Ethnobotanical research in Cava de’ Tirreni area, Southern Italy

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Abstract

Background: To the best of our knowledge, this is the first quantitative ethnobotanical study with the aim of documenting the local knowledge and practices of using plants for curing diseases in the Cava de’ Tirreni area, Salerno Province, Campania Region, Italy. The present ethnobotanical field study, carried out during 2016–2017, documents the local uses of 119 plant species for medicinal, food and domestic purposes.

Methods: Ethnobotanical data were documented from 70 informants: field data were collected and information on the uses of plants was gathered through semi-structured and structured interviews with persons who still retain traditional ethnobotanical knowledge. Documented data were evaluated using the quantitative ethnobotanical index of use value (UV).

Results: Overall, the informants native of the area were interviewed and 277 use-reports have been recorded. The scientific names, local names, plant part used, preparation and administration processes are reported and compared with practices in other Southern Italian regions. In total, 101 species are documented as medicinal, 36 as food or food aromatizer, 29 for domestic and handicraft uses, 10 in veterinary medicine. More or less 64% of all species have more uses and over half of the food plants (23 species) are also used for medicinal purposes.

Conclusions: The comparison of the documented species and their uses with ethnobotanical literature of other Italian regions reveals that the traditional plant knowledge in this area shows strong similarities with adjacent Southern Italian areas. Some of the recorded species and administration processes however seem to be unique for the zone.

Keywords: Traditional medicine, Cava de’ Tirreni, Ethnobotany, Ethnopharmacology, Traditional uses

Background

Since ancient times medicinal plants belonged to the history of the man who tried to insert them in the context in which he lived. The ecology of Mediterranean area, inhabited for millennia, has been strongly influenced by human–nature relationships, increasing the variability of landscapes [1]. Ethnobotanical studies show that traditional plant knowledge still survives in different areas of the Mediterranean region, particularly among seniors [2, 3]: in this area, numerous plants are widespread and used by people in different, complex, and evolving ways. But the comprehension of these processes is still basic [4] and the ethnobotanical research goes on to find novel or unusual employments of also well-known medicinal plants [4]: in this way, the ethnobotanical use of a plant becomes a continuous developing process, influenced by environmental and cultural factors.

The aims of this study are to deepen the ethnobotanical knowledge of the Cava de’ Tirreni area (Campania, Southern Italy), for saving and comprehending this precious information. Specifically, the finalities of our research are to (i) improve and conserve knowledge about the traditional plant uses in the Cava de’ Tirreni area and (ii) explore the gathered data, comparing them with ones present in ethnobotanical bibliography of other Southern Italian regions, to find possible linkages with other nearby areas.
Methods
Study area
The Cava de’ Tirreni area (Campania, Southern Italy, Fig. 1) is surrounded by two vast mountain ranges, in Northern and Southern directions, at a latitude of 40° and 40’ north and a longitude of 32° and 20’ East, (200 m a.s.l.). This area spread over 35 km², at the Northern borders of Salerno Province. We focused our research in this area because of its isolation and its economy, which is still partially based on small-scale agricultural and pastoral activities. We believe that this mountainous locality represents a potential interesting area for conducting studies on traditional ethnobotanical knowledge.

The area has a Mediterranean climate, with hot summers and wet winters. The coldest months are January and February with temperatures of 7.9 °C and 8.6 °C, while the hottest months are July and August with temperatures of 31.6 °C and 31.2 °C. The annual rainfall average is 1025 mm for 106 rainy annual days [5].

The area of Cava de’ Tirreni has been populated since ancient times, with a large part of its surface characterized by cultivations. Within cultivated species, the most important horticultural plants are belonging mainly to Solanaceae, Fabaceae, and Brassicaceae families and fruit plants belonging to Rosaceae. *Morus* spp., *Ficus carica* L., *Punica granatum* L., and *Diospyros kaki* Thunb. *J. regia* and *Corylus avellana* L. are also widespread, as well as *Citrus limon* (L.) Burm. f. Osbeck, *Citrus aurantium* var. *dulcis* L., and *Citrus reticulata* Blanco. Also, the cultivation of *Vitis* L., with different varieties, is diffused.
Besides cultivated fields, the area is also characterized by natural vegetation with a high level of biodiversity: this reflects both the presence of different substrates, such as limestone and thick soils of volcanic origin, and the presence of numerous microclimates, due to the fact that the area includes altitudinal bands ranging from 200 to 1000 m above sea level and exposed slopes in all directions [5].

The natural vegetation comprises a mosaic of woodlands and shrubland vegetation (maquis and garrigue). Typical woody species are Alnus cordata (Loisel.) Desf., Acer opalus subsp. obtusatum (Waldst. and Kit. ex Willd.) Gams, Quercus pubescens Willd., Olea europaea L., and Ceratonia siliqua L in the woodlands and Myrtus communis L., Pistacia lentiscus L., Rosmarinus officinalis L., Helichrysum italicum (Roth) G. Don, Juniperus phoenicea L., in the shrubland vegetation.

Ethnobotanical methods
Field data were collected, in several time intervals, during the period April 2016–October 2017 and ethnobotanical information on the applications of studied plants were gathered through semi-structured and structured interviews with people who actually know local traditions [1].

The selection of people was made at random among the oldest persons who still conserve traditional knowledge about medicinal plants [6].

In the beginning part of the field study, people were invited to name all medicinal and useful plants and remedies utilized in the past. Other accurate information were registered in a second phase, through structured interviews with the aim to complete a suitable questionnaire [7] (Additional file 1).

The interviewed people were asked to provide a fresh specimen of each plant cited for systematic identification, to call it in the local dialect (Salernitan dialect of Italian language) and to show its properties, ways of administrations, and employments (in human and veterinary medicine, as human food and animal feed, in the agricultural, domestic, or handicraft fields). A fresh sample of each plant was shown to the informants to avoid a misidentification of the species [8]. In some cases, it has been asked to interviewees to show the objects named during the conversation, as crates, brooms, hand tools, and sticks. If a plant was cited without having any herbal specimen, the informant was invited to go to the field and show the named species. A careful control analysis has been made after collecting the data and identifying the species, to avoid of including non-traditional information, for example originated from books or audiovisual materials.

The informants interviewed were 70 (29 men, 41 women), whose ages ranged from 50 to 95 years, and belonged to families more representative of the area. Most of the interviewees (59) were aged over 60, of whom 40 were between 60 and 69, 18 between 70 and 90, and 1 was over 90 years old. Among the informants, 25 were farmers; the others were employed in the construction, restaurants, and sheep-farming. They all were born and inhabited in the studied area for many years. The informants know that the information they furnished will be published.

The methodology employed in this study uses the qualitative data of classical ethnobotanical-systematic research on plants, and the numerical quantitative data of consensus, following the guides for ethnobotanical studies [7–10].

The results of the present work are compared to ethnobotanical data of contiguous zones, to confirm the medicinal uses or report some differences [5, 6, 11–29].

Voucher herbarium specimens were compressed, classified, dried and stored in the Herbarium of the Medical Botany Chair at the University of Salerno. The volumes of Flora di Pignatti [30] were used for the classification and nomenclature of plants: finally, all the names were updated using the site http://www.theplantlist.org/.

Data analysis
We utilized the use value to calculate the most frequently used plants. The use value [31] was calculated to determine the relative importance of a species according to the following formula:

\[
UV = \frac{U}{N}
\]

where, UV is the use value of the species, U is the number of informants, and N is the total number of informants.

