost forever.

References

1. Abenavoli L, Milanovic M, Procopio AC, Spampinato G, Maruca G, Perrino EV, Mannino GC, Fagoonee S, Luzza F, Musarella CM. 2021. Ancient wheats: beneficial effects on insulin resistance. Minerva Medica. 12(5): 641-50. doi: 10.23736/S0026-4806.20.06873-1.
2. Akerreta S, Cavero RY, Calvo MI. 2007. First comprehensive contribution to medical ethnobotany of Western Pyrenees. J. Ethnobiol. 3, 1-13. doi: 10.1186/1746-4269-3-26.
3. Aleo M, Cambria S, Bazan G. 2013. Tradizioni etnofarmacobotaniche in alcune comunità rurali dei Monti di Trapani (Sicilia occidentale). [Ethnopharmacobotanical traditions in some rural communities in the Trapani Mountains (western Sicily).] Quad. Bot. Amb. Appl. 24: 27-48. Italian.
4. Ali--Shtayeh MS, Yaniv Z, Mahajna J. 2000. Ethnobotanical survey in a Palestinian area: a classification of the healing potential of medicinal plants. J. Ethnopharmacol. 73(1-2), 221-232. doi: 10.1016/S0378-8741(00)00316-0.
5. Ansaldi M, Tomei P. 1997. Specie vegetali selvatiche e coltivate di uso medicinale nella tradizione popolare delle Apuane settentrionali. [Wild and cultivated plant species of medicinal use in the folk tradition of the northern Apuan Alps.] Atti Soc. Toscana Sci. Nat. Mem. B 104, 13-34. Italian.

6. Arcidiacono S, Costa R, Marletta G, Pavone P, Napoli M, 2010. Usi popolari delle piante selvatiche nel territorio di Villarosa (EN – Sicilia Centrale). [Popular uses of wild plants in the Villarosa area (EN - Central Sicily).] Quad. Bot. Amb. Appl. 21: 95-118. Italian.

7. Arcidiacono S, Napoli M, Oddo G, Pavone P. 2007. Piante selvatiche d'uso popolare nei territori di Alcara Li Fusi e Militello Rosmarino (Messina, NE Sicilia). [Wild plants of popular use in the territories of Alcara Li Fusi and Militello Rosmarino (Messina, NE Sicily).] Quad. Bot. Amb. Appl. 18, 103-144. Italian.

8. Ardenghi NMG, Ballerini C, Bodino S, Cauzzi P, Guzzon F. 2017. "Lándar," "Lándra," "Barland" (*Bunias erucago* L.): a neglected crop from the Po Plain (Northern Italy). Econ. Bot. 71, 288-295. doi: 10.1007/s12231-017-9386-y.

9. Ballero M, Floris R, Sacchetti G, Poli F. 1998. Ricerche etnobotaniche nel comune di Ussassai (Sardegna centro-orientale). [Ethnobotanical research in the municipality of Ussassai (central-eastern Sardinia)] Atti Soc. Tosc. Sci. Nat. Mem. Serie B. 105, 83-87. Italian.

10. Ballero M, Poli F, Sacchetti G, Loi MC. 2001. Ethnobotanical research in the territory of Fluminimaggiore (south-western Sardinia). Fitoterapia 72(7), 788-801. doi: 10.1016/S0367-326X(01)00334-3.

11. Barone R. 1963. Le piante della medicina popolare nel territorio di Falconara e San Lucido. [The plants of folk medicine in the Falconara and San Lucido area.] Webbia 17:2, 329-357. Italian. doi: 10.1080/00837792.1963.10669749.

12. Bellusci F. 2017. Le piante officinali del Parco Nazione del Pollino. [The medicinal plants of the Pollino National Park.] [master's thesis] University of Pisa. Italian. https://etd.adm.unipi.it/t/etd-04052017-220545.

13. Benkhaira N, Koraichi SI, Fikri-Benbrahim K. 2021. Ethnobotanical survey on plants used by traditional healers to fight against COVID-19 in Fez city, Northern Morocco. Ethnobot. Res. Appl. 21, 1-18. doi: 10.32859/era.21.27.1-18.

~~13.~~14. Bernardo L, Bartolucci F, Cancellieri L, Costalonga S, Galasso G, Galesi R, et al. 2012. Contributo alla conoscenza floristica della Calabria: resoconto dell'escursione del Gruppo di Floristica (S.B.I.) nel 2008 nella Presila Catanzarese. Inf. Bot. Ital. 44(1): 125–151.

~~14.~~15. Bernardo L, Peruzzi L, Passalacqua N [Eds]. 2011. Flora vascolare della Calabria. Prodromo (Vol. 1). Inf. Bot. Ital.~~Informatore Botanico Italiano~~ 43(2): 185–332.

~~15.~~16. Bhat MN, Singh B, Surmal O, Singh B, Shivgotra V, Musarella CM. 2021. Ethnobotany of the Himalayas: safeguarding medical practices and traditional uses of Kashmir regions. Biology, 10, 851. doi: 10.3390/biology10090851.

~~16.~~17. Biscotti N, Bonsanto D, Del Viscio G. 2018. The traditional food use of wild vegetables in Apulia (Italy) in the light of Italian ethnobotanical literature. Ital. Bot. 5, 1-24. doi: 10.3897/italianbotanist.5.22297.

~~17.~~18. Bonet MÀ, Valles J. 2002. Use of non-crop food vascular plants in Montseny biosphere reserve (Catalonia, Iberian Peninsula). Int. J. Food Sci. Nutr. 53(3), 225-248. doi: 10.1080/09637480220132841.

~~18.~~19. Brahmi F, Iblhoulen Y, Issaadi H, Elsebai MF, Madani K, Boulekbache-Makhlouf L. 2022. Ethnobotanical survey of medicinal plants of Bejaia localities from Algeria to prevent and treat coronavirus (COVID-19) infection shortened title: Phytomedicine to manage COVID-19 pandemic. Adv. Tradit. Med. 1-13. doi: 10.1007/s13596-022-00649-z.

~~19.~~20. Brullo S, Scelsi F, Spampinato G. 2001. La vegetazione dell'Aspromonte. Studio fitosociologico. Laruffa Editore, Reggio Calabria.

~~20.~~21. Bullitta S, Piluzza G, Viegi L. 2007. Plant resources used for traditional ethnoveterinary phytotherapy in Sardinia (Italy). Genet. Resour. Crop Evol. 54, 1447-1464. doi: 10.1007/s10722-006-9130-4.

~~21.~~22. Camangi F, Tomei PE. 2003. Tradizioni etno-farmacobotaniche nella provincia di Livorno: il territorio della Valle Benedetta. [Ethno-pharmacobotanical traditions in the province of Livorno: the Valle Benedetta area.] Inf. Bot. Ital. (1), 41-54. Italian.

23. Camangi F, Stefani A, Tomei PE. 2003. Il Casentino: tradizioni etnofarmacobotaniche nei comuni di Poppi e Bibbiena (Arezzo-Toscana). [The Casentino: ethnopharmacobotanical traditions in the municipalities of Poppi and Bibbiena (Arezzo-Tuscany).] Atti Soc. Tosc. Sci. Nat. Mem. Serie B. (110), 55-69. Italian.

24. Capuano A, Caruso G. 2023, New records for the alien vascular flora of Calabria (S-Italy). Res. J. Ecol. Environ. Sci., 3, 1–35. doi: 10.31586/rjees.2023.723

25. Caruso G. 2022. *Anthyllis hermanniae* L. subsp. *brutia* Brullo & Giusso (Fabaceae): population survey and conservation tasks. Res. J. Ecol. Environ. Sci., 2(4), 92–102. 10.31586/rjees.2022.339

~~22.~~26. Caruso G, Casavecchia S, Biondi E. 2022. The vascular flora of Uria basin (Catanzaro, S-Italy) and its conservation relevance. Fl. Medit. 32, 99-116.

~~23.~~27. Chebaibi M, Bousta D, Bourhia M, Baammi S, Salamatullah AM, Nafidi HA, Hoummani H, Achour S. 2022. Ethnobotanical study of medicinal plants used against COVID-19. Evid. Based Complementary Altern. Med. 2022. doi: 10.1155/2022/2085297.

~~24.~~28. Cook FE. 1995. Economic botany data collection standard. Royal Botanic Gardens (Kew).

~~25.~~29. Cornara L, La Rocca A, Terrizzano L, Dente F, Mariotti MG. 2014. Ethnobotanical and phytomedical knowledge in the North-Western Ligurian Alps. J. Ethnopharmacol. 155(1), 463-484. doi: 10.1016/j.jep.2014.05.046

~~26.~~30. Cornara L, La Rocca A, Marsili S, Mariotti MG. 2009. Traditional uses of plants in the Eastern Riviera (Liguria, Italy). J. Ethnopharmacol. 125(1), 16-30. doi: 10.1016/j.jep.2009.06.021.

~~27.~~31. Corsi G, Gaspari G, Pagni AM. 1980. L'uso delle piante nell'economia domestica della Versilia collinare e montana. [The use of plants in the domestic economy of hill and mountain Versilia]. Italian.

~~28.~~32. Costa EF, Magalhães WV, Di Stasi LC. 2022. Recent Advances in Herbal-Derived Products with Skin Anti-Aging Properties and Cosmetic Applications. Molecules, 27(21), 7518. doi: 10.3390/molecules27217518.

~~29.~~33. de Castro CO, Rivera Núñez D. 1991. Las plantas medicinales de nuestra región. [The medicinal plants of our region]. Vol. 3. Editora Regional de Murcia. Spanish.

~~30.~~34. de Cortes Sánchez-Mata M, Tardío J. (Eds.). 2016. Mediterranean wild edible plants: ethnobotany and food composition tables. Springer. doi: 10.1007/978-1-4939-3329-7.

~~31.~~35. De Feo V, Aquino R, Menghini A, Ramundo E, Senatore F. 1992. Traditional phytotherapy in the peninsula sorrentina, Campania, southern Italy. J. Ethnopharmacol. 36(2), 113-125. doi: 10.1016/0378-8741(92)90010-O.

36. Di Sanzo P, De Martino L, Mancini E, Feo VD. 2013. Medicinal and useful plants in the tradition of Rotonda, Pollino National Park, Southern Italy. J. Ethnobiol. Ethnomedicine 9(1), 1-9. doi: 10.1186/1746-4269-9-19.

~~32.~~37. Ferrauto G, Guglielmo A, Lantieri A, Pavone P, Salmeri C. 2015. Pollen morphology and seed germination studies on *Retama raetam* ssp. *gussonei*, endemic subspecies from Sicily. Plant Biosystems, 149:2, 251-259, DOI: 10.1080/11263504.2013.845265

~~33.~~38. Gambini C. 1850. Vocabolario pavese-italiano ed italiano-pavese. [Pavese-Italian and Italian-Pavese vocabulary.] Fusi. Italian.

~~34.~~39. Gentile C, Spampinato G, Patti M, Laface VLA, Musarella CM. 2022. Contribution to the ethnobotanical knowledge of Serre Calabre (Southern Italy). Research Journal of Ecology and Environmental Sciences 2(3), 35–55. doi: 10.31586/rjees.2022.389.

~~35.~~40. González JA, Aparicio Mena AJ, Amich F. 2014. Rituals: Practices, Ethnic and Cultural Aspects and Role in Emotional Healing. Parish A. New York: Nova Science Publishers Ed. Chapter 2, Plant-based rituals for the prevention and cure of the evil eye in a rural community of western Spain.; p. 59-113. ISBN: 1629486647.

~~36.~~41. Guarino C, De Simone L, Santoro S. 2008. Ethnobotanical study of the Sannio Area, Campania, Southern Italy. Ethnobot. Res. Appl. 6:255-317. www.ethnobotanyjournal.org/vol6/i1547-3465-06-255.pdf.

~~37.~~42. Gouws CA, Georgousopoulou EN, Mellor DD, McKune A, Naumovski N. 2019. Effects of the consumption of prickly pear cacti (*Opuntia* spp.) and its products on blood glucose levels and insulin: A systematic review. Medicina 55(5), 138. doi: 10.3390/medicina55050138.

~~38.~~43. Guarrera PM. 1990. Usi tradizionali delle piante in alcune aree marchigiane. [Traditional uses of plants in some areas of the Marche.] Inform. Bot. Ital. 22(3), 155-167. Italian.

39.44. Guarrera, P. M. (2006). Usi e tradizioni della flora italiana: medicina popolare ed etnobotanica. Roma: Aracne.

40.45. Guarrera PM, Leporatti LM. 2007. Ethnobotanical remarks on central and southern Italy. J. Ethnobiol. Ethnomedicine 3(1), 1-11. doi: 10.1186/1746-4269-3-23.

41.46. Guarrera PM, Savo V. 2013. Perceived health properties of wild and cultivated food plants in local and popular traditions of Italy: A review. J. Ethnopharmacol. 146, 659-680. doi: 10.1016/j.jep.2013.01.036.

42.47. Haq SM, Hassan M, Bussmann RW, Calixto ES, Rahman I, Sakhi S, Ijaz F, Hashem A, Al-Arjani AF, Almutairi KF, Abd_Allah EF, Aziz MA, Ali N. 2022. A cross-cultural analysis of plant resources among five ethnic groups in the Western Himalayan region of Jammu and Kashmir. Biology, 11(4), 491. Doi: https://doi.org/10.3390/biology11040491.

43.48. Hadjichambis AC, Paraskeva-Hadjichambis D, Della A, Giusti ME, De Pasquale C, Lenzarini C, Censorii E, Gonzales-Tejero MR, Sanchez-Rojas CP, Ramiro-Gutierrez, et al. 2008. Wild and semidomesticated food plant consumption in seven circum-Mediterranean areas. Int. J. Food Sci. Nutr. 59,383-414. doi: 10.1080/09637480701566495.

44.49. Hammer K, Perrino P, Pignone D. 1987. Collection of plant genetic resources in South Italy, 1986. Kulturpflanze, 35, 389-399.

