

Medicinal plant biodiversity and usage in the area of Deliblato Sand



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INTRODUCTION

Wild medicinal plants represent the most diversified category according to their taxonomy, ecology, widespread nature of use and contribution to human health. This valuable natural resource, which has been humans' leaguer from ancient times plays an important role in the health care for 80% of world's population even now (Farnsworth and Soejarto 1991). Considering the human benefit from the usage of medicinal plants' richness, the value of biodiversity as a source of pharmaceutically active substances has been the subject of many studies, which emphasized the need of conserving natural habitats of medicinal plants (Farnsworth and Soejarto 1985; McNeely 1988; Pearce and Puroshothaman 1992).

Deliblato Sand, situated in the North of Serbia, is the only continental sand on the territory of Europe. It is considered to be the most important and specific natural ecosystem in the South-East Europe by its climatological, pedological, geomorphological and other characteristics. Rich flora with over 900 species, subspecies and varieties abounds in rarities, relicts, endemics and subendemics (Stevanović and Vasić 1995). As the last and largest oasis of sand, steppe, forest and marsh vegetation which once dominated the Pannonian Plane, Deliblato Sand is one of the most important centers of biodiversity in Serbia and Europe (Stevanović and Vasić 1995).

Medicinal plants are an integral part of diverse traditional medical practices in the Serbia. The exploitation of medicinal plants is expanding rapidly due to the development of medicinal plant industries, both regionally and internationally. Traditionally, the rural populations in Serbia utilize locally available medicinal plants as their primary source of healthcare in the fight against various physical and

mental health problems. In view of the fact that the knowledge of herbal medicines is slowly perishing, focused attention is required to collect and document the indigenous knowledge for its perseverance and future use. Therefore, this study was undertaken in order to produce a detailed documentation on the usage of wild medicinal flora in Deliblato Sand with respect to the aspects of its ecological status and conservation. Because of a great diversity of medicinal flora in this area, the need for conservation monitoring has received much attention recently (Amidžić *et al.* 2007).



Figure 1. Whole families are involved in collecting of medicinal plants for household purposes.

The goals of our study were:

- To establish the list of wild medicinal flora of investigated area
- To detect its' ecological status
- To collect the information on its' usage and exploitation
- To raise awareness on conservation

Considering these four objectives, we hope that the results of our study will contribute to the protection of medicinal plant diversity and to the preservation of valuable indigenous knowledge on usage of this natural resource.

STUDY AREA

Deliblato Sand is the largest European continental sand. It is situated in the South-Eastern part of the Pannonian Plane (44°48'-45°1' N, 38°36'-38°58' E). Its shape is elliptical and extends from Southeast to Northwest, covering nearly 35.000 hectares (Fig. 2). The climate is semi-arid continental pannonian (Stevanović and Vasić, 1995). The average annual air temperature is 10.2-11.8°C. The mean absolute maximum in the summer season rises above 30°C, while the mean absolute minimum during the winter months falls below -10°C. The absolute minimum temperature for the last 30 years is -30°C and the absolute maximum temperature is 40.2°C. Mean annual precipitation ranges from 520 to 590 mm. The period of drought lasts from July to October, with one month arid and four months semi-arid.

Deliblato Sand is a specific area, which differs from its surrounding by origin, substrate, ecological conditions, flora and fauna. It was formed during the Glacial Age from the vast layers of silica-carbon sand. During the Holocene epoch, east wind sculpted a distinct dune relief rising between 70 and 200 meters above sea level. A specific continental climate, absence of surface water courses and sandy soil resulted in unique bioceonosis located in a special vegetation-geographical area called *Deliblaticum* (Stevanović and Vasić, 1995). This unique mosaic of ecosystems contains typical species of flora and fauna, among which many are rare and significant, according to international criteria.

The area has suffered human influence for centuries, especially over past 185 years of intensive forestry activities which changed considerably the former landscape of the sands. The practice of reforestation (monoculture's planting) on dune and steppe area and plowing the remaining steppe, turning them to agricultural areas, caused the extinction of areas which commonly are the habitats of rare, endemic and relict plant species. One of the most dangerous and hardly controllable human activities against biodiversity is the exploitation of certain plant species (in the first line medicinal) from their natural habitats for the purpose of industry, trade, or collection.

Since 1965 Special Nature Reserve 'Deliblatska peščara' is under a three-level protection regime (IUCN category IV). At the national level, it is a natural asset of special importance falling under protection category I. There are 2 strict natural reserves, 16 genetic fond reserves and 6 natural monuments within its borders. At the international level its status is verified as a European Important Bird Areas (1989). It includes important gathering-points, mass wintering grounds of waterfowls and nesting places of many rare species.