Results and discussion
The list of the useful and medicinal plants and their uses are presented in Table 1. For each plant, the following information are provided: botanical name and family, voucher specimen number, local name, part used and prescription, and use value. The research led to the identification of 119 plants belonging to 52 families, of which the more widely represented are Asteraceae (16), Lamiaceae (11), Brassicaceae (6), Solanaceae (6), Umbelliferae (5). This survey revealed that the majority of species have been reported in ethnobotanical literature: for few others, the cited uses are present only in the traditional knowledge of this area. The plant uses can be divided into four main categories: plants for (i) medicinal use (101 species, 197 uses), (ii) veterinary use, including plants used as feed (10 species, 13 uses), (iii) human food and food aromatizer (36 species, 37 uses), and (iv) domestic and handicrafts use (29 species, 30 uses).
| Family/species (Herbarium number) | Salernitan name | Parts used | Uses recorded                                                                                                                                                                                                 | UV  |
|---------------------------------|----------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| **Aceraceae**                   |                |            |                                                                                                                                                                                                               |     |
| *Acer campestre* L. (Mattia 094) | Nocefragola   | Wood       | Dom: the wood is used to make tool handles, toys, “ciaramella” (typical musical instrument) and “ziccaro” (bird-call). Med: the decoction is used in the treatment of amenorrhea and as an abortive. | 0.171 |
|                                |                |            | Med.: the decoction is used as a lenitive for burns; mixed with olive oil or beeswax, it is claimed to act as a cicatrizier. Leaves                                                                                      | 0.042 |
| **Adoxaceae**                   |                | Bark       |                                                                                                                                                                                                               |     |
| *Sambucus nigra* L. (Mattia 011) | Savùco        | Bark       | Med.: boiled in water, it is used as a lenitive for burns; mixed with olive oil or beeswax, it is claimed to act as a cicatrizier. Med.: crushed, they are applied as a lenitive for burned skin. | 0.528 |
|                                |                |            | Med.: a poultice, prepared also with leaves of *Parietaria officinalis* and *Vincetoxicum hirundinaria*, is used topically against leg edemas. Fruits: fresh leaves are eaten cooked with eggs. |     |
|                                |                |            | Med.: a poultice in olive oil with beeswax is claimed to be an anti-inflammatory in case of traumas. Med.: a decoction is employed as a febrifuge. Inflorescences: | 0.457 |
|                                |                |            | Med.: an infusion is drunk to treat joint inflammations. Med.: An infusion is claimed to cure the female sterility. Med.: used in the preparation of the decoction called “o’ ricotto”. | 0.342 |
| **Araceae**                     |                | Rhizome    | Med.: topically, it used as a skin decongestant.                                                                                                                                                               | 0.029 |
| *Arum italicum* Miller (Mattia 043) | Pane ‘e serpe | Aerial parts | Med.: boiled until the leaves become a gel and this is used topically as an anti-rheumatic.                                                                                                                                 | 0.185 |
| **Araliaceae**                  |                | Fresh leaves |                                                                                                                                                                                                               |     |
| *Hedera helix* L. (Mattia 116)  | Ellera        | Fresh leaves | Med.: boiled until the leaves become a gel and this is used topically as an anti-rheumatic.                                                                                                                                 | 0.185 |
| **Asclepiadaceae**              |                |            |                                                                                                                                                                                                               |     |
| *Vincetoxicum hirundinaria* Medik (Mattia 108) | Fetenti | Fresh leaves | Med.: a poultice in olive oil with beeswax is claimed to be an anti-inflammatory in case of traumas. Med.: a decoction is used as a gargle for toothache. Dom.: a water maceration with *Urtica dioica* leaves is sprayed on the vegetables to send away insects. | 0.214 |
| **Aspleniaceae**                |                |            |                                                                                                                                                                                                               |     |
| *Ceterach officinarum* DC. (Mattia 182) | Spaccaprete | Aerial parts | Med.: a decoction is used as an expectorant.                                                                                                                                                                 | 0.314 |
| **Boraginaceae**                |                | Aerial parts |                                                                                                                                                                                                               |     |
| *Borago officinalis* L. (Mattia 186) | Verraccine; Vurràina | Aerial parts | Food: cooked in salads or with eggs. Med.: a decoction is used as a diuretic.                                                                                                                                 | 0.557 |
| *Symphytum tuberosum* L. (Mattia 047) | Cugliunciello | Roots       | Med.: the minced roots are applied externally to resolve contusions and wounds.                                                                                                                                 | 0.414 |
| **Cactaceae**                   |                | Branches    | Med.: the inner gel is used as lenitive for skin.                                                                                                                                                               | 0.328 |
| *Opuntia ficus-indica* (L.) Mill. | Figurine       | Branches    | Med.: the inner gel is used as lenitive for skin.                                                                                                                                                               | 0.271 |
| **Cannabaceae**                 |                |            |                                                                                                                                                                                                               |     |
| *Cannabis sativa* L. (Mattia 034) | Canapa        | Branches    | Dom.: mixed with eggs, the fibers were used to make bandages. Dom.: they are used as textile fibers for rope production.                                                                                                                                 | 0.614 |
| **Capparaceae**                 |                |            |                                                                                                                                                                                                               |     |
| *Capparis spinosa* L. (Mattia 144) | Chiapparo   | Buds        | Food: used to aromatize foods.                                                                                                                                                                                  | 0.728 |
| **Caryophyllaceae**             |                |            |                                                                                                                                                                                                               |     |
| *Saponaria officinalis* L.      | Erva saponara  | Leaves      | Dom.: fresh leaves are used to clean hands, especially after tobacco                                                                                                                                            | 0.771 |

**Table 1**: Plants traditionally used in Cava de’ Tirreni
Table 1  Plants traditionally used in Cava de’ Tirreni (Continued)