45.50. Harshberger JW. 1896. The purposes of ethnobotany. Bot. Gaz. 21(3), 146-154. doi:10.1086/327316.

46.51. Idolo M, Motti R, Mazzoleni S. 2010. Ethnobotanical and phytomedicinal knowledge in a long - history protected area, the Abruzzo, Lazio and Molise National Park (Italian Apennines). J. Ethnopharmacol. 127(2), 379-395. doi: 10.1016/j.jep.2009.10.02.

47.52. International Society of Ethnobiology (ISE) 2006. International Society of Ethnobiology Code of Ethics (with 2008 additions) (accessed 2023 June 20) http://ethnobiology.net/code-of-ethics/.

48.53. Ishtiaq M, Hanif W, Khan MA, Ashraf M, Butt AM. 2007. An ethnomedicinal survey and documentation of important medicinal folklore food

phytonims of flora of Samahni valley, (Azad Kashmir) Pakistan. Pak. J. Biol. Sci. 10(13), 2241-2256. doi: 10.3923/pjbs.2007.2241.2256.

~~49.~~54. Iuliano L, Grotteria M, Pascali D, Rispoli P, Sigilli A, Sirianni RM. 2002. Le piante della tradizione calabrese. ARSSA Calabria. [The plants of Calabrian tradition. ARSSA Calabria]. (accessed 2022 May 30) http://www.arsacweb.it/wpcontent/uploads/2017/07/Le-piante-della-tradizione-Calabrese_ARSAC_1.pdf. Italian.

~~50.~~55. Karous O, Ben Haj Jilani I, Ghrabi-Gammar Z. 2021. Ethnobotanical study on plant used by semi-nomad descendants' community in Ouled Dabbeb—Southern Tunisia. Plants, 10(4), 642.

56. La Rosa A, Cornara L, Saitta A, Salam AM, Grammatico S, Caputo M, La Mantia T, Quave CL. 2021. Ethnobotany of the Aegadian Islands: safeguarding biocultural refugia in the Mediterranean. J. Ethnobiol. Ethnomedicine 17(1), 1-19. doi: 10.1186/s13002-021-00470-z.

~~51.~~57. Laface VLA, Musarella CM, Cano Ortiz A, Quinto Canas R, Cannavò S, Spampinato G. 2020. Three New Alien Taxa for Europe and a Chorological Update on the Alien Vascular Flora of Calabria (Southern Italy). Plants 9(9), 1181. https://doi.org/10.3390/plants9091181

~~52.~~58. Laface VLA, Musarella CM, Tavilla G, Cambria S, Maruca G, Giusso del Galdo G, Spampinato G. 2023. Carpological Analysis of Two Endemic Italian Species: *Pimpinella anisoides* and *Pimpinella gussonei* (Apiaceae). Plants, 12(5), 1083. https://doi.org/10.3390/plants12051083.

~~53.~~59. Lancioni MC, Ballero M, Mura L, Maxia A. 2007. Usi alimentari e terapeutici nella tradizione popolare del Goceano (Sardegna centrale). [Food and therapeutic uses in the popular tradition of Goceano (central Sardinia).] Atti Soc. Tosc. Sci. Nat. Mem. Serie B 114, 45-56. Italian.

~~54.~~60. Lentini F. 2000. The role of ethnobotanics in scientific research. State of ethnobotanical knowledge in Sicily. Fitoterapia 71, S83-S88. doi: 10.1016/S0367-326X(00)00179-9.

~~55.~~61. Lentini F, Venza F. 2007. Wild food plants of popular use in Sicily. J. Ethnobiol. Ethnomedicine 3:15. doi:10.1186/1746-4269-3-15.

56.62. Leporatti ML, Guarrera PM. 2007. Ethnobotanical remarks in Capitanata and Salento areas (Puglia, southern Italy). Etnobiología, 5(1), 51-64.

57.63. Leporatti ML, Impieri M. 2007. Ethnobotanical notes about some uses of medicinal plants in Alto Tirreno Cosentino area (Calabria, Southern Italy). J. Ethnobiol. Ethnomed. 3(1), 1-6. doi: 10.1186/1746-4269-3-34.

58.64. Leporatti ML, Pavesi A. 1989. Usi nuovi, rari o interessanti di piante officinali di alcune zone della Calabria. [New, rare or interesting uses of medicinal plants from some areas of Calabria.] Webbia 43(2), 269-289. Italian. doi: 10.1080/00837792.1989.10670455.

59.65. Loi MC, Frailis L, Maxia A. 2002. Le piante utilizzate nella medicina popolare nel territorio di Gesturi (Sardegna centro-meridionale). [Plants used in folk medicine in the Gesturi area (central-southern Sardinia)]. Atti Soc. Tosc. Sci. Nat. Mem. Serie B 109, 167-176. Italian.

60.66. Luczaj L, Pieroni A, Tardío J, Pardo-de-Santayana M, Sõukand R, Svanberg I, Kalle R. 2012. Wild food plant use in 21 st century Europe, the disapperance of old traditions and the search for new ciusines involving wild edibles. Acta Soc. Bot. Pol. 81(4). doi: 10.5586/asbp.2012.03.

61.67. Maccioni S, Guazzi E, Ansaldi M, Tomei PE. 2001. L'uso medicinale delle piante nella tradizione popolare delle Murge sud-orientali (Taranto, Puglia). [The medicinal use of plants in the folk tradition of the south-eastern Murge (Taranto, Apulia).] Atti Mus. Stor. Maremma 19: 21-28. Italian. ISSN 1126 – 0882.

62.68. Maccioni S, Monti G, Flamini G, Cioni PL, Morelli I, Guazzi E. 2004. Ricerche etnobotaniche in Liguria. La val Lerrone e la bassa valle Arroscia. [Ethnobotanical research in Liguria. The Lerrone and lower Arroscia valleys.] Atti Soc. Toscana Sci. Nat. Mem. Ser. B 111, 129-134. Italian.

63.69. Martins N, Petropoulos S, Ferreira IC. 2016. Chemical composition and bioactive compounds of garlic (*Allium sativum* L.) as affected by pre-and post-harvest conditions: A review. Food Chem. 211, 41-50. doi: 10.1016/j.foodchem.2016.05.029.

64.70. Maruca G, Spampinato G, Turiano D, Laghetti G, Musarella CM. 2019. Ethnobotanical notes about medicinal and useful plants of the Reventino Massif

tradition (Calabria region, Southern Italy). Genet. Resour. Crop Evol. 66(5), 1027-1040. doi: 10.1007/s10722-019-00768-8.

~~65.~~71. Mattalia G, Sõukand R, Corvo P, Pieroni A. 2020a19. Blended divergences: local food and medicinal plant uses among Arbëreshë, Occitans, and autochthonous Calabrians living in Calabria, Southern Italy. Plant Biosyst. doi: 10.1080/11263504.2019.1651786.

~~66.~~72. Mattalia G, Paolo C, Pieroni A. 2020b. The virtues of being peripheral, recreational, and transnational: local wild food and medicinal plant knowledge in selected remote municipalities of Calabria, Southern Italy. Ethnobot. Res. Appl. 19. doi: 10.32859/ERA.19.40.1-15.

~~67.~~73. Maundu PM, Ngugi GW, Kabuye CH. 1999. Traditional food plants of Kenya. National Museums of Kenya. English Press, Nairobi, Kenya.

~~68.~~74. Medail F, Quezel P. 1997. Hot-spots analysis for conservation of plant biodiversity in the Mediterranean Basin. Ann. Mo. Bot. Gard. 84: 112-27. doi: 10.2307/2399957.Menale B, Amato G, Di Prisco C, Muoio R. 2006. Traditional uses of plants in north-western Molise (Central Italy). Delpinoa 48, 29-36.

~~69.~~75. Montesano V, Negro D, Sarli G, De Lisi A, Laghetti G, Hammer K. 2012. Notes about the uses of plants by one of the last healers in the Basilicata Region (South Italy). J. Ethnobiol. Ethnomedicine 8:15. doi: 10.1186/1746-4269-8-15.

~~70.~~76. Morabito A, Allegrezza M, Angiolini C, Bagella S, Bazan G, Bonini F, Camilletti M, Cannucci S, Caria MC, Crisafulli A, de Simone L, Esposito A, Fanfarillo E, Farris E, Fiaschi T, Gianguzzi L, Gigante D, Guarino R, Ilardi V, Mascia F, Mei G, Musarella CM, Patera G, Ravo M, Sciandrello S, Spampinato G, Stinca A, Tavilla G, Tesei G, Rivieccio G. 2023. New national and regional Annex I Habitat records: from #60 to #82. Plant Sociology 60(1): 51-65. https://doi.org/10.3897/pls2023601/05.

~~71.~~77. Moretti G, Chiolini C. 1828. L'Ortolano istruito o sia precetti teorico-pratici sul coltivamento degli orti. [The educated orchardist or theoretical and practical precepts on the cultivation of the orchardist.] Bibl. Agr. 8: 1– 348. Italian.

~~72.~~78. Motti R. 2021. Wild Plants Used as Herbs and Spices in Italy: An Ethnobotanical Review. Plants 10, 563. doi: 10.3390/plants10030563.

~~73.~~79. Mühlhäusler P. 2001. Ecolinguistics, linguistic diversity, ecological diversity. In: Maffi, L. (Ed.), On Biocultural Diversity. Linking Language, Knowledge, and the Environment. Smithsonian Institution Press, Washington, USA. doi: 10.1515/9783110197785.

80. Musarella CM. 2020. *Solanum torvum* Sw. (Solanaceae): a new alien species for Europe. Genet Resour Crop Evol 67, 515–522. https://doi.org/10.1007/s10722-019-00822-5.

~~74.~~81. Musarella CM, Laface VLA, Angiolini C, Bacchetta G, Bajona E, Banfi E, Barone G, Biscotti N, Bonsanto D, Calvia G, et al. 2024. New Alien Plant Taxa for Italy and Europe: An Update. Plants 13(5), 620. https://doi.org/10.3390/plants13050620

82. Musarella CM, Paglianiti I, Spampinato G. 2019. Indagine etnobotanica nel territorio del Poro e delle Preserre calabresi [Ethnobotanical study in the Poro and Preserre Calabresi territory (Vibo Valentia, S-Italy).] Atti Soc. Tosc. Sci. Nat. Mem. Serie B 126, 13-28. Italian. doi: 10.2424/ASTSN.M.2018.17.

83. Musarella CM, Stinca A, Cano-Ortíz A, Laface V, Petrilli R, Esposito A, Spampinato G. 2020. New data on the alien vascular flora of Calabria (Southern Italy). Ann. Bot., 10, 55–66. https://doi.org/10.13133/2239-3129/14838

~~75.~~

~~76.~~84. Naska A, Trichopoulou A. 2014. Back to the future: the Mediterranean diet paradigm. Nutr. Metab. Cardiovasc. Dis. 24:216–219. doi: 10.1016/j.numecd.2013.11.007.

~~77.~~85. Nebel S, Pieroni A, Heinrich M. 2006. Ta Chòrta: wild edible greens used in the Graecanic Area in Calabria, Southern Italy. Appetite 47, 333–342. doi: 1016/j.appet.2006.05.010.

~~78.~~86. Nyero A, Achaye I, Odongo W, Anywar G, Malinga G. M. 2021. Wild and semi-wild edible plants used by the communities of Acholi sub-region, Northern Uganda. Ethnobot. Res. Appl. 21, 1-12. doi: 10.32859/era.21.16.1-12.

~~79.~~87. Odebunmi CA, Adetunji TL, Adetunji AE, Olatunde A, Oluwole OE, Adewale IA, Ejiwum AO, Iheme CE, Aremu TO. 2022. Ethnobotanical survey of medicinal plants used in the treatment of COVID-19 and related respiratory

infections in Ogbomosho South and North local government areas, Oyo State, Nigeria. Plants 11(19), 2667. doi: 10.3390/plants11192667.

~~80.~~88. Passalacqua NG, Guarrera PM, De Fine G. 2007. Contribution to the knowledge of the folk plant medicine in Calabria region (Southern Italy). Fitoterapia 78(1), 52-68. doi: 10.1016/j.fitote.2006.07.005.

~~81.~~89. Passalacqua NG, De Fine G, Guarrera PM. 2006. Contribution to the knowledge of the veterinary science and of the ethnobotany in Calabria region (Southern Italy). J. Ethnobiol. Ethnomed. 2(1) 1-14. doi:10.1186/1746-4269-2-52.

~~82.~~90. Pastor-Cavada E, Pastor JE, Juan R, Vioque J. 2013. Nutritional characterization of wild legumes (Lathyrus and Vicia Genera). Legumes: Types, nutritional composition and health benefits, 41-92.

~~83.~~91. Patti M, Musarella CM, Spampinato G. An update of ethnobotanical knowledge on plant species used for food purposes in Calabria (S-Italy) 2022a, 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.

~~84.~~92. Patti M, Musarella CM, Laface VLA, Cano-Ortiz A, Quinto-Canas R, Spampinato G. 2022b. The use of plants for building purposes in the popular tradition. In: Calabrò, F., Della Spina, L., Bevilacqua, C. (eds.) New Metropolitan Perspectives. ISHT. Smart Innovation, Systems and Technologies, vol 101. Springer, Cham. doi: 10.1007/978-3-031-06825-6_160.

~~85.~~93. Pedrotti G, Bertoldi V. 1930. Nomi dialettali delle piante indigene del trentino e della ladinia dolomitica: presi in esame dal punto di vista della botanica, della linguistica e del folclore. [Dialect names of plants indigenous to Trentino and the Dolomite Ladinia: examined from the point of view of botany, linguistics and folklore.] Monauni. Italian.

~~86.~~94. Perno L, Corsi G, Miraldi E. 1997. Aspetti etnobotanici nel territorio di Rio nell'Elba. [Ethnobotanical aspects in the territory of Rio nell'Elba.] Atti Soc. Toscana Sci. Nat. Mem. B 104, 43-51. Italian.

