



# Alpine ethnobotanical knowledge in Sondalo (SO, Lombardy, Italy)

Martina Bottoni, Lorenzo Colombo, Caterina Gianoli, Fabrizia Milani, Paola Sira Colombo, Piero Bruschi, Claudia Giuliani and Gelsomina Fico

## Correspondence

**Martina Bottoni<sup>1,2,†</sup>, Lorenzo Colombo<sup>1,2,†</sup>, Caterina Gianoli<sup>1,2</sup>, Fabrizia Milani<sup>1,2,\*</sup>, Paola Sira Colombo<sup>1,2</sup>, Piero Bruschi<sup>3</sup>, Claudia Giuliani<sup>1,2</sup> and Gelsomina Fico<sup>1,2</sup>**

<sup>1</sup>Department of Pharmaceutical Sciences, University of Milan, Via Mangiagalli 25, 20133 Milan, Italy.

<sup>2</sup>Ghirardi Botanic Garden, Department of Pharmaceutical Sciences, University of Milan, Via Religione 25, 25088 Toscolano Maderno, Italy.

<sup>3</sup>Department of Agricultural, Environmental, Food and Forestry Science and Technology, University of Florence, 50144 Florence, Italy.

<sup>†</sup>These authors have contributed equally to this work.

\*Corresponding Author: [fabrizia.milani@unimi.it](mailto:fabrizia.milani@unimi.it)

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## Abstract

**Background:** Whereas Alpine populations have been geographically isolated from major cities since ancient times, they have long learned to make use of the features of their own territory and its resources, especially autochthonous spontaneous plants. In such areas there is still a wide traditional use of plant species; this heritage, however, risks becoming extinct. Our work gathered and processed information on the plants used for medicinal, veterinary, cosmetic, domestic, ritual, and religious purposes by the inhabitants of Sondalo (Valtellina, SO, Lombardy, Italy).

**Methods:** The survey was conducted through semi-structured interviews. All data was entered within a database. Extensive bibliographic research was performed in scientific literature on the biological activity of the species used for human medicinal purposes.

**Results:** We interviewed 101 people aged 25-98. 112 plants were mentioned, belonging to 52 families. 87 species were spontaneous, 25 cultivated. The most cited species were *Taraxacum officinale* F.H. Wigg., *Sambucus nigra* L., and *Achillea erba-rotta* subsp. *moschata* (Wulfen) I. Richardson. The most frequently used parts were flowers/inflorescences, leaves, and fruits. The most common preparation forms were infusion, decoction, and syrup. The traditional uses covered different aspects of the daily life: 73 species were used for cooking, 62 for medicinal purposes, 27 in the domestic field, 17 for agropastoral activities, 13 for animal healthcare. The evaluation of scientific literature allowed us to find information on the biological activity of 36 plants, linked to the traditional uses of the territory.

**Conclusions:** This work enhances the mosaic of ethnobotanical studies carried out in the Alpine region and highlights the importance of this kind of surveys in the search for new natural potentially active compounds.

**Keywords:** Ethnobotany, Northern Italy, Alps, Medicinal plants, Biocultural heritage.

## Background

The Alpine region is a fragile socio-ecological environment and the transformations induced by the ongoing climate change have been worsening the situation. The preservation of its plant and cultural diversity constitutes a key-element for promoting its sustainability (Fontefrancesco & Pieroni, 2020). In this context, the recovery and

preservation of the traditional knowledge borne by the eldest of a community can represent a new strategy for the enhancement and economic development of the territory, as it has already been done recently in the adjoining area of Valmalenco (Bottoni et al. 2020). In that case, in fact, the retrieval of lost traditions resulted in the origination of a new type of tourism for the territory, namely a cultural tourism, with new economic activity that could stem from the creation of two new Botanical Gardens entirely dedicated to the ethnobotanical knowledge of that area. This could be an example of tangible trace left by an ethnobotanical investigation on a certain territory.

Very few studies assessed the Alpine ethnobotanical knowledge: as far as we know, there are only twelve previous works, mostly developed over the past twelve years (Bellia & Pieroni, 2015, Bottoni et al. 2020, Bruschi et al. 2019, Cornara et al. 2014, Dei Cas et al. 2015, Fontefrancesco & Pieroni, 2020, Mattalia et al. 2013, Obón et al. 2012, Rivera et al. 2011, Vitalini et al. 2013, 2009, 2015).

This paper provides a contribution that enhances the mosaic of ethnobotanical studies carried out in Valtellina, an Alpine valley located in the province of Sondrio (SO, Lombardy, Italy). Particularly, our survey was carried out in the municipality of Sondalo. The idea of investigating this very territory finds its origins in the urge of one of its inhabitants (Dr. Caterina Gianoli), co-author of this paper, to play an active role in the preservation of its traditions and the knowledge of its community. In the wake of this need, she dedicated her own graduation's thesis on this project.

The specific objectives of this study were the collection, analysis, and processing of data related to plants used for medicinal purposes, as well as in the veterinary, food, cosmetic, domestic, ritual, and religious fields. Moreover, the purpose of our work was to turn this new gained knowledge into a useful tool for preserving and promoting the territory as well as the local traditions.

## Materials and Methods

### Study area

Sondalo (940 m a.s.l.) is in the province of Sondrio (SO, Lombardy, North of Italy) and has 4,070 inhabitants (Figure 1). The municipal territory covers an area of 95.45 km<sup>2</sup> and borders with Valfurva (SO) on the North-East, with Valdisotto (SO) on the North, and with Vezza d'Oglio and Ponte di Legno (Brescia, BS) on the South/South-East. Sondalo is part of the Upper Valtellina Mountain Community, and it is in a typical glacial valley, with wide bottom and steep sides. Its territory extends from 800 m a.s.l. of the valley bottom, up to over 3000 m a.s.l. of the main peaks: Monte Sobretta (3,296 m a.s.l.) on the North, Monte Serottini (2,967 m a.s.l.) on the South-West, and Redasco peak on the East (3,139 m a.s.l.). The municipal territory rises on the sides of the Adda river. The two hydrographic slopes are characterized by a marked difference in the insulation exposures.

The Rethic side is mostly facing South, and the human settlements are mainly concentrated there. This side is also characterized by vast semi-flat mountain hay grasslands. Forests of *Picea abies* (L.) H.Karst., *Pinus sylvestris* L., and *Larix decidua* Mill. dominate, interspersed with grassy clearings or broad-leaved thickets (genera *Fagus* and *Betula*).

On the other hand, the Orobic side is characterized by low temperatures and high humidity due to the mostly northern exposure. There, the woodlands are dominated by mixed deciduous forests of oaks, *Tilia cordata* Mill., and *Acer pseudoplatanus* L., interspersed with *Corylus avellana* L. and *Betula pendula* L. Beyond the tree line, bushes of *Rhododendron ferrugineum* L., *Arctostaphylos uva-ursi* (L.) Spreng., *Vaccinium myrtillus* L., and *Vaccinium vitis-idaea* L. can be found up to the limit of the high-altitude grasslands. At the subalpine horizon *L. decidua* can progressively be found while, on the south-facing slopes, *Juniperus communis* L. forms large bushes. Due to the extensive outcrops of acidic rocks, above the bush limit the herbaceous vegetation is mainly characterized by the presence of *Carex curvula* All., *Festuca halleri* All., and *Kobresia myosuroides* (Vill.) Fiori. Above the basic rocks, meadows of *Sesleria* spp. and *K. myosuroides* can be found.

### Ethnobotanical survey

The survey was conducted from February 2019 to February 2020, and it involved several steps. First, a literature survey on the autochthonous flora was performed, mainly based on wide consultation texts (Credaro & Pirola, 1974, Ferranti 2005, Magrini 1998, 1996, Massara 1834, Pignatti et al. 2017-2019). A list, reporting family name, currently accepted Latin name, and common/vernacular name was then produced. The list was supported by pictures of the species, in order to help the informants with the identification of the species during the interviews. The scientific nomenclature and family classification follow [www.theplantlist.org](http://www.theplantlist.org) and the updated site

www.worldfloraonline.org. All the *exsiccata* collected during the investigation were coded and are currently preserved in the *Herbarium* of G.E. Ghirardi Botanical Garden (DISFARM, University of Milan).

Following the Ethical Guidelines of the International Society of Ethnobiology (International Society of Ethnobiology 2006), open and semi-structured interviews were conducted in Italian or the local dialect (due to the presence of Dr. Caterina Gianoli as cultural mediator). We interviewed 101 people (65 women, 36 men), aged 25-98 (15% under the age of 40, 27% 40-60, 44% 61-80, 8% 81-90, and 7% over the age of 91). They have been reached through personal acquaintances and word-of-mouth with no restriction of age, social and cultural background. 81% were born and grew up in the study area and 98% lived on site. 8% had a primary school education, 27% received a middle school education, 54% received a high school diploma, 4% had a university degree.

The following data were thus obtained: taxon identification, common and vernacular names, field of use (medicinal, veterinary, etc.), part of the plant, detailed use, preparation form, administration form, collection sites, and collection times.

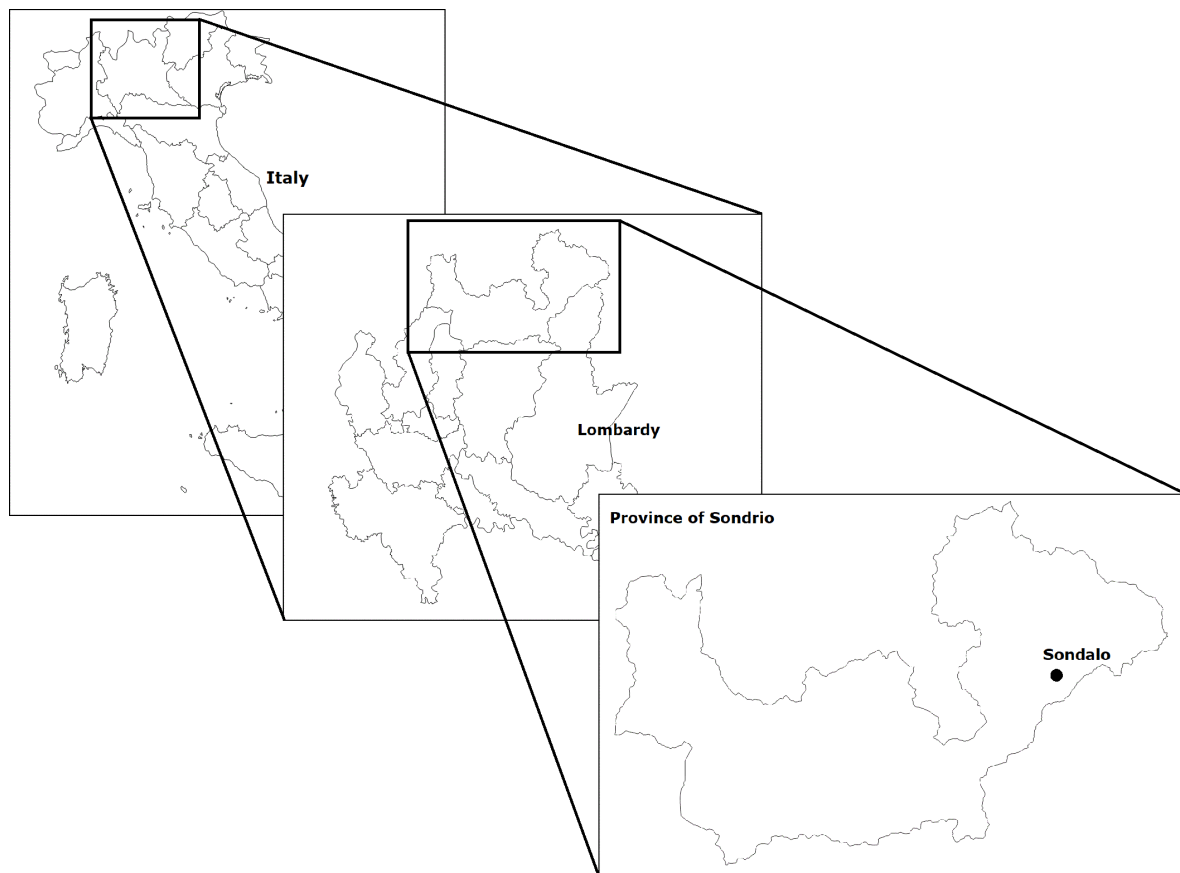


Figure 1. Sondalo is a little town in the province of Sondrio, situated in the Lombardy region, North of Italy

### Data archiving and processing

All the information gathered during the interviews concerning the plant species and their use was included into a Microsoft Word™ file, named 'Species datasheet'. Data on the informants (anagraphical data, education level, job, etc.) were also gathered and recorded in an 'Informant datasheet'. Each informant was identified by a unique ID. All data was then inserted in an *ad hoc* database, designed using Microsoft Excel™. Each record represented a 'citation', which was defined as 'a single use of a single species by a single informant'. A citation was considered a new record only when different in at least one value of the following fields: scientific name, informant, category of use, part of the plant used, method of preparation, and way of administration.

In order to facilitate subsequent analyses, the data was accurately standardized.

The data obtained for each plant species was initially grouped based on the sector of use (*i.e.* medicinal, veterinary, food, agropastoral, artisanal, domestic, recreational, magical/ritual/superstitious, religious, and hunting/fishing). It then was further divided into sector subcategories. For example, the medicinal sector was divided in subcategories based on affected organ groups, such as 'Digestive tract disorders', 'Urinary tract disorders', etc. With some necessary adjustments, the followed criterion for the classification of the different sectors of use, categories, and subcategories was based on previous published works (Bottoni *et al.* 2020, Cook 1995, González *et al.* 2010, Staub *et al.* 2015). Please, see Table 1 for the complete list of categories for the medicinal sector.