| Family/species (Herbarium number) | Salernitan name | Parts used | Uses recorded                                                                 | UV  |
|------------------------------------|-----------------|------------|-------------------------------------------------------------------------------|-----|
| **Compositae**                     |                 |            |                                                                               |     |
| **Achillea millefolium** L. (Mattia 055)** | Troneto        | Flowering tops | Food: used for preparation of liqueurs. Dom.: to make brooms. Med.: the inhalation of its decoction is claimed to possess vermifuge activity. Med.: used in the preparation of the decoction called “o’ ricotto”. | 0.285 |
| *Artemisia absinthium* L. (Mattia 078)** | Nascienzo      | Fresh leaves | Med.: a decoction is claimed to be an anti-diabetic. Food: used for preparation of liqueurs. | 0.785 |
| **Bells perennis** L. (Mattia 005)** | Margherita sarvatica | Flower heads | Dom.: a maceration is used to prepare a cosmetic scented water. Med.: a decoction is claimed to be febrifuge. | 0.185 |
| **Cichorium intybus** L. (Mattia 063)** | Ciconia         | Aerial parts | Food: cooked in preparation of “minestra marinata”. Med.: a decoction is used as a laxative. Med.: a decoction is claimed to be a liver depurative. | 0.685 |
| **Centaurea benedicta** L. (Mattia 046)** | Cardogna        | Aerial parts | Feed: they are used as a special feed for donkeys. | 0.271 |
| **Condilis junca** L. (Mattia 163)** | Lattarole       | Aerial parts | Food: cooked in preparation of “minestra marinata”. | 0.514 |
| **Crepis vesicaria** L. (Mattia 187)** | Lattarole       | Aerial parts | Food: cooked in preparation of “minestra marinata”. | 0.514 |
| **Cynara cardunculus** ssp. scolymus (L.) Hayek (Mattia 009)** | Carcioffa | Leaves | Med.: a decoction is used in treatment of liver disease. | 0.314 |
| **Helminthotheca echoides** (L.) Holub (Mattia 098)** | Lattarole       | Aerial parts | Food: cooked in preparation of “minestra marinata”. | 0.514 |
| **Lactua sativa** L. (Mattia 114)** | Nzalata         | Leaves     | Med.: boiled leaves are used topically in case of toothache. | 0.557 |
| **Matricaria chamomilla** L. (Mattia 133)** | Camumirra       | Flowering heads | Med.: an infusion with *Laurus nobilis* leaves is used topically for edemas. Med.: a poultice is used topically as an eye anti-inflammatory. Med.: An infusion, taken orally, is claimed to be a sedative. Med.: a poultice is applied externally in case of hematomas and traumas. Med.: used in the preparation of the decoction called "o’ ricotto". | 0.328 |
| **Reichardia picroides** (L.) Roth (Mattia 054)** | Lattecielle     | Leaves     | Food: cooked in preparation of “minestra marinata”. | 0.371 |
| **Silybum marianum** (L.) Gaertn (Mattia 113)** | Cardone         | Flowering heads | Food: cooked in preparation of “minestra marinata”. | 0.514 |
| **Sonchus oleraceus** (L.) L. (Mattia 171)** | Stracciacannarone | Aerial parts | Food: cooked in preparation of “minestra marinata”. | 0.514 |
| **Tanacetum balsamita** L. (Mattia 132)** | Erva da’ madonna | Aerial parts | Med.: used in the preparation of the decoction called “o’ ricotto”. | 0.471 |
| **Taraxacum campylodes** G.E. Haglund. (Mattia 158)** | Ciconia sarvatica | Leaves | Food: uncooked in salads or cooked in preparation of “minestra marinata”. | 0.514 |
| **Convolvulaceae**                 |                 |            |                                                                               |     |
| **Calyxstegia sepium** (L.) R. Br. (Mattia 056)** | Campanelle      | Whole plant | Med.: a decoction is used as a hypotensive. | 0.114 |
| Family/species (Herbarium number) | Salernitan name | Parts used | Uses recorded | UV |
|----------------------------------|----------------|------------|---------------|----|
| **Corylaceae**                   |                |            |               |    |
| Ostrya carpinifolia Scop. (Mattia 228) | Carpino         | Leaves     | Med.: used in the preparation of the decoction called “o’ ricitto”. 0.514 |
| **Cruciferae**                   |                |            |               |    |
| Armoracia rusticana Gaertner, B.Mey, and Scherb. (Mattia 004) | Cavelecire       | Leaves     | Dom.: leaves are smoked. 0.057 |
| *Brassica oleracea* L. (Mattia 041) | Caveleciore     | Leaves     | Med.: a decoction is used externally to treat furuncles. 0.342 |
| Med.: internally, a decoction is claimed to be a depurative. 0.142 |
| *Capsella bursa-pastoris* (L.) Medik. (Mattia 102) | Zeppolle sarvatiche | Leaves | Food: cooked in preparation of “minestra maritata”. 0.514 |
| Med.: fresh leaves are eaten as an antispasmodic in case of colic. 0.185 |
| *Diplotaxis tenuifolia* (L.) DC. (Mattia 077) | Rucola          | Leaves     | Med.: cooked leaves are eaten with olive oil and lemon juice as an antispasmodic in case of colic. 0.214 |
| Med.: a decoction is used as an ophthalmic anti-inflammatory. 0.085 |
| Med.: an infusion is claimed to be a men aphrodisiac. 0.500 |
| *Lobularia maritima* (L.) Desv. (Mattia 095) | Ciurilli ianchi Flowering tops | Med.: a decoction is used as a febrifuge. 0.014 |
| Med.: a decoction is employed as a peripheral vasodilator. 0.057 |
| Med.: a decoction is taken orally as a prostatic anti-inflammatory. 0.157 |
| *Nasturtium officinale* R.Br. (Mattia 146) | Leaves | Food: in salads or cooked in preparation of “minestra maritata”. 0.514 |
| **Cucurbitaceae**                |                |            |               |    |
| *Cucurbita pepo* L. (Mattia 105) | Cocuzza         | Fruits     | Dom.: dry fruits were used as seeds containers. 0.371 |
| Seeds                            | Med.: they are eaten as a vermifuge. 0.614 |
| Med.: they are eaten in case of constipation. 0.442 |
| **Equisetaceae**                 |                | Aerial parts | Med.: a decoction is used in treatment of prostate and bladder affections. 0.171 |
| *Equisetum arvense* L. (Mattia 093) | Cola ’e volpe  | Aerial parts | Med.: a decoction is used in treatment of prostate and bladder affections. 0.171 |
| **Ericaceae**                    |                |            |               |    |
| *Arbutus unedo* L. (Mattia 231) | Sovera pelosa  | Leaves     | Med.: a decoction is used internally as an astringent. 0.485 |
| Fruits                           | Food: they were eaten fresh or in jams. 0.400 |
| **Euphorbiaceae**                |                |            |               |    |
| *Euphorbia dendroides* L. (Mattia 168) | Tutamaglio     | Latex      | Med.: it was applied topically to treat warts. 0.542 |
| Whole plant                      | Dom.: a water macerate is sprayed on fruit-trees to prevent theft. 0.214 |
| *Mercurialis annua* L. (Mattia 124) | Murcuveulla Aerial parts | Med.: an infusion is used as a general tonic. 0.228 |
| Med.: an infusion is claimed to act as a digestive. 0.114 |
| Med.: an infusion is employed as a febrifuge. 0.214 |
| **Fagaceae**                     |                |            |               |    |
| *Castanea sativa* Mill. (Mattia 096) | Castagno       | Seeds      | Food: to prepare cakes and pasta. 0.242 |
| Wood                             | Feed: as a food for pigs. 0.685 |
| Dom.: it was used to make vats, barrels, kitchen utensils, baskets, windows, furniture; today it is used as a stake for arbor. 0.471 |
| *Quercus ilex* L. (Mattia 117)  | Elece          | Leaves and bark | Med.: a decoction with *Urtica dioica* leaves is used in gargles against throat inflammations. 0.385 |
| Leaves and acorns                | Feed: as a food for pigs. 0.685 |
| Wood                             | Dom.: it was used to make vats, barrels and domestic tools. 0.557 |