87.95. Perrino EV. 2022. Ancient and modern grains, effects on human health: A first short review. Research Journal of Ecology and Environmental Sciences, 2(1), 21–25. doi: 10.31586/rjees.2022.225.

96. Perrino EV, Wagensommer RP. 2021. Crop Wild Relatives (CWR) priority in Italy: distribution, ecology, in situ and ex situ conservation and expected actions. Sustainability 13, 1682. doi: 10.3390/su13041682.

88.97. Peruzzi L, Cesca G. 2003. Osservazioni biosistematiche su *Retama gussonei* Webb (Fabaceae). Atti Soc Tosc Sci Nat, Mem110: 19–22.

89.98. Pieroni A. 1999. Gathered wild food plants in the upper valley of the Serchio River (Garfagnana), Central Italy. Econ. Bot. 327-341. http://www.jstor.org/stable/4256207.

90.99. Pieroni A, Nebel S, Quave C, Münz H, Heinrich M. 2002. Ethnopharmacology of liakra: traditional weedy vegetables of the Arbëreshë of the Vulture area in southern Italy. J. Ethnopharmacol. 81(2), 165-185. doi: 10.1016/S03788741(02)000521.

91.100. Pieroni A, Nebel S, Santoro RF, Heinrich M. 2005. Food for two seasons: culinary uses of non-cultivated local vegetables and mushrooms in a south Italian village. Int. J. Food Sci. Nutr. 56(4), 245-272. doi: 10.1080/09637480500146564.

92.101. Pieroni A, Giusti ME, De Pasquale C, Lenzarini C, Censorii E, Gonzáles-Tejero MR, Sánchez-Rojas CP, Ramiro-Gutiérrez JM, Skoula M, Johnson C, Sarpaki A, Della A, Paraskeva-Hadijchambi D, Hadjichambis A, Hmamouchi M, El-Jorhi S, El-Demerdash M, El-Zayat M, Al-Shahaby O, Houmani Z, Scherazed, M. 2006. Circum-Mediterranean cultural heritage and medicinal plant uses in traditional animal healthcare: a field survey in eight selected areas within the RUBIA project. J. Ethnobiol. Ethnomed., 2, 1-12.

93.102. Pieroni A, Quave CL, Villanelli ML, Mangino P, Sabbatini G, Santini L, Boccetti T, Profili M, Ciccioli T, Rampa LG et al. 2004. Ethnopharmacognostic survey on the natural ingredients used in folk cosmetics, cosmeceuticals and remedies for healing skin diseases in the inland Marches, Central-Eastern Italy. J. Ethnopharmacol. 91(2-3), 331-344. doi: 10.1016/j.jep.2004.01.015.

94.103. Pignatti S. 1982. Flora d'Italia (Ed. Agricole, Bologna, Italy), 1 vol.

~~95.~~104. Pignatti S. 2017a. Flora d'Italia: In 4 Volumi. Volume 1: Flora d'Italia & Flora Digitale, 2nd ed.; Edagricole-Edizioni Agricole di New Business Media srl: Milano, Italy. ISBN 978-88-506-5242-6.

~~96.~~105. Pignatti S. 2017b. Flora d'Italia: In 4 Volumi. Volume 2: Flora d'Italia & Flora Digitale, 2nd ed.; Edagricole-Edizioni Agricole di New Business Media srl: Milano, Italy. ISBN 978-88-506-5243-3.

~~97.~~106. Pignatti S. 2018. Flora d'Italia: In 4 Volumi. Volume 3: Flora d'Italia & Flora Digitale, 2nd ed.; Edagricole-Edizioni Agricole di New Business Media srl: Milano, Italy. ISBN 978-88-506-5244-0.

~~98.~~107. Pignatti S, Guarino R, La Rosa M. 2019. 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. ISBN 978-88-506-5245-7.

~~99.~~108. Portal to the Flora of Italy. 2023. (accessed 2023 July 18) http:/dryades.units.it/floritaly.

~~100.~~109. Prance GT, Baleé W, Boom BM, Carneiro RL. 1987. Quantitative ethnobotany and the case for conservation in Ammonia. Conserv. Biol. 1(4), 296-310. doi: 10.1111/j.1523-1739.1987.tb00050.x.

~~101.~~110. Pyšek P, Hulme P, Nentwig W. 2009. Glossary of the main technical terms used in the handbook. In Handbook of alien species in Europe (pp. 375-379). Dordrecht: Springer Netherlands. doi: https://doi.org/10.1007/978-1-4020-8280-1_14.

~~102.~~111. Qaseem MF, Qureshi R, Amjad MS, Ahmed W, Masood A, Shaheen H. 2019. Ethno-botanical evaluation of indigenous flora from the communities of Rajh Mehal and Goi union councils of district Kotli, Azad Jammu Kashmir Pakistan. Appl. Ecol. Environ. Res. 17(2). doi: 10.15666/aeer/1702_27992829.

~~103.~~R Core Team. 2022. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.R software. (accessed 2023 July 04). https://cran.r-project.org.

~~104.~~112.

~~105.~~113. Raunkiaer C. 1934. The life forms of plants and statistical plant geography; being the collected papers of C. Raunkiær. The life forms of plants and statistical plant geography; being the collected papers of C. Raunkiaer.

~~106.~~114. Rivas-Martínez S, Rivas-Saenz S, Penas A. 2002. Worldwide bioclimatic classification system. Kerkwerve, The Netherlands: Backhuys Pub.

~~107.~~115. Rivera D, Obon C, Heinrich M, Inocencio C, Verde A, Fajardo J. 2006. Gathered Mediterranean food plants–ethnobotanical investigations and historical development. Loc. Medit. Food Plants Nutr. 59, 18-74. doi: 1159/000195207.

~~108.~~116. Rivera D, Obon C, Inocencio C, Heinrich M, Verde A, Fajardo J, Llorach R. 2005. The ethnobotanical study of local Mediterranean food plants as medicinal resources in Southern Spain. J. Physiol. Pharmacol. Supplement 56(1), 97-114.

~~109.~~117. Salerno G, Guarrera PM. 2008. Ricerche etnobotaniche nel Parco Nazionale del Cilento e Vallo di Diano: il territorio di Castel San Lorenzo (Campania, Salerno). [Ethnobotanical research in the Cilento and Vallo di Diano National Park: the Castel San Lorenzo area (Campania, Salerno).] Inf. bot. ital. 40(2), 165-181. Italian.

~~110.~~118. Salerno G, Guarrera PM, Caneva G. 2005. Agricultural, domestic and handicraft folk uses of plants in the Tyrrhenian sector of Basilicata (Italy). J. Ethnobiol. Ethnomedicine. 1(1), 1-8. doi: 10.1186/1746-4269-1-2.

~~111.~~119. Salerno G, Stinca A, Giaccone M, Scognamiglio P, Basile B. 2015. Ethnobotanical use of fig (*Ficus carica* L.) in southern Italy. In V International Symposium on Fig 1173 (pp. 371-376). doi: 10.17660/ActaHortic.2017.1173.64.

~~112.~~120. Savo V. 2009. Ethnobotanical analysis in the Amalfi Coast and evaluation of results on a scientific and economic point of view [dissertation]. Roma (RM): University of Roma Tre.

~~113.~~121. Savo V, Caneva G. 2009. Ricerche etnobotaniche in Costiera amalfitana: gli usi marittimi. [Ethnobotanical research on the Amalfi Coast: maritime uses.] Inf. Bot. It. 41(1), 3-11. Italian.

~~114.~~122. Scherrer AM, Motti R, Weckerle CS. 2005. Traditional plant use in the areas of Monte Vesole and Ascea, Cilento National Park (Campania, Southern Italy). J. Ethnopharmacol. 97, 129–143. doi: 10.1016/j.jep.2004.11.002.

~~115.~~123. Schippers RR. 2002. African indigenous vegetables: an overview of the cultivated species 2002.

~~116.~~124. Shin JW, Kwon SH, Choi JY, Na JI, Huh CH, Choi HR, Park KC. 2019. Molecular mechanisms of dermal aging and antiaging approaches. Int. J. Mol. Sci. 20(9), 2126. doi: doi.org/10.3390/ijms20092126.

~~117.~~125. Sicari V, Loizzo MR, Sanches Silva A, Romeo R, Spampinato G, Tundis R, Leporini M, Musarella CM. 2021 The effect of blanching on phytochemical content and bioactivity of *Hypochaeris* and *Hyoseris* species (Asteraceae), vegetables traditionally used in Southern Italy. Foods 10, 32. doi: 10.3390/foods10010032.

~~118.~~126. Signorini MA, Lombardini C, Bruschi P, Vivona L. 2008. Conoscenze etnobotaniche e saperi tradizionali nel territorio di San Miniato (Pisa). [Ethnobotanical knowledge and traditional knowledge in the San Miniato area (Pisa).] Atti Soc. Tosc. Sci. Nat. Mem. Serie B 114, 65-83. Italian.

~~119.~~127. Signorini MA, Piredda M, Bruschi P. 2009. Plants and traditional knowledge: An ethnobotanical investigation on Monte Ortobene (Nuoro, Sardinia). J. Ethnobiol. Ethnomedicine 5(1), 1-14. doi: 10.1186/1746-4269-5-6.

~~120.~~128. Singh B, Borthakur SK, Phukan SJ. 2014. A survey of ethnomedicinal plants utilized by the indigenous people of Garo Hills with special reference to the Nokrek Biosphere Reserve (Meghalaya), India. J. Herbs Spices Med. Plants 20(1), 1-30. doi: 10.1080/10496475.2013.819476.

~~121.~~129. Singh PP, Jha S, Irchhaiya R, Fatima A, Agarwal P. 2012. A review on phytochemical and pharmacological potential of *Calamintha officinalis* Moench. Int. J. Pharm. Sci. Res. 3(4), 1001-4. ISSN: 0975-8232.

~~122.~~130. Sinicropi MS, Baldino N, Ceramella J, Iacopetta D, Scali E, Basile G, Saturnino C, Catalano A. 2022. *Opuntia ficus indica* (L.) Mill. An Ancient Plant Source of Nutraceuticals. Curr. Top. Med. Chem. 22(21), 1736-1749. doi: 10.2174/1568026622666220803151814.

~~123.~~131. Spampinato G. 2014. Guida alla flora dell'Aspromonte. Reggio Calabria: Italy. Laruffa Editore.

~~124.~~132. Spampinato G, Crisarà R, Cameriere P, Cano-Ortiz A, Musarella CM. 2022. Analysis of the forest landscape and its transformations through phytotoponyms: a case study in Calabria (Southern Italy). Land 11, 518. Doi: 10.3390/land11040518.

~~125.~~133. Spampinato G, Crisarà R, Cannavò S, Musarella CM. 2017. Phytotoponims of southern Calabria: A tool for the analysis of the landscape and its transformations. Atti Soc. Tosc. Sci. Nat. Mem. Serie B. 124, 61–72. Doi: 10.2424/ASTSN.M.2017.06.

~~126.~~134. Spampinato G, Laface VLA, Posillipo G, Cano Ortiz A, Quinto Canas R, Musarella CM. 2022. Alien flora in Calabria (Southern Italy): An updated checklist. *Biol. Invasions 24*, 2323–2334. https://doi.org/10.1007/s10530-022-02800-y.

~~127.~~135. Taffetani F. 2005. Rugni, speragne crispigne. Piante spontanee negli usi e nelle tradizioni del territorio maceratese.

~~128.~~136. Tagarelli G, Tagarelli A, Piro A, 2010. Folk medicine used to heal malaria in Calabria (southern Italy). J. Ethnobiol. Ethnomedicine 6, 1-16. doi: 10.1186/1746-4269-6-27.

~~129.~~137. Tardío J, Pardo-de-Santayana M, Morales R. 2006. Ethnobotanical review of wild edible plants in Spain. Bot. J. Linn. Soc. *152*(1), 27-71. doi: 10.1111/j.1095-8339.2006.00549.x.

~~130.~~138. Tardío J, Pardo-de-Santayana M. 2008. Cultural importance indices: a comparative analysis based on the useful wild plants of Southern Cantabria (Northern Spain). Econ. Bot. 62, 24-39. doi: 10.1007/s12231-007-9004-5.

~~131.~~139. Tavilla G, Crisafulli A, Ranno V, Picone RM, Redouan FZ, del Galdo GG. 2022. First contribution to the ethnobotanical knowledge in the Peloritani Mounts (NE Sicily). Research Journal of Ecology and Environmental Sciences 1-34. doi: 10.31586/rjees.2022.201.

~~132.~~140. Thiers B. 2023. Index Herbariorum: A Global Directory of Public Herbaria. New York Botanical Garden's Virtual Herbarium. (accessed 2023 July 08) http://sweetgum.nybg.org/ih/.

~~133.~~141. Tsioutsiou EE, Miraldi E, Governa P, Biagi M, Giordani P, Cornara L. 2017. Skin wound healing: from mediterranean ethnobotany to evidence based phytotherapy. Athens J. Sci. 4(3), 199-212. doi: 10.30958/ajs.4-3-2.

~~134.~~142. Ullah H, Qureshi R, Munazir M, Bibi Y, Saboor A, Imran M, Maqsood M. 2023. Quantitative ethnobotanical appraisal of Shawal Valley, South Waziristan, Khyber Pakhtunkhwa, Pakistan. Ethnobot. Res. Appl. 25, 1-17. doi: 10.32859/era.25.527.1-17.

~~135.~~143. Uncini Manganelli RE, Tomei P. 1996. Indagini farmacobotaniche in Garfagnana (LU): il versante appenninico. [Pharmacobotanical investigations in Garfagnana (LU): the Apennine slope.] Atti Soc. Tosc. Sci. Nat. Mem. Serie B. 3-18. Italian.

~~136.~~144. UNESCO. 2013 Mediterranean diet. (accessed 2023 July 07) http://www.unesco.org/culture/ich/index. php?lg=en&pg=00011&RL=00884.