According to Leonti 2022, we used an approach mainly based on the analysis and discussion of primary data (how many times a species is cited for a given use sector and/or use category including the used parts and the form of preparation/administration). The Informant Consensus Factor (ICF) and The Fidelity level (FL) were also calculated to give further insight in the interpretability of the reported information about medicinal plants and medicinal uses.

ICF: this index was calculated according to Trotter & Logan, 1986 in order to identify the main disease categories facing the studied community and to determine if there was agreement among the informants on the use of plants for treating a specific ailment. The closer ICF is to 1, the higher the agreement. It was calculated as follows:

$$\text{ICF: } (nur - nt)/(nur - 1)$$

Where *nur* is the number of citations for each category of use (apparatus) and *nt* is the number of species used for each apparatus.

FL: this index was calculated according to Friedman *et al.* 1986, in order to identify the informants' preferred species used to treat a certain disease. We did not calculate FL when only one citation was reported:

$$\text{FL: } Np/N \times 100$$

Where *Np* is the number of informants that report the use of a species for the treatment of a particular ailment, and *N* is the number of informants that report the species for any other ailment.

### Bibliographic research in scientific literature

Finally, bibliographic research concerning the biological activities of the species mentioned during the interviews for human healthcare was carried out through search engines and online databases, such as PubMed, MedLine, Google Scholar, and the bibliographic research online tool known as J.A.N.E. The scientific or English common name of the species was combined with specific keywords concerning the category of use cited in Sondalo (*i.e.*, *Artemisia absinthium* digestive system, *Malva sylvestris* oropharyngeal cavity, *Hypericum perforatum* musculoskeletal system) and then the specific pathology or activity (*i.e.*, *Artemisia absinthium* dyspepsia, *Malva sylvestris* gingivitis, *Hypericum perforatum* joint inflammation). Particular attention was paid to systematic reviews and meta-analysis, when possible, or on single *in vitro*, *in vivo*, and clinical trials studies. No time filters were applied.

### Results and Discussion

The study gathered information on 112 species (total number of citations, *n*=1806), belonging to 52 botanical families. Asteraceae was the most cited family (24.5% of the total citations), followed by Viburnaceae (8.3%), Lamiaceae (8.3%), and Pinaceae (5.4%). Of the 112 total species, 87 (77.7%) were spontaneous, whereas 25 (22.3%) were cultivated. The most cited species were *Taraxacum officinale* F.H. Wigg. (8.3%), *Sambucus nigra* L. (8.3%), *Achillea erba-rotta* subsp. *moschata* (Wulfen) I.Richardson (5.9%), *Urtica dioica* L. (5.0%), *Humulus lupulus* L. (4.09%), and *Thymus* spp. (4.0%).

The main used parts were flowers/inflorescences (21.9%), followed by leaves (19.3%), fruits/infructescences/false fruits (16.3%), sprouts (13.0%), and the whole fresh plant (4.6%).

This survey also highlighted that the traditional uses of the different species covered and still cover various aspects of the daily life of the inhabitants: 73 species were employed in the food sector, 62 for human medicinal purposes, 27 for home care and cosmetic purposes, 17 for agro-pastoral activities, and 13 in the veterinary field.

All data are summarized in Table S1 of the Supplementary Materials, providing for each species the following information:

- Family, scientific name, English and Italian common names, vernacular name.
- Spontaneous/cultivated species, altitude and time of collection.
- Used plant parts.
- Purpose of use.
- Preparation forms.
- Administration forms.
- Current use.

### Human medicine

Regarding the 62 plants employed for medicinal purposes, the species were distributed according to their use for the treatment of different target systems: 20, skin diseases and traumas (*e.g.* acne, pimples, skin abscesses, warts, insect bites, sunburn, erythema, and as healing or emollient agents); 19, colds and airways (*e.g.* bronchitis, cough, cold, flu, and as an expectorant); 13, digestive system disorders (*e.g.* stomach and/or stomach pain, gastritis, reflux, flatulence); 10, affections of the oropharyngeal cavity (*e.g.* gingivitis, toothache, canker sores, and abscesses); 9, nervous system disorders (*e.g.* sedative properties and to promote sleep); 8, urinary tract (*e.g.* cystitis, inflammation of the urinary tract, diuretic); 7, musculoskeletal system traumas (arthritis, arthrosis, bruises, rheumatic pain, muscle and/or joint inflammation); 7, gynecological disorders, obstetric and puerperium problems (*e.g.* menstrual pain, anti-inflammatory and soothing properties); 5, circulatory system disorders (varicose veins and associated pains, hemorrhages, hemostatic, and antiarrhythmic properties); 3, ophthalmic diseases (ocular inflammations); 2, infant diseases (colic in the new-born); 1, external parasites (nail fungus); 1, ear diseases (otitis and associated pains).

Informant Consensus Factor (ICF) is commonly used in ethnopharmacological studies to assess intra-cultural consensus about the plant species used for a specific disease category. In our research, the highest values of ICF were recorded for digestive system disorders (0.88), nervous system disorders (0.87), colds and airways (0.85), and skin diseases and traumas (0.84), suggesting rather established cultural criteria for the way local people select medicinal plants to treat these ailments. Similar results were found in previous ethnobotanical studies carried out in neighbouring Alpine areas (Bottoni *et al.* 2020, Bruschi *et al.* 2019, Dei Cas *et al.* 2015, Vitalini *et al.* 2013). Please, see Table 1 for all the ICF values.

Table 1. Categories of use (pathologies treated) in Sondalo, with related Informant Consensus Factors.

Category of use (apparatus)	n. citations	n. species	ICF
Skin diseases and traumas	119	20	<b>0.84</b>
Respiratory tract infections	119	19	<b>0.85</b>
Digestive tract disorders	105	13	<b>0.88</b>
Musculoskeletal system disorders and traumas	46	7	<b>0.87</b>
Nervous system disorders	39	9	<b>0.79</b>
Oropharyngeal cavity affections	29	10	<b>0.68</b>
Gynecological disorders, obstetric, and puerperal problems	29	7	<b>0.79</b>
Other	22	13	<b>0.43</b>
Urinary tract disorders	13	8	<b>0.42</b>
Fever	12	4	<b>0.73</b>
Ophthalmic ailments	7	3	<b>0.67</b>
Circulatory system disorders	5	5	<b>0.00</b>
Headache	5	3	<b>0.50</b>
General condition	3	3	<b>0.00</b>
Early infancy ailments	2	2	<b>0.00</b>
External parasites	2	1	<b>1.00</b>
Afflictions of the ear	1	1	-

The most cited medicinal species were *Sambucus nigra* L. (n. citations=58; n. informants=40), *Achillea erba-rotta* subsp. *moschata* (Wulfen) I. Richardson (55; 49), and *Arnica montana* L. (37; 28).

The most frequently reported methods of preparation were infusion and decoction, both for internal and external administration, followed by syrup and ointment. Some species were also used to prepare oils and tinctures, and functional foods (jams, soups, and salads).

Among the 20 plants employed for the treatment of skin diseases and traumas, the most cited species were: *Chelidonium majus* L. (with n=23 citations; FL=100%), its latex/sap was directly applied over the skin to cure skin tags and warts; *Picea abies* (L.) H. Karst. (n=20; FL=76.0%), its resin, added to a fatty matrix (butter or pork fat), was applied to the skin for anti-inflammatory and healing purposes; *Calendula officinalis* L. (n=19; FL=100.0%), the oleolite or ointment obtained from its flower heads were applied on the skin for the treatment of burns and sunburn, as well as for anti-inflammatory, healing, emollient, and soothing purposes; *Larix decidua* Mill. (n=15; FL=100.0%), its resin, immediately applied after harvesting, was used for anti-inflammatory and healing purposes.

For colds and airways, the most cited species were: *Sambucus nigra* L. (n=37; FL=82.5%), the syrup obtained from the fruits or the infusion of the inflorescences were used for their expectorant and decongestant properties in the treatment of cough, colds, and flu symptoms; *Thymus* spp. (n=13; FL=80.0%), its leaves and flowering tops were used for the production of syrups and infusions (also as fumigations) for the treatment of coughs, colds and flu symptoms; *Pinus mugo* Turra (n=11; FL=91.6%), its young pine cones were used to produce a syrup for the treatment of coughs and bronchitis; *Taraxacum officinale* F.H. Wigg. (n=11; FL=78.5%), its flower heads were used to obtain a syrup to cure cough and flu.

Concerning the digestive system disorders, the flower heads of *Achillea erba-rotta* subsp. *moschata* (Wulfen) I. Richardson (n=50; FL=100.0%) and *Achillea millefolium* L. (n=20; FL=14.2%) were used for the production of a digestive infusion, also useful for the treatment of abdominal and stomach pains; a digestive decoction was produced instead from the hypogeeal organs of *Gentiana punctata* L. (n=15; FL=88.2%).

*Sambucus nigra* (n=10; FL=25.0%), *Matricaria chamomilla* L. (n=8; FL=72.7%), and *Melissa officinalis* L. (n=6; FL=75.0%) stand out from the category of nervous system disorders. The inflorescences of *S. nigra* and *M. chamomilla*, and the leaves of *M. officinalis* were infused in boiling water for sedative purposes and to promote sleep.

Concerning the oropharyngeal ailments, *Malva neglecta* Wallr. (n=9; FL=47.3%), *Malva sylvestris* L. (n=8; FL=43.7%), and *Linum usitatissimum* L. (n=4; FL=66.6%) were the most cited. The decoction produced from the whole plants of *M. neglecta* and *M. sylvestris* was used in the form of mouthwash for the treatment of gingivitis, toothache, canker sores, and abscesses. *L. usitatissimum* seeds flour was used to produce a cooked mush to be applied as a compress to treat gingivitis and toothache.

The most often mentioned species for urinary tract disorders were *Elymus repens* (L.) Gould (n=4; FL= 100.0%) and *Equisetum arvense* L. (n=3; FL=100.0%). The former was used whole to produce decoctions and infusions to treat cystitis, other urinary tract inflammations, and as a diuretic. The leaves and epigeal parts of the latter were used as diuretic infusions.

In the musculoskeletal traumas category, *Arnica montana* L. (n=34; FL=100.0%), *Brassica oleracea* L. (n=5; FL=100.0%), *Hypericum perforatum* L. (n=2; FL=33.3%), and *Artemisia absinthium* L. (n=2; FL=66.6%) were the most cited species. *A. montana* flowers were used to treat muscles or joints pain, contusions, bruises, arthrosis, and arthritis with different types of preparations (oleolites, alcoholic and wine macerates, salves, and the raw flower exudate), which were rubbed on the affected part. *B. oleracea* leaves, raw or slightly cooked, were applied externally on joints to improve pain and inflammation. The flowers of *H. perforatum* were put in vegetable oils and left under the sun to produce the traditional 'St. John's oil'. This macerated oil, bright red in colour, was then rubbed for the treatment of arthrosis and other inflammations. The epigeal part of *A. absinthium* was coarsely chopped and mixed with pork fat. The ointment thus obtained was used externally as anti-inflammatory.

Concerning circulatory system disorders, the cited species included: *Crataegus monogyna* Jacq. (n=1), as an antiarrhythmic; *Calendula officinalis* (n=1), its flowers were used to produce a salve useful for the treatment of varicose veins and associated pains; *Rosa canina* L. (n=1), its fresh leaves were applied to flesh wounds to aid in cicatrization.

For ophthalmic afflictions, *Malva sylvestris* (n=3; FL=18.7%) epigeal part and *Matricaria chamomilla* (n=2; FL=18.1%) flowers infusions were used as a compress to fight ocular inflammation.

For the treatment of new-born related pathologies, *Tilia cordata* Mill (n=1) epigeal part was placed next to the cribs to promote sleep; *Hypericum perforatum* (n=1) flower oleolite was externally rubbed, in order to treat colicky babies.

To treat external parasites, the raw hypogeeal organs of *Allium sativum* L. (n=2; FL=100.0%) were rubbed on the nails against fungal infections.

Lastly, *Malva neglecta* (n=1) was used for ear issues. The decoction of the whole plant was used as a compress for the treatment of otitis and related pains.