In regard to the vegetation composition of Deliblato Sand, several vegetation types could be distinguished: 1) Sandy type - psammophytic vegetation, very important for sand stabilization (including plant communities *Corispermato-Polygonetum arenariae* and *Festucetum vaginatae deliblaticum*); 2) Steppe type, on stabilized sand with more or less developed humus layer (*Koelerieto-Festucetum Wagnerii*, *Chrysopogonetum Pannonicum* and *Festuco-Potentiletum arenariae*); 3) Swamp type, where aboveground water is 1-5 m close to soil surface (*Salicetum rosmarinifolilae* and *Molinietum coeruleae*); 4) Forest type (*Querceto-Tilietum tomentosae*, and also remains of forests of *Quercus robur* with *Fraxinus*

ornus, as well as forests of *Populus* sp. and *Alnus glutinosa*) (Stjepanović-Veseličić, 1979).

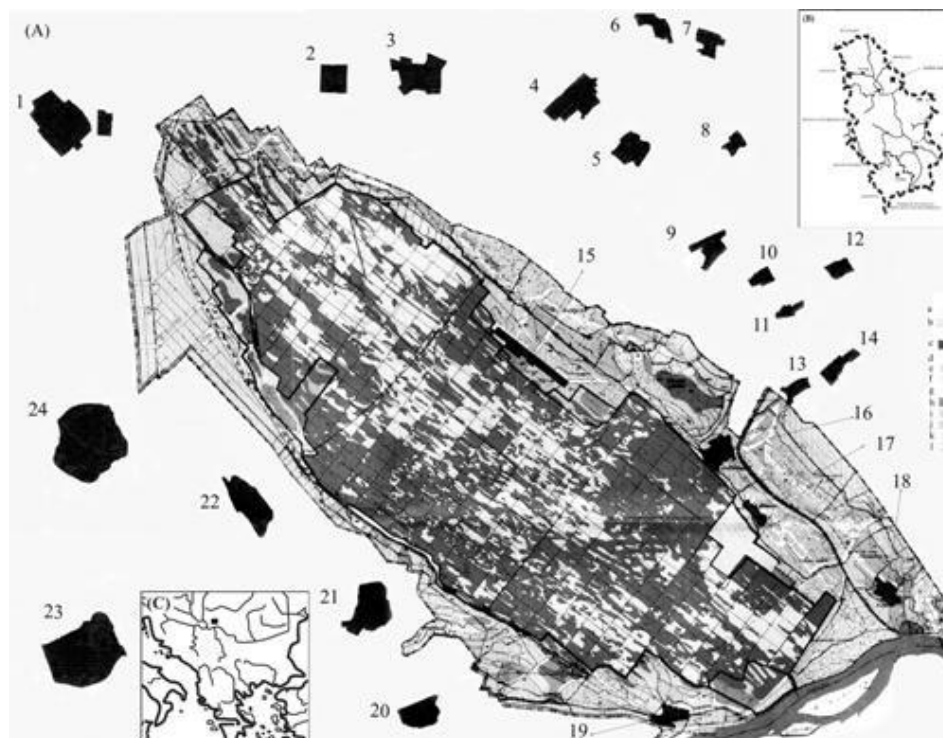


Figure 2. Map of Deliblato Sand. (A) For collecting ethnobotanical data, we visited 24 villages : Vladimirovac (1), Banatski Karlovac (2), Nikolinci (3), Uljma (4), Izbište (5), Vlajkovac (6), Ritiševo (7), Potporanj (8), Zagajica (9), Parta (10), Orešac (11), Straža (12), Dupljaja (13), Jasenovo (14), Šušara (15), Grebenac (16), Kajtasovo (17), Palanka (18), Dubovac (19), Gaj (20), Deliblato (21), Mramorak (22), Bavanište (23), Dolovo (24); (B) Map of Serbia with position of investigated area; (C) Position of investigated area on the Balkan Peninsula.

METHODOLOGY

Vegetation survey and data on distribution of medicinal plants were performed by monitoring along the line transects throughout different vegetation types. We made plant inventory using standard keys for determination of plant species (Tutin et al. 1964-1980). From the initial plant list we extracted the final list

of medicinal plants using databases for medicinal flora. All medicinal plant species were identified on the basis of professional literature for determination (Josifović, 1970-1986; Javorka and Csapody, 1977). A phytogeographic analysis was undertaken according to Gajić (1980, 1984), whereas plant life forms were determined according to Kojić et al. (1977).

Ethnopharmacological data was collected by a survey in 24 villages located within and on the border part of Special Nature Reserve ‘Deliblatska peščara’ (Vladimirovac, Banatski Karlovac, Nikolinci, Uljma, Izbište, Vlajkovac, Ritiševo, Potporanj, Zagajica, Parta, Orešac, Straža, Dupljaja, Jasenovo, Šušara, Grebenac, Kajtasovo, Palanka, Dubovac, Gaj, Deliblato, Mramorak, Bavanište, Dolovo) (Fig. 2). The survey included semi-structured (e.g. Martin, 1995) interviews with 65 randomly sampled peasants, mostly around 60 years old.