~~137.~~145. Usman M, Ditta A, Ibrahim FH, Murtaza G, Rajpar MN, Mehmood S, Bin Saleh MN, Imtiaz M, Akram S, Khan, W. R. 2021. Quantitative ethnobotanical analysis of medicinal plants of high-temperature areas of Southern Punjab, Pakistan. Plants 10(10), 1974. doi: 10.3390/plants10101974.

~~138.~~146. Vanzani P, Rossetto M, De Marco V, Sacchetti LE, Paoletti MG, Rigo A. 2011. Wild Mediterranean plants as traditional food: a valuable source of antioxidants. J. Food Sci. 76(1), C46-C51. doi: 10.1111/j.1750-3841.2010.01949.x.

~~139.~~147. Verma RK. An ethnobotanical study of plants used for the treatment of livestock diseases in Tikamgarh District of Bundelkhand, Central India. 2014. Asian Pac. J. Trop. Biomed. 4, S460-S467. doi: 10.12980/APJTB.4.2014C1067.

~~140.~~148. Viegi L, Bioli A, Vangelisti R, Cela Renzoni G. 1999. Prima indagine sulle piante utilizzate in medicina veterinaria popolare in alcune località dell'Alta Val di Cecina. [First survey of plants used in popular veterinary medicine in some localities of the Alta Val di Cecina.] Atti Soc. Tosc. Sci. Nat. Mem. Serie B. 106, 131-140. Italian.

~~141.~~149. Viegi L, Pieroni A, Guarrera PM, Maccioni S. 2001. Piante usate in Italia in medicina veterinaria popolare. [Plants used in Italy in popular veterinary medicine.] Ann. Fac. sc. pol. Univ. Pisa. 54, 405-420. Italian.

~~142.~~150. Vitalini S, Iriti M, Puricelli C, Ciuchi D, Segale A, Fico G. 2013. Traditional knowledge on medicinal and food plants used in Val San Giacomo (Sondrio, Italy)—An alpine ethnobotanical study. J. Ethnopharmacol. 145(2), 517-529. doi: 10.1016/j.jep.2012.11.024.

~~143.~~151. Whitney C. 2022. EthnobotanyR: Calculate quantitative ethnobotany indices. R package version 0.1, 9. <https://CRAN.R-project.org/package=ethnobotanyR>.

~~144.~~152. Whitney CW, Bahati J, Gebauer J. 2018. Ethnobotany and Agrobiodiversity. Ethnobiol. Lett, 9(2), 90-100. doi: 10.14237/ebl.9.2.2018.503.

~~145.~~153. Yuca H. 2022. *Capsicum annuum* L. In Novel drug targets with traditional herbal medicines: scientific and clinical evidence (pp. 95-108). Cham: Springer International Publishing.

~~146.~~154. Zahara K, Ahmad N, Bibi Y, Bibi F, Sadaf HM, Sardar N. 2019. An insight to therapeutic potential and phytochemical profile of *Solanum villosum* (L). Med. Drug. Discov. 2, 100007. doi: doi.org/10.1016/j.medidd.2019.100007.

~~147.~~155. Zarbà C, Allegra V, Zarbà AS, Zocco G. 2019. Wild leafy plants market survey in Sicily: From local culture to food sustainability. AIMS Agric. Food, 4, 534-546. doi: 10.3934/agrfood.2019.3.534.

~~148.~~156. Zepigi M. from 2023 on - "*Solanum villosum* Mill. {ID 7385} - Morella rossa". In Acta Plantarum, Forum. (accessed 2023 August 29) https://www.actaplantarum.org/forum/viewtopic.php?f=95&t=13820.

~~149.~~157. Zocchi DM, Bondioli C, Hamzeh Hosseini S, Miara MD, Musarella CM, Mohammadi D, Khan Manduzai A, Dilawer Issa K, Sulaiman N, Khatib C, et al. 2022. Food security beyond cereals: a cross-geographical comparative study on acorn bread heritage in the Mediterranean and the Middle East. Foods 11, 3898. doi: 10.3390/foods11233898.

Figure 1. Study area. Tyrrhenian side of Aspromonte Massif in the metropolitan city of Reggio Calabria. In red are the boundaries of the eight municipalities where the ethnobotanical interviews were conducted: Delianuova, Polistena, San Ferdinando, Sant'Eufemia d'Aspromonte, Santa Cristina, Santo Stefano in Aspromonte, Scilla and Villa San Giovanni. (Google© 2023).

291x206mm (300 x 300 DPI)

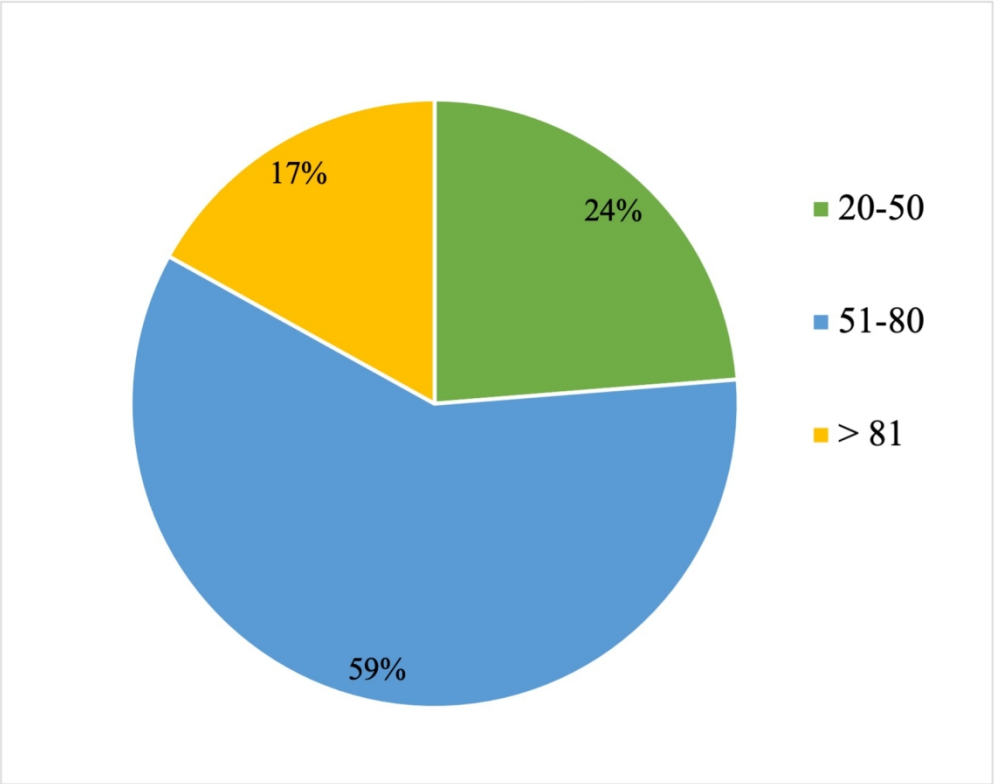

Figure 2. Age of informants divided into three range: 20-50, 51-80 and >81 years old.

133x105mm (330 x 330 DPI)

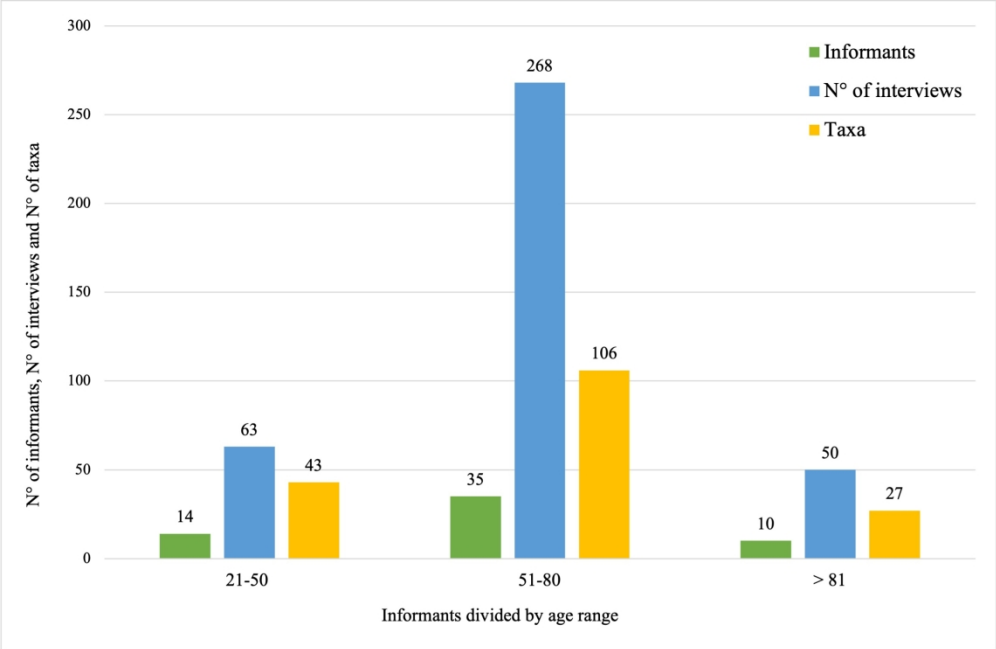

Figure 3. Relationship between the age of informants and their level of ethnobotanical knowledge (number of interviews and number of cited taxa).

203x132mm (330 x 330 DPI)

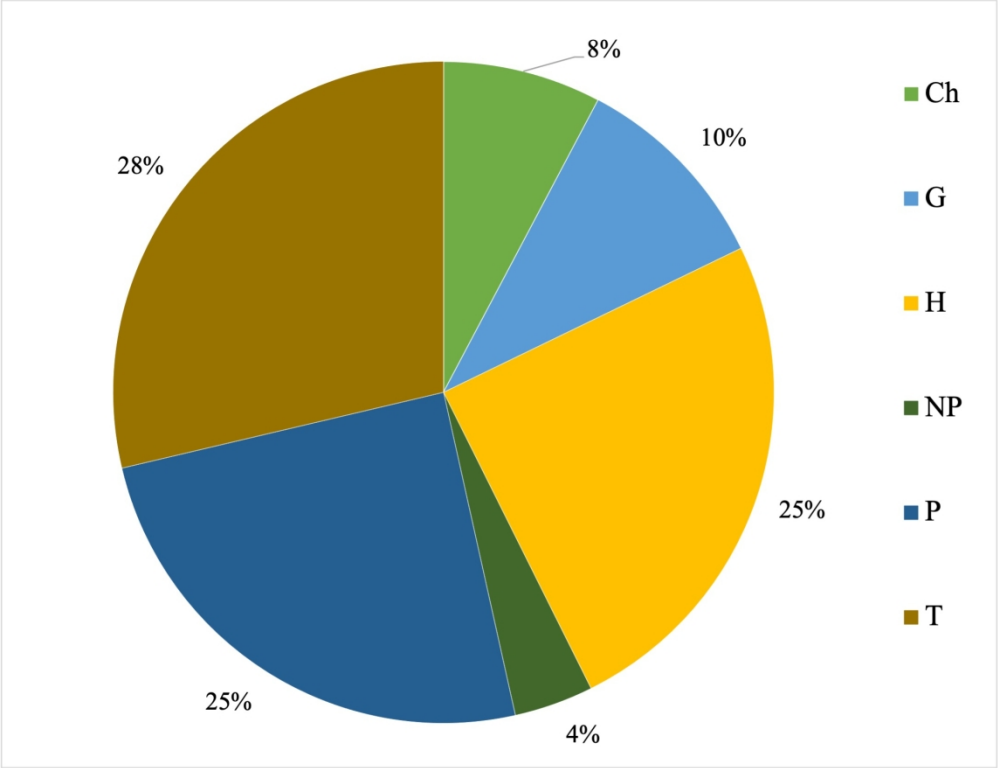

Figure 4. Biological spectrum of the species recorded during the interviews. Ch- Chamaephytes; G- Geophytes; H- Hemicryptophytes; NP- Nanophanerophytes; P- Phanerophytes; T- Therophytes.

167x129mm (330 x 330 DPI)

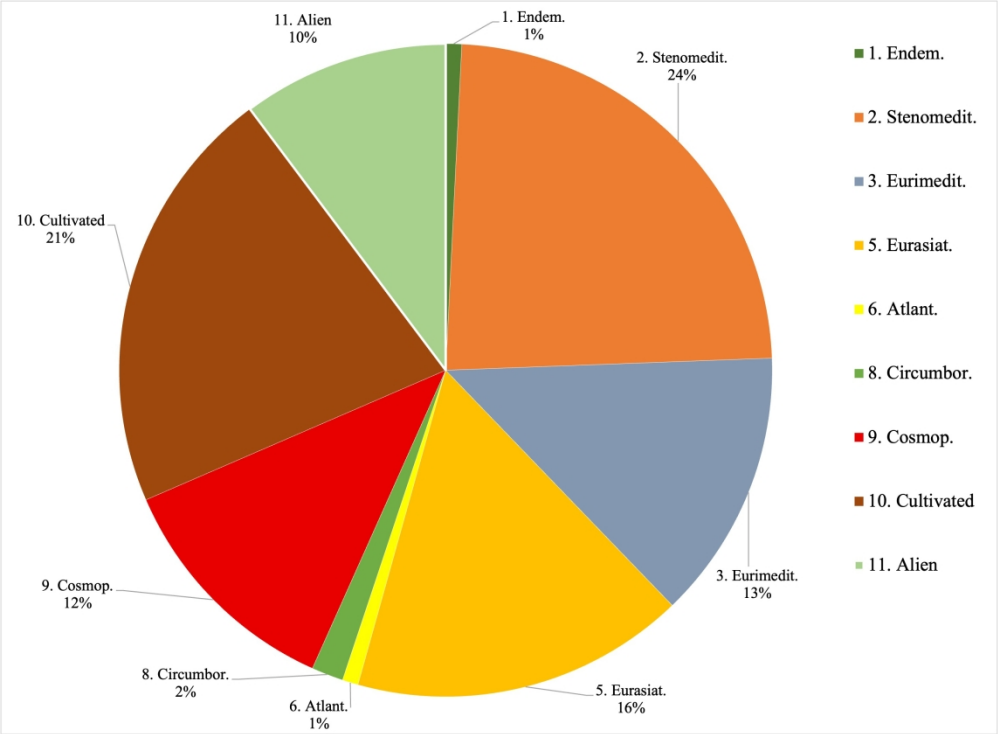

Figure 5. Chorological spectrum of the taxa recorded from the interviews.
To identify the origin of the taxa, they were classified according to exoticity as native, alien, or cryptogenic (Fig. 6). Most of the recorded species were native (69%), followed by alien (29%) and to a small extent cryptogenic (2%). The 65% of the alien taxa were cultivated species.