The comparison with scientific literature has allowed to ascribe the described activity to 36 species: *Achillea erbarotta* subsp. *moschata* (Wulfen) I. Richardson antioxidant, antibacterial (Vitalini *et al.* 2022, 2016); *Achillea millefolium* L. digestive, anti-inflammatory (stomach-ache, irritations, skin inflammations), disinfectant (Ali *et al.* 2017, Applequist & Moerman, 2011); *Allium sativum* L. antimicrobial and antibacterial (Pârvu *et al.* 2019); *Arnica montana* L. subsp. *montana* anti-inflammatory, skin traumas, muscle and joint pain (Capasso *et al.* 2006, Kriplani *et al.* 2017, Lyss *et al.* 1997, Organization WHO 2007, Sharma *et al.* 2015); *Artemisia absinthium* L. anti-inflammatory for musculoskeletal system (Choi *et al.* 2004), anthelmintic (Tariq *et al.* 2009) and appetite stimulating (Capasso *et al.* 2006); *Borago officinalis* L. dermatitis and other skin inflammations (Pieszak *et al.* 2012); *Calendula officinalis* L. anti-inflammatory and wound disinfectant, irritations and burns, circulation improvement (Buzzi *et al.* 2016, Capasso *et al.* 2006, Dinda *et al.* 2016, Fonseca *et al.* 2010, Givol *et al.* 2019, Nicolaus *et al.* 2017, Organization WHO 1999); *Carum carvi* L. carminative (Capasso *et al.* 2006); *Cetraria islandica* (L.) Ach. expectorant and anti-inflammatory (Freysdottir *et al.* 2008, Kramer *et al.* 1995, Olafsdottir & Ingólfssdottir, 2001); *Chelidonium majus* L. for skin tags and warts (Nawrot *et al.* 2020; Nawrot, 2017); *Crataegus monogyna* Jacq. antiarrhythmic (Capasso *et al.* 2006); *Elymus repens* (L.) Gould urinary tract infections and diuretic (Al-Snafi 2015); *Equisetum arvense* L. diuretic (Al-Snafi 2017, Asgarpanah & Roohi, 2012, Carneiro *et al.* 2014); *Foeniculum vulgare* Mill. lactation stimulating (Al-Sudany *et al.* 2015, Rifqiyyati & Wahyuni, 2019); *Gentiana punctata* L. digestive and stomachic (for *G. lutea* L. Capasso *et al.* 2006, McMullen *et al.* 2014); *Humulus lupulus* L. sedative and sleep promoting (Franco *et al.* 2015, Kyrou *et al.* 2017); *Hypericum perforatum* L. anti-inflammatory skin irritations and burns, musculoskeletal pains (Capasso *et al.* 2006, Organization WHO 2002, Uslusoy *et al.* 2019, Wölflle *et al.* 2013); *Juniperus communis* L. digestive (Kılıç & Kocak, 2014, Majewska *et al.* 2017, Raina *et al.* 2019); *Larix decidua* Mill. anti-inflammatory and wound disinfectant, skin disorders (Capasso *et al.* 2006, Pferschy-Wenzig *et al.* 2008, Salem *et al.* 2016); *Lilium candidum* L. wound healing and anti-inflammatory (Momtaz *et al.* 2020, Patocka, 2019); *Malva neglecta* Wallr. anti-inflammatory, antibacterial, antifungal, antioxidant, gastro-protective, and hepatoprotective (Al-Snafi, 2019); wound healing and skin anti-inflammatory (Saleem *et al.* 2020); *Malva sylvestris* L. gingivitis and oral inflammations, emollient, regenerative, and skin anti-inflammatory (Benso *et al.* 2015, Braga *et al.* 2018, Fahimi *et al.* 2015, Gasparetto *et al.* 2012, Martins *et al.* 2017, Pirbalouti *et al.* 2010, Prudente *et al.* 2017, 2013); *Matricaria chamomilla* L. ocular anti-inflammatory and soothing, gastrointestinal antispasmodic, sedative (Capasso *et al.* 2006, Keefe *et al.* 2016, Mao *et al.* 2016, McKay & Blumberg, 2006, Mehmood *et al.* 2015, Miraj & Alesaeidi, 2016, Organization WHO 1999), and menstrual pain (Saghafi *et al.* 2018); *Melissa officinalis* L. menstrual pain (Akbarzadeh *et al.* 2015, Mirabi *et al.* 2017) sedative, sleep promoting, and gastrointestinal pain (Organization WHO 2002); *Mentha spicata* L. dyspepsia and flatulence (Mahboubi, 2021); *Mentha x piperita* L. menstrual pain (Heshmati *et al.* 2016); *Picea abies* (L.) H.Karst oral inflammations, cough (Fyhrquist *et al.* 2017, Salem *et al.* 2016, Tunón *et al.* 1995), antibacterial (Rautio *et al.* 2007, Sipponen *et al.* 2009), antifungal (Rautio *et al.* 2012); *Pinus mugo* Turra anti-inflammatory, disinfectant, decongestant, expectorant (Basholli-Salih *et al.* 2017, Ciuman, 2012, Mitić *et al.* 2018); *Plantago major* L. anti-inflammatory and skin disinfectant, anti-inflammatory and infections (Adom *et al.* 2017, Haddadian *et al.* 2014, Miraj 2016; Najafian *et al.* 2018), gingivitis (Reddy *et al.* 2020, 2018); *Prunus avium* (L.) L. diuretic (Hooman *et al.* 2009); *Rheum rhabarbarum* L. stypsis (for *R. palmatum* L. Capasso *et al.* 2006); *Salvia officinalis* L. gingivitis, against bloating, anti-inflammatory (Ehrnhöfer-Ressler *et al.* 2013, Lemle 2018); *Sambucus nigra* L. bronchitis and other airways ailments (Chen *et al.* 2014, Hawkins *et al.* 2019, Porter & Bode, 2017), oral anti-inflammatory and antibacterial (Samuels *et al.* 2012); *Solanum tuberosum* L. anti-inflammatory (Basilicata *et al.* 2019, Kenny *et al.* 2013, Visvanathan *et al.* 2016); *Taraxacum officinale* F.H.Wigg. digestive, bowel motility improving, renal disorders, anti-inflammatory (Fatima *et al.* 2018, González-Castejón *et al.* 2012, Jin *et al.* 2011, Martinez *et al.* 2015); *Thymus* spp. balsamic and expectorant, anti-inflammatory (Ayrle *et al.* 2016, Jarić *et al.* 2015, Salehi *et al.* 2018, Shakeri *et*

*al.* 2019), dyspepsia and gastrointestinal disorders (Organization WHO 1999); *Vaccinium myrtillus* L. urinary tract disorders (Ștefănescu *et al.* 2019).

The bibliographic research has also highlighted the presence of some studies that offered interesting points of reflection for future investigations of the traditional uses that we identified. Specifically, *Arctium lappa* L. has been shown to possess anti-inflammatory properties (Gao *et al.* 2018), which were non-specific to the urinary tract; *Betula pendula* Roth anti-inflammatory against arthritis and rheumatism (Gründemann *et al.* 2011, Haleagrahara *et al.* 2017, Rastogi *et al.* 2015), but not related to the rhytidome; *Elaeagnus rhamnoides* (L.) A. Nelson antioxidant and rich in nutrients (Olas 2018) without any evidence that can justify a potential application as a reconstituent; *Linum usitatissimum* L. anti-inflammatory and antibacterial (Basch *et al.* 2007, Mohammed & Hameed, 2018), but not specific to the traditional uses; *Primula veris* L. mildly anti-inflammatory, expectorant, and mucolytic (Capasso *et al.* 2006) but not in the treatment of bronchitis; *Rosa canina* L. flu preventive (Winther *et al.* 2018) but not useful in the actual treatment of influenza related pathologies; *Sedum maximum* (L.) Suter anti-inflammatory (Altavilla *et al.* 2008) but not specific to skin diseases and traumas; *Sempervivum tectorum* L. anti-inflammatory and antinociceptive (Alberti *et al.* 2012, Kekesi *et al.* 2003) but not for insect bites.

Finally, although *Tussilago farfara* L. was traditionally used as an antihemorrhagic and hemostatic agent, the study by Zhou (2020) reported the antiplatelet activity of the sesquiterpenoid tussilagone (Zhou *et al.* 2020) present in the species. Therefore, the study offered an excellent starting point for a potential rebuttal of the traditional use that we have found.

### Veterinary medicine

Regarding the veterinary sector, the categories of use are divided according to the type of treated animal. 13 species were used for pathologies of bovines, while 5 species were used to treat sheep and goats.

In bovine care, the most cited species were *Achillea millefolium* L. (n=9), its infusion was administered orally to treat lack of appetite and externally as a disinfectant in the form of vaginal lavages; *Artemisia absinthium* L. (n=8) used as a eupeptic and as an external pack for the treatment sprains and swells; *Malva sylvestris* L. (n=7), administered orally for diarrhea, intestinal disorders, and to 'clean the placenta' after the delivery, or externally as a wound healing.

In sheep and goats care, the most used species were *Gentiana punctata* L. (n=7), its roots decoction was used to stimulate the appetite, improve rumen's block and as a carminative; *Picea abies* (L.) H. Karst. (n=5), the ointment based on its resin was applied externally to alleviate wounds and fractures.

### Culinary uses

In the food sector, 26 species were consumed as a field snack, the most cited of which were *Rumex acetosa* L. (n=20), *Vaccinium myrtillus* L. (n=13), and *Vaccinium vitis-idaea* L. (n=12). Specifically, the herbaceous stems and the sprouts of *R. acetosa* were cut in small pieces and consumed with the addition of either salt or sugar, while the fruits of *V. myrtillus* and *V. vitis-idaea* were eaten fresh immediately after harvest.

Twenty-three species were cooked as a side vegetable dish or in more elaborate preparations, such as frittatas, vegetable soups, stews, risottos, pastas, raviolis, and gnocchis. *Urtica dioica* L. (n=80), *Chenopodium bonus-henricus* L. (n=62), *Humulus lupulus* L. (n=61), and *Silene vulgaris* (Moench) Garcke (n=47) were the most frequently cited.

Nineteen species were used for the production of liquors. *A. moschata* (n=35), *G. punctata* (n=10), and *Artemisia genipi* Weber ex Stechm (n=9) were the most mentioned amongst the informants. Specifically, the hypogean organs of *G. punctata* and the flowers and epigeal parts of *A. moschata* and *A. genipi* were traditionally infused in alcohol for 20-30 days. These alcoholic infusions were then filtered, and a syrup of water and sugar was added in, thus obtaining the traditional digestive liquors.

Finally, 11 species were eaten raw in salads or with boiled eggs. Among these, the most cited was undeniably *Taraxacum officinale* F.H. Wigg. (n=64), followed by *Calendula officinalis* L. (n=8) and *Borago officinalis* L. (n=2).



### Agropastoral use

In the agropastoral sector, 8 species were used as animal feed. *Plantago major* L. (n=8), *Castanea sativa* Mill. (n=8), and *Arctium lappa* L. (n=3) were the most cited. The boiled leaves of *P. major* and *A. lappa*, and the *C. sativa* fruits, or the flour derived from them were used to supplement various animal's feed.

Three species, among which *Urtica dioica* L. (n=2) was the most cited, were used as natural pesticides. Specifically, their leaves were macerated in water for several days and the obtained macerate was then sprayed in the garden against plant lice and insects.

*Robinia pseudacacia* L. and *T. officinale* were cited for beekeeping (n=1, each), while *Cucurbita maxima* Duchesne and *Matricaria chamomilla* L. were used in milk processing and cheese-making, to increase lactation and improve taste, respectively (n=1, each).

### Home care and cosmetic purposes

In the domestic sector, 11 species were used for the preparation of cosmetics. *Salvia officinalis* L. (n=8), *Urtica dioica* L. (n=4), *Picea abies* (L.) H. Karst. (n=2), and *Malva sylvestris* L. (n=2) were the most cited. Fresh leaves of *S. officinalis* were utilized for hygiene of teeth and gums. The leaves infusion of *U. dioica* was applied to the hair in order to make it strong and shiny. The dried resin of *P. abies* was used as a chewing-gum to promote dental hygiene and fresh breath. Finally, the leaves decoction of *M. sylvestris* was often used as a wash or compress for the face and hands skin care.

Four species were used as repellents or traps (n=1, each). Specifically, *Laurus nobilis* L. leaves, *Lavandula angustifolia* Miller epigeal parts, and *Aesculus hippocastanum* L. fruits were put in wardrobes to repel moths. *Ruscus aculeatus* L. was used as an entire plant and thoroughly dried. It was placed in haybarns and warehouses in order to keep rats away.

Three species were useful as textile dyes. *Berberis vulgaris* L. (n=3) was the most cited species and its hypogean organs were used as a yellow dye for wool. The cooking water of *C. sativa* (n=2) fruits was used instead to give wool a light brown color. The dried husk of *Juglans regia* L. (n=1), which is then boiled, was used to dye fabrics brown.

Finally, wood obtained from *Betula pendula* Roth (n=2), *P. abies* (n=2), *Pinus cembra* L. (n=1), and *Pinus sylvestris* L. (n=1) was used to fuel domestic fireplaces.

### Comparison with the neighbouring areas (province of Sondrio)

Considering the ethnobotanical literature, four investigations have already been performed on the territory of Sondrio, namely in Val San Giacomo (Vitalini *et al.* 2013), Valfurva (Dei Cas *et al.* 2015), Stelvio National Park (Vitalini *et al.* 2015), and Valmalenco (Bottoni *et al.* 2020).

Regarding the medicinal use, these studies pointed out that the most treated pathologies often concerned the digestive tract, the respiratory system, and the urinary tract. Although in our investigation the largest number of species was dedicated to the treatment of skin diseases and traumas, respiratory ailments, and digestive disorders followed directly after. Despite some local differences, it is possible to note a common thread among the most cited species in the studies. While *Sambucus nigra* was most cited in Sondalo, the use of its flowers, in infusions or syrups, to treat cough and colds, was confirmed by all of the other studies. *Achillea erba-rotta* subsp. *moschata* was commonly administered in the territory of Sondrio as an infusion or a decoction mainly to treat digestive problems, as a digestive, antispasmodic, and carminative agent, for stomach-ache and abdominal pain. Nevertheless, in Sondalo, Valmalenco, and Valfurva the infusion of the plant was also used for the skin, in compresses or washes, in order to improve wound healing and treat inflamed pimples. Finally, *Arnica montana* was mentioned in Sondalo, Valfurva, Valmalenco, and Val San Giacomo for the anti-inflammatory properties of the extracts obtained from its flowers, commonly used for muscles and joint pains, bruises, and contusions.

For animal care, although infusions of *Achillea millefolium* were administered as a digestive remedy in all the neighbouring areas considered, in the territory of Stelvio National Parks they were also used against cough, while washings and compresses were used in Valmalenco to promote wound healing in cattle. Something similar can be pointed out for *Artemisia absinthium*, mentioned as a digestion promoting remedy in Valmalenco and Stelvio National Park, and as a disinfectant and wound healing agent in Valfurva.