Each interviewed person was first requested to volunteer information on medicinal plants and their uses. Next, to avoid the risk of memory failure, a list of nearly 300 species (registered in wild flora and known by their pharmacological activities from literature) was read out and the informant was asked to provide information on any that were familiar to him as medicinal herbs. Aids for identification of plants were the pictures of plant species with their scientific and local names, supplemented with the samples of herbs that were collected during the vegetation season. Therefore, the data acquired for each plant includes a common local name(s), parts of the plant used, popular uses (and troubles treated), properties attributed, as well as its preparation and administration process.

The study was focused to the knowledge and usage of wild flora, and included 6 species which were found both in wild and cultivated areas (*Calendula*

officinalis, *Pinus nigra*, *P. sylvestris*, *Prunus avium*, *Robinia pseudoacacia*, *Rubus idaeus*).

Raising attention of the local residents on the need for conservation of medicinal flora was done through public lecture, where all project results were presented.

RESULTS

In total, 231 wild plant species of medicinal importance used by local residents were recorded, comprised in 70 families and 204 genera. The most used families were Asteraceae, Lamiaceae and Rosaceae and the most used plants were *Achillea millefolium*, *Fragaria* sp., *Hypericum perforatum*, *Matricaria chamomilla*, *Thymus serpyllum*, *Urtica dioica*. The wild medicinal plants were mostly used for treatment of gastrointestinal (54.9%), urinary (49.8%) and dermatological ailments (46.7%); for respiratory, nervous, osteoarticular, reproductive, cardiovascular and infectious ailments (35.9%, 26.4%, 21.2%, 20.8%, 16.5%, and 16.2%, respectively); for hot and cold syndrome, as preventive agents or against endocrine disorders (15.1%, 10.0%, and 5.2%, respectively). Inventoried medicinal plants encompass 45 pharmacological properties. Among them, the most common are diuretic agents (41.1% out of total number of species), astringent (15.6%), antirheumatic (16.9%), anti-inflammatory (14.7%), anti-pyretic (13.4%), sedative (11.2%) antitussive (10.8%) and expectorant agents (9.5%). Two species were assigned 11 pharmacological properties (*Fragaria vesca* and *F. viridis*). Another 11 species have 7 or more pharmacological properties (*Dictamnus albus*, *Marrubium vulgare*, *Fumaria officinalis*, *Melissa officinalis*, *Rubus fruticosus*, *Plantago lanceolata*, *P. media*, *Salvia officinalis*, *Solidago virgaurea*, *Symphytum officinale*,

Urtica dioica). Other species have 6 (18 species) or less properties (5 - 31 species, 4 - 43 species, 3 -53 species, 2 - 40 species, 1 - 33 species).

Botanical diversity of medicinal plants

In total, 231 wild species (including 6 which are also cultivated) were used for medicines by local residents. The majority of medicinal plants are included in forest phytocenoses (25.11%), a large number belongs to ruderal (19.91%) and weed vegetation (13.75%), while other species are found in sand, steppe, riverside and swamp habitats.

Table 1. Distribution of medicinal plants along different vegetation types.

Sand 12.12 %	vegetation	<i>Alkanna tinctoria</i> (L.)Tausch., <i>Alyssum desertorum</i> Stapf., <i>Anthemis ruthenica</i> M. Bieb., <i>Artemisia campestris</i> L., <i>Artemisia scoparia</i> Waldst. et Kit., <i>Bromus tectorum</i> L., <i>Cynanchum vincetoxicum</i> (L.)Pers., <i>Cynodon dactylon</i> (L.) Pers., <i>Cynoglossum officinale</i> L., <i>Draba verna</i> L., <i>Eryngium campestre</i> L., <i>Genista tinctoria</i> L., <i>Juniperus communis</i> L., <i>Juniperus virginiana</i> L., <i>Knautia arvensis</i> (L.) Coult., <i>Linaria vulgaris</i> Mill., <i>Marrubium peregrinum</i> L., <i>Plantago indica</i> L., <i>Plantago lanceolata</i> L., <i>Plantago media</i> L., <i>Salsola kali</i> L., <i>Salvia officinalis</i> L., <i>Senecio jacobaea</i> L., <i>Setaria viridis</i> (L.) P.Beauv., <i>Thymus serpyllum</i> L., <i>Tribulus terrestris</i> L., <i>Veronica spicata</i> L., <i>Viola tricolor</i> L.
Steppe 10.39 %	vegetation	<i>Achillea millefolium</i> L., <i>Adonis vernalis</i> L., <i>Alyssum alyssoides</i> L., <i>Anemone pulsatilla</i> L., <i>Antennaria dioica</i> (L.) Gaertn., <i>Arenaria serpyllifolia</i> L., <i>Aster linosyris</i> (L.) Bernh., <i>Calamintha acinos</i> (L.) Clairv., <i>Carduus nutans</i> L., <i>Carlina vulgaris</i> L., <i>Dictamnus albus</i> L., <i>Euphorbia cyparissias</i> L., <i>Filipendula hexapetala</i> Gilib., <i>Glycyrrhiza glabra</i> L., <i>Narcissus pseudonarcissus</i> L., <i>Orchis mascula</i> (L.) L., <i>Orchis militaris</i> L., <i>Orchis morio</i> L., <i>Paeonia tenuifolia</i> L., <i>Pimpinella saxifraga</i> L., <i>Ruta graveolens</i> L., <i>Stachys recta</i> L., <i>Teucrium chamaedrys</i> L., <i>Vinca herbacea</i> Waldst. et Kit.