225x166mm (330 x 330 DPI)

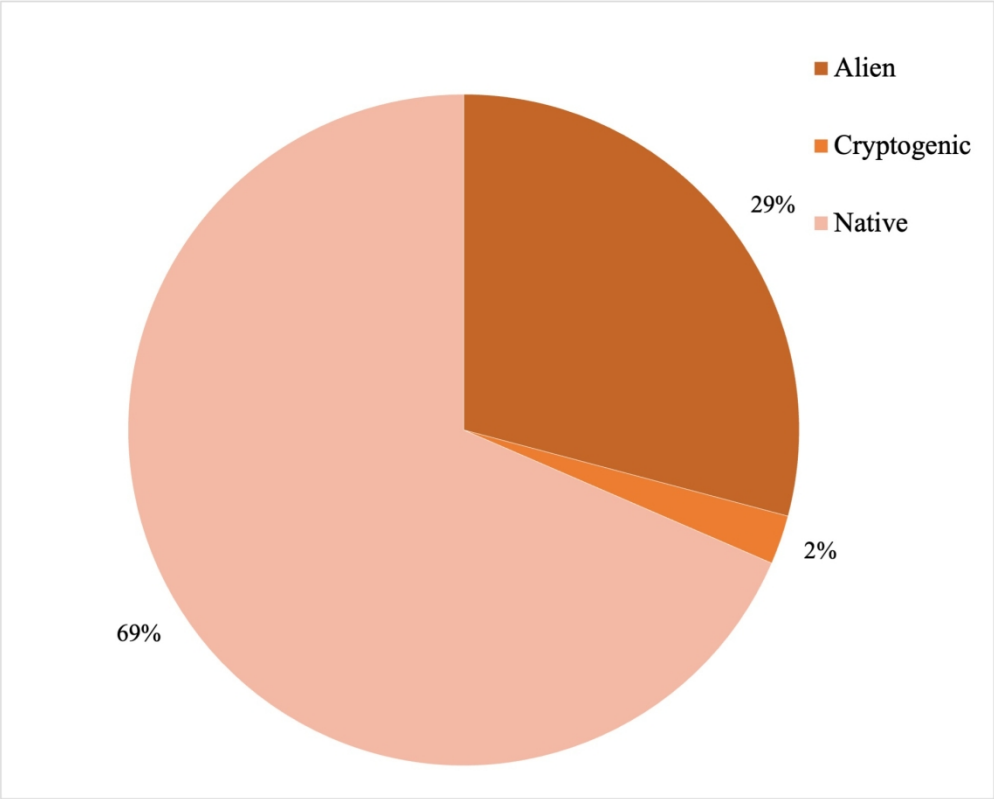

Figure 6. Origin of the taxa divided in Alien, Cryptogenic and Native.

152x121mm (330 x 330 DPI)

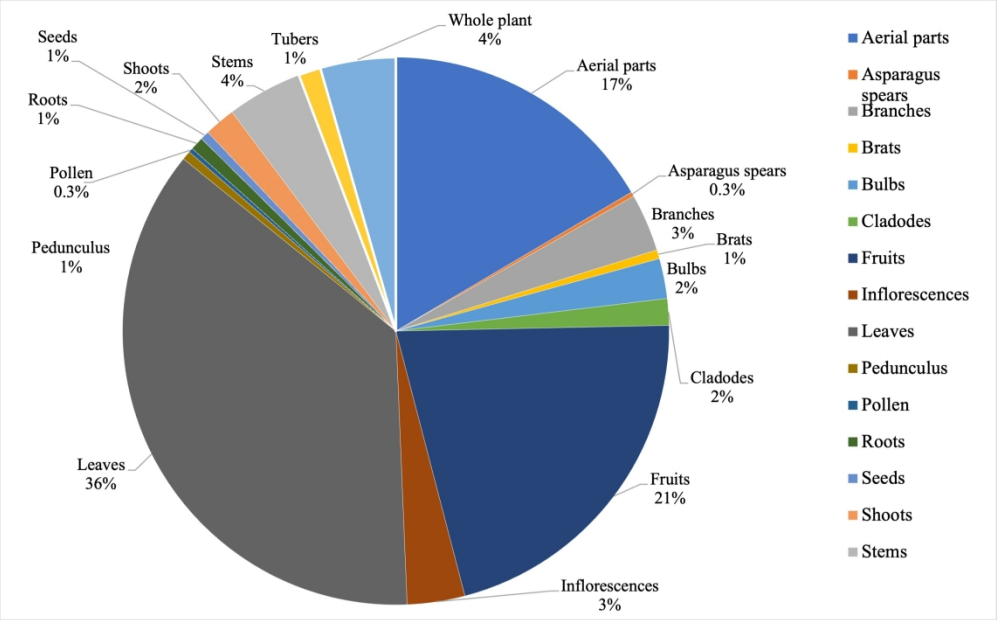

Figure 7. Parts of plants used by informants.

207x129mm (330 x 330 DPI)

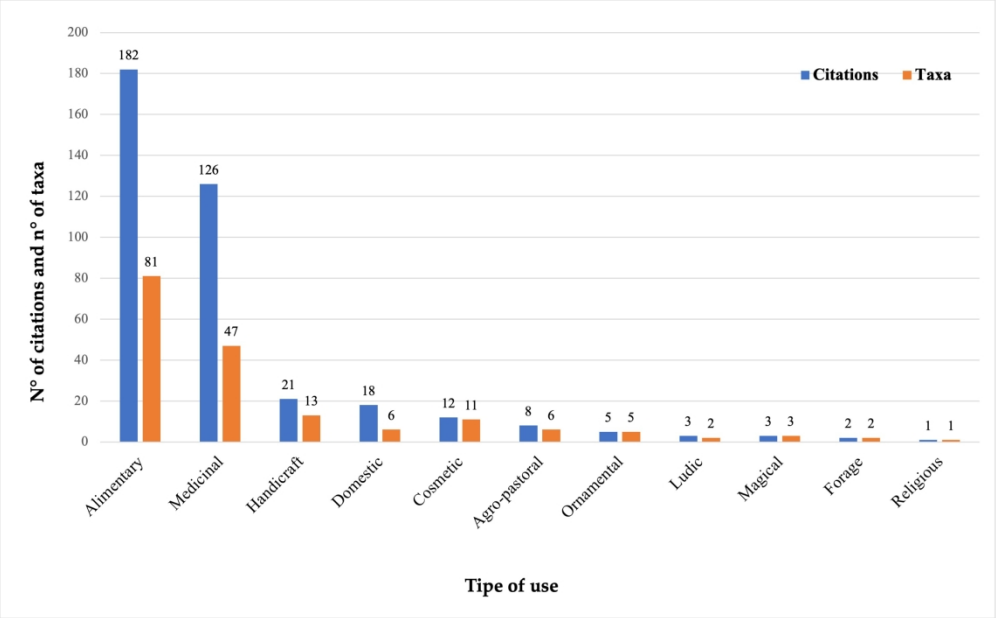

Figure 8. Number of interviews and taxa by category of use, sorted by number of interviews.

229x142mm (330 x 330 DPI)

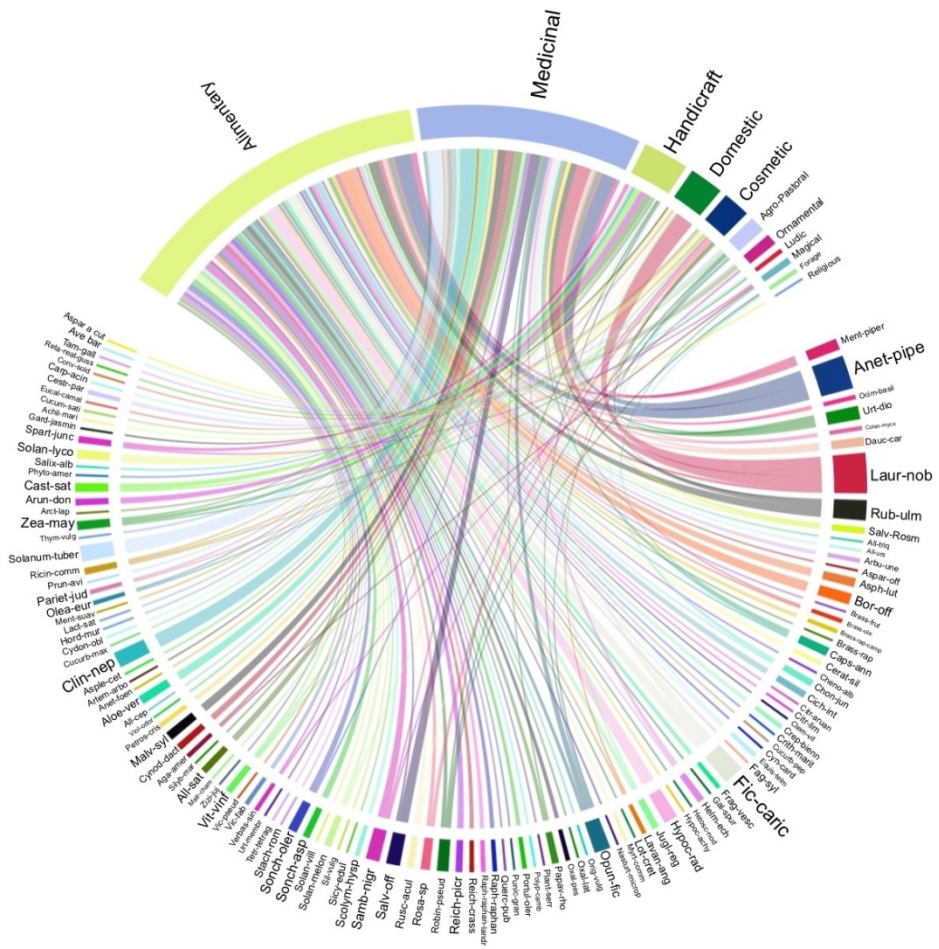

Figure 9. Chord diagram relating all taxa mentioned during the interviews to the category of use, processed with R software version 2023.06.0+421 + 'ethnobotanyR' package.

440x424mm (72 x 72 DPI)

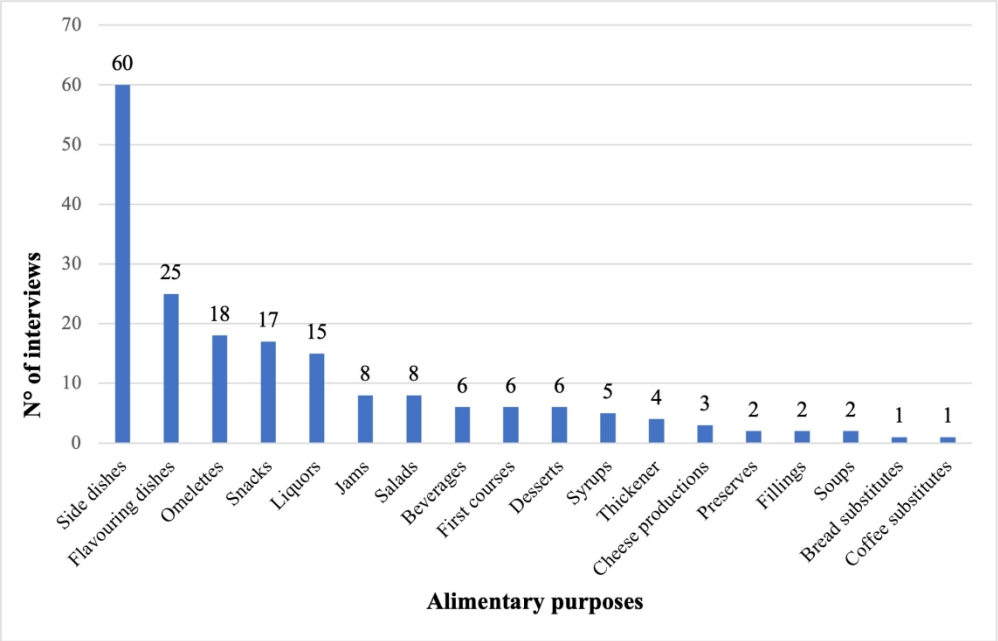

Figure 10. Different purposes within the alimentary use category sorted by number of interviews.