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| Family/species (Herbarium number) | Salernitan name | Parts used | Uses recorded                                                                                                                                                                                                 | UV  |
|----------------------------------|----------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Quercus robur L. (Mattia 127)    | Cerza          | Leaves and bark | Med.: a decoction with *Urtica dioica* leaves is used in gargles against throat inflammations.                                                            | 0.357 |
|                                  |                | Leaves and acorns | Feed: as a food for pigs.                                                                                                                                                                                     | 0.685 |
|                                  |                | Wood         | Dom.: it was used to make vats, barrels and domestic tools.                                                                                                                                                     | 0.471 |
| Graminaceae                      |                |             |                                                                                                                                                                                                              |     |
| Arundo donax L. (Mattia 036)     | Canna          | Rhizome     | Med.: a decoction is used in treatment of gastric affections.                                                                                                                                                  |      |
| Cynodon dactylon (L.) Pers. (Mattia 104) | Gramigna     | Rhizome     | Dom.: to make baskets and musical instruments, as a support for vegetables, Med.: a decoction is employed as an urinary anti-inflammatory and as a diuretic with *Urtica dioica* leaves. | 0.442 |
| Triticum turgidum L. (Mattia 045) | Grano          | Seeds       | Med.: an infusion is claimed to be useful in treatment of women infertility.                                                                                                                                   | 0.185 |
| Zea mays L. (Mattia 089)         | Gravurino      | Stigmas     | Feed: dirty dishes are washed with bran in hot water; this water was then given to domestic animals to drink.                                                                                               | 0.314 |
| Gutiferae                        |                |             |                                                                                                                                                                                                              |     |
| Hypericum perforatum L. (Mattia 031) | Erva di san Giovanni | Flowering tops | Med.: a decoction is claimed to be a prostate anti-inflammatory.                                                                                                                                             | 0.157 |
|                                  |                | Aerial parts | Med.: used in the preparation of the decoction called “o' ricotto”.                                                                                                                                            |      |
| Juglandaceae                     |                |             |                                                                                                                                                                                                              |     |
| Juglans regia L. (Mattia 072)    | Noce           | Leaves      | Med.: a decoction is claimed to be useful in treatment of hyperglycemia.                                                                                                                                        | 0.657 |
|                                  |                | Husk        | Dom.: they are put in bean sacks to keep away insects.                                                                                                                                                       | 0.242 |
| Labiatae                         |                |             |                                                                                                                                                                                                              |     |
| Ajuga reptans L. (Mattia 066)    | Erva d’ Maronna | Leaves and flowers | Med.: a decoction is claimed to be useful in treatment of renal diseases.                                                                                                                                   | 0.085 |
| Lavandula angustifolia Mill. (Mattia 013) | Spigados     | Flowers     | Med.: a decoction is employed in treatment of gastro-intestinal diseases.                                                                                                                                   | 0.171 |
|                                  |                | Flowering tops | Med.: a decoction is employed in treatment of urinary diseases.                                                                                                                                              | 0.142 |
|                                  |                |             | Med.: an infusion with *Papaver rhoeas* petals is used as a sedative.                                                                                                                                        | 0.328 |
|                                  |                |             | Med.: used in the preparation of the decoction called “o’ ricotto”.                                                                                                                                           |      |
|                                  |                |             | Dom: “pupatelle” were prepared and used to wash and to perfume undergarments and to keep away insects.                                                                                                        |      |
| Mentha xpiperita L. (Mattia 097) | Amenta         | Flowers and leaves | Med.: used in the preparation of the decoction called “o’ ricotto”.                                                                                                                                       | 0.557 |
|                                  |                | Leaves      | Food: as a main ingredient of a typical food with calf or pork spleen.                                                                                                                                       | 0.514 |
| Mentha x rotundifolia (L.) Huds. (Mattia 121) | Amenta         | Flowers and leaves | Med.: used in the preparation of the decoction called “o’ ricotto”.                                                                                                                                           | 0.557 |
|                                  |                | Leaves      | Food: as a main ingredient of a typical food with calf or pork spleen.                                                                                                                                         | 0.514 |
|                                  |                |             | Med.: an infusion is claimed to help spleen functionality.                                                                                                                                                  | 0.142 |
|                                  |                |             | Food: as a main ingredient of a typical food with calf or pork spleen.                                                                                                                                       |      |
|                                  |                |             | Med.: used in the preparation of the decoction called “o’ ricotto”.                                                                                                                                           | 0.557 |
| Nepeta cataria L. (Mattia 173)   | Nepeta         | Flowers and leaves | Med.: used in the preparation of the decoction called “o’ ricotto”.                                                                                                                                       | 0.557 |
|                                  |                | Leaves      | Med.: a decoction is used as an antitussive.                                                                                                                                                               | 0.357 |
|                                  |                |             | Dom.: to wash undergarments.                                                                                                                                                                                  | 0.228 |
| Family/species (Herbarium number) | Salernitan name | Parts used | Uses recorded | UV  |
|-----------------------------------|----------------|------------|---------------|-----|
| **Ocimum basilicum L.** (Mattia 022) | Vasenicola | Fresh leaves | Med.: a decoction is employed as a diuretic. | 0.142 |
|                                   |               |            | Med.: used in the preparation of the decoction called “o’ ricotto”. | 0.557 |
| **Origanum vulgare L.** (Mattia 049) | Arecana | Flowering tops | Med.: a decoction is used in treatment of respiratory diseases. | 0.471 |
|                                   |               |            | Med.: they are applied externally as a lenitive for burns. | 0.557 |
| **Rosmarinus officinalis L.** (Mattia 052) | Rosamarina | Aerial parts | Med.: a decoction is considered to act as a general tonic. | 0.471 |
|                                   |               |            | Med.: used in the preparation of the decoction called “o’ ricotto”. | 0.557 |
| **Salvia officinalis L.** (Mattia 153) | Sarvia | Flowers and leaves | Med.: a decoction is claimed to reduce the excessive menstrual flux. | 0.100 |
|                                   |               |            | Med.: to alleviate gastric pains, a decoction is drunk half an hour after eating an egg albumen. | 0.371 |
|                                   |               |            | Med.: Crushed fresh leaves are applied on Herpes zoster skin lesions. | 0.114 |
|                                   |               |            | Med.: used in the preparation of the decoction called “o’ ricotto”. | 0.557 |
| **Thymus vulgaris L.** (Mattia 030) | Timo Scerapuglia | Flowers and leaves | Med.: a decoction is used in treatment of enteric afflictions and colitis. | 0.142 |
|                                   |               |            | Med.: vapor inhalation is considered an antitussive and an expectorant. | 0.257 |
|                                   |               |            | Med.: used in the preparation of the decoction called “o’ ricotto”. | 0.557 |
| **Lauraceae**                     |               |            |               |     |
| **Laurus nobilis L.** (Mattia 020) | Lauro | Leaves | Food: used as an aromatizer for food and liqueurs. | 0.442 |
|                                   |               |            | Med.: used in the preparation of the decoction called “o’ ricotto”. | 0.557 |
|                                   |               |            | Med.: a decoction is used as a digestive. | 0.442 |
|                                   |               |            | Med.: a decoction is employed as a diuretic. | 0.114 |
| **Leguminosae**                   |               |            |               |     |
| **Ceratonia siliqua L.** (Mattia 015) | Sciuscella | Seeds | Dom.: in the past, they were used to make necklaces and as a unit of weight. | 0.114 |
|                                   |               | Fruits | Food: as a food for children. | 0.228 |
|                                   |               |            | Feed: as a food for horses. | 0.571 |
|                                   |               |            | Med.: the fresh fruit is eaten in case of constipation. | 0.157 |
|                                   |               |            | Med.: juice was applied topically as on warts. | 0.314 |
| **Spartium junceum L.** (Mattia 129) | Janesta | Flowers | Med.: a decoction is considered useful in treatment of diabetes. | 0.114 |
|                                   |               | Leaves | Med.: crushed fresh leaves were applied topically on warts. | 0.114 |
| **Liliaceae**                     |               |            |               |     |
| **Allium sativum L.** (Mattia 032) | Aglio | Bulbs | Med.: fresh bulbs are applied as decongestant for insect bites. | 0.657 |
|                                   |               |            | Med.: fresh bulbs are rubbed on corns. | 0.557 |
|                                   |               |            | Med.: a bulb necklace or vapor inhalations were used against enteric parasites. | 0.228 |
| **Aloe barbadensis Mill.** | | Gel | Med.: applied topically as a skin lenitive. | 0.142 |
|                                   | Spalice | Aerial parts | Food: cooked with pasta or with eggs. | 0.414 |
|                                   |               |            | Med.: eaten fresh, they are considered to act as a diuretic. | 0.457 |
| **Ruscus aculeatus L.** (Mattia 042) | Scacciasurece | Aerial parts | Food: in salads or with eggs. | 0.285 |
|                                   |               |            | Dom: used to make brooms; to keep out mice | 0.614 |
| **Malvaceae**                     |               |            |               |     |
| **Althaea cannabina L.** (Mattia 107) | Malvone | Leaves | Med.: fresh crushed leaves were applied as a cicatrizer on wounds. | 0.414 |
| **Malva sylvestris L.** (Mattia 065) | Mavca | Leaves and roots | Med.: used in the preparation of the decoction called “o’ ricotto”. | 0.557 |
|                                   |               | Leaves and flowers | Med.: an infusion is claimed to ameliorate blood circulation. | 0.071 |
| Family/species (Herbarium number) | Salernitan name | Parts used | Uses recorded | UV |
|-----------------------------------|----------------|------------|---------------|----|
| Moraceae                          |                |            |               |    |
| *Ficus carica* L. (Mattia 019)    | Fica           | Syconia    | Med. a decoction with dried fig leaves and apple peel is used as an antitussive; somebody add walnut hulls, *Malva sylvestris* leaves and *Matricaria chamomilla* heads. | 0.357 |
| *Ficus carica* L. (Mattia 019)    |                | Latex      | Med.: it is applied on warts. | 0.671 |
| *Morus alba* L. (Mattia 157)      | Ceveza janca  | Leaves    | Med.: a decoction is used as an anti-diabetic. | 0.228 |
| *Morus nigra* L. (Mattia 155)     | Ceveza nera   | Leaves    | Med.: a decoction is used as an anti-diabetic. | 0.228 |
| Myrtaceae                         |                |            |               |    |
| *Eucalyptus globulus* Labill. (Mattia 073) | Calipso  | Leaves    | Med.: vapor inhalation with *Urtica dioica*, *Cynodon dactylon* roots, *Parietaria officinalis* and lemon leaves are used against sinusitis. | 0.514 |