Forest 25.11 %	vegetation	<i>Acer campestre</i> L., <i>Aconitum lycoctonum</i> L., <i>Alliaria officinalis</i> Andr. ex .Bieb., <i>Asparagus officinalis</i> L., <i>Asparagus tenuifolius</i> Lam., <i>Asplenium trichomanes</i> L., <i>Atropa bella-donna</i> L., <i>Berberis vulgaris</i> L., <i>Betula verrucosa</i> Ehrh., <i>Clematis vitalba</i> L., <i>Colutea arborescens</i> L., <i>Convallaria majalis</i> L., <i>Cornus mas</i> L., <i>Cornus sanguinea</i> L., <i>Corydalis cava</i> (L.) Schweigg. et Körte, <i>Corydalis solida</i> (L.) Clairv., <i>Cotinus coggygria</i> Scop., <i>Crataegus monogyna</i> Jacq., <i>Dactylis glomerata</i> L., <i>Digitalis ambigua</i> Murray, <i>Digitalis lanata</i> Ehrh., <i>Digitalis lutea</i> L., <i>Euonymus europaeus</i> L., <i>Fragaria vesca</i> L., <i>Fragaria viridis</i> Duchesne, <i>Fraxinus ornus</i> L., <i>Galanthus nivalis</i> L., <i>Geranium robertianum</i> L., <i>Geum urbanum</i> L., <i>Hedera helix</i> L., <i>Helleborus odoratus</i> W. K., <i>Ligustrum vulgare</i> L., <i>Lonicera xylosteum</i> L., <i>Morus alba</i> L., <i>Morus nigra</i> L., <i>Muscari comosum</i> (L.) Mill., <i>Paeonia officinalis</i> L., <i>Pinus nigra</i> J. F. Arnold, <i>Pinus sylvestris</i> L., <i>Polygonatum officinale</i> All., <i>Prunus avium</i> L., <i>Quercus cerris</i> L., <i>Quercus pedunculata</i> Ehrh., <i>Rhamnus catharticus</i> L., <i>Robinia pseudacacia</i> L., <i>Rosa canina</i> L., <i>Rubus caesius</i> L., <i>Rubus fruticosus</i> L., <i>Rubus idaeus</i> L., <i>Sambucus nigra</i> L., <i>Scrophularia nodosa</i> L., <i>Solidago virgaurea</i> L., <i>Sorbus domestica</i> L., <i>Stachys officinalis</i> (L.) Trevis, <i>Tamus communis</i> L., <i>Tilia tomentosa</i> Moench, <i>Ulmus campestris</i> L., <i>Viburnum lantana</i> L.
Riverside 10.82 %	vegetation	<i>Angelica sylvestris</i> L., <i>Equisetum arvense</i> L., <i>Equisetum ramosissimum</i> Desf., <i>Eupatorium cannabinum</i> L., <i>Galega officinalis</i> L., <i>Gentiana pneumonanthe</i> L., <i>Glechoma hederacea</i> L., <i>Gymnadenia conopsea</i> (L.) R. Br., <i>Humulus lupulus</i> L., <i>Inula helenium</i> L., <i>Lithospermum officinale</i> L., <i>Lysimachia nummularia</i> L., <i>Lythrum salicaria</i> L., <i>Mentha longifolia</i> (L.) Huds., <i>Polygonum hydropiper</i> L., <i>Populus tremula</i> L., <i>Potentilla reptans</i> L., <i>Ranunculus acris</i> L., <i>Sanguisorba officinalis</i> L., <i>Symphytum officinale</i> L., <i>Teucrium scordium</i> L., <i>Thalictrum flavum</i> L., <i>Valeriana officinalis</i> L., <i>Verbascum thapsiforme</i> Schrad., <i>Viburnum opulus</i> L.