160x103mm (330 x 330 DPI)

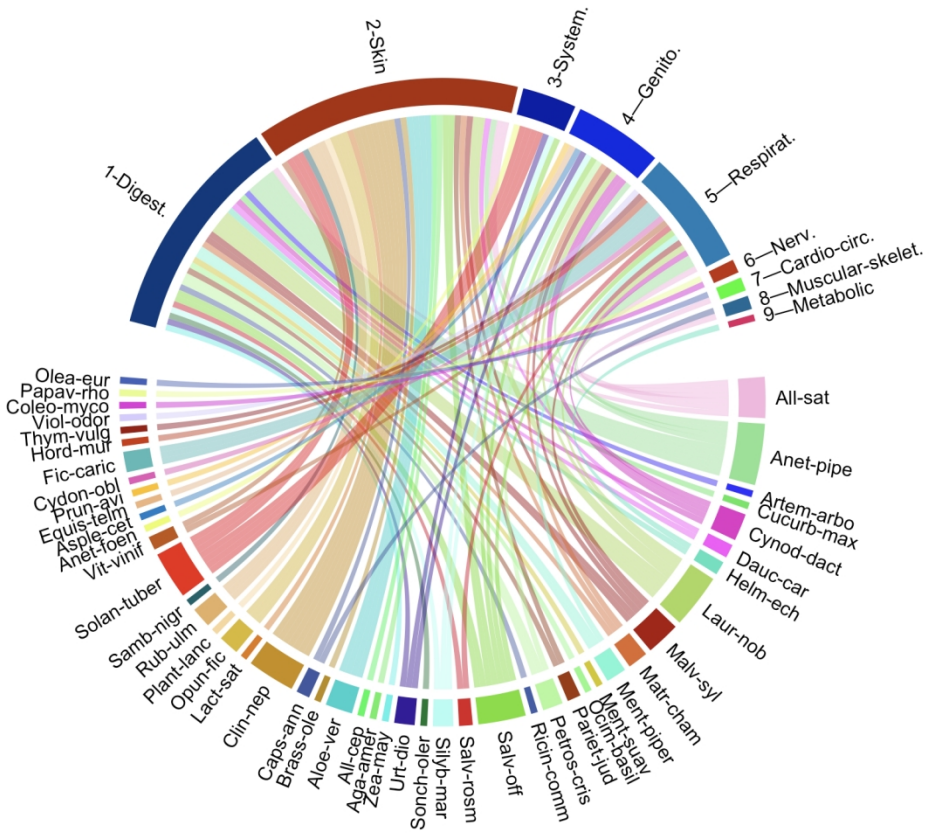

Figure 11. Chord diagram representing all medicinal taxa found during the interviews with the 9 categories of medicinal use, processed with R software version 2023.06.0+421 +''ethnobotany'' package. 1-Digest.–- Diseases of the digestive system; 2-Skin.–- Diseases of the skin-ears-hair and wounds; 3-System.–- Systemic diseases; 4-Genito.–- Diseases of the genito-urinary system; 5-Respirat.–- Diseases of the respiratory system; 6-Nerv.–- Diseases of the nervous system; 7-Cardio-circ.–- Diseases of the cardio-circulatory system; 8-Muscular-skeletal.–- Diseases of the musculoskeletal system; 9-Metabolic–- Metabolic diseases.

290x255mm (144 x 144 DPI)

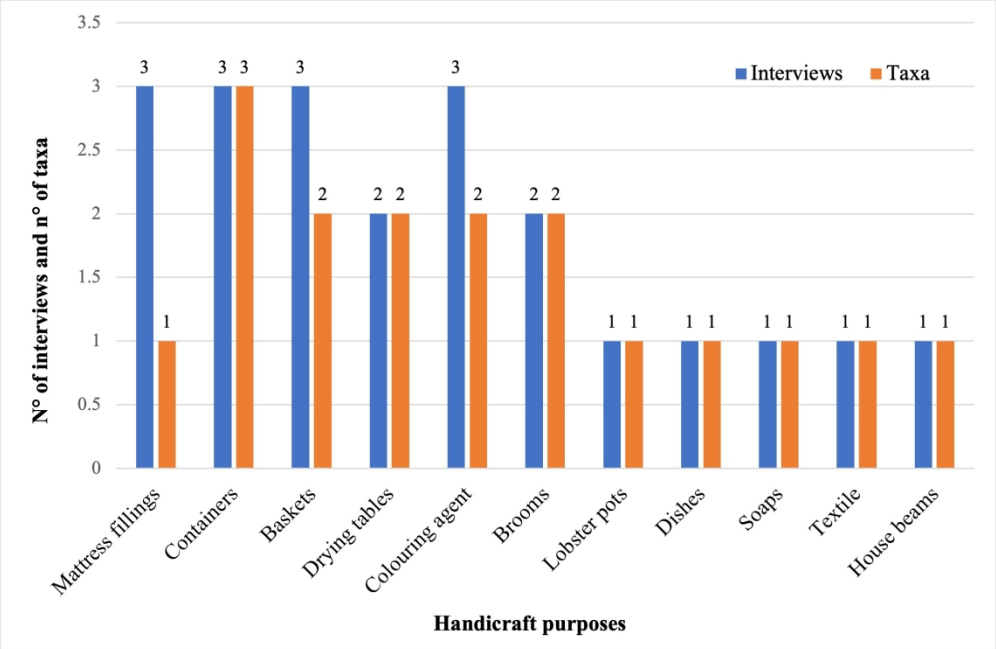

Figure 12. Handicraft purposes sorted by number of interviews and number taxa used.

169x111mm (330 x 330 DPI)

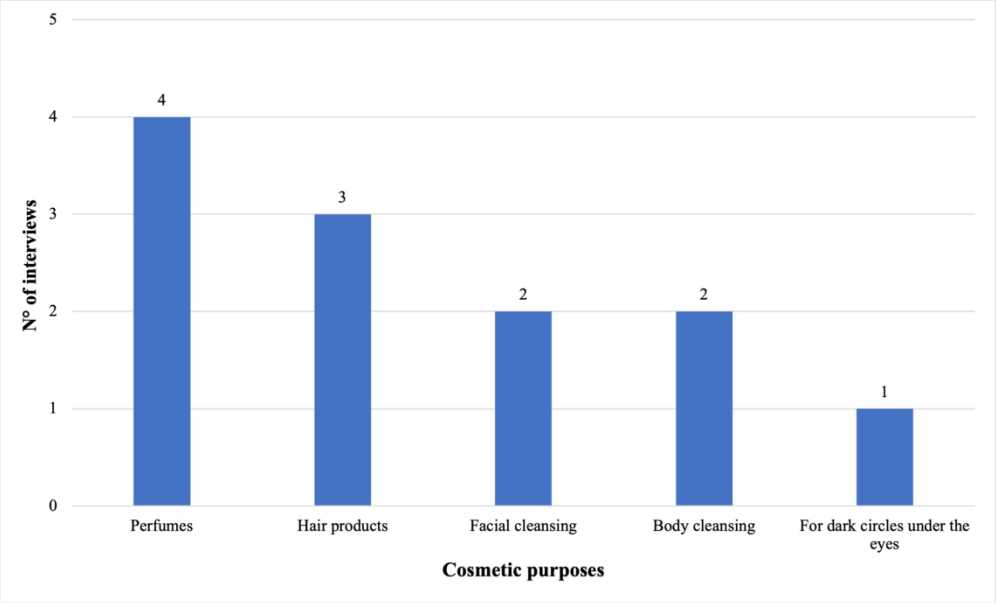

Figure 13. Cosmetic purposes sorted by number of interviews.

191x116mm (330 x 330 DPI)

Table S1. List of the taxa of ethnobotanical interest recorded in the Tyrrhenian side of Asp
Hemicryptophytes biennal; H rept- Hemicryptophytes reptans; H ros- Hemicryptophytes ro
native; C: Criptogenic. Indexes= U: Number of different categories of use. UR: Number o
diseases; 5—Respiratory system diseases; 6—Nervous system diseases; 7—Cardio-circula

Family	Taxon
Aizoaceae	*Carpobrotus acinaciformis* (L.) L.Bolus
	Tetragonia tetragonoides (Pall.) Kuntze
Amaranthaceae	*Amaranthus retroflexus* L.
	Chenopodium album L.
Amaryllidaceae	*Allium cepa* L.
	Allium sativum L.
	Allium triquetrum L.
	Allium ursinum L.
Apiaceae	*Anethum foeniculum* L.
	Anethum piperitum Ucria
	Crithmum maritimum L.
	Daucus carota L.
	Heloscidium nodiflorum (L.) W.D.J.Koch subsp. *nodiflorum*
	Petroselinum crispum (Mill.) Fuss

Asparagaceae	*Agave americana* L.
	Asparagus acutifolius L.
	Asparagus officinalis L. subsp. *officinalis*
	Ruscus aculeatus L.
Asphodelaceae	*Aloë vera* (L.) Burm.f.
	Asphodeline lutea (L.) Rchb.
Aspleniaceae	*Asplenium ceterach* L.
Asteraceae	*Achillea maritima* (L.) Ehrend. & Y.P.Guo
	Arctium lappa L.
	Artemisia arborescens (Vaill.) L.
	Chondrilla juncea L.
	Cichorium intybus L.
	Cladanthus mixtus (L.) Chevall.
	Coleostephus myconis (L.) Cass. ex Rchb.f.
	Crepis biennis L.
	Cynara cardunculus L.
	Helminthotheca echioides (L.) Holub
	Hypochaeris achyrophorus L.
	Hypochaeris radicata L.
	Lactuca sativa L.
	Matricaria chamomilla L.
	Reichardia crassifolia (Willk.) Guarino & Pignatti
	Reichardia picroides (L.) Roth
	Scolymus hispanicus L.
	Silybum marianum (L.) Gaertn.
	Sonchus asper (L.) Hill

	Sonchus oleraceus L.
Boraginaceae	*Borago officinalis* L.
Brassicaceae	*Brassica fruticulosa* Cirillo *Brassica oleracea* L. *Brassica rapa* L. subsp. *campestris* (L.) A.R.Clapham *Brassica rapa* L. subsp. *rapa* *Nasturtium microphyllum* (Boenn.) Rchb. *Raphanus raphanistrum* L. *Raphanus raphanistrum* L. subsp. *landra* (Moretti ex DC.) Bonnier & Layens
Cactaceae	*Opuntia ficus-indica* (L.) Mill.
Caryophyllaceae	*Silene vulgaris* (Moench) Garcke
Convolvulaceae	*Convolvulus soldanella* L.
Cucurbitaceae	*Cucumis sativus* L. subsp. *sativus* *Cucurbita maxima* Duchesne *Cucurbita pepo* L. *Sicyos edulis* Jacq.
Equisetaceae	*Equisetum telmateia* Ehrh.
Ericaceae	*Arbutus unedo* L.
Euphorbiaceae	*Ricinus communis* L.
	Ceratonia siliqua L. *Lotus creticus* L. *Retama raetam* (Forssk.) Webb & Berthel. subsp. *gussonei* (Webb) Greuter

Fabaceae	*Robinia pseudoacacia* L.
	Spartium junceum L.
	Vicia faba L.
	Vicia pseudocracca Bertol.
Fagaceae	*Castanea sativa* Mill.
	Fagus sylvatica L. subsp. *sylvatica*
	Quercus pubescens Willd. subsp. *pubescens*
Juglandaceae	*Juglans regia* L.
Lamiaceae	*Clinopodium nepeta* (L.) Kuntze subsp. *nepeta*
	Lavandula angustifolia Mill.
	Mentha suaveolens Ehrh.
	Mentha × *piperita* L.
	Ocimum basilicum L.
	Origanum vulgare L. subsp. *vulgare*
	Salvia officinalis L.
	Salvia rosmarinus Spenn.
	Stachys romana (L.) E.H.L.Krause
	Thymus vulgaris L. subsp. *vulgaris*

Lauraceae	*Laurus nobilis* L.
Lythraceae	*Punica granatum* L.
Malvaceae	*Malva sylvestris* L.
Moraceae	*Ficus carica* L.
Myrtaceae	*Eucalyptus camaldulensis* Dehnh. *Myrtus communis* L.
Oleaceae	*Olea europaea* L.
Oxalidaceae	*Oxalis latifolia* Kunth *Oxalis pes-caprae* L.
Papaveraceae	*Papaver rhoeas* L.
Phytolaccaceae	*Phytolacca americana* L.
Plantaginaceae	*Plantago lanceolata* L. *Plantago serraria* L.
Poaceae	*Arundo donax* L. *Avena barbata* Pott ex Link *Cynodon dactylon* (L.) Pers. *Hordeum murinum* L. *Zea mays* L. subsp. *mays*
Polypodiaceae	*Polypodium cambricum* L.
Portulaceae	Portulaca oleracea L.
Ranunculaceae	Clematis vitalba L.
Rhamnaceae	*Ziziphus jujuba* Mill.

Rosaceae	*Cydonia oblonga* Mill.
	Fragaria vesca L. subsp. *vesca*
	Prunus avium (L.) L.
	Rosa cv.
	Rubus ulmifolius Schott
Rubiaceae	*Galium spurium* L.
	Gardenia jasminoides J. Ellis.
Rutaceae	*Citrus ×aurantium* L.
	Citrus ×limon (L.) Osbeck
Salicaceae	Salix alba L.
Scrophulariaceae	*Verbascum sinuatum* L.
Solanaceae	*Capsicum annuum* L.
	Cestrum parqui L'Hér.
	Solanum lycopersicum L.
	Solanum melongena L.
	Solanum tuberosum L.
	Solanum villosum Mill.
Tamaricaceae	*Tamarix gallica* L.
Urticaceae	*Parietaria judaica* L.
	Urtica dioica L.
	Urtica membranacea Poir.
Viburnaceae	*Sambucus nigra* L.

Violaceae	*Viola odorata* L.
Vitaceae	*Vitis vinifera* L.

promonte Massif (Southern Italy) with the belonging family, the acronyms utilyzed for the indexes calculations, italian osulate; H scap- Hemicryptophytes scapose; NP- Nanopharenophytes; P caesp- Pharenophytes cespitose; P lian- Pharer of interviews ('citations'); FC: number of informants who cited a certain taxon; RFC: Relative Frequency of Citation; Cl atory system diseases; 8—Muscular-skeletal diseases; 9—Metabolic diseases.