| *Myrtus communis* L. (Mattia 081) | Murtella      | Leaves    | Med.: an infusion is drunk in case of feet swelling. | 0.228 |
| *Myrtus communis* L. (Mattia 081) | Murtella      | Leaves and flowers | Med.: a decoction is claimed to ameliorate peripheral circulation. | 0.185 |
| *Myrtus communis* L. (Mattia 081) | Murtella      | Leaves    | Med.: a decoction is used as an astringent. | 0.471 |
| *Myrtus communis* L. (Mattia 081) | Murtella      | Leaves    | Med.: used in the preparation of the decoction called "o' ricotto". | 0.557 |
| Oleaceae                          |                |            |               |    |
| *Fraxinus ornus* L. (Mattia 135)  | Uorn           | Leaves    | Med.: used in the preparation of the decoction called "o' ricotto". | 0.514 |
| *Olea europaea* L. (Mattia 154)   | Aulivo         | Leaves    | Med.: a water macerate is used as a hypotensive. | 0.271 |
| *Olea europaea* L. (Mattia 154)   | Aulivo         | Fruits    | Med.: fresh fruits are administered to treat hypotension. | 0.271 |
| Papaveraceae                      |                |            |               |    |
| *Chelidonium majus* L. (Mattia 162) | Papagno sarvatico | Whole plant | Med.: a decoction is claimed to ameliorate liver functions. | 0.485 |
| *Papaver rhoesas* L. (Mattia 003) | Papagno       | Latex     | Med.: applied topically on warts. | 0.742 |
| Plantaginaceae                    |                |            |               |    |
| *Plantago lanceolata* L. (Mattia 048) | Cincheniervi | Leaves    | Med.: crushed and boiled, they are applied to treat furuncles. | 0.528 |
| *Plantago lanceolata* L. (Mattia 048) | Cincheniervi | Leaves    | Med.: crushed, they are applied on contusions and are applied on insect bites. | 0.685 |
| *Plantago major* L. (Mattia 051)  | Cincheniervi  | Leaves    | Med.: an infusion is used in treatment of kidney stones. | 0.442 |
| *Plantago major* L. (Mattia 051)  | Cincheniervi  | Leaves    | Med.: crushed, they are applied on contusions and are on insect bites. | 0.685 |
| *Plantago major* L. (Mattia 051)  | Cincheniervi  | Leaves    | Med.: an infusion is used in treatment of kidney stones. | 0.442 |
| Family/species (Herbarium number) | Salernitan name | Parts used | Uses recorded                                                                 | UV   |
|----------------------------------|----------------|------------|-------------------------------------------------------------------------------|------|
| Polygonaceae                     |                |            | Food: cooked in preparation of "minestra maritata".                            | 0.514|
| Polygonum aviculare L. (Mattia 159) | Cientnurehe   | Whole plant| Med.: an infusion is considered to be a cholagogue.                            | 0.271|
|                                  |                |            | Med.: used in the preparation of the decoction called "o' ricotto".            | 0.514|
|                                  |                |            | Dom.: boiled with Foeniculum vulgare plant, Laurus nobilis, Nepeta cataria, and lemon leaves, it is used to wash barrels. | 0.514|
|                                  |                |            | Med.: an infusion is used to stimulate child appetite.                        | 0.314|
| Polypodiaceae                    |                |            | Branches Dom.: boiled with Foeniculum vulgare plant, Laurus nobilis, Nepeta cataria, and lemon leaves, it is used to wash barrels. | 0.514|
| Polypodium vulgare L. (Mattia 010) | Filece         | Rhizome    | Med.: a decoction is used as a vermifuge.                                    | 0.271|
| Portulacaceae                    |                | Aerial parts| Food: eaten in salads.                                                        | 0.628|
| Portulaca oleracea L. (Mattia 119) | Pucciaiachella Erva vasciulella |            | Dom.: used as a carpet where winter apples are placed to mature.              | 0.342|
| Primulaceae                      |                |            | Med.: an infusion is used to stimulate child appetite.                        | 0.314|
| Cyclamen purpurascens Mill. (Mattia 018) | Piscialetto   | Whole plant| Med.: it was put under the pillow of a baby who urinate in bed.               | 0.142|
| Punicaceae                       |                |            | Granata Fruits Med.: boiled, it was applied to aching breasts during the nursing | 0.142|
| Punica granatum L. (Mattia 057)  |                | Bark       | Med.: a decoction is drunk internally as an abortive.                         | 0.057|
| Ranunculaceae                    |                |            | Med.: a decoction is used as a sedative.                                      | 0.257|
| Clematis vitalba L. (Mattia 023) | Vitaglia       | Young buds | Med.: an infusion is administered in treatment of stomachache.               | 0.271|
|                                  |                |            | Med.: a decoction is used as a febrifuge.                                    | 0.157|
|                                  |                |            | Med.: used in the preparation of the decoction called "o' ricotto".            | 0.514|
|                                  |                |            | Dom.: to make sticks called "spaselle" where figs are dried.                   | 0.414|
| Rosaceae                         |                |            | Ceraso Fruits Med.: the juice is considered a laxative.                       | 0.271|
| Crataegus monogyna Jacq. (Mattia 070) | Calavrice     | Flowers and leaves | Med.: a decoction is used for gargles in sore throat.                    | 0.271|
|                                  |                |            | Med.: a decoction is used as a diuretic.                                      | 0.142|
|                                  |                |            | Med.: a decoction is used as an antitussive.                                  | 0.428|
| Rosa canina L. (Mattia 025)      | Rosella; rosella sarvatica | Rosehips and leaves | Med.: an infusion is used in case of flu.                                    | 0.157|
|                                  |                |            | Med.: used in the preparation of the decoction called "o' ricotto".            | 0.557|
| Rubus caesius L. (Mattia 033)    | Rusto          | Tender tops| Food: they are eaten with eggs in omelets.                                    | 0.271|
|                                  |                | Fruits and | Med.: a decoction is used as an antidiarrheal.                                | 0.285|
|                                  |                | Leaves     |                                                                         |      |
| Sanguisorba officinalis L. (Mattia 059) | Pane 'e noce | Leaves    | Med.: an infusion is claimed to be a gastric antispasmodic.                   | 0.328|
| Sambucus domestica L. (Mattia 088) | Sovere         | Leaves    | Food: eaten in salads or cooked in preparation of "minestra maritata".        | 0.514|
|                                  |                |            | Med.: a decoction is used as an astringent.                                  | 0.342|
|                                  |                |            | Med.: water where leaves are boiled is used topically on chilblain.            | 0.142|
| Galium verum L.                  | Evera rà sbaria | Aerial parts| Med.: a decoction is used as a febrifuge.                                    | 0.285|
| Family/species (Herbarium number) | Salernitan name | Parts used | Uses recorded | UV |
|-----------------------------------|----------------|------------|---------------|----|
| **Rutaceae**                      |                |            |               |    |
| *Ruta graveolens* L. (Mattia 039) | 'ruta         | Leaves     | Med.: fried in oil they are used for anti-inflammatory massages. Med.: the oil macerate is used as an anti-inflammatory for joints. Med.: an olive oil macerate is applied topically as an eye anti-inflammatory. Med.: used in the preparation of the decoction called "o' ricotto". | 0.457 |
| *Citrus limon* (L.) Burm. f. Osbeck (Mattia 086) | Limone      | Fruits     | Med.: the fresh juice is drunk in case of headache. Med.: one spoon of juice is employed in case of halitosis. | 0.514 |
| **Salicaceae**                    |                |            |               |    |
| *Populus tremula* L. (Mattia 050) | Chiuppo      | Bark       | Med.: a water macerate is applied on warts. Med.: an infusion with leaves is claimed to improve memory. | 0.271 |
| *Salix alba* L. (Mattia 028)      | Salece        | Leaves     | Med.: an infusion is used as a febrifuge. | 0.328 |
| *Salix purpurea* L. (Mattia 027)  | Vitelle       | Leaves     | Dom.: called "turtielli", they are is used to tie Vitis vinifera and to make baskets ("spaselle"). | 0.314 |
| **Scrophulariaceae**              |                |            |               |    |
| *Cymbalaria muralis* Gaertn., B. Mey., and Scherb. (Mattia 083) | Pratella sciurite | Aerial parts | Med.: a decoction is used as a cicatrizer for wounds. | 0.371 |
| **Solanaceae**                    |                |            |               |    |
| *Capsicum annuum* L. (Mattia 058) | Pupaino       | Fruits     | Med.: an olive oil macerate is used for anti-rheumatic massages. | 0.585 |
| *Datura stramonium* L. (Mattia 076) | Fetiente     | Leaves     | Med.: smoked as an anti-asthmatic. | 0.214 |
| *Lycopersicon esculentum* Mill. (Mattia 017) | Pummarola  | Fruits     | Med.: applied on insect bites as a decongestant. | 0.485 |
| *Nicotiana tabacum* L. (Mattia 001) | Erbasanta    | Fresh leaves | Med.: an infusion with Rosa canina leaves is claimed to be useful in treatment of kidney stones. | 0.142 |
| *Solanum melongena* L. (Mattia 016) | Mulegnana    | Leaves     | Med.: boiled and applied on hemorrhoids as an anti-inflammatory. | 0.271 |
| *Solanum tuberosum* L. (Mattia 008) | Patana       | Tuber      | Med.: crushed, it is applied on burns as a lenitive. Med.: it is cut in half and put on the forehead to relieve headache. | 0.714 |
| **Tiliaceae**                     |                |            |               |    |
| *Tilia platyphyllos* Scop. (Mattia 115) | Teglia     | Flowers    | Med.: a decoction is used as a sedative. Med.: a decoction with *Ruta graveolens* and *Eucalyptus globulus* leaves is used as a febrifuge. Med.: used in the preparation of the decoction called "o' ricotto". | 0.357 |
|                                  |                | Bark       | Med.: a decoction is used in treatment of cystitis. | 0.271 |
|                                  |                |            | Med.: a water macerate is used as a lenitive for burns. | 0.200 |
| **Umbelliferae**                  |                |            |               |    |
| *Angelica sylvestris* L. (Mattia 195) | Leaves       |            | Med.: a decoction is considered a vermifuge. | 0.142 |
| *Apium graveolens* L. (Mattia 068) | Accio        | Leaves     | Med.: an infusion with Parietaria officinalis aerial parts and Petroselinum sativum roots is claimed to be effective in treatment of kidney stones. | 0.185 |
| Family/species (Herbarium number) | Salernitan name | Parts used | Uses recorded                                                                 | UV       |
|----------------------------------|----------------|------------|--------------------------------------------------------------------------------|----------|
| Daucus carota L. (Mattia 053)    | Pastinaca      | Root       | Med.: eaten as a diuretic. Med.: eaten as a laxative. Dom.: used to obtain a dye for paintings. | 0.214    |
|                                  |                | Flowers    | Med.: a decoction with Matricaria chamomilla heads is used in case of headache. Med.: an infusion is used as a carminative. Med.: fruits are smoked against toothache. Food: used for liqueurs and to aromatize foods. | 0.385 0.414 0.057 0.714 |
| Foeniculum vulgare Mill. (Mattia 014) | Finucchiello | Fresh leaves | Med.: a decoction with Matricaria chamomilla heads is used in case of headache. Med.: an infusion is used as a carminative. | 0.285    |
|                                  |                | Fruits     | Med.: fruits are smoked against toothache. Food: used for liqueurs and to aromatize foods. | 0.714    |
| Petroselinum sativum Hoffm. (Mattia 002) | Petrusino      | Fresh leaves | Med: an infusion with Petroselinum sativum roots and Apium graveolens leaves is claimed to be effective in treatment of kidney stones. | 0.785    |
| Urticaceae                       |                | Roots      | Med: an infusion with Panietaria officinalis aerial parts and Apium graveolens leaves is claimed to be effective in treatment of kidney stones. | 0.228    |
| Parietaria officinalis L. (Mattia 037) | Paredara       | Aerial parts | Med.: a decoction with Matricaria chamomilla heads is used against peripheral edemas. A with white egg a wrap is prepared for contusion and/or distortion. Med.: a wrap prepared with an albumen is used as a decongestant to treat contusions and/or distortions. Med.: an infusion with Petroselinum sativum roots and Apium graveolens leaves is claimed to be effective in treatment of kidney stones. Med.: used in the preparation of the decoction called "o' ricotto". Dom.: a mix of sand, water and P. officinalis is used to clean wine stains from carboys and bottles. | 0.342 0.585 0.228 0.557 0.371 |
| Urtica dioica L. (Mattia 085)    | Ardica         | Aerial parts | Med.: a decoction is used as an expectorant, sometimes adding barks of Vitis vinifera and leaves and roots of Malva sylvestris. Med.: a decoction is used as a depurative. Vet.: a decoction is administered to animals to expel afterbirth. Food: boiled, are eaten in salads or with pasta. Feed: used as feed for cows. Dom.: macerated for 15 days and sprayed on vegetables to protect them from insects. | 0.342 0.414 0.114 0.128 0.285 0.214 |
| Urtica urens L. (Mattia 074)     | Ardica         | Aerial parts | Med.: a decoction is used as an expectorant, sometimes adding barks of Vitis vinifera and leaves and roots of Malva sylvestris. Med.: a decoction is used as a depurative. Vet.: a decoction is administered to animals to expel afterbirth. Food: boiled, are eaten in salads or with pasta. Feed: used as feed for cows. Dom.: macerated for 15 days and sprayed on vegetables to protect them from insects. | 0.342 0.414 0.114 0.128 0.285 0.214 |
| Valerianaceae                    |                | Whole plant | Med.: a decoction is used as a mild sedative. | 0.242    |
| Centranthus ruber (L.) DC. (Mattia 174) | Cannaviello; valerianella rossa | Whole plant | Med.: a decoction is used as a mild sedative. | 0.242    |
| Verbenaceae                      |                |            | Med.: an infusion is claimed to be a digestive. Med.: a decoction is used as a mild sedative. Med.: used in the preparation of the decoction called "o' ricotto". | 0.514 0.271 0.557 |
| Lippia triphylla (L'Hér.) Kuntze (Mattia 109) | Erba cedro     | Leaves     | Med.: a decoction is used as a mild sedative. | 0.271    |
| Violaceae                        |                |            | Med.: used in the preparation of the decoction called "o' ricotto". | 0.557    |
| Viola odorata L.                 | Violetra       | Roots      | Med.: a decoction with Malva sylvestris leaves and Salvia officinalis aerial parts | 0.414    |
The results of the present work have been compared to ethnobotanical data from nearby zones of Southern Italy.