Concerning the culinary sector, spontaneous plants were used as ingredients for traditional dishes and liquors throughout all the province territory, with some local differences in recipes and vernacular names that identify every single area. As a way of example, we cite the use of fruits from *Sambucus nigra*. Although they were used for the preparation of typical home-made jams also in Valfurva and in the territory of Stelvio National Park, in Sondalo they were also the main ingredient of a local dessert (vernacular name "*Papa de cunfêec*"), similar to a pudding prepared with fresh black elder juice, milk, flour, sugar, and butter.

Some common ground can be found also in the cosmetic field. The use of leaves from *Salvia* spp. for promoting dental hygiene could be found also in Valfurva and in Val San Giacomo, although in that areas *Salvia pratensis* was considered the species of choice. Still on the subject of dental hygiene, Sondalo and Valfurva shared the use of the resin from *Picea abies* as a natural chewing-gum for teeth cleaning and fresh breath. Additionally, while in Valfurva and in Val San Giacomo *Urtica dioica* was mentioned for hair and scalp care, this works pointed out the use of the roots in infusion or decoction, whereas in Sondalo the leaves are the plant part of choice for the same treatments. Finally, as in Sondalo the decoction of *Malva* spp. could be used for face skincare (specifically to soothe irritated skin), in Valfurva the infusion of leaves and flowers of *Malva* spp (namely *M. neglecta*) was used as a cosmetic treatment against undereye bags and dark circles.

## Conclusions

The Alpine territory is still characterized by ancient traditions linked to the rhythms of rural life and the use of all its resources, among which tower spontaneous plant species. However, climate crisis and the inevitable impoverishment of the area represent an ongoing challenge for the inhabitants and the preservation of these precious traditions, which are often passed down verbally only. Ethnobotany can therefore be an effective tool useful to ensure the survival of this information through the ravages of time, which serves to enrich and promote a rebirth of the territory.

The work presented herein performs this function accurately, by surveying the traditions of the inhabitants of an area little investigated before, concerning the use of plant species. Through the analysis of the data gathered in 101 interviews, our study has highlighted the fact the people of the Sondalo area still have a deeply rooted knowledge of the traditional use of spontaneous species of their territory. 112 cited species covered several aspects of their day-to-day life, including 62 used for medicinal purposes. The information obtained on human healthcare was enriched by extensive bibliographic research within scientific literature. In this way, it was possible to determine that pharmacological studies concerning these plant species and their uses were still extremely limited. Furthermore, the works taken into consideration from scientific literature, often did not include the same traditional preparations that we recorded during our investigation, nor the same plant parts.

The role of ethnobotany as a research instrument to identify new potentially active compounds in the field of pharmacology is well known. However, the present scarcity of scientific data comparable to the ones gathered during fieldwork made validation of these ancient uses difficult at best. For this reason, further investigations and scientific studies are required, especially on the species traditionally used for decades in the Alpine region.

On top of this, it is important to remember that the idea of investigating this very territory came from the need of one of its inhabitants (Dr. Caterina Gianoli) to play an active role in preserving its customs and the knowledge of its community. Therefore, she dedicated her own graduation's thesis on this project, which thus became a first mean for the promotion of the study area. Additionally, although delayed so far due to the COVID-19 pandemic, an event open to the population will be undoubtedly arranged in order for all the information gathered during the field work and enriched by the newest scientific intel to return to its territory of belonging. This event would hopefully help raise awareness among the people of Sondalo about the compelling matters of protecting the bio-cultural diversity of their area, with a view to future practical actions that would encourage the sustainable use of the territory and its resources.

## Declarations

**List of abbreviations:** ICF, Informant Consensus Factor; FL, Fidelity Level

**Ethics approval and consent to participate:** All the people interviewed were informed about the objectives of our investigation and gave their oral consent to share the information.

**Consent for publication:** The final manuscript was read and approved for publication by all authors.

**Availability of data and materials:** This paper contains all data concerning the study.

**Competing interest:** The authors declare no competing interests.

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Table S1. Species cited in Sondalo, with corresponding part of plant, fields and categories of use, forms of preparation, and methods of administration. AGR: Agropastoral; DOM: Domestic (home care and cosmetic); FO: Food; MAG/MED: Magical/Medicinal; MED: Medicinal; VET: Veterinary.

Family  Species English and Italian common name Vernacular name  ( <i>Herbarium sample code</i> )	Spontaneous/Cultivated Altitude Time of collection	Part of plant	Use	Preparation	Administration	Current use	Bibliographic research - Biological activity
<b>Amaranthaceae</b>							
<i>Chenopodium bonus- henricus</i> L. Good King Henry, farinello, buon Enrico Cögoi o cögol ( <i>Su01</i> )	Spontaneous Young leaves: July-August	Leaves	FO: -soups	-ingredient of the typical soup with potatoes and rice		Yes	
			-cooked vegetable	-boiled and seasoned with oil, vinegar, and salt, or sautéed in a pan. Added to the cooking water of <i>pizzoccheri</i> to the spoon and of " <i>ris cundi/conc</i> " ( <i>pizzoccheri</i> - flavoured rice)		Yes	
			-frittata	-boiled and then sautéed in a pan, mixed with whisked eggs, salt, and pepper		Yes	
			-risotto	-in the risotto, instead of spinach			
			-quiche	-filling for a quiche, instead of spinach		Yes	

<i>Chenopodium album</i> L. White goosefoot, farinello comune Cinescri	Spontaneous Young leaves: Spring	Leaves	<b>FO:</b> -soups			Yes	
<b>Amaryllidaceae</b>							
<i>Allium cepa</i> L. Onion, cipolla Scigola	Cultivated June-October	Hypogeal organs	<b>FO:</b> -flavour	-sauté -raw in salads		Yes	
			<b>MED:</b> -colds and flu	-boiled in cow milk	-filtered, honeyed, drunk warm in the evenings and when needed	Yes	
<i>Allium sativum</i> L. Garlic, aglio Ai	Cultivated June-September	Hypogeal organs	<b>FO:</b> -flavour	- sauté -raw as flavour for grilled vegetables -dried and powdered in aromatic salts -fresh in the typical aromatic salt "pestedà"		Yes	Antimicrobial, antibacterial (Pârvu <i>et al.</i> 2019)
			<b>MED:</b> -nail mycosis	-fresh, a slice put on the nail	-leave overnight, change every day	No	
			<b>MAG/MED:</b> - anthelmintic	-raw peeled garlic	-garlic necklace, especially for children	No	
			<b>AGR:</b> -insecticide and parasiticide for plants	-macerated in water, filtered, and sprayed on the plants		Yes	
<b>Apiaceae</b>							
<i>Carum carvi</i> L. Caraway, cumino dei prati Carè	Spontaneous Fruits: September	Fruits	<b>FO:</b> - liquor	-grappa <i>carè</i>		Yes	Carminative (Capasso <i>et al.</i> 2006)
			<b>MED:</b> -digestive- carminative	-infusion	-1 cup when needed	Yes	

		Herbaceous stems	<b>FO:</b> -field snack	-chewed and kept till it becomes tasteless		No	
<i>Foeniculum vulgare</i> Mill. Fennel, finocchio Finocchio	Cultivated or bought Fruits: August-September	Fruits	<b>MED:</b> -improves lactation	-infusion	-1 or 2 cups a day	Yes	Lactation stimulating (Al-Sudany <i>et al.</i> 2015, Rifqiyati & Wahyuni, 2019)
			-carminative	-infusion	-1 warm cup when needed	Yes	
<i>Heracleum sphondylium</i> L. Hogweed, panace comune Verzavéna or arzévéna	Spontaneous	Whole plant	<b>AGR:</b> -Cattle avoid this plant, so that hay containing this species is considered low quality			Yes	
		Stems	<b>LUD:</b> -cigarettes	-dried, lit, and smoked like a cigarette (hollow inside)		No	
<b>Asparagaceae</b>							
<i>Ruscus aculeatus</i> L. Butcher's-broom, pungitopo Pungitopo	Bought	Epigeal parts	<b>DOM:</b> -repellent for mice and rats	-put on beams and in drying rooms (where chestnuts and other fruits were dried) to repel rats		No	
<b>Asteraceae</b>							
<i>Achillea erba-rotta</i> subsp. <i>moschata</i> (Wulfen) I.Richardson Simple leaved milfoil, erba lva Taneda or daneda (Do01)	Spontaneous Flowers: July-August Leaves: From June on	Flowers	<b>MED:</b> -indigestion, nausea and vomiting, stomach-ache, lack of appetite -headache (due to indigestion)	-infusion: 1 or 2 pinches of fresh or dried flowers in boiling water -liquor -infusion	-1 cup a day  -1 little glass after meals -1 cup when needed	Yes  Yes	Antioxidant, antibacterial (Vitalini <i>et al.</i> 2022, 2016)

			-pimples	-decoction	-decoction used to rinse the face once or twice a day	Yes	
			-relaxant baths to relieve stress	-decoction	-decoction added to the bath water	Yes	
			<b>FO:</b> -liquor	-fresh flowers in ethanol (90°) for 30-40 days, filtered and mixed with a sugary syrup		Yes	
			-flavour	-1 or 2 flowers mixed with coffee powder in the filter		Yes	
		Leaves	-flavour	-one of the ingredients of the typical aromatic salt " <i>pestedà</i> "	-added to minestrone, soups, and sauce	Yes	
				-pasta dressing	-fresh, used to prepare a pesto		
		Epigeal parts	<b>VET:</b> -in cattle, goats, and sheep: used to reactivate the rumen, in case of bloating and lack of appetite	-decoction	-500 ml of decoction and 500 ml of <i>Fernet Branca</i> (a commercial bitter liquor); twice a day	Yes	
<i>Achillea millefolium</i> L. Common yarrow, millefoglio Carè de verm or carè mat (Bo01)	Spontaneous  Flowers and aerial parts: June-September	Flowers	<b>MED:</b> -pimples and acne	-decoction	-decoction used to rinse the face twice a day (morning and night)	Yes	Digestive, anti-inflammatory, disinfectant (Ali <i>et al.</i> 2017, Applequist & Moerman, 2011)
			-headache due to indigestion	-infusion	-a warm cup when needed	Yes	

	-indigestion, stomach-ache, nausea, lack of appetite -relaxant	-infusion	-a warm cup when needed	Yes
		-infusion	-1 cup in the evening, before bed	Yes
	-expectorant, pertussis	-infusion	-a warm cup, more than once during the day	Yes
	<b>FO:</b> -liquor	-flowers in ethanol (90°) for 20-30 days, filtered and mixed to sugary syrup		Yes
Aerial parts	<b>VET:</b> -in cattle, goats, and sheep: used to reactivate the rumen, in case of bloating and lack of appetite <i>-post-partum</i> vaginal disinfectant	-decoction	-oral administration through a bottle, more than once a day	Yes
	<b>MED:</b> -pimples and sebaceous cysts -intimate itching	-decoction	-warm compress, to be repeated till healing -sitz baths, once or twice a day	No
	-indigestion	-decoction	-vaginal douches	No
		-infusion	-a warm cup when needed	Yes
	<b>DOM:</b> - ornamental	-collected and dried in small bundles, then painted in various colours		Yes

		Whole plant	<b>VET:</b> -in cattle, goats, and sheep: used to reactivate the rumen, in case of bloating and lack of appetite	-decoction	-500 ml of decoction and 500 ml of <i>Fernet Branca</i> (a commercial bitter liquor); more than once a day, through a bottle	Yes	
<i>Arnica montana</i> L. Mountain tobacco, arnica Arnica (Do02)	Spontaneous	Flowers	<b>MED:</b> - muscular and joint pain: arthritis, arthrosis, rheumatism, contusions, sprains	-fresh flowers covered in ethanol (90°) for 20-30 days	-rubbed on the part, once or twice a day	Yes	Anti-inflammatory, skin traumas, muscle and joint pain (Capasso <i>et al.</i> 2006, Kriplani <i>et al.</i> 2017, Lyss <i>et al.</i> 1997, Organization WHO 2007, Sharma <i>et al.</i> 2015)
	Flowers: June-July			-macerated oil, fresh flowers covered in olive or almond oil, put in the sun for 20 days)	- rubbed on the part, several times a day	Yes	
				-salve	- rubbed on the part, several times a day	Yes	
				-exudate	- a few drops rubbed on the part, once a day	Yes	
<i>Arctium lappa</i> L. Great burdock, bardana maggiore Bardana or rapoli (referred to the fruits)	Spontaneous	Leaves	<b>FO:</b> -soups and minestrone	-fresh leaves		Yes	
	Leaves: May-July, before the anthesis						



			-fresh pasta, <i>pizzoccheri</i> to the spoon	-stewed and chopped, blended with the ingredients of pasta ( <i>tagliatelle</i> , fresh pasta) or to the <i>pizzoccheri</i>			
			-risotto	-stewed, chopped, and added to the sauté onion			
			<b>MED:</b> - kidney disorders	-leaf slightly stewed	- applied externally on the back at the kidneys level	No	
			<b>AGR:</b> - pigs	-stewed and added to flour, potatoes, and other leftovers		No	
		Fruits (dried)	<b>LUD:</b> - toys/jokes	-the hooked flowered heads are 'sticky', children used to throw them on hair and clothes as a joke		No	
<i>Artemisia absinthium</i> L. Absinthe, assenzio Ascenz (So01)	Spontaneous Leaves: June-August	Leaves and aerial parts (not flowering)	<b>MED:</b> -joint pain and swelling	-raw poultice mixed with pork fat	-abundantly applied on the joint and covered with a gauze, left overnight, and removed in the morning	Yes	Anti-inflammatory for musculoskeletal system, anthelmintic, appetite stimulating (Capasso <i>et al.</i> 2006, Choi <i>et al.</i> 2004, Tariq <i>et al.</i> 2009)
			-vermifuge (intestinal worms)	-decoction	-a glass in the mornings on empty stomach	No	