Acronym for calculations	Italian name	Local name
Carp-acin	Fico degli Ottentotti comune	-
Tetr-tetrag	Spinacio di Nuova Zelanda	Spinacio selvatico
Amar-retro	Amaranto comune	Britti, lingua di gatto
Cheno-alb	Farinello comune	-
All-cep	Cipolla	cipudda
All-sat	Aglio comune	agghiu
All-triq	Aglio triquetro	Aglio trequatu
All-urs	Aglio orsino	Agliu ursino
Anet-foen	Finocchio selvatico	-
Anet-pipe	Finocchio piperito	Finocchiu, finocchiu selvaggiu, finocchiu sarvaggiu
Crith-marit	Finocchio marino	Finocchiu i mari
Dauc-car	Carota selvatica	Bastunacara, carota sarvaggia
Helosc-nod	Sedano d'acqua	Spèlendra
Petros-cris	Prezzemolo comune	Petrusinu, putrusinu

Aga-amer	Agave americana	Malocchiara
Aspar-acut	Asparago spinoso	Spalassàri
Aspar-off	Asparago comune	Asparagu
Rusc-acul	Pungitopo comune	Rusculara, spariciu, sparitrara
Aloe-ver	Aloe	-
Asph-lut	Asfodelo giallo	Jannuli
Asple-cet	Cedracca comune	Spaccapietre
Achil-mari	Santolina delle spiagge	Candiledi
Arct-lap	Bardana maggiore	Nappula
Artem-arbo	Assenzio arbustivo	Artemisia
Chon-jun	Lattugaccio comune	Cacazimbari, ziparu
Cich-int	Cicoria comune	Cicori fimmanini
Clad-mixt	Camomilla bicolore	Margherita gialla
Coleo-myco	*Margherita gialla*	*Scandalu*
Crep-bienn	Radicchiella dei prati	Cicoria masculina
Cyn-card	Carciofo, Carciofo selvatico	Cacioffulu
Helm-ech	Aspraggine volgare	Iunci
Hypoc-achy	Costolina annuale	Lattuca sarvaggia
Hypoc-rad	Costolina giuncolina	Crosca i vecchia, costi vecchi
Lact-sat	Lattuga coltivata	Lettuca
Matr-cham	Camomilla	Calamidda
Reich-crass	Grattalingua marittima	Carazzituli
Reich-picr	Grattalingua comune	Casedi, casedduzzi, tarassacu
Scolym-hysp	Cardogna comune	Sculumbri
Silyb-mar	Cardo mariano	carduni
Sonch-asp	Grespino spinoso	Carduna, zucca

Sonch-oler	Grespino comune	Iuncia, zughi
Bor-off	Borragine comune	Burraina, gurraina
Brass-frut	Cavolo rapiciolla	Misi misi
Brass-ole	Cavolo	Cavulu
Brass-rap-camp	Cavolo dei campi	Misi misi, razza
Brass-rap	Cavolo rapa	Razzi
Nasturt-microp	Crescione tetraploide	Crisciuni
Raph-raphan	Ravanello selvatico	Razza
Raph-raphan-landr	Ravanello costiero	Razzi
Opun-fic	Fico d'India	Ficalindi, ficandiani, ficazzara, pittara
Sil-vulg	Silene rigonfia	Erva cuccu
Conv-sold	Vilucchio marittimo	Campanedi
Cucum-sati	Cetriolo	citrolu
Cucurb-max	Zucca	Cucuzza
Cucurb-pep	Zucchini	Cucuzzeda
Sicy-edul	Sechio edule	Cucuzza spinusa
Equis-telm	Equiseto massimo	Cuda i cavaddu
Arbu-une	Corbezzolo	Bella frutta, cacummaru, cucummerara
Ricin-comm	Ricino	-
Cerat-sil	Carrubo	Carrubba
Lot-cret	Ginestrino delle spiagge	-
Reta-reat-guss	Ginestra di Gussone	Ginestra bianca

Robin-pseud	Robinia	Cassiaru
Spart-junc	Ginestra comune	Inestra, mangiacrapari
Vic-fab	Fava	Favi
Vic-pseud	Veccia assottigliata	Veccia
Cast-sat	Castagno comune	Castagnara, castagnu, virghedda
Fag-syl	Faggio occidentale, Faggio	Fagu
Querc-pub	Quercia pubescente, Quercia virgiliana, Quercia sicula, Roverella	Quercia
Jugl-reg	Noce comune	Nucara
Clin-nep	Clinopodio nepeta	Niputedda
Lavan-ang	Lavanda vera	-
Ment-suav	Menta a foglie rotonde	-
Ment-piper	Menta piperita	-
Ocim-basil	Basilico	Basilicu
Orig-vulg	Origano	Riiniu
Salv-off	Salvia domestica	-
Salv-rosm	Rosmarino	Rosamarinu, rosmarinu
Stach-rom	Stregonia comune	Basilico selvatico
Thym-vulg	Timo volgare	-

Laur-nob	Alloro	Afru, auru, lauru
Punic-gran	Melograno	Granatu
Malv-syl	Malva selvatica	-
Fic-caric	Fico	Fica, ficara, ficazzara
Eucal-camal	Eucalipto di Camaldoli	Calibs
Myrt-comm	Mirto	Mirtu
Olea-eur	Olivo	Livara, ulivu
Oxal-lat	Acetosella a coda di pesce	Castagnedi
Oxal-pes	Acetosella gialla	Acitusa, citusella
Papav-rho	Papavero comune	Paparina, papavaru
Phyto-amer	Cremesina uva turca	Aricenera
Plant-lanc	Piantaggine lanciuola	Lingua di cane
Plant-serr	Piantaggine seghettata	Piantagini
Arun-don	Canna domestica	Canni, cannizzu
Ave-bar	Avena barbata	-
Cynod-dact	Gramigna rampicante	-
Hord-mur	Orzo selvatico	-
Zea-may	Granoturco	Paniculu, pannocchia
Polyp-camb	Polipodio meridionale	Falsa liquirizia
Portul-oler	Porcellana comune	Porcellana
Clem-vit	Clematide vitalba	Cromadera
Zizi-juj	Giuggiolo comune	Zinzola

Cydon-obl	Cotogno	Cutugnu
Frag-vesc	Fragolina di bosco	Famomireya, fraula
Prun-avi	Ciliegio	-
Rosa-sp	Rosa	-
Rub-ulm	Rovo comune	mureddi
Gal-spur	Caglio campestre	Attaccamani, attaccavesta
Gard-jasmin	Gardenia	-
Citr-auran	Arancio amaro	Rangara
Citr-lim	Limone	limuni
Salix-alb	Salice comune	Salacaru, salici
Verbas-sin	Verbasco sinuoso	Lattugaccio
Caps-ann	Peperoncino	Pipigrasta, pipi brucenti
Cestr-par	Cestro	Feturìa
Solan-lyco	Pomodoro	Pumadora, pumaroru
Solan-melon	Melanzana	Mulingiana
Solan-tuber	Patata	-
Solan-vill	Morella rossa	Pomodori di culo
Tam-gall	Tamerice comune	Bruchi
Pariet-jud	Vetriola minore	Erba di vento, erba i muru, fogghi i ventu
Urt-dio	Ortica comune	Ardica, ndriga, urtica
Urt-membr	ortica membranacea	Ardica
Samb-nigr	Sambuco comune	Sambuca, sambucu, sanbucu

Viol-odor	Viola mammola	Violi
Vit-vinif	Vite comune	Viti

name, local dialect name, biological form and growth mode, chorological type, origin, tipe of use, purposes, p
nophytes lianose; P scap- Pharenophytes scapose; P succ- Pharenophytes succulent; T scap- Therophytes scapc
I: Cultural Importance Index. RI: Relative Importance index; UV: Use Value. *The numbers in brackets repres

Biological form and growth mode	Corological type	Origin
Ch suffr	11. Alien	A
T scap	11. Alien	A
T scap	11. Alien	A
T scap	9. Cosmop.	N
G bulb	5. Eurasiat.	A
G bulb	10. Cultivated	A
G bulb	2. Stenomedit.	N
G bulb	5. Eurasiat.	N
H scap	2. Stenomedit.	N
H scap	2. Stenomedit.	N
Ch suffr	2. Stenomedit.	N
T scap	9. Cosmop.	N
H scap	3. Eurimedit.	N
H bienn	10. Cultivated	A

P caesp	9. Cosmop.	A
NP	2. Stenomedit.	N
G rhiz	3. Eurimedit.	N
Ch frut	3. Eurimedit.	N
NP	10. Cultivated	A
G rhiz	3. Eurimedit.	N
H ros	5. Eurasiat.	N
Ch suffr	6. Atlant.	N
H bienn	5. Eurasiat.	N
P caesp	5. Eurasiat.	N
H scap	2. Stenomedit.	N
H scap	9. Cosmop.	N
T scap	2. Stenomedit.	A
T scap	*2. Stenomedit.*	*N*
H bienn	5. Eurasiat.	N
H scap	2. Stenomedit.	N
T scap	3. Eurimedit.	N
T scap	2. Stenomedit.	N
H ros	5. Eurasiat.	N
H bienn	10. Cultivated	N
T scap	9. Cosmop.	N
H scap	2. Stenomedit.	N
H scap	2. Stenomedit.	N
H bienn	2. Stenomedit.	N
H bienn	9. Cosmop.	N
T scap	5. Eurasiat.	N

H bienn	9. Cosmop.	N
T scap	2. Stenomedit.	N
H scap	2. Stenomedit.	N
Ch suffr	10. Cultivated	A
T scap	5. Eurasiat.	N
T scap	10. Cultivated	A
H scap	5. Eurasiat.	N
T scap	9. Cosmop.	N
T scap	2. Stenomedit.	N
P succ	11. Alien	A
H scap	9. Cosmop.	N
G rhiz	9. Cosmop.	N
T scap	10. Cultivated	A
T scap	10. Cultivated	A
T scap	10. Cultivated	A
T scap	11. Alien	A
G rhiz	8. Circumbor.	N
P caesp	2. Stenomedit.	N
P scap	11. Alien	A
P scap	2. Stenomedit.	A
Ch suffr	2. Stenomedit.	N
P caesp	1. Endem.	N

P scap	11. Alien	A
P caesp	3. Eurimedit.	N
T scap	10. Cultivated	A
T scap	2. Stenomedit.	N
P scap	5. Eurasiat.	N
P scap	5. Eurasiat.	N
P scap	5. Eurasiat.	N
P scap	10. Cultivated	C
Ch suffr	2. Stenomedit.	N
P caesp	2. Stenomedit.	N
H scap	3. Eurimedit.	N
H scap	5. Eurasiat.	N
T scap	10. Cultivated	A
H scap	5. Eurasiat.	N
Ch suffr	2. Stenomedit.	N
P caesp	2. Stenomedit.	N
T scap	2. Stenomedit.	N
Ch suffr	10. Cultivated	N

P scap	2. Stenomedit.	N
P scap	10. Cultivated	N
T scap	5. Eurasiat.	N
P scap	3. Eurimedit.	N
P scap	11. Alien	A
P caesp	2. Stenomedit.	N
P scap	2. Stenomedit.	N
G bulb	11. Alien	A
G bulb	11. Alien	A
T scap	3. Eurimedit.	C
G rhiz	11. Alien	A
H ros	9. Cosmop.	N
H ros	2. Stenomedit.	N
G rhiz	11. Alien	A
T scap	3. Eurimedit.	N
H rept	9. Cosmop.	N
T scap	8. Circumbor.	N
T scap	10. Cultivated	A
H ros	3. Eurimedit.	N
T scap	9. Cosmop.	C
P lian	5. Eurasiat.	N
P scap	10. Cultivated	A

P scap	10. Cultivated	A
H rept	5. Eurasiat.	N
P scap	10. Cultivated	N
NP	10. Cultivated	N
P caesp	3. Eurimedit.	N
T scap	5. Eurasiat.	N
NP	10. Cultivated	A
P scap	10. Cultivated	A
P scap	10. Cultivated	A
P scap	5. Eurasiat.	N
H bienn	3. Eurimedit.	N
T scap	10. Cultivated	A
NP	11. Alien	A
T scap	10. Cultivated	A
T scap	10. Cultivated	A
T scap	10. Cultivated	A
T scap	3. Eurimedit.	N
P scap	2. Stenomedit.	N
H scap	3. Eurimedit.	N
H scap	9. Cosmop.	N
T scap	5. Eurasiat.	N
P caesp	5. Eurasiat.	N

H ros	3. Eurimedit.	N
P lian	9. Cosmop.	N

art of the plant used and several indexes (U, UR, FC, RFC, CI, RI, UV). Biological form and growth m
ose. Chorological type = 1. - Endemic; 2. -Stenomediterranean; 3. - Eurimediterranean; 4. - Mediterran
sent the disease groups to which the medicinal purposes mentioned belong, in according to Cook (1995

Tipe of Use	Purposes	Part of the plant used
Ornamental	Garden decoration	Whole plant
Alimentary	Omelettes	Aerial parts
Alimentary	Side dishes	Leaves
Alimentary	Side dishes	Leaves
Medicinal	Anti-inflammatory(2)*	Bulbs
Medicinal	Anti-inflammatory(2), decongestant(5), painkiller(1), regulating blood pressure(7)	Bulbs
Alimentary	Flavouring dishes	Whole plant
Alimentary	Flavouring dishes	Bulbs
Medicinal	Anti-flu(3)	Seeds
Alimentary	Flavouring dishes, liquor (fruits); garnish (leaves)	Fruits, leaves
Medicinal	Anti-acid(1), expectorant(5) (leaves); digestive(1), diuretic(4) (fruits); painkiller(2) (aerial parts)	Aerial parts, fruits, leaves
Alimentary	Salads, side dishes	Aerial parts
Alimentary	Hot drink (aerial parts), side dish (leaves)	
Medicinal	Antihemorrhoidal(2) (aerial parts), painkiller(1) (leaves)	Aerial parts, leaves
Alimentary	Side dishes	Leaves
Medicinal	Abortive(4) (leaves); laxative(1) (stems)	Leaves, stems
Magical	Against the evil eye	Whole plant