Human medicine
The plants, used to cure human ailments, have been categorized into 11 categories; consequently, a single species could be listed in several illness categories (Table 2). Among these plants the highest number is recorded for UG (about 15%) and GI (about 14%) groups. Less frequently, plant species are used for OR, ENT and OP (about 2%).

One hundred and one species, belonging to 48 families, were reported for the human uses. The most cited families were Lamiaceae (11 species), Asteraceae (8 species), Rosaceae and Solanaceae (6 species).

In particular, the decoction of rhizome of *Arundo donax* L. was employed against gastric affections, use reported also by De Feo and coworkers [5], De Feo and Senatore [13], and Guerrera and Savo [17]. Also, a decoction of *Lavandula angustifolia* Mill. has a similar use. For systematic diseases, we reported the application of flowers of *Spartium junceum* L. and, in particular, for the treatment of diabetes, we cited the application of fresh leaves of *Artemisia absinthium* L.

Some species are known for their diuretic activity: the decoctions of the leaves of *Borago officinalis* L., *Ocimum basilicum* L., *Asparagus acutifolius* L., *Morus alba* L., *Morus nigra* L., *Zea mays* L., *Prunus avium* L. are employed for this purpose. Pieroni and coworkers [26], Savo and coworkers [4], and Scherrer and coworkers [1] cited the decoction of aerial parts of *B. officinalis* as a depurative.

Bark of *Punica granatum* L. is used in a preparation of an abortive decoction; this use seems to be new in the Italian ethnobotanical literature.

*Cynodon dactylon* (L.) Pers. and *Sambucus nigra* L. are utilized to cure female infertility. A rhizome decoction of *C. dactylon* is known for its application in renal stones, as an urinary anti-inflammatory [4, 5, 12, 14, 16, 19]. The plant is also reported to cure inflammations of the digestive and genital—urinary apparatuses (diuretic, “refreshing,” renal colics) [4, 22, 25]. *Cyclamen purpurascens* Mill. is put under the pillow of babies who urinate in bed.

Twenty-three species are cited for their use in skin pathologies: in particular, we can highlight the use of gel from the stems of *Opuntia ficus-indica* Mill. as a lenitive for skin [21], a water macerate from bark of *Tilia platyphyllos* Scop. on used on burns, the leaf oil macerate of *Ruta graveolens* L. as a skin anti-inflammatory and for the treatment of ophthalmic affections. De Feo and coworkers [5, 12] referred the use of *O. ficus indica* as a plaster: in particular, the powdered branches are used to treat corns and frostbite.

Table 1. Plants traditionally used in Cava de’ Tirreni (Continued)

| Family/species (Herbarium number) | Salernitan name | Parts used | Uses recorded | UV |
|-----------------------------------|----------------|------------|---------------|----|
| (Mattia 141) is considered antitussive. | Vitaceae | | | |
| | Vitae | Fruits | Med.: dried grapes were eaten in the case of flu. | 0.342 |
| | | | Med.: the marc is used topically in treatment of arthritis. | 0.271 |
| | | Bark | Med.: a decoction with *Malva sylvestris* leaves is used against bronchitis. | 0.414 |

Table 2. Plants used in human medicine

| Illness categories                     | Number of species | Number of uses | Percentage |
|----------------------------------------|-------------------|----------------|------------|
| Urogenital system (UG)                 | 24                | 30             | 15         |
| Gastrointestinal tract (GI)            | 27                | 28             | 14         |
| Systemic disorders (SY)                | 23                | 24             | 12         |
| Skin diseases (SK)                     | 23                | 24             | 12         |
| Anti-inflammatory (ANT)                | 14                | 18             | 9          |
| Respiratory system diseases (R)        | 12                | 12             | 6          |
| Neuropsychiatric diseases (NP)         | 8                 | 8              | 4          |
| Cardiovascular diseases (CV)           | 5                 | 6              | 3          |
| Oral cavity diseases (OR)              | 4                 | 4              | 2          |
| Ear, nose and throat diseases (ENT)    | 4                 | 4              | 2          |
| Ophthalmologic diseases (OP)           | 3                 | 3              | 2          |
Salvia officinalis L. is directly applied on skin affected by Herpes zoster. The decoctions of leaves of Althaea cannabina L. and Cymbalaria muralis G. Gaertn., B. Mey., and Scherb. are applied externally to have an anti-inflammatory action.

The rhizome of Arum italicum L. is used as a skin decongestant: a similar use is reported by other Authors [6, 29]. Instead, Guerrera [16] and Montesano and coworkers [22] cited the topical applications of sap as healing of warts.

Of importance, the use of Cannabis sativa L. in medicine and for domestic uses: this species was widely cultivated in past time for the production of textiles and twines; today, its cultivation is totally fallen into disuse, due to the introduction of synthetic fibers.