Swamp vegetation 7.80 %	<i>Alisma plantago-aquatica</i> L., <i>Alnus glutinosa</i> (L.) Gaertn., <i>Equisetum limosum</i> L., <i>Equisetum palustre</i> L., <i>Galium palustre</i> L., <i>Gratiola officinalis</i> L., <i>Lycopus europaeus</i> L., <i>Lysimachia vulgaris</i> L., <i>Mentha aquatica</i> L., <i>Phragmites communis</i> Trin., <i>Populus alba</i> L., <i>Populus nigra</i> L., <i>Populus pyramidalis</i> Rozier, <i>Ranunculus repens</i> L., <i>Rhamnus frangula</i> L., <i>Rumex hydrolapathum</i> Huds., <i>Salix alba</i> L., <i>Solanum dulcamara</i> L.
Weed vegetation 13.85 %	<i>Adonis aestivalis</i> L., <i>Agropyron intermedium</i> (Host.) P.Beauv., <i>Agropyron repens</i> (L.) P.Beauv., <i>Agrostema githago</i> L., <i>Amaranthus retroflexus</i> L., <i>Anagallis arvensis</i> L., <i>Aristolochia clematitis</i> L., <i>Artemisia absinthium</i> L., <i>Artemisia vulgaris</i> L., <i>Bryonia alba</i> L., <i>Capsella bursa-pastoris</i> (L.) Medik., <i>Centaurea cyanus</i> L., <i>Chenopodium hybridum</i> L., <i>Consolida regalis</i> Gray, <i>Convolvulus arvensis</i> L., <i>Geranium pusillum</i> L., <i>Lamium purpureum</i> L., <i>Linum usitatissimum</i> L., <i>Lithospermum arvense</i> L., <i>Lycopsis arvensis</i> L., <i>Melandrium album</i> (Mill.) Garcke, <i>Papaver rhoeas</i> L., <i>Physalis alkekengi</i> L., <i>Polygonum lapathifolium</i> L., <i>Sambucus ebulus</i> L., <i>Sinapis alba</i> L., <i>Solanum nigrum</i> L., <i>Stellaria media</i> (L.) Vill., <i>Taraxacum officinale</i> Weber, <i>Trifolium repens</i> L., <i>Verbena officinalis</i> L., <i>Vicia cracca</i> L.
Ruderal vegetation 19.91 %	<i>Agrimonia eupatoria</i> L., <i>Anchusa officinalis</i> L., <i>Ballota nigra</i> L., <i>Calendula officinalis</i> L., <i>Chelidonium majus</i> L., <i>Clematis recta</i> L., <i>Conium maculatum</i> L., <i>Coronilla varia</i> L., <i>Echium vulgare</i> L., <i>Eringeron canadensis</i> L., <i>Erodium cicutarium</i> (L.) L'Her. ex Aiton, <i>Euphorbia esula</i> L., <i>Fumaria officinalis</i> L., <i>Galium aparine</i> L., <i>Galium mollugo</i> L., <i>Galium verum</i> L., <i>Hieracium pilosella</i> L., <i>Hyoscyamus niger</i> L., <i>Hypericum perforatum</i> L., <i>Hyssopus officinalis</i> L., <i>Lavandula officinalis</i> Chaix., <i>Lavatera thuringiaca</i> L., <i>Leonurus cardiaca</i> L., <i>Lotus corniculatus</i> L., <i>Malva neglecta</i> Wallr., <i>Marrubium vulgare</i> L., <i>Matricaria chamomilla</i> L., <i>Melilotus officinalis</i> (L.) Pall., <i>Melissa officinalis</i> L., <i>Narcissus poeticus</i> L., <i>Nigella arvensis</i> L., <i>Ononis spinosa</i> L., <i>Origanum vulgare</i> L., <i>Parietaria officinalis</i> L., <i>Phytolacca decandra</i> L., <i>Polygonum aviculare</i> L., <i>Potentilla recta</i> L., <i>Rumex acetosa</i> L., <i>Saponaria officinalis</i> L., <i>Senecio erucifolius</i> L., <i>Sisymbrium officinale</i> (L.) Scop., <i>Tanacetum vulgare</i> L., <i>Tragopogon pratensis</i> L., <i>Tussilago farfara</i> L., <i>Urtica dioica</i> L., <i>Xanthium strumarium</i> L.

In systematic terms, the reported species belong to 173 genera and 62 families. Nine families comprise nearly half of the total number of species (Asteraceae 10.8%, Lamiaceae 9.1%, Rosaceae 6.5%, Ranunculaceae 5.2%, Fabaceae 4.8%, Poaceae 3%, Brassicaceae 3%, Liliaceae 2.6%). Families Caryophyllaceae, Scrophulariaceae, Solanaceae and Polygonaceae are represented

by five species (each contributing to total number with 2.2%); families Apiaceae, Equisetaceae, Rubiaceae, Orchidaceae are represented by four species (each contributing to total number with 1.7%); families Primulaceae, Fumariaceae, Geraniaceae, Caprifoliaceae, Urticaceae are represented by three species (each contributing to total number with 1.3%). The rest of the families is represented by two or one species (0.9% and 0.4%, respectively).

Although the majority of plants recorded had a high abundance in typical plant communities, 7 species (*Adonis vernalis*, *Alkanna tinctoria*, *Gentiana pneumonanthe*, *Orchis militaris*, *Paeonia officinalis*, *Paeonia tenuifolia*, *Ruta graveolens*) were threatened and come under statutory protection.

In total, 13 floral elements were represented in medicinal flora (in addition, 4 floral elements with a small number of representatives). The most common elements are Eurasian and Sub-Central European (22.51% and 16.50%, respectively).