			<p><b>VET:</b> (cattle)                  -swelling joints                  -healing for hoof wounds                  -lack of appetite, blocked and bloating rumen                  -<i>post-partum</i> corroborant</p>	<p>-chopped and mixed with pork fat                  -decoction                  -chopped and mixed with the deposits at the bottom of a demijohn (red wine)</p>	<p>-applied on joints and hoofs several times a day                  -1 litre, once a day                  -given to the cows after labour</p>	<p>Yes                  Yes                  No</p>	
<i>Artemisia genipi</i> Stechm. Genepi, genepi Genepi (Do06)	Spontaneous Flowers: July	Aerial parts	<b>FO:</b> -liquor			Yes	
<i>Calendula arvensis</i> L. Field marigold, calendula selvatica Calendula selvatica	Spontaneous Flowers: June-July	Latex	<b>MED:</b> -warts	-when the stem is broken, it produces a whitish latex	-applied repeatedly on the warts	Yes	
<i>Calendula officinalis</i> L. Marigold, calendula Calendula	Cultivated and Spontaneous Flowers: June-July	Flowers	<p><b>MED:</b> -skin irritation and redness                  -burns and sunburn                  -fissures                  -dry skin                  -wound healing                  -lesions                  -insects bites</p>	<p>-salve                  -macerated oil</p>	-applied several times a day, till complete absorption	Yes	Anti-inflamamtory, wound disinfectant, irritations, burns, improving circulation (Buzzi <i>et al.</i> 2016, Capasso <i>et al.</i> 2006, Dinda <i>et al.</i> 2016, Fonseca <i>et al.</i> 2010, Givol <i>et al.</i> 2019, Nicolaus <i>et al.</i> 2017, Organization WHO 1999)
			-varicose veins	-salve or oil	-applied frequently	Yes	

			-haemorrhoids	-salve	-applied abundantly, several times a day	Yes
			-arthrosis pains	-alcoholic macerate (with lavender and rosemary)	-frequent frictions when needed	Yes
			<b>FO:</b> -frying	-fresh flowers in batter and then fried		Yes
			-salad	-petals and young leaves added to salads		Yes
			<b>COSM:</b> - antiwrinkle	-salve or oil	-applied on the face every night before bed	Yes
<i>Carduus defloratus</i> L. Alpine thistle, cardo dentellato	Spontaneous Herbaceous stems: June-August	Herbaceous stems	<b>FO:</b> -field snack, thirst-quenching	-chewed		No
<i>Carlina acaulis</i> L. Stemless carline thistle, carlina bianca Garzon	Spontaneous Receptacle: June-September	Receptacles	<b>FO:</b> -field snack	-the thorns are removed, and the receptacle is eaten (called "li torta")		No
<i>Cirsium vulgare</i> (Savi) Ten. Spear thistle, cardo asininio	Spontaneous Herbaceous stems: July-August	Herbaceous stems		- the thorns are removed, and the stems are eaten		No
<i>Leucanthemum vulgare</i> Lam. Daisy, margherita Margherita	Spontaneous Flowers: May-June, at the beginning of the anthesis	Flowers	<b>MED:</b> -cough sedative	-infusion	-1 or 2 warm cups a day, preferable honeyed	No

<i>Matricaria chamomilla</i> L. Chamomile, camomilla Camomilla	Cultivated and Spontaneous <i>Capitula</i> : May-June, at the beginning of the anthesis	Flowered <i>capitula</i>	<b>MED:</b> -stomach- ache, indigestion, nausea, and vomiting -diarrhoe	-infusion	-1 or 2 cups a day when needed, lukewarm	Yes	Ocular anti- inflammatory and soothing, gastrointestinal antispasmodic, sedative, menstrual pain (Capasso <i>et al.</i> 2006, Keefe <i>et al.</i> 2016, Mao <i>et al.</i> 2016, McKay & Blumberg, 2006, Mehmood <i>et al.</i> 2015, Miraj & Alesaeidi, 2016, Organization WHO 1999, Saghafi <i>et al.</i> 2018)
			-menstrual pains	-infusion	-1 warm cup when needed	Yes	
			-irritation and conjunctivitis. swelling eyes	-decoction	-compresses with lukewarm decoction, several times a day	Yes	
			-insomnia, anxiety	-infusion	-1 cup before bed	Yes	
			-colds and sinusitis	-infusion	-fumigations, with the addition of bicarbonate, once or twice a day	Yes	
			-cough and bronchitis	-infusion	-1 warm cup when needed	Yes	
			-general discomfort	-infusion	-1 warm cup when needed	Yes	
<b>FO:</b> -drink	-sweet infusion, warm or cold		Yes				
<b>COSM:</b> - enhances blonde hair	-hair rinsed with the decoction		No				

			<b>AGR:</b> -cattle	-mown and dried, added to the hay to maintain cattle healthy		No	
			<b>VET</b> (cattle): -to prevent gastric disorders (bloating, blocked rumen)	-added to the hay		No	
<i>Taraxacum officinale</i> F.H.Wigg. Dandelion, tarassaco Dent de leon (plant); bofa bofa (seeds) (Bo02)	Spontaneous Flowers: June-September Basal rosette: April-May Hypogean organs: September-October	Basal rosette	<b>FO:</b> -raw vegetable	-in salads, with hard-boiled eggs		Yes	Digestive, bowel motility improving, renal disorders, anti-inflammatory (Fatima <i>et al.</i> 2018, González-Castejón <i>et al.</i> 2012, Jin <i>et al.</i> 2011, Martinez <i>et al.</i> 2015)
			-cooked vegetable	-boiled and seasoned with oil, vinegar/lemon, and salt or sautéed		Yes	
			-soups	-ingredient of "ris conc" or "ris cundl" -potato soup with "dent de leon", and milk		Yes	
			<b>MED:</b> -occasional constipation	-decoction	-decoction drunk when needed	No	
			-blood "depurative"	-eaten		No	
		Flowers	<b>FO:</b> -sweetener	-dandelion syrup or 'honey'		Yes	
			-frying	-battered and deep fried, then salted		Yes	

			-salad	-added fresh to salads		Yes
			<b>MED:</b> - expectorant -sedative for dry cough -stimulates digestion -mild laxative	-syrup	-1 or 2 spoons a day, used also as sweetener in herbal teas -as sweetener	Yes
		Immature capitula	<b>FO:</b> -preserved under oil	-syrup	-2 spoons a day	Yes
		Seeds	<b>LUD:</b> -seeds blown ("bofa bofa", namely blow blow)			Yes
		Herbaceous stems	<b>FO:</b> cooked vegetables	-sautéed with garlic in a pan, then seasoned with cheese		Yes
			<b>MUS:</b> -squeaky trumpet	-the flower is removed, cut at the other end, and blown		No
		Rhizomes	<b>MED:</b> - detoxifying	-decoction	-one glass a day	No
<i>Tragopogon pratensis</i> L. Meadow salsify, barba di becco Lacet	Spontaneous Herbaceous stems: June-August	Herbaceous stems	<b>FO:</b> -field snack	-chewed, it releases a sweetish taste		No
<i>Tussilago farfara</i> L. Coltsfoot, tossilaggine comune Farfaraccio	Spontaneous Leaves: June-July	Leaves	<b>MED:</b> - haemostatic	-fresh leaves	-applied on bleeding and hard to treat wounds	No

<b>Berberidaceae</b>						
<i>Berberis vulgaris</i> L. Barberry, crespino comune Spin de ughèta	Spontaneous Fruits: September-October Hypogeal organs: October-November	Fruits	<b>FO:</b> -field snack, fresh fruit	- chewed, sour taste		No
		Hypogeal organs	<b>DOM:</b> -dyeing	-roots decoction to dye wool yellow		No
<b>Betulaceae</b>						
<i>Betula pendula</i> Roth Silver birch, betulla Bedógn	Spontaneous Rhytidome: March-April	Rhytidome	<b>MED:</b> -rheumatic pains	-salve: rhytidome left in oil overnight, the oil is then filtered, and hot bee-wax is added	-the part is massaged once a day	Yes
		Wood	<b>DOM:</b> -to light the fire -firewood	<b>DOM:</b> -curls (" <i>li bogioll</i> ") or little pieces (" <i>steculin</i> ") of wood to light the fire -left drying in a shaded place before use		Yes
<i>Corylus avellana</i> L. Hazelnut, nocciolo Cölor	Spontaneous and cultivated Fruits: by the end of August-September	Fruits	<b>FO:</b> -dried fruits, nuts			Yes
		Wood	<b>ART:</b> -used to create artisanal snowshoes			No
			<b>LUD:</b> -used to create bows			No

		Branches, Twigs	<b>ART:</b> -used to create "gerle" (big backpack panniers for the transport of wood, hay, and other)	-woven		No	
			<b>LUD:</b> -used to create bows			No	
<b>Boraginaceae</b>							
<i>Borago officinalis</i> L. Bee bread, borragine Boragine	Cultivated Leaves: April-June, before the anthesis	Leaves	<b>FO:</b> -pasta and gnocchi	-steamed and minced, added to the tagliatelle, fresh pasta, and <i>pizzoccheri</i> to the spoon dough		Yes	Dermatitis, skin inflammations (Pieszak <i>et al.</i> 2012)
			-filling for ravioli	-filling with bee bread and ricotta cheese		Yes	
			-frittata	-steamed and sautéed, then added to the whisked eggs		Yes	
			-salads	-fresh leaves in salads (only a few)		Yes	
			-risotto	-steamed and thinly minced, then sautéed		Yes	
			-soups			Yes	
			<b>MED:</b> -pimples, skin redness and irritation	-decoction	-frequent washes	Yes	
<i>Myosotis alpestris</i> F.W. Schmidt Alpine forget-me-not, non ti scordar di me Nontiscordardime	Spontaneous Flowers: Spring-Summer	Flowers	<b>DOM:</b> -ornamental			Yes	



<b>Brassicaceae</b>						
<i>Brassica oleracea</i> L. Kale, verza Verza	Cultivated. Leaves: September- October	Leaves	<b>MED:</b> -joint pains and swelling	-fresh or slightly steamed leaf, then crush with a rolling- pin	-the leaf is wrapped around the pined joint. Left overnight and removed in the morning. If the leaf is completely dried, the remedy worked.	Yes
			<b>FO:</b> - <i>pizzoccheri</i> of Valtellina and <i>pizzoccheri</i> to the spoon -stewed	- added to the cooking water		Yes
			<b>AGR:</b> -given raw or cooked to pigs and goats to eat	-added to the sauté onion, with tomato pulp. Cooked for a long time with water, salt, and various spices		Yes
<i>Nasturtium officinale</i> R.Br. Watercress, crescione d'acqua Crescione	Spontaneous Epigeal parts: Spring, before the anthesis	Epigeal parts	<b>FO:</b> -salads	-seasoned with oil, vinegar, and salt		No
<b>Campanulaceae</b>						
<i>Phyteuma betonicifolium</i> Vill. Betony-leaved rampion, raponzolo montano Stronzaneli	Spontaneous Leaves, sprouts, and herbaceous stems: April- May	Leaves	<b>FO:</b> -soups			Yes

		Sprouts and herbaceous stems	<b>FO:</b> -field snack	-chopped and seasoned with salt or sugar -chewed, sugary taste		No	
<i>Phyteuma orbiculare</i> L. Round-headed rampion, raponzolo orbicolare Pizat	Spontaneous Sprouts and herbaceous stems: April-May, before the anthesis	Sprouts and herbaceous stems	<b>FO:</b> -field snack	-chopped and seasoned with salt or sugar		No	
<b>Cannabaceae</b>							
<i>Humulus lupulus</i> L. Hop, luppolo Ligabosch (Bo04)	Spontaneous Sprouts: May. Female inflorescences: August-September Herbaceous stems (dried): October	Sprouts	<b>FO:</b> -frittata	-steamed and then cooked in the pan, added to the whisked eggs with salt, pepper, and parmesan cheese		Yes	Sedative and sleep promoting (Franco <i>et al.</i> 2015, Kyrou <i>et al.</i> 2017)
			-cooked vegetables	-substitute of asparaguses: steamed or cooked in the pan with parmesan		Yes	
			-risotto	-steamed and then sautéed for the risotto		Yes	
		Female inflorescences Herbaceous stems	<b>MED:</b> anxiolytic, promotes sleep <b>LUD:</b> -cigarettes	-infusion with dried flowers - dried, cut, lit, and smoked like a cigarette	-1 or 2 cups before bed	Yes No	
<b>Caryophyllaceae</b>							
<i>Silene vulgaris</i> (Moench) Garcke Maidenstears, silene Sdrizega (Ro01)	Spontaneous Sprouts: April-May Flowers: June-August Leaves: June-August	Sprouts	<b>FO:</b> -soups	-alone or with potatoes, rice, or other cereals		Yes	

			-risotto	-added fresh to the sauté onion of the risotto		Yes
			-cooked vegetables	-boiled as spinach, then sometimes seasoned and eaten, sometimes sautéed in a pan		Yes
			-frittata	-sautéed in a pan, then added to the whisked eggs with salt and pepper		Yes
			-filling for ravioli	-cooked, chopped, and mixed with ricotta cheese		Yes
			-vegetable sauce for pasta	-sautéed in a pan, then mixed with tomato pulp and salt		Yes
		Epigeal parts (before the anthesis)	<b>AGR:</b> -fodder for pigs	-cooked and mixed with several different flours and leftovers		No
		Flowers	<b>LUD:</b> -game/joke	-burst on the forehead		Yes
		Leaves	<b>MUS:</b> -whistle	-2 leaves are brought to the mouth, then with a specific technique a whistle can be produced		No
<b>Crassulaceae</b>						
<i>Hylotelephium maximum</i> (L.) Holub Tallest stonecrop, borracina massima Coion de gat	Spontaneous Leaves: June-August	Leaves	<b>MED:</b> -whitlow inflammation -against itching due to insect bites	-fresh leaf	-applied and secured on the part	No