A wrap of Vincetoxicum hirundinaria Medik. is used against contusions and distortions; the leaves of Hedera helix L. are boiled until to be a gel which can be applied as anti-rheumatics [5, 21]; an infusion of the leaves is reported as an anti-neuralgic.

Two ways of administration of Matricaria chamomilla L. should be cited: an infusion of its flower heads with Laurus nobilis L. leaves for the treatment of edemas; a poultice of the plant, applied externally, against hematomas and traumas. These plants were reported in literature with the same uses [1, 4, 5, 12, 21, 25]. It is of interest that a decoction of flowering heads of the first plant, mixed with mallow (Malva sylvestris L.) flowers, can be used to soothe the cough.

A decoction with L. nobilis is reported against cough or belly pains, also used for goats [1]. An infusion of M. chamomilla and Lactuca sativa L. is considered an intestinal spasmolytic.

A decoction of the plant, pure or with M. sylvestris is claimed useful against cough and bronchitis [21], alone or with chamomile for digestive purpose. Moreover, a decoction of its aerial parts is reported as a mild laxative [12, 17, 22] and as a gastric antispasmodic [14].

The same parts of this plant are used for their sedative action; a similar action is reported by an infusion of flowers of Lavandula angustifolia and Papaver rhoes L. The same or similar use for poppy is reported by other Authors [4, 5, 12, 16, 17, 21, 26]. Di Novella and coworkers [14] cited the use of the poppy as an hypnotic.

Cigarettes made of leaves of Datura stramonium L. are used as an anti-asthmatic; this use is reported in literature [5, 14, 16, 21]. Some species of Thymus and Urtica are utilized as an expectorant also with Ceterach officinarum DC [12]; a decoction of Vitis vinifera L. is used with M. sylvestris leaves against bronchitis and a decoction of Origanum vulgare L. is used against upper respiratory affections. Menale and coworkers [21] reported the use of oregano and M. sylvestris in case of cough. Guerrera [16] indicated the use of some species of Thymus in case of colds.

Ceterach officinarum DC. is known with the popular name of “spaccapietre” (stone-breaker) due to its use, mainly in Basilicata and Puglia regions, in kidney lithiasis [14, 16].

In plants acting on cardiovascular system, Calystegia sepium L. is used to decrease blood pressure; this use was reported in Italian ethnomedical literature [5]. The fruits and leaves of Olea europea L. are utilized for the same hypotensive effect; this use was already reported [5, 12, 16, 21, 25].

The seeds of Foeniculum vulgare Miller are smoked against toothache; this use seems to be peculiar of the studied area.

The fresh leaves of Vincetoxicum hirundinaria are used as a gargle for the same pain. Further, the plant is cited as ingredient of “ricotto” (a remedy used as panacea: for the explanation, see below).

Leaves of Quercus ilex L. are employed in decoction with Urtica urens L. for gargles against throat inflammations.

We can cite the employment of fresh leaves of Foeniculum vulgare for headache. An infusion of Diplotaxis tenuifolia L. is reported as a male aphrodisiac [4, 5, 16, 17, 21].

An infusion of flowers and leaves of Polygonum aviculare L. is used as an appetite stimulant for children.

Some preparations are based on mixtures of multiple plants, as reported in Table 3: in particular, these preparations are used for edemas, for kidney stones, and, above all, for respiratory diseases; M. sylvestris and M. chamomilla are most common plants in these multiple preparations.

In all investigated zones, the use of a decoction of some plant species, locally named “o’ ricotto,” is very diffused, mainly among the elderly. This remedy is used as a panacea to cure numerous diseases, as abdominal pains or colds. It has a very good taste, so, in many cases it is drunk with pleasure. Many interviewees give this type of preparation to ill children. In each locality, there are some people which, during spring and summer, care of collect and dry the plants to prepare this decoction.

The list of the species used for this decoction is shown below, with employed parts, taking into the consideration that each people modifies the recipe to his liking. Twenty-nine plants (reported in Table 4) were used, belonging to 18 families: Labiatae (9 species), Compositae (3 species), and Rosaceae (2 species) as the most represented.

Veterinary medicine and feed

Eight percent of the reported species are employed for veterinary uses or as animal feed. Among the four species reported for veterinary use, the macerated oil of Allium sativum L. is employed against chicken diseases. Normally, the use of Fraxinus ornus L. is
very diffused for a high number of human pathologies [4, 16]; instead, we cite its veterinary use: an aqueous macerated of the plant is employed to cure cooling diseases of gallinaceans (local name “pepitola”). Also in Cilento area, a decoction of trunk barks and young branches of the plant was administered to young chicks as a gastric disinfectant [14].

Table 3 Some preparations based on mixtures of multiple plants

|    | Poultice                        | For edemas       |
|----|---------------------------------|------------------|
| 1  | Matricaria chamomilla           |                  |
|    | Laurus nobilis                  |                  |
| 2  | Sambucus nigra                  | Leg edema        |
|    | Parietaria officinalis          |                  |
|    | Vincetoxicum hirundinaria       |                  |
| 3  | Decoction                       | Peripheral edemas|
|    | Parietaria officinalis          |                  |
|    | Matricaria chamomilla           |                  |
| 4  | Infusion                        | Kidney stones    |
|    | Parietaria officinalis          |                  |
|    | Petroselinum sativum            |                  |
|    | Apium graveolens                |                  |
| 5  | Infusion                        | Kidney stones    |
|    | Lycopersicon esculentum         |                  |
|    | Rosa canina                     |                  |
| 6  | Vapor inhalation                | Sinusitis        |
|    | Eucalyptus globulus             |                  |
|    | Urtica dioica                   |                  |
|    | Cynodon dactylon                |                  |
|    | Parietaria officinalis          |                  |
|    | Citrus limon                    |                  |
| 7  | Vapor inhalation                | Sinusitis        |
|    | Laurus nobilis                  |                  |
|    | Borago officinalis              |                  |
|    | Populus tremula                 |                  |
|    | Myrtus communis                 |                  |
|    | Urtica dioica                   |                  |
| 8  | Decoction                       | Antitussive      |
|    | Ficus carica                    |                  |
|    | Malus domestica                 |                  |
|    | The same decoction also with    |                  |
|    | Juglans regia                   | Antitussive      |
|    | Malva sylvestris                |                  |
|    | Matricaria chamomilla           |                  |
| 9  | Decoction                       | Antitussive      |
|    | Viola odorata                   |                  |
|    | Malva sylvestris                |                  |
|    | Salvia officinalis              |                  |
| 10 | Decoction                       | Expectorant      |
|    | Urtica species                  |                  |
|    | Vitis vinifera                  |                  |
|    | Malva sylvestris                |                  |
| 11 | Decoction                       | Bronchitis       |
|    | Vitis vinifera                  |                  |
|    | Malva sylvestris                |                  |

Table 3 Some preparations based on mixtures of multiple plants (Continued)

| 12 | Decoction | Cynodon dactylon | Urinary anti-inflammatory and diuretic |
|----|-----------|------------------|---------------------------------------|
|    |           | Urtica dioica    |                                       |
| 13 |           | Tilia platyphyllos | Febrifuge                           |
|    |           | Ruta graveolens  |                                       |
|    |           | Eucalyptus globulus |                                  |

Table 4 The list of the species used for “ricotto” decoction

| Achillea millefolium L. | Leaves and flowers |
| Balsamita major L.      | Leaves and flowers |
| Crataegus monogyna Jacq.| Flowers and leaves |
| Cynodon dactylon Pers.  | Roots              |
| Ficus carica L.         | Leaves, dried syconia |
| Fraxinus ornus L.       | Leaves              |
| Hypericum perforiatum L.| Aerial parts        |
| Juglans regia L.        | Pericarp            |
| Lavandula officinalis L.| Flowering tops      |
| Laurus nobilis L.       | Leaves              |
| Lippa triphylla O. Kuntze |                |
| Malva sylvestris L.     | Flowers and/or root |
| Matricaria chamomilla L.| Flowering fields    |
| Mentha spicata L., Mentha rotundifolia (L.) | Flowers and leaves |
| Hudson, Mentha* piperita L. |                  |
| Myrtus communis L.      | Flowers and leaves  |
| Nepeta cattaria L.      | Flowers and leaves  |
| Ocimum basilicum L.     | Leaves              |
| Ostrya carpinifolia L.  | Leaves              |
| Parietaria officinalis L.|                |
| Polygonum aviculare L.  |                  |
| Rosa canina L.          | Flowers and/or fruits|
| Rosmarinus officinalis L.| Aerial parts       |
| Ruta graveolens L.      | Leaves              |
| Salvia officinalis L.   | Flowers and leaves  |
| Sambucus nigra L.       | Flowers             |
| Thymus vulgaris L.      | Flowers and leaves  |
| Tilia platyphyllos Scop.|                  |
*Urtica dioica* L. and *U. urens* L. are used for cattle to facilitate placental disposal; moreover, these plants are used as a feed.