Table 2. Percentage of floral elements related to medicinal flora in Deliblato Sands

Floral elements	Percentage (%)
Eurasian	22.51
Sub-Central European	16.50
Sub-Eurasian	8.66
Sub-Mediterranean	7.36
Cosmopolitan	4.76
Sub-South Siberian	5.63
Circumpolar	3.90
Sub-Pontic	3.03
Adventive	3.03

Pontic-Central Asian	2.60
Sub-Pontic- sub-Mediterranean	2.60
Sub-Pontic-Central Asian	2.16
Sub-Circumpolar	2.16
Floral elements represented with less than 5 species	15.10

Recorded medicinal plants are classified in 9 life forms, where most of species belongs to hemi-cryptophytae, followed by geophytae, terophytae/chamaephytae, phanerophytae, therophytae, nano-phanerophytae. Smaller number of species belongs to herbaceous chamaephytae, woody chamaphytae and phanerophytic liana.

Table 3. Percentage of life forms within medicinal flora of Deliblato Sands

Life forms	Percentage (%)
Hemi-cryptophytic	35.93
Geophytic	18.18
Therophytic / Chamaephytic	12.56
Phanerophytic	9.96
Therophytic	9.52
Nano-phanerophytic	7.36
Herbaceous-Chamaephytic	3.46
Woody-Chamaephytic	2.60
Phanerophytic liana	0.43

Usage of medicinal plants by local residents

The results of the ethnobotanical survey are presented in Table 6 (Appendix), in which the plants are arranged in alphabetical order. The following ethnobotanical and pharmacognostic elements are provided for each listed species: botanical taxa, botanical family, local name(s), English name(s), part(s) used, usage and preparation. Table 6 includes 101 original recipe and 73 modes of preparation.

Inventoried medicinal plants encompass 45 pharmacological properties. Among them, the most common are diuretic agents (41.1% out of total number of species), astringent (15.6%), antirheumatic (16.9%), anti-inflammatory (14.7%), anti-pyretic (13.4%), sedative (11.2%) antitussive (10.8%) and expectorant agents (9.5%). Two species were assigned 11 pharmacological properties (*Fragaria vesca* and *F. viridis*). Another 11 species have 7 or more pharmacological properties (*Dictamnus albus*, *Marrubium vulgare*, *Fumaria officinalis*, *Melissa officinalis*, *Rubus fruticosus*, *Plantago lanceolata*, *P. media*, *Salvia officinalis*, *Solidago virgaurea*, *Symphytum officinale*, *Urtica dioica*). Other species have 6 (18 species) or less properties (5 - 31 species, 4 - 43 species, 3 -53 species, 2 - 40 species, 1 - 33 species).

A beneficial effect on only one group of ailments is recorded for 18.6% of plants, whereas 25.5% and 22.9% heal two and three different groups of medical problems. A percentage of plants used for treating four and five different body systems or system affections is 14.3%. It is rare that the same plant could be used for six (3.0 % of the plants recorded: *Dictamnus albus*, *Fumaria officinalis*, *Geum urbanum*, *Gratiola officinalis*, *Hypericum perforatum*, *Hieracium pilosella*, *Origanum vulgare*), seven (0.4%, *Achillea millefolium*), or eight (0.9%, *Fragaria vesca*, *F. viridis*) different groups of ailments.

Totally, 90 human ailments are treated by the local populations using various medicinal plant species. The majority of inventoried plants are used for treating gastrointestinal (54.9%), urinary (49.8%) and dermatological ailments (46.7%). Other plants are used as remedies for respiratory, nervous, osteoarticular, reproductive, cardiovascular and infectious ailments (35.9%, 26.4%, 21.2%, 20.8%, 16.5%, and 16.2%, respectively). A smaller number of plants are used for treating hot and cold syndrome, as preventive agents or against endocrine disorders (15.1%, 10.0%, 5.2%, respectively) (Table 4).

Table 4. Number of illnesses recognized by informants and numbers of species, genera, families used for traditional medicaments.

Body systems (group of ailments)	N° of illnesses	N° of families	N° of genera	N° of species
Digestive system	14	53	106	127
Cardio-vascular system	9	15	32	38
Urinary system	7	40	92	115
Reproductive system	8	25	42	48
Respiratory system	8	38	78	83
Nervous system	11	24	49	61
Dermatological complains	12	41	85	108
Osteoarticular complaints	5	26	41	49
Endocrine system	2	9	12	12
Infectious diseases & snake/insect bite	8	20	32	37
Hot & cold syndrome	3	20	31	36
Preventive	3	13	20	23

Methods of use

Leaves (including leaf buds and needles) and reproductive plant organs (flowers, fruits, seeds) are most frequently used for remedial preparations (28.1% and 29.0%, respectively), followed by belowground storage organs (rhizomes,

bulbs, tubers) and roots (17.7% and 14.3%, respectively). The whole plant is used as medicinal herba in 14.3%, only aboveground plant parts in 15.2%, only herbaceous aboveground parts in 3.0% and bark from tree and braches in 7.8%. The method and the timing of collecting in regard to plant phenological cycle are noted for 58 plants (25.1%).

The majority of medicinal plants are used for only one remedial preparation (54.1%), whereas 18.6% and 14.7% of plants are used for preparing two or three different preparations. Additionally, 6.5% of plants are reported as being herba for four different preparations. Five, six or seven preparations could be made from a smaller number of plants (2.6%, 3.0% and 0.4%, respectively).