<i>Sedum dasyphyllum</i> L. Thick-leaved Stonecrop, borracina cinerea Frumentin	Spontaneous Leaves: April-October	Leaves	<b>MED:</b> -against itchiness due to insect bites or nettles	-when the leaves are crushed, they produce a gel	-applied on the part	Yes		
<b>Cucurbitaceae</b>								
<i>Cucurbita maxima</i> Duchesne Pumpkin, zucca Zucca	Cultivated	Fruit	<b>AGR:</b> -given to cows, to improve lactation	-cut into slices		No		
			<b>VET:</b> -as a corroborant remedy after labour	-cooked and mixed with several different flours	-after labour	No		
<b>Cupressaceae</b>								
<i>Juniperus communis</i> L. Juniper, ginepro Ginéuro	Spontaneous	<i>Galbuli</i>	<b>FO:</b> -flavouring	-one of the ingredients of the typical aromatic salt "pestedá" -stews, roasts -added to pork sausages -added to the pork fat		Yes	Digestive (Kılıç & Kocak, 2014, Majewska <i>et</i> <i>al.</i> 2017, Raina <i>et</i> <i>al.</i> 2019)	
				-preserves in vinegar or oil	-added to the mix of water and vinegar used in the recipe of preserves		Yes	
				<b>MED:</b> -digestive	-decoction	-drunk warm when needed	Yes	
		Whole plant	<b>FO:</b> -smoked cold-cuts	-dried plants of juniper are lit under the hung sausages, to give an aromatic smoked flavour		No		
<b>Elaeagnaceae</b>								

<i>Hippophae rhamnoides</i> L. Sea buckthorn, olivello spinoso Olivello spinoso or spin de l'Ada	Spontaneous Fruits: Autumn	Fruits	<b>FO:</b> -field snack		No		
			<b>MED:</b> -corroborant	-decoction	-1 cup when needed	Yes	
<b>Equisetaceae</b>							
<i>Equisetum arvense</i> L. Field horsetail, equiseto	Spontaneous Aerial part: May-July	Aerial part	<b>MED:</b> -diuretic -cystitis and urinary affections -difficulty in urination	-infusion (dried aerial parts)  -decoction (dried aerial parts)	-1 or 2 cups, once a day	No	Diuretic (Al-Snafi 2017, Asgarpanah & Roohi, 2012, Carneiro <i>et al.</i> 2014)
<b>Ericaceae</b>							
<i>Arctostaphylos uva-ursi</i> (L.) Spreng. Bearberry, uva ursina Baga ursina	Spontaneous Fruits: July-August	Fruits	<b>FO:</b> -mountain snack	-as fresh fruit		Yes	
<i>Rhododendron ferrugineum</i> L. Rusty-leaved alpenrose, rododendro ferrugineo Granfion or fior de giup	Spontaneous Flowers: July Galls: August	Flowers	<b>DOM:</b> -ornamental	-to ornate houses and windowsill		Yes	
			<b>LUD:</b> -toy-food	-production of wine as a hobby ("vin de granfion")		No	
			<b>FO:</b> -mountain snacks	-as fruits ("pom de giup" as in alpenrose apples)		No	
		Galls	<b>LUD:</b> -toy-food	-used to recreate a fake 'fruit market'		No	
<i>Vaccinium myrtillus</i> L. Blueberry. mirtillo Baga	Spontaneous Fruits: August Leaves: June-July	Fruits	<b>FO:</b> -fresh fruit -jams			Yes	Urinary tract disorders (Ștefănescu <i>et al.</i> 2019)

		Leaves	<b>MED:</b> -cystitis	-infusion	-1 cup, twice or three times a day	Yes
			<b>FO:</b> -field snack			No
<i>Vaccinium vitis-idaea</i> L. Cranberry, mirtillo rosso Caluda	Spontaneous Fruits: August	Fruits	<b>FO:</b> -fruit			No
<b>Fabaceae</b>						
<i>Robinia pseudoacacia</i> L. Black locust, robinia Spin rubin	Spontaneous Flowers: April-August	Flowers	<b>FO:</b> -frittata	-added fresh to the whisked eggs		Yes
			-frying	-sweet pancakes		Yes
<i>Trifolium repens</i> L. White clover, trifoglio bianco Quadrifoglio	Spontaneous Plant: June-September. Flowers: June-July	Plant	<b>SUP:</b> -superstitious, against adversity, lucky charm	-if a four-leaf clover is found, it must be saved		Yes
		Flowers	<b>FO:</b> -field snack	-petals are sucked on, sugary taste		Yes
<b>Fagaceae</b>						
<i>Castanea sativa</i> Mill. Chestnut, castagno Castégn	Spontaneous and cultivated Leaves: April-May Fruits: end of September	Fruits	<b>FO:</b> -roasted chestnuts	-roasted on embers or with direct contact of the fire		Yes
			-boiled	-boiled in water, peeled when still hot		Yes
			-sweets	-Montblanc cake -Baked chestnut cake ( <i>castagnaccio</i> )		Yes
			-jam			Yes
			-fresh pasta	-chestnut flour mixed with white flour to produce tagliatelle and <i>pizzoccheri</i>		Yes

			<b>AGR:</b> -feed for pigs	-chestnut flour or cooked chestnuts, then added to vegetables, cooked potatoes, leftovers		No	
			-feed for chickens	-added to the food to strengthen eggshells		No	
			<b>DOM:</b> -dyeing	-cooking water (with pericarps) to dye wool chestnut brown		No	
		Leaves	<b>AGR:</b> -stables	-dried leaves, put in the stables to clean animal urine and excrements		No	
<b>Gentianaceae</b>							
<i>Gentiana punctata</i> L. Spotted gentian, genziana punteggiata Genzena	Spontaneous Inflorescences: July- August. Hypogeeal organs: September-October	Hypogeeal organs	<b>MED:</b> -digestive	-decoction	-1 warm cup when needed	No	Digestive, stomachic (for <i>G. lutea</i> L. Capasso <i>et al.</i> 2006, McMullen <i>et al.</i> 2014)
				-liquor (alcohol)	-a little glass after a large meal		
			-lack of appetite	-decoction	-1 glass every morning on an empty stomach		
			-stomach-ache	-decoction	-1 warm cup when needed		
			-intestinal worms	-decoction	-1 glass twice a day (mornings and evenings)		
			-blood depurative	-decoction	-1 glass on an empty stomach		

			-improves urination (in case of prostate problems, cystitis etc.) <b>FO:</b> -liquor	-decoction	-1 glass every morning on an empty stomach		
			<b>VET</b> (cattle, goats, and sheep): -stimulates rumination and appetite	-fresh or dried hypogeal organs in alcohol (90°) or grappa -decoction	-1 litre a day, when needed	Yes	
			-to have healthy calves	-decoction	-decoction mixed with milk	Yes	
			-treatment of hoof and mouth disease (cattle)	-decoction	-given orally with a bottle -frequent washes	No	
<b>Hypericaceae</b>							
<i>Hypericum perforatum</i> L. St. John's Worts, Iperico Iperico or erba di San Giovanni (Bo05)	Spontaneous Flowers: June-July	Flowers	<b>MED:</b> -sunburn and burns (even severe) -wound healing -insect bites/nettles -skin irritation -ulcers and bedsores	-oleolite (macerated oil), fresh flowers covered with oil and left in the sun for 20 days	-applied frequently (massages and frictions) till healed	Yes	Anti-inflammatory, skin irritations and burns, musculoskeletal pains (Capasso <i>et al.</i> 2006, Organization WHO 2002, Uslusoy <i>et al.</i> 2019, Wölfle <i>et al.</i> 2013)
			-infantile colic	-oleolite	-rubbed on the new-born tummy once or twice a day	Yes	



			-rheumatism, sciatica, cervical pain	-oleolite	-daily massages and frictions	Yes
<b>Iridaceae</b>						
<i>Crocus vernus</i> (L.) Hill. Spring crocus, zafferano alpino Belina	Spontaneous Flowers: February-April	Flowers	<b>FO:</b> -field snack	-eaten as they are		No
				-in salads		No
<b>Juglandaceae</b>						
<i>Juglans regia</i> L. Walnut, noce Nósc	Cultivated Fruits: June Seeds: September	Seeds	<b>FO:</b> -dried fruits, nuts			Yes
		Fruits	-oil <b>FO:</b> -liquor	- <i>nocino</i>		No Yes
<b>Lamiaceae</b>						
<i>Lamium album</i> L. White deadnettle, falsa ortica bianca Urtiga mata	Spontaneous Leaves: Spring-Summer	Sprouts and Leaves	<b>FO:</b> -soups			Yes
<i>Lavandula angustifolia</i> Miller Lavender, lavanda Lavanda	Cultivated and spontaneous Flowers: June-July, at the beginning of the anthesis	Flowers	<b>DOM:</b> -fragrance for rooms and bedlinen	-dried bundles		Yes
			-anti-moth in wardrobes and drawers			Yes
		Essential oil	<b>MED:</b> -rheumatism, arthritis, and arthrosis <b>DOM:</b> -preservative and fragrance	-alcoholic macerate with arnica, rosemary, and lavender -added to ointments and salves (marigold ointment) both as preservative and fragrance	-frictions on the part, when needed	Yes Yes

<i>Melissa officinalis</i> L. Lemon balm, melissa Limoncina	Spontaneous and cultivated Leaves: May-September	Leaves	<b>FO:</b> -drink	-infusion, sweetened and drunk cold		Yes	Menstrual pain, sedative, sleep promoting, gastrointestinal pain (Akbarzadeh <i>et al.</i> 2015, Mirabi <i>et al.</i> 2017, Organization WHO 2002)
			-flavouring	-leaves added to herbal teas		Yes	
			-liquor			Yes	
			<b>MED:</b> -anxiety, insomnia	-infusion	-1 cup when needed or before bed	Yes	
				-liquor	-1 little glass before bed	Yes	
			-menstrual pains	-infusion (with mint)	-1 warm cup when needed	Yes	
			-digestive	-infusion (lemon balm and mint)	-only when needed	Yes	
	-antacid, reflux	-infusion	-when needed	Yes			
<i>Mentha spicata</i> L. Mint, menta Menta	Cultivated Leaves: June-August	Leaves	<b>FO:</b> -drink	-infusion, sweetened and drunk cold		Yes	Dyspepsia, flatulence (Mahboubi, 2021)
			-salad	-fresh, added to the salad		Yes	
			-liquor	-mint and sage liquor		Yes	
			<b>MED:</b> -digestive	-mint and sage liquor	-a little glass after a large meal	Yes	
		-infusion	-when needed	Yes			
<i>Mentha x piperita</i> L. Peppermint, menta piperita Menta	Cultivated Leaves: June-August	Leaves	<b>MED:</b> -digestive	-infusion	-a warm cup when needed	Yes	Menstrual pain (Heshmati <i>et al.</i> 2016)
				-menstrual pains	-infusion	-when needed	

			FO: -liquor	-ingredient of the liquor made with elderflowers	Yes	
			-drink	-infusion, sweetened and drunk cold	Yes	
<i>Origanum vulgare</i> L. Oregano, origano Origano	Cultivated and spontaneous Flowering aerial parts: June-August	Flowers and leaves	FO: -flavouring	-aromatic salt -used to season several different dishes	Yes	
<i>Rosmarinus officinalis</i> L. Rosemary, rosmarino Rosmarin	Cultivated Young branches with leaves: Spring	Young branches with leaves	FO: -flavouring	- used to season several different dishes - aromatic salt -added during the production of pork fat	Yes	
<i>Salvia officinalis</i> L. Sage, salvia Salvia	Cultivated. Leaves: April-July	Leaves	FO: -flavouring	-fried in butter as dressing for typical <i>pizzoccheri</i> , gnocchi, and <i>ris conc</i> or <i>cundi</i> -added to several different dishes ( <i>i.e.</i> soups, vegetables, legumes, sauces, etc.) -aromatic salt - added during the production of pork fat	Yes	Gengivitis, against bloating, anti-inflammatory (Ehrnhöfer-Ressler <i>et al.</i> 2013, Lemle 2018)
			-frying	-dipped in batter or breaded, then deep fried	Yes	
			-liquor	- mint and sage liquor	Yes	
			-drink	-infusion, sweetened and drunk cold	Yes	

			<p><b>MED:</b> -digestive -infusion -when needed Yes</p> <p>-dental abscesses, toothache, gingivitis -sore throat -expectorant for productive cough and bronchitis</p> <p><b>COSM:</b> -for white and healthy teeth -prevents teeth loss</p>	<p>-infusion -liquor -fresh leaf</p> <p>-decoction -<i>mellito</i> (honey- based preparation)</p> <p>- fresh leaf rubbed on teeth and gums every day</p>	<p>-when needed Yes</p> <p>-the leaf is frequently rubbed on teeth and gums -gargles -1 spoon a day Yes</p> <p>No</p> <p>No</p>	
<p><i>Salvia pratensis</i> L. Meadow Clary, salvia dei prati Fèa de goba or salva di prato</p>	<p>Spontaneous Leaves: Spring</p>	<p>Leaves</p>	<p><b>FO:</b> -flavouring</p> <p>-spring soups -salad</p>	<p>- added to several different dishes (<i>i.e.</i> soups, vegetables, sauces, etc.)</p> <p>-young leaves added to salads</p>	<p>Yes</p> <p>Yes</p> <p>Yes</p>	
<p><i>Thymus spp.</i> Wild thyme, timo Timo or peverel</p>	<p>Spontaneous Leaves: before the anthesis Flowers: July-August</p>	<p>Leaves</p>	<p><b>FO:</b> -flavouring</p>	<p>-fresh or dried in several dishes (meat, fish, vegetables, soups, etc.)</p> <p>-typical aromatic salt called "<i>pesteda</i>"</p>	<p>Yes</p> <p>Yes</p>	<p>Balsamic and expectorant, anti- inflammatory, dyspepsia and gastrointestinal disorders (Ayrle <i>et al.</i> 2016, Jarić <i>et al.</i> 2015, Organization WHO 1999, Salehi <i>et al.</i> 2018, Shakeri <i>et al.</i> 2019)</p>