Other six species reported were employed as a feed: in an age in which synthetic foods often replace natural fodders, it is worth remembering some foods of plant origin traditionally given to domestic animals. Among the new uses, we report *Cnicus benedictus* L. as feed for donkeys and *Triticum turgidum* L. as a beverage for animals: in particular, dirty dishes are washed with seed bran in hot water and therefore, this water is given to drink to the pets. It is claimed that species used as animal feed improve animal health, as well as the quality of milk and dairy products.

**Human food and food aromatizer**

Wild foods constitute an essential component of people’s diets around the world [11]. In general, dishes made with wild plants are often identified as functional foods (foods with biological effects that go beyond their mere nutritional properties) and wild plants can contribute to overcoming periods of food or income shortages [11].

Thirty-six species (30%) are employed as food plants in the studied area. The plants are either eaten raw, mixed with other vegetables or in salads, when they are prepared with young and tender leaves that when picked in the early vegetative stage of the rosetta have a less bitter taste, or boiled, when harvested as older leaves, even in mixed vegetable soups [28]. The recipe of “Minestra maritata,” prepared during Easter time, is reported in Table 5: specifically, eight of these plants are Compositae, two are Cruciferae, two are Plantaginaceae, and one is of Rosaceae family.

Also Guarrera and Savo [18] cited this traditional soup of Campania region made by *Cichorium intybus*, *Sonchus oleraceus* L., *Crepis bursifolia*, *Crepis leontodonotides* All., *Sonchus asper* (L.) Hill, and *S. oleraceus* are reported by Di Novella and coworkers [14] as some of the main ingredients of the “minestra terrana,” a very common soup made by 12 wild species. The ingredients are boiled in water and they are mixed with olive oil, *Allium sativum*, and other condiments.

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**Domestic and handicraft uses**

In the studied area, a considerable number of plants (24%) are employed for domestic uses or in local handicrafts: *Fagaceae* (3 species), *Urticaceae* (3 species), *Asteraceae*, *Lamiaceae*, and *Salicaceae* (2 species) are the most represented families. *Cannabis sativa* L. was used in the manufacturing of cordages, a key factor for city economy: Di Novella and coworkers [14] reported the stems of the plant used to obtain textile fibers. Moreover, the fibers of *C. sativa* mixed with eggs were used to make anti-inflammatory bandages.

*Daucus carota* L. is reported for its use in color for paintings. We can cite the particular use of
Vincetoxicum hirundinaria: a water maceration of this plant with Urtica urens leaves is sprayed on the vegetables to send away insects. The women used, to wash themselves, perfumed water obtained from the maceration of fresh flowers of Bellis perennis L. or inflorescences of Lavandula angustifolia Miller. Some plants are reported for their handmade products: the wood of Acer campestre L. is employed to make tool handles, toys, and a traditional typical musical instrument known as “ciaramella.” Arundo donax L. is used to do baskets, musical instruments, and as a support for vegetables; a similar use is reported by Di Novella and coworkers [14] and Passalacqua and coworkers [24]. Salix purpurea L. and S. alba L. are used to tie grape plants [16, 22] and to manufacture baskets (Fig. 2) [14].

In past times, Quercus species were employed to make vats, barrels, and generally tools; moreover, a diffused utilization of Castanea sativa Mill. is the construction of different shape and size barrels.

Polygonum aviculare (whole plant) is boiled to wash barrels with Foeniculum vulgare, Laurus nobilis, Nepeta cataria, and Citrus limon leaves.

The leaves of Armoracia rusticana are smoked; the leaves of Saponaria officinalis L. are used to clean the hands, especially after the production of tobacco from Nicotiana tabacum plant. This use is diffused also in other areas [14, 24].

A mix with sand, water, and Parietaria officinalis is used to clean wine stains from carboys and bottles; the same use is reported in literature [14, 16, 24].
Out of the ordinary is the use of *Euphorbia dendroides* L.: a water macerate is sprayed on fruit-trees to prevent theft [13]. *Ceratonia siliquastrum* seeds were used to make necklaces.

**Taxonomic diversity, plant parts used, and modes of consumption**

The species most cited in the study are reported in Fig. 3. Different preparations and application processes of medicinal plants used are as reported in Fig. 4. For plants not with medicinal uses, we registered two decoction preparations, eight macerate preparations, and three preparations with boiled plants. Overall, decoction and infusion are the most cited preparations. The majority of remedies were prepared from dried material. In some cases (21), the plants are used in the fresh state. The plant parts used for these types of medical preparations are, above all, leaves (66 cases, mean UV value 0.38), aerial parts (44 cases, mean UV value 0.36), flowers, flowering tops, flowering heads (in total, 30 cases, mean UV value 0.35), fruits (19 cases, mean UV value 0.40), and barks (10 cases, mean UV value 0.29). The main parts used are reported in Fig. 5. The dosage is empirical: generally, for 1 L of water, two handfuls of plant were added.

**General considerations**

The knowledge about medicinal plants and other useful ones is still alive, passed down from generation to
generation; however, people over 50 years old has retained this kind of information.

In the investigated area, healers are still respected: some of these persons follow these practices and are proud to be the last guardians of a now lost culture; sometimes they report that they have cured some people in cases where the official medicine has failed.

Several species are harvested at dawn on St. John’s Day (June 24). The eve of Assunta day, August 14, is another important day for the collection of specific plants, known as “erve ra ‘Maronna” (herbs of Santa Maria). In popular belief, the therapeutic features of these plants are higher if these species are collected during waning moon, in a period named locally “a mancanza” (meaning falling moon). The plants are cleaned and divided in small pieces, mixed each other in different quantities for species, shade dried.

Data analysis showed that the people that use traditional remedies possess the knowledge of a high number of plants. This can reflect the transmission of the phytotherapeutical knowledge among the investigation area. Generally, women are depositaries of the medicamental properties of plants, also because from ancient time the female line takes care of lands dedicated to gardens and cultivation of cereals, while the male line is dedicated to pastoral activities.

Furthermore, for most plant species, knowledge appears to be homogeneous, very scarce, or unaffected by external factors. Their effectiveness can sometimes be justified not only by the known presence of active chemical substances, but also by the widespread practice and even by the observation of the concrete benefit obtained by the informer. The use of different species in different Italian areas often depends on the local availability of plants or the presence of typical species: in the literature, it emerges that some wild plants have a very limited use. Since time immemorial, plants have been the first medicines to cure diseases. Man becomes aware of the ethnobotanical application of plants through trial and error. This knowledge has been transmitted orally from generation to generation and has been applied in different parts of the world [32]. Furthermore, ethnobotanical research discovers plant resources that can be used to obtain new compounds that lead to the development of innovative drugs for the treatment of diseases [33, 34]: in fact, the discovery of new botanical drugs and new food crops depends on ethnobotanical knowledge [35]. Finally, the ethnobotanical study of medicinal plants is based on the acknowledgment of contributions made by local communities and/or by single persons who share specialized acquaintance; on the other hand, it can contribute to help native people and the preservation of biodiversity in their environments [36].

Ethnopharmacology is based on the recognition that people, throughout history, have utilized natural products as therapeutic agents and traditional medicinal knowledge can be used as a tool to obtain more information about the therapeutic capabilities of a natural product [37]. Traditional understanding is a resource that has been below estimated in the past, and the actual
The rediscovery of the folk uses of plants in the area under consideration is not only of historical and scientific value, but could also represent a future, economic potential for the area. Several plants could still today be involved in the production of typical and appealing artifacts. In particular, the production of typical objects that are now on the decline (collars, baskets, clothes of particular textile fibers, and generally the artifacts under sale) could regain importance in the local economy [38].

Conclusions

The documentation of 119 traditional medicinal plants and preparations such as “ricotto” indicates that knowledge of popular plants in the Cava de’ Tirreni area still exists and that wild plants are now used by people in their daily lives. Unfortunately, the traditional use of plants is declining and the according knowledge is mainly restricted to the elderly.

Moreover, the comparison of the documented species and their uses with ethnobotanical literature of other Italian regions reveals that the traditional plant knowledge in this area shows strong similarities with adjacent Southern Italian areas. Some of the recorded species and administration processes however seem to be unique for the zone.