The dominant method of usage is tea (85.7%). There is a clear preference for taking the tea internally, while the same tea preparation is usually used externally for other type of complaints. 36.8% of plants are reported as being consumed internally, and 5.6% are applied externally, whereas 57.6% of the plants recorded could be used both internally and externally. Other types of usage include eating a fresh plant part or making a poultice of fresh plant (21.7%), or using a tincture, syrup, oil or extract (10.0%, 9.5%, 9.1%, 7.8%). A small number of plants are used as flour (4.3%), or mixed with wine and brandy (4.2% and 1.7%, respectively). Preparing and dosages are mostly arbitrary (in general, tea preparing means one tablespoon of dried herba shortly boiled in 1 cup of water, dosage 2-3 times daily for a week). Methods of use are presented in Table 5.

Table 5. Number of preparations and plant parts used for treatment of different ailments.

Body systems (group of ailments)	Use													
	N° of preparations							N° of parts used						
	Te	F	Ti	E	S/H	O	W/B	F	L	A	B	R	B	W
Digestive system	100	11	5	23	8	1	5		20	25	31	30	8	17
Cardio-vascular system	29	1	2	4	4	1			13	7	11	6	1	4
Urinary system	100	6		8	6				23	24	25	26	4	17
Reproductive system	45	1		3					15	10	14	7	2	4
Respiratory system	72	3	3	7	13		3		19	24	11	19	1	13
Nervous system	50	4	2	5					12	12	12	13	1	11
Dermatological complains	55	27	8	11		1	1	1	23	28	29	18	2	19
						5		1						
Osteoarticular complaints	28	5	2	4	4	7	1		8	11	13	12	2	3
Endocrine system	11							1	4	1	4	1		2
Infectious diseases & snake/insect bite	17	7	2	2	3	2	1	3	6	8	9	6	3	5
Hot & cold syndrome	32		1	2	2			1	10	7	2	11	3	5
Preventive	19	6		1			1		9	4	3	8		2

Te: tea; F: fresh; Ti: tincture; E: extract; S/H: syrup or mixed with honey; W/B: mixed with wine or brandy; F: floured; L: leaf, A: aboveground parts; B: belowground parts; R: reproductive organs; B: bark; W: whole plant.

Presentation of results

All project results were presented on the public event organized on February 28th, where authority representatives, persons employed in forestry farms and small enterprises involved in trade of medicinal plants and its products, as well as local residents were invited (Fig. 3&4). The conclusions of our study emphasized the richness of medicinal flora in investigated area and the need for its' conservation.

The results of study are also prepared for submitting to the scientific journal specialized for publishing articles related to medicinal flora.



Figure 3. Presentation of project results.



Figure 4. Audience was truly interested in project results and further steps can be taken to protect medicinal plants.

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Table 2

Wild flora species used for medicinal purposes in the area of Deliblatska pešćara (Deliblato Sand)

Botanical taxa, family and voucher specimen codes	Local name	English name	Properties, medicinal use and preparations
<i>Acer campestre</i> L. (Aceraceae)	Klen	Hedge maple	An astringent. A decoction is used to bathe sore eyes. The bark should be sun dried and stored in a dry place until required.
<i>Achillea millefolium</i> L. (Asteraceae)	Hajdučka trava, Sporiš	Bloodwort, Carpenter's weed, Soldiers woundwort	Antihemorrhagic, relaxant, laxative; used for painful menstrual cycle; for digestive disorders; for liver, kidney, eye and dental problems. Tea from flowers against constipation; tea from leaves against bronchial asthma; fresh juice from leaves for strengthening the digestive organs and for blood purification; crashed fresh leaves are used as wound poultice; mixed with grease for hemorrhoids. For prevention, it can be taken as bitter tea or as a supplement in bitter brandy.
<i>Aconitum lycoctonum</i> L. (Ranunculaceae)	Jedić	Northern wolfsbane	Tea is used as an anesthetic, antineuralgic, antirheumatic. Tincture is used against gout, rheumatism, migraine and teeth pain. Tubers should be collected in the blooming period.
<i>Adonis aestivalis</i> L. (Ranunculaceae)	Zečiji mak	Summer pheasant's eye	Tea is used as a diuretic, against heart diseases; against chronic kidney inflammation and angina pectoris.
<i>Adonis vernalis</i> L. (Ranunculaceae)	Gorocvet	Spring pheasant's eye	Tea is used as a diuretic, antispasmodic, antitoxin, anti-inflammatory; against heart diseases, kidneys inflammation, cardiac convulsions, nicotine intoxication. Should be collected before fruit formation.
<i>Agrimonia eupatoria</i> L. (Rosaceae)	Petrovac, Ovčiji čičak	Agrimony, Stickwort, Stickwort	Tea is used as analgesic, mucolytic, antihemorrhagic, antidiarrheal; against pain in liver, chronic gastric catarrh, kidney hemorrhage; diarrhea. Externally, for gorge rinsing and for some skin complaints.
<i>Agropyron intermedium</i> (Host.) P.Beauv. (Poaceae)	Crnopirika, Sivozelena pirevina	Intermediate wheatgrass	A diuretic; against urinary tract infections, kidney stones. A teaspoon of alcohol (25%) extract (1:1) is used three times a day.
<i>Agropyron repens</i> (L.) P.Beauv. (Poaceae)	Pirevina, Pirika, Pirovina	Sprague's grass, Devil's grass	Tea is used as analgesic, antitussive, laxative; against urinary tract ailments, arthritis, constipation, cough. Rhizome should be collected in spring, before emergence, overwashed, cleared from fine roots and dried.
<i>Agrostema githago</i> L. (Caryophyllaceae)	Kukolj	Common corncockle	Tea from seeds is used as a diuretic, anthelmintic, expectorant. Tea from root as poultice against hemorrhage and rash.
<i>Alisma plantago-aquatica</i> L. (Alismataceae)	Vodena bokvica	European water plantain	Tea is used as a diuretic, antidiarrheal, galactagogue.
<i>Alkanna tinctoria</i> (L.)Tausch. (Boraginaceae)	Alkana, Crveni koren	Alkana, Spanish bugloss	Externally, tea is used for skin complaints and wounds.
<i>Alliaria officinalis</i> Andr. ex	Lukovac	Garlic mustard	Tea is used as a diuretic, for inducing perspiration; for overall strengthening and as resolvent.