		-added to a typical sweet recipe, called " <i>cornat</i> "		Yes
		-added to the preparation of pork fat		Yes
	-liquor			Yes
	-drink	-infusion, drunk warm instead of tea or cold		Yes
	<b>MED:</b> -digestive	-infusion	-drunk warm when needed	Yes
	-colds and flu	-infusion	-1 or 2 warm cups a day	Yes
	-sedative for cough, bronchitis	-infusion	-fumigations -1 or 2 warm cups a day	Yes
	-sedative for cough due to silicosis	-syrup	-fumigations -1 or 2 spoons a day, can be dissolved in warm water	Yes
Flowers	<b>FO:</b> -liquor	-with alcohol (90°)		Yes
	-flavouring	-typical aromatic salt called " <i>pestedá</i> "		Yes
		-fresh or dried in several dishes (meat, fish, vegetables, soups, etc.)		Yes
		-added to a typical sweet recipe, called " <i>cornat</i> "		Yes
	<b>MED:</b> -menstrual pains and disorders	-infusion	-when needed, warm	Yes

			-fever, flu	-infusion	-1 cup, twice a day	Yes	
			-colds and cough	-infusion	-when needed, warm	Yes	
<b>Lauraceae</b>							
<i>Laurus nobilis</i> L. Laurel, alloro Alloro	Cultivated Leaves: July-August	Leaves	<b>FO:</b> -flavouring	-legumes and vegetable soups -aromatic salt -added to the preparation of pork fat		Yes	
			<b>DOM:</b> -fragrance for rooms and bedlinen -repellent, anti-moths	-in wardrobes and drawers of the house		Yes	
<b>Liliaceae</b>							
<i>Lilium bulbiferum</i> L. Orange lily, giglio di San Giovanni Sciora	Spontaneous Flowers: June-July	Flowers	<b>FO:</b> -salads -field snack			No	
<i>Lilium candidum</i> L. White lily, giglio candido Giglio bianco	Cultivated Flowers: Summer	Flowers	<b>MED:</b> -ingrown toenails -wound healing -whitlow, infected wounds	-ingredient of a resin and butter-based ointment  -petals in grappa	-applied abundantly and bandaged  -1 or 2 petals on the part, set with a handkerchief and left overnight. Removed in the morning.	Yes  Yes	Wound healing, anti-inflammatory (Momtaz <i>et al.</i> 2020, Patocka, 2019)

<i>Lilium martagon</i> L. Turk's cap lily, giglio martagone Fior de l'aqua	Spontaneous Flowers: June-July	Whole plant	<b>SUP:</b> - superstitious	<b>SUP:</b> -if collected or accidentally cut, it will rain		No	
<b>Linaceae</b>							
<i>Linum usitatissimum</i> L. Flaxseed, lino Lino	Bought, cultivated in the past	Seeds	<b>MED:</b> - expectorant, bronchitis, productive cough	-cooked poultice of whole or powdered seeds in water	-applied lukewarm on the chest once a day, removed when cold	No	
			-toothache and dental abscesses	-cooked poultice of whole or powdered seeds in water	-externally applied lukewarm on the cheek (corresponding to the swelling underneath), set with a handkerchief, and left till cold	No	
			-constipation	-macerated in water overnight	-filtered and drunk in the mornings	No	
<b>Malvaceae</b>							
<i>Malva neglecta</i> Wallr. Common mallow, Malva Malva (So02)	Spontaneous Whole plant: Summer Fruits: August-September	Whole plant	<b>MED:</b> -dental abscesses, gingivitis (pain and swelling) -stomatitis, canker sore	-decoction	-frequent gargles with decoction	Yes	Anti-inflammatory, antibacterial, antifungal, antioxidant, gastro-protective, hepatoprotective, wound healing, skin anti- inflammatory (Al-Snafi, 2019, Saleem <i>et al.</i> 2020)

	-insect bites -wound healing	-compresses with decoction and cooked poultice obtained from decoction	-change frequently during the day	Yes
	-conjunctivitis, eye swelling and irritation -haemorrhoids	-compresses with decoction -decoction	-several times a day -frequent sitz baths and washings with decoction	Yes Yes
	-intimate itching and inflammation vaginal mucosa -gastritis, heartburn, gastric ulcer, stomach-ache	-decoction -decoction	-sitz baths and washings with decoction -filtered, drunk before meals on an empty stomach	Yes Yes
	<b>VET</b> (cattle): -general discomfort	-decoction	-if the animals do not spontaneously drink it, given twice/three times a day through a bottle	No
	-hooves wounds	-decoction	-hoof put in a bucket with the decoction -washings	No
	<b>COSM</b> : -soothing for hands and face	-washings and frictions using the boiled plant remained after the decoction		Yes
Leaves	<b>FO</b> : -soups			Yes



		Fruits	<b>FO:</b> -field snacks	-the dried fruit is peeled; the ring of little seeds is eaten (called "formagin")	No	
<i>Malva sylvestris</i> L. Marshmallow, malva Malva or malvon	Spontaneous and cultivated Leaves and flowers: June-September	Whole plant and aerial parts	<b>MED:</b> -see <i>Malva neglecta</i>		Yes	Gingivitis, oral inflammations, emollient, regenerative, skin anti-inflammatory (Benso <i>et al.</i> 2015, Braga <i>et al.</i> 2018, Fahimi <i>et al.</i> 2015, Gasparetto <i>et al.</i> 2012, Martins <i>et al.</i> 2017, Pirbalouti <i>et al.</i> 2010, Prudente <i>et al.</i> 2017, 2013)
			-skin redness and inflammation due to sweat and friction	-decoction	-compresses to the armpits and inner thighs with decoction	Yes
			<b>VET</b> (cattle): -general discomfort -diarrhoea -lack of appetite -post labour	-decoction	-given through a bottle	Yes
				-decoction	-decoction mixed with sugar to 'clean' them and recover after labour	Yes
			-ulcers and wounds	-decoction	-compresses and washings with the decoction	Yes
			<b>COSM:</b> -see <i>Malva neglecta</i>			Yes

		Leaves	<b>FO:</b> -see <i>Malva neglecta</i>		Yes	
		Flowers	<b>FO:</b> -salad	-added fresh to salads as topper	Yes	
<b>Melanthiaceae</b>						
<i>Veratrum album</i> L. White veratrum, veratro La malem	Spontaneous	Whole plant	<b>AGR:</b> -poisonous for livestock, it needs to be removed from the hay		Yes	
<b>Oleaceae</b>						
<i>Fraxinus ornus</i> L. Manna ash, orniello Frascen	Spontaneous	Wood	<b>ART:</b> -production of handles for axes, hammers, and forks		Yes	
		Leaves	<b>AGR:</b> -given to eat to goats and sheep as supplementation		Yes	
<b>Orchidaceae</b>						
<i>Gymnadenia nigra</i> Rchb.f. Black vanilla orchid, nigritella	Spontaneous Flowers and aerial parts: July-August	Flowers and aerial parts	<b>DOM:</b> -fragrance for rooms and bedlinen	-collected and dried in small bundles, put in wardrobes and drawers, or hung	No	
<b>Oxalidaceae</b>						
<i>Oxalis acetosella</i> L. Common wood sorrel, acetosella Acetosella, trifoglio	Spontaneous Leaves: June-September	Leaves	<b>FO:</b> -field snacks	-chewed as they are	No	
<b>Papaveraceae</b>						
<i>Chelidonium majus</i> L. Greater celandine, celidonia Erba di pór (Bo06)	Spontaneous Whole plant: May-September	Latex	<b>MED:</b> -warts	-latex directly applied on warts	-twice or three times a day, every day, till the wart is removed	Yes Skin tags, warts (Nawrot <i>et al.</i> 2020; Nawrot, 2017)

		Whole plant	<b>MED:</b> -calluses	-decoction	-foot bath with decoction	Yes	
<b>Parmeliaceae</b>							
<i>Cetraria islandica</i> (L.) Ach. Island lichen, lichene islandico Lichen or nichel	Spontaneous Thallus: March-April / September-October	Thallus	<b>FO:</b> -liquor	<b>FO:</b> -ingredient of a typical liquor called "taneda"		Yes	Expectorant, anti-inflammatory (Freysdottir <i>et al.</i> 2008, Kramer <i>et al.</i> 1995, Olafsdottir & Ingólfssdottir, 2001)
			<b>MED:</b> - expectorant, cough, bronchitis -pertussis	-decoction  -syrup	-drunk warm once/twice a day  -1 spoon when needed	No  No	
			<b>VET</b> (cattle, goats, and sheep): -bronchitis	-decoction	-given through a bottle	No	
			<b>COSM:</b> -shiny hair	-decoction	-hair rinsed with decoction (works only on dark hair)	No	
<b>Pinaceae</b>							
<i>Larix decidua</i> Mill. Larch, larice Làresc	Spontaneous Resin: Summer	Resin (called "arga")	<b>MED:</b> -wound healing, antiseptic -pimples -infected wounds -to remove wood shards and foreign body -whitlow -ingrown toenails	-resin collected and stored in glass jars. It has the same texture as honey	-directly applied on the part, left for a long time	Yes	Anti-inflammatory, wound disinfectant, skin disorders (Capasso <i>et al.</i> 2006, Pferschy- Wenzig <i>et al.</i> 2008, Salem <i>et al.</i> 2016)
			<b>VET:</b> -wound healing and antiseptic	-mixed with pork fat	-abundantly applied on wounds	No	

		Branches	<b>ART:</b> -production of 'sleighs' useful to transport to the valley hay, wood, and bags			No	
		Twigs	<b>LUD:</b> -cigarettes	dried and lit, smoked as they were cigarettes		No	
<i>Picea abies</i> (L.) H. Karst. European spruce, abete rosso Péc	Spontaneous Resin: all year	Resin	<b>MED:</b> -see <i>Larix decidua</i> Mill.	-resin and butter-based ointment	-see <i>Larix decidua</i> Mill.	Yes	Inflammations, cough, antibacterial, antifungal (Fyhrquist <i>et al.</i> 2017, Rautio <i>et al.</i> 2007, Rautio <i>et al.</i> 2012, Salem <i>et al.</i> 2016, Sipponen <i>et al.</i> 2009, Tunón <i>et al.</i> 1995)
			<b>VET:</b> see <i>Larix decidua</i> Mill.	-resin and pork fat-based ointment	-see <i>Larix decidua</i> Mill.	Yes	
			-fractured femur and hooves of goats and sheep	-ointment	-abundantly applied on the fracture, set tight with wooden sticks and bandages	Yes	
			<b>LUD:</b> -chewed as a natural chewing gum			Yes	
			<b>COSM:</b> -keep white and healthy teeth	- chewed as a chewing gum		Yes	
			<b>DOM:</b> -to light the fire			No	

			<b>ART:</b> -to repair various objects	-slightly warmed in order to easily mould it, used to repair buckets		Yes
		Leaves	<b>FO:</b> -chewed			No
		Sprouts	<b>MED:</b> -balsamic -cough and sore throat -bronchitis -expectorant <b>FO:</b> -flavouring	-syrup  -ingredient of the typical aromatic salt called " <i>pesteda</i> "	-1 or 2 spoons when needed, can also be melted in warm water	Yes
				-liquor	-grappa -put in alcohol (90°), filtered, mixed with sugary syrup (sugar and water)	Yes Yes
		Wood	<b>VET</b> (goats): -bronchitis <b>DOM:</b> -to light the fire	-given them to eat  -little pieces of wood, called " <i>steculin</i> " are prepared (soft wood, easy to cut), they easily ignite	-every day, for a week	Yes Yes
<i>Pinus cembra</i> L. Swiss pine, pino cembro Gembro	Spontaneous Seeds (pine nuts): July- August	Seeds (pine nuts)	<b>FO:</b> -dried seeds	-pinecones collected, dried in the attic or under the embers. After opening, the pine seed is removed		No
		Strobiles	<b>DOM:</b> -to light the fire	-when died, they easily ignite		Yes

<i>Pinus mugo</i> Turra Mountain pine, pino mugo Muf	Spontaneous Strobiles: June	Strobiles	<b>MED:</b> -sedative for cough -expectorant -bronchitis  <b>FO:</b> -liquor	<b>MED:</b> -syrup  -grappa: the pinecones removed after the preparation of the syrup are put in grappa	<b>MED:</b> -1 or 2 spoons when needed, also melted in warm water	Yes  Yes	Anti-inflammatory, disinfectant, decongestant, expectorant (Basholli-Salih <i>et al.</i> 2017, Ciuman, 2012, Mitić <i>et al.</i> 2018)
<i>Pinus sylvestris</i> L. Scots pine, pino silvestre Téu	Spontaneous Sprouts: Spring	Sprouts  Wood	<b>MED:</b> -bronchitis -sedative for cough <b>DOM:</b> -it is not recommended for lighting the fire, because it soils conduits and chimneys	<b>MED:</b> -syrup	-1 spoon when needed	Yes  No	
<b>Plantaginaceae</b>							
<i>Plantago major</i> L. Greater plantain, piantaggine Piantena (Ro02)	Spontaneous Leaves: June-August	Leaves	<b>MED:</b> -pimples and sebaceous cysts -ingrown toenails and hairs -abscesses, toothache, gingivitis -bedsores -insect bites and redness	-whole fresh leaf or poultice	-directly applied and set on the part. Change frequently and repeat till healed	No	Anti-inflammatory and skin disinfectant, anti-inflammatory and infections, gengivitis (Adom <i>et al.</i> 2017, Haddadian <i>et al.</i> 2014, Miraj 2016; Najafian <i>et al.</i> 2018, Reddy <i>et al.</i> 2020, 2018)