Medicinal	Healing(2), painkiller(2)	Leaves
Religious	Crown of thorns	Aerial parts
Alimentary	Omelettes	Asparagus spears
Alimentary	Preserves, side dishes	Shoots
Handicraft	Pesticide	Branches
Medicinal	Anti-inflammatory(2)	Leaves
Alimentary	Side dishes	Shoots
Medicinal	Diuretic(4)	Leaves
Cosmetic	Body cleansing	Aerial parts
Handicraft	Colouring agent	Aerial parts
Medicinal	Painkiller(1)	Aerial parts
Agro-pastoral	Tying the vine	Stems
Alimentary	Snacks	Aerial parts
Forage	Feeding for farm animals	
Alimentary	Side dishes (leaves), snackss (inflorescences)	Inflorescences, leaves
Alimentary	Snacks	Inflorescences
Alimentary	Omelettes	Aerial parts
Medicinal	Sedative(6)	
Alimentary	Side dishes	Leaves
Alimentary	Preserves	Aerial parts
Alimentary	Side dishes	Leaves
Medicinal	Anti-acid(1), antidiabetic(9)	
Alimentary	Side dishes	Leaves
Alimentary	First dishes, side dishes	Leaves
Medicinal	Anti-inflammatory(2)	Leaves
Medicinal	Anti-inflammatory(2), digestive(1), diuretic(4)	Aerial parts
Alimentary	Salads, side dishes	Aerial parts
Alimentary	Salads, side dishes	Aerial parts, leaves
Alimentary	Cheese productions, side dishes	Aerial parts, inflorescences
Medicinal	Antipyretic(3), antispasmodic(1), diuretic(4), painkiller(1)	Leaves
Alimentary	Salads, side dishes	Aerial parts, leaves

Alimentary	Side dishes	Leaves
Medicinal	Anti-acid(1)	Stems
Alimentary	Fillings (aerial parts); omelettes, salads (whole plant); side dishes(leaves)	Aerial parts, leaves, whole plant
Alimentary	Soups	Leaves
Alimentary	Snacks	Stems
Medicinal	Painkiller(2)	Leaves
Alimentary	Side dishes, soups	Leaves
Alimentary	First dishes, omelettes, side dishes	Branches
Alimentary	Side dishes	Leaves
Alimentary	Side dishes	Leaves
Alimentary	Omelettes, side dishes	Aerial parts
Agro-pastoral	Windbreak	Whole plant
Alimentary	Beverages (inflorescences); liquors (fruits); omelettes, salads, side dishes (cladodes)	Cladodes, fruits, inflorescences
Handicraft	Production of dishes	Cladodes
Cosmetic	For varicose veins	Cladodes
Medicinal	Anti-inflammatory(2) (aerial parts); painkiller(2) (cladodes)	Aerial parts, cladodes
Alimentary	Side dishes	Shoots
Ornamental	Home decoration	Whole plant
Cosmetic	For dark circles under the eyes	Fruits
Medicinal	Anthelmintic(1)	Seeds
Alimentary	Side dishes	Aerial parts
Alimentary	Side dishes	Fruits
Alimentary	Beverages	Aerial parts
Medicinal	Diuretic(4)	Leaves
Alimentary	Jams, snacks	Fruits
Handicraft	Soaps	
Cosmetic	Facial cleansing	Fruits
Medicinal	Laxative(1)	
Alimentary	Bread substitutes, flavouring dishes, snacks	Fruits
Alimentary	Side dishes	Whole plant
Ornamental	Bouquets	Aerial parts

Agro-pastoral	Boundary delimitation, reducing landslides	Whole plant
Alimentary	Desserts	Aerial parts
Handicraft	House beams	Stems
Forage	Rabbit food	Leaves
Handicraft	Brooms (aerial parts); textile (branches)	Aerial parts,branches
Magical	Verruchicide	Branches
Alimentary	First dishes, side dishes	Fruits
Alimentary	First dishes	Fruits
Agro-pastoral	Fertiliser	Leaves
Handicraft	Drying tables(stems); lobster pots (branches); baskets (stems)	Branches, stems
Alimentary	Snacks	Fruits
Alimentary	Coffee substitutes	Fruits
Alimentary	Liquor	Fruits
Domestic	Pesticide	Leaves
Medicinal	Anti-inflammatory(2) (leaves); healing(2) (aerial parts)	Aerial parts, leaves
Alimentary	Flavouring dishes	Aerial parts
Cosmetic	Perfumes	Inflorescences
Medicinal	Anti-acid(1)	Leaves
Alimentary	Desserts, flavouring dishes	
Medicinal	Anti-acid(1), digestive(1), expectorant(5)	Leaves
Alimentary	Liquor	Leaves
Medicinal	Digestive(1)	
Alimentary	Flavouring dishes	Leaves
Alimentary	Side dishes	
Medicinal	Analgesic(3), anti-inflammatory(2), digestive(1), diuretic(4), expectorant(5)	Leaves
Medicinal		
Alimentary	Flavouring dishes	
Medicinal	Digestive(1), expectorant(5)	Leaves
Alimentary	Flavouring dishes	Leaves
Medicinal	Expectorant(5)	Leaves
Alimentary	Flavouring dishes, liquor	

Domestic	Room, soap and laundry perfumer	Leaves
Medicinal	Anti-inflammatory(1), digestive(1), diuretic(4), expectorant(5)	
Alimentary	Beverages	Fruits
Medicinal	Anti-inflammatory(2), digestive(1), diuretic(4), painkiller(2) (aerial parts); expectorant(5) (roots)	Aerial parts, roots
Alimentary	Cheese productions, thickener (branches); jams, snacks (fruits)	Branches, fruits, leaves
Handicraft	Containers	Leaves
Medicinal	Expectorant(5)	Fruits
Cosmetic	Perfumes	Leaves
Alimentary	Liquors	Fruits
Handicraft	Brooms	Pollen
Medicinal	Regulation of blood pressure(7)	Leaves
Alimentary	Snacks	Bulbs
Alimentary	Beverages, snacks	Stems
Alimentary	Salads, side dishes	Inflorescences
Medicinal	Relaxing	Leaves
Handicraft	Colouring agent	Fruits
Medicinal	Anti-inflammatory(2)	Leaves
Alimentary	Side dishes	Leaves
Handicraft	Basket production, grating 'cannicciata', spit for stacking dry food	Stems
Ludic	Outdoor game	Whole plant
Medicinal	Anti-inflammatory(5), Expectorant(5) (roots); Diuretic(4) (branches); Painkiller(1) (aerial parts)	Aerial parts,branches, roots
Medicinal	Expectorant(5)	Aerial parts
Handicraft	Mattress fillings	Brats, leaves
Ludic	Dolls (corncobs)	Inflorescences
Medicinal	Kidney depurative(1)	Aerial parts
Alimentary	Flavouring dishes	Leaves
Alimentary	Salads, side dishes	Aerial parts
Alimentary	Side dishes	Leaves
Alimentary	Snacks	Fruits

Medicinal	Expectorant(5)	Fruits
Alimentary	Desserts, liquors, jams	Fruits
Medicinal	Diuretic(4)	Pedunculus
Alimentary	Liquors, snacks	Inflorescences
Cosmetic	Perfumes (rosewater)	
Alimentary	Desserts, jams, syrups	Fruits
Cosmetic	Facial cleansing	
Medicinal	Anti-inflammatory(2)	
Alimentary	Liquors	Aerial parts
Domestic	Environmental perfumer	Aerial parts
Alimentary	Beverages	Fruits
Alimentary	Thickener	Fruits
Handicraft	Basket production	Branches
Alimentary	Side dishes	Leaves
Ornamental	Home decoration	
Alimentary	Jams	Fruits
Magical	Against the evil eye	
Medicinal	Anti-inflammatory(2), painkiller(8)	
Agro-pastoral	Boundary delimitation	Whole plant
Cosmetic	Pimples maturation	Fruits
Domestic	Washing dishes	
Alimentary	Omelettes (fruits), snacks (pedunculus)	Fruits, pedunculus
Handicraft	Colouring agent	Fruits
Medicinal	Analgesic(3), antihemorrhoidal(2), antipyretic(3), painkiller(3), post-trauma light eye healing(2)	Tubers
Alimentary	Snacks	Fruits
Ornamental	Garden decoration	Whole plant
Domestic	Degreaser, washing dishes	Leaves
Medicinal	Anti-itch(2), anti-allergic(2), painkiller(1)	
Agro-pastoral	Fertiliser	Aerial parts
Alimentary	First dishes, omelettes	Leaves
Cosmetic	Hair mask	
Medicinal	Antipyretic(3), diuretic (4), painkiller(1)	
Alimentary	Side dishes	Leaves
Alimentary	Flavouring dishes, omelettes, syrup (aerial parts); liquors (fruits)	Aerial parts, fruits
Cosmetic	Soap	Aerial parts

Medicinal	Burns remedy (2)	Branches
Medicinal	Decongestant(5), expectorant(5)	Aerial parts
Alimentary	Fillings rolls	Leaves
Cosmetic	For varicose veins (leaves); hair products (branches)	Branches, leaves

node= Ch frut- Chamaephytes fruticose; Ch suffr- Chamaephytes suffruticose; G rhiz- Geophytes rizhomatose; H bienn
ean-Montain; 5. - Eurasiatic; 6. - Atlantic; 8. -Circumboreal; 9. -Cosmopolitan; Alien; Criptogenic; Cultivated. Origin=
): 1—Digestive system diseases; 2—Skin-ears-eyes-hair diseases and wounds; 3—Systemic diseases; 4—Genito-urina

Basic value			Indexes		
U	**UR**	**FC**	**RFC**	**CI**	**RI**
1	1	1	0.02	0.07	0.35
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.05	0.38
1	1	1	0.02	0.02	0.14
1	6	3	0.05	0.10	0.22
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14
2	22	11	0.19	0.37	0.72
1	2	1	0.02	0.03	0.14
2	4	3	0.05	0.07	0.37
1	2	1	0.02	0.03	0.14
1	3	2	0.03	0.07	0.18

2	3	1	0.02	0.07	0.24
1	1	1	0.02	0.03	0.28
1	1	1	0.02	0.07	0.25
2	3	3	0.05	0.05	0.32
1	4	4	0.07	0.07	0.25
1	4	4	0.07	0.02	0.14
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14
3	3	2	0.03	0.05	0.22
1	3	3	0.05	0.02	0.14
1	1	1	0.02	0.02	0.14
2	2	1	0.02	0.03	0.24
1	2	2	0.03	0.03	0.18
1	1	1	0.02	0.02	0.14
2	3	3	0.05	0.05	0.32
1	1	1	0.02	0.02	0.14
1	7	6	0.10	0.12	0.33
1	1	1	0.02	0.02	0.14
1	5	1	0.02	0.09	0.14
1	3	2	0.03	0.05	0.18
1	4	3	0.05	0.07	0.22
1	2	2	0.03	0.03	0.18
1	4	1	0.02	0.07	0.14
1	3	3	0.05	0.05	0.24

2	4	4	0.07	0.07	0.35
1	7	5	0.08	0.02	0.14
1	1	1	0.02	0.03	0.28
2	2	2	0.03	0.03	0.18
1	2	2	0.03	0.05	0.14
1	3	1	0.02	0.07	0.45
1	1	1	0.02	0.02	0.14
1	2	2	0.03	0.03	0.18
1	2	2	0.03	0.03	0.18
5	11	6	0.10	0.19	0.73
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14
2	2	2	0.03	0.03	0.28
1	2	2	0.03	0.03	0.18
3	3	1	0.02	0.05	0.34
1	3	2	0.03	0.03	0.18
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14

4	6	5	0.08	0.10	0.59
2	3	3	0.05	0.05	0.32
1	4	2	0.03	0.07	0.18
1	1	1	0.02	0.02	0.14
2	5	4	0.07	0.05	0.28
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14
2	3	3	0.05	0.05	0.32
1	7	7	0.12	0.10	0.33
2	3	1	0.02	0.05	0.24
1	1	1	0.02	0.14	0.45
2	8	4	0.07	0.02	0.14
2	3	1	0.02	0.05	0.24
1	2	1	0.02	0.03	0.14
2	8	6	0.10	0.14	0.48
2	3	2	0.03	0.05	0.28
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14

3	21	13	0.22	0.37	0.80
1	1	1	0.02	0.02	0.14
1	5	4	0.07	0.09	0.25
3	12	9	0.15	0.20	0.65
1	1	1	0.02	0.02	0.14
1	2	1	0.02	0.03	0.14
2	2	2	0.03	0.03	0.28
1	1	1	0.02	0.02	0.14
1	2	2	0.03	0.03	0.18
2	3	3	0.05	0.05	0.32
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14
1	3	3	0.05	0.05	0.22
1	1	1	0.02	0.12	0.29
1	5	3	0.05	0.09	0.22
1	1	1	0.02	0.02	0.14
3	6	6	0.10	0.07	0.45
1	1	1	0.02	0.02	0.14
1	2	2	0.03	0.03	0.18
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14

1	1	1	0.02	0.02	0.14
1	3	2	0.03	0.05	0.28
1	1	1	0.02	0.02	0.14
2	4	3	0.05	0.07	0.32
3	13	6	0.10	0.20	0.53
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.05	0.14
1	3	1	0.02	0.05	0.14
1	1	1	0.02	0.02	0.14
2	2	1	0.02	0.03	0.24
3	4	4	0.07	0.02	0.14
1	2	2	0.03	0.02	0.14
2	4	4	0.07	0.07	0.45
2	3	2	0.03	0.05	0.28
1	7	7	0.12	0.12	0.37
1	1	1	0.02	0.02	0.14
1	1	1	0.02	0.02	0.14
2	4	3	0.05	0.03	0.28
4	8	5	0.08	0.14	0.59
1	1	1	0.02	0.02	0.14
3	9	5	0.08	0.17	0.59

1	2	1	0.02	0.03	0.14
2	4	3	0.05	0.07	0.32

ı-
= A: Alien; N:
ıry system

UV
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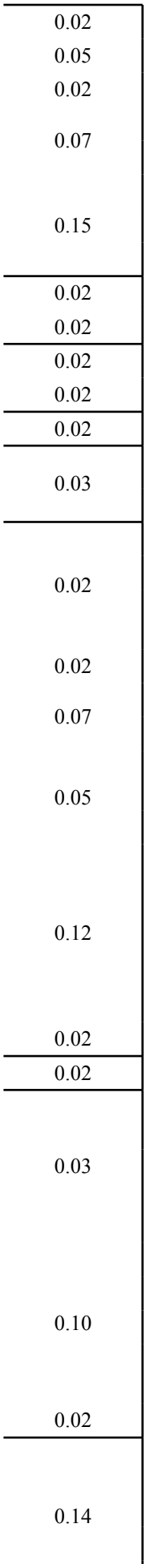

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