M.Bieb. (Brassicaceae)			Externally, for wounds and ulcers treatment.
<i>Alnus glutinosa</i> (L.) Gaertn. (Betulaceae)	Jova, Crna jova, Jošika	European alder	Tea from leaves is used against ulcers, stomach ailments, enteritis, colitis and jaundice. Bark is strong astringent and antipyretic.
<i>Alyssum alyssoides</i> L. (Brassicaceae)	Čačkasta gromotulja	Pale madwort	Appetizer, mucolytic, antiscorbutic; for improving appetite and against lung catarrh. Fresh leaves or aboveground parts should be collected in the blooming period; daily dosage 10-20 g of fresh plant or 1 teaspoon of tincture (50 g of fresh plant in 200 g of 70% alcohol).
<i>Alyssum desertorum</i> Stapf . (Brassicaceae)	Žumenica	Desert madwort	Same as <i>A. alyssoides</i> .
<i>Amaranthus retroflexus</i> L. (Amaranthaceae)	Štir	Redroot amaranth	An astringent, antidiarrheal. Tea from fresh or dried leaves is used against prolonged menstruation, diarrhea, throat inflammations. Externally, for wounds and ulcers.
<i>Anagallis arvensis</i> L. (Primulaceae)	Vidovčica, Vidova travica, Vidac	Scarlet pimpernel, Blue pimpernel	Tea is used as a diuretic, narcotic, antihaemorrhagic. Against bleeding in lungs, obstipation, warts, granulomas; tranquilizer for neural ailments; anti-toxin for snake bite and rabies. Used for inducing perspiration, for wound treatment. Useful in the treatment of dropsy, and for lung diseases.
<i>Anchusa officinalis</i> L. (Boraginaceae)	Volovski jezik, Pačje gnezdo	Common bugloss	Tea is used as a diuretic, antipyretic, antitussive; for inducing perspiration, relieving cough, healing fever, blood purification.
<i>Anemone pulsatilla</i> L. (Ranunculaceae)	Sasa	Pasque flower	Relaxant, diuretic, purgative; against cough, rash, anxiety. Preferably to be used fresh; only in small amounts because of its toxicity.
<i>Angelica sylvestris</i> L. (Apiaceae)	Andeoski koren	Angelica, Wild angelica	Relaxant, antitussive, strengthening agent. Tea from fruits or roots (for floured root daily dosage 5-10 g) is used against lung diseases, as tranquilizer, for stomach strengthening.
<i>Antennaria dioica</i> (L.) Gaertn. (Asteraceae)	Srcopuc, Smilje	Cat's ears, Cat's foot, Pussy-toes	Secretion stimulator, antidiabetic. Tea is used to increase the secretion of bile, stomach and pancreas; to treat stomach and duodenal ulcers; against hypertension and lung diseases. Mixed with bean follicle has antidiabetic properties.
<i>Anthemis ruthenica</i> M. Bieb. (Asteraceae)	Prstenak	Russian chamomille	Tea is used as an antispasmodic, for abdominal disorders.
<i>Arenaria serpyllifolia</i> L. (Caryophyllaceae)	Mišje uvo, Peščanka	Thymeleaf sandwort	Tea is used as antitussive, detoxicant, diuretic, antipyretic. For cough relieving, blood purification, as anti-fever agent.
<i>Aristolochia clematitis</i> L. (Aristolochiaceae)	Kokotinja, Vučja stopa	Birthwort	Tea from floured rhizome is used to treat ulcers and wounds and help heal snake bites. Relieves labor pain, can be an abortive agent. If used excessively may cause severe kidney disorders.