			<b>FO:</b> -soups			No	
		Whole plant	<b>AGR:</b> -feed for pigs	-added cooked to flours, bran, leftovers		No	
		Hypogeal organs	<b>LUD:</b> -dolls	-long and narrow, they were braided as they were hair		No	
<b>Poaceae</b>							
<i>Avena sativa</i> L. Oat, avena Biava	Cultivated in the past	Flour	<b>FO:</b> -typical rustic cake called "cornat"			No	
<i>Elymus repens</i> (L.) Gould Couch grass, gramigna Gramigna, erba plata, or lozza	Spontaneous Whole plant: May-August	Whole plant	<b>MED:</b> -diuretic -cystitis	-infusion	-once or twice a day	No	Urinary tract infections, diuretic (Al-Snafi 2015)
		Leaves	<b>VET</b> (cattle): -mastitis -infections to the urinary bladder, difficult urination <b>MUS:</b> -trumpet	-decoction	-through a bottle	No	
		Hypogeal organs	<b>MED:</b> -cystitis	-decoction	-one cup, twice a day	No	
<i>Hordeum vulgare</i> L. Barley, orzo Domega	Cultivated in the past	Fruits	<b>FO:</b> -toasted, barley coffee			No	
<i>Zea mays</i> L. Corn, granturco Sorgo	Cultivated in the past	Bracts of the infructescence	<b>DOM:</b> -dried, used as filling for the mattresses			No	
<b>Polygonaceae</b>							
<i>Rheum rhabarbarum</i> L. Rhubarb, rabarbaro Rabarbaro	Cultivated Leaves stalks (long and fleshy): July-September	Leaves stalks	<b>FO:</b> -cooked	-chopped and cooked with apples, pears, or peaches		Yes	Stypsis (for <i>R. palmatum</i> L. Capasso <i>et al.</i> 2006)

			-jam -liquor			Yes Yes
			<b>MED:</b> -occasional constipation	-ingredient of gentian liquor -cooked with a pear or other fruits	-as functional food	Yes
<i>Rumex acetosa</i> L. Garden sorrel, acetosa Ascìgula (Bo07)	Spontaneous Sprouts: Spring	Sprouts	<b>FO:</b> -field snack	-chopped and seasoned with salt or sugar		No
			-soups	-rice or vegetable soups		No
		Stems	<b>FO:</b> -thirst quenching	-chewed		No
<i>Rumex alpinus</i> L. Alpine dock, romice alpino Limöera	Spontaneous Leaves and stalks: Summer	Stalks	<b>FO:</b> -cooked -jam	-chopped and cooked with apples or pears		Yes
			-field snack	-chewed and kept in the mouth, sugary taste		Yes
		Leaves	<b>MED:</b> -headache		-fresh leaf kept on the forehead and the temples	No
			<b>AGR:</b> -feed for the pigs	-cooked and mixed with flours and leftovers		No
<b>Polypodiaceae</b>						
<i>Polypodium vulgare</i> L. Polypody, polipodio Raisc dolcia (Mi02)	Spontaneous Hypogeal organs: Summer	Hypogeal organs	<b>FO:</b> -sweets	-licorice taste		Yes
			<b>MED:</b> -pertussis	-decoction	-drunk warm, twice a day	No
<b>Primulaceae</b>						



<i>Primula veris</i> L. Primerose, primula Li goba or primule	Spontaneous Flowers: April-May. Leaves: Spring, before the anthesis	Flowers	<b>MED:</b> -sedative for cough -bronchitis	-infusion	-1 warm cup, when needed	No	
			<b>FO:</b> -field snack -in salads			No	
		Leaves	<b>FO:</b> -in salads			Yes	
<b>Ranunculaceae</b>							
<i>Clematis vitalba</i> L. Old man's beard, vitalba Ligabosch da fumar	Spontaneous. Herbaceous stems: after the anthesis	Herbaceous stems	<b>LUD:</b> -cigarettes	-dried, lit, and smoked as cigarettes		No	
<i>Pulsatilla alpina</i> (L.) Delarbre Alpine anemone, anemone alpino Garalza	Spontaneous Flowers: during the anthesis, May-July	Flowers	<b>LUD:</b> -ball	-the flower was wetted to create a little ball		No	
<b>Rosaceae</b>							
<i>Arunco dioicus</i> (Walter) Fernald Bride's Feathers, barba di capra Asparago selvatico or spars	Spontaneous Sprouts: April-May	Sprouts	<b>FO:</b> -cooked vegetables	-cooked in boiling water and eaten as asparaguses		Yes	
			-preserved in oil	-blanched in boiling water and vinegar, then preserved in oil		Yes	
<i>Crataegus monogyna</i> Jacq. Hawthorn, biancospino Farinèl	Spontaneous Fruits: September-October	Fruits	<b>FO:</b> -chewed			No	Antiarrhythmic (Capasso <i>et al.</i> 2006)
		Flowers	<b>MED:</b> - antiarrhythmic	-infusion	-1 little cup once a day for a week	No	
<i>Fragaria vesca</i> L. Strawberry, fragola Magiostra/maiostra (Ca01)	Spontaneous and cultivated False fruits: June-July	False fruits	<b>FO:</b> -field snack -jam -fresh fruit			Yes	

<i>Prunus avium</i> L. Cherry, ciliegia Cerescia	Spontaneous Stalks of mature fruits: May-June	Stalks	<b>MED:</b> -diuretic	-decoction	-1 cup a day	No	Diuretic (Hooman <i>et al.</i> 2009)
		Fruits	-sedative for cough <b>FO:</b> -fresh fruit	-decoction	-1 or 2 warm cups when needed	No	
<i>Prunus spinosa</i> L. Black thorn, prugnolo selvatico Primuli or prugnoli	Spontaneous Fruits: September Flowers: March-April	Fruits	<b>FO:</b> -liquor			Yes	
		Flowers	-jam -fresh fruit <b>MED:</b> -insomnia, sedative	-infusion	-in the evenings, before bed	No	Yes
<i>Rosa canina</i> L. Dogrose, rosa canina Frosoi or frosol (Sc01)	Spontaneous False fruits: October- November	False fruits	<b>FO:</b> -Jam			Yes	
		Leaves	-liquor -fresh fruit <b>MED:</b> - prevention and treatment of colds and flu <b>LUD:</b> - preparation of necklaces with needle and thread <b>-MED:</b> haemostatic	-decoction	-1 warm cup a day	Yes Yes Yes	No
<i>Rubus idaeus</i> L. Raspberry, lampone Ampoma	Spontaneous and cultivated. Fruits: August-September	Fruits	<b>FO:</b> -fresh fruit -field snack -jam			Yes	

<i>Rubus ulmifolius</i> Schott Blackberry, mora Rueda	Spontaneous Fruits: August-September	Fruits	<b>FO:</b> -fresh fruit -field snack -jam			Yes	
		Leaves	<b>FO:</b> -frittata	-young leaves in the frittata		Yes	
<i>Sorbus aucuparia</i> L. Mountain ash, sorbo degli uccellatori Zurlo	Spontaneous Fruits: September-October	Fruits	<b>FO:</b> -dried fruit	-collected and dried before eating		No	
			-jam			No	
			<b>LUD:</b> -necklaces with needle and thread			No	
<b>Salicaceae</b>							
<i>Salix caprea</i> L. Goat willow, salice delle capre Salice	Spontaneous	Rhytidome	<b>MED:</b> -joint and bone pains	-alcoholic macerated	-the macerate is rubbed on the part	Yes	
<b>Sapindaceae</b>							
<i>Aesculus hippocastanum</i> L. Horse-chestnut, ippocastano Ippocastano	Cultivated	Seeds	<b>DOM:</b> -in the wardrobes as anti-moth			Yes	
<b>Solanaceae</b>							
<i>Nicotiana tabacum</i> L. Tobacco, tabacco Tabacco	Bought	Leaves	<b>MED:</b> -toothache	-pipe tobacco	-kept in the mouth in contact with the tooth	No	
			<b>AGR:</b> -against plant lice, mixed with the soil and in the vases			Yes	
<i>Solanum tuberosum</i> L. Potato, patata Patata	Cultivated	Hypogeal organs	<b>MED:</b> -bruises, swelling	-raw slices	-put and set on the part, left overnight, and removed in the morning	Yes	Anti-inflammatory (Basilicata <i>et al.</i> 2019, Kenny <i>et al.</i> 2013, Visvanathan <i>et al.</i> 2016)

			<p><b>AGR:</b> - exchanged between neighbour town, to enhance the production <b>FO:</b> -boiled, roasted in the oven or in a pan, in the <i>pizzoccheri</i></p>			No
						Yes
<b>Tiliaceae</b>						
<i>Tilia cordata</i> Mill. Limetree, tiglio Tiglio (Mi03)	Spontaneous Flowers: June-July	Flowers	<b>MED:</b> -insomnia, mild sedative	-infusion	-1 cup before bed	Yes
			<b>MED:</b> -febrifuge -flu	-infusion	-1 or 2 warm cups a day	Yes
			<b>MED:</b> -colds -sedative for cough -expectorant	-decoction, with flowers of <i>Sambucus nigra</i> L.	-filtered and drunk warm with a spoonful of honey	Yes
		Flowered branches	<b>MED:</b> - to quell the weeping and improve restless sleep, in new- borns	-put on the cradles or next to the baby		No
		Wood	<b>ART:</b> -the wood is light but resistant, perfect to create handles for agriculture objects and tools			Yes
<i>Tilia platyphyllos</i> Scop. Limetree, tiglio Tiglio	Spontaneous Flowers: at the beginning of the anthesis, June-July	Flowers and bracts	<b>MED:</b> -insomnia -anxiety	-infusion	-1 cup before bed	Yes

Urticaceae							
<i>Urtica dioica</i> L. Nettle, ortica Urtiga (Bo08)	Spontaneous Sprouts: April-May. Leaves: May-September.	Sprouts and Leaves	<b>FO:</b> -vegetable soups -risotto -filling for ravioli - <i>pizzoccheri</i> to the spoon and tagliatelle -frittata -liquor			Yes	
				-ingredient of the elderflowers liquor		Yes	
			<b>COSM:</b> - Strengthens hair, prevent hair loss		-decoction	-washing and rinsing with the decoction	No
	Whole plant	<b>AGR:</b> -repellent, parasiticide	-aqueous macerate, sprayed on the plants (specifically, beans and potatoes)				Yes
			<b>MED:</b> -calluses	-decoction	-warm footbath, 20-30 minutes	No	
Viburnaceae							
<i>Sambucus nigra</i> L. Black elder, sambuco nero Cunfèec or Sambuch (Bo03)	Spontaneous Flowers: June Fruits: August - September	Flowers	<b>FO:</b> -sweets	- pancakes, inflorescence dipped in batter and fried - dough flavour for the " <i>cornat</i> " (typical local sweet)		Yes	Bronchitis and other airways ailments, oral anti-inflammatory and antibacterial (Chen <i>et al.</i> 2014, Hawkins <i>et al.</i> 2019, Porter & Bode, 2017, Samuels <i>et al.</i> 2012)
			-drink	- syrup added to water		Yes	
			-frittata	- fresh flowers with whisked eggs		Yes	

	-liquor	- fresh elder flowers, nettles, and mint leaves in alcohol (90°)		Yes
	<b>MED:</b> -sore throat	-syrup	- 1 or 2 spoons when needed. Better in warm water	Yes
	- relaxant, promotes sleep	- dried Flowers infusion	- before bed	Yes
	-febrifuge	- dried Flowers infusion	- a cup in the morning and one in the evening	Yes
	- colds, expectorant	- infusion, decoction, boiled in milk	- a cup when needed, better in the evening	Yes
Fruits	<b>FO:</b> -sweets	- " <i>papa de cunfèec</i> " (typical local sweets)		Yes
	-sweets	- juice boiled for 2 hours with sugar and a sliced apple		Yes
	-liquor	- " <i>Vin de sambuch</i> " fermented wine		No
	-drink	- syrup mixed with water		Yes
	<b>MED:</b> - expectorant, tickly coughs, pertussis, bronchitis, colds, sore throat	-syrup	-2 spoons when needed. Better in warm water.	Yes
		-jam	- as functional food	
Rhytidome	<b>MED:</b> - soothing for inflamed and itchy insect bites	- salve; the macerated oil of the fresh plant is filtered and mixed with hot	- apply on the part, change the band-aid once a day	Yes
	-wound healing	bee-wax		

		Leaves	<b>MED:</b> -pimples, ingrown toenails, dental abscesses	-fresh leave	- directly applied on the part (for the abscesses, applied externally on the cheek)	No
<b>Violaceae</b>						
<i>Viola tricolor</i> L. Violet, violetta Violetta di prato	Spontaneous Flowers: June-July	Flowers	<b>MED:</b> -sedative for cough (in children too) -febrifuge	-infusion -infusion	-1 warm cup in the evenings, honeyed -1 cup a day	No No
<b>Vitaceae</b>						
<i>Vitis vinifera</i> L. Grape, uva Uva	Cultivated Fruits: August-September	Fruits	<b>FO:</b> -jam			Yes
		Leaves	<b>MED:</b> -antiseptic for wounds	-fresh leaf directly applied on the wound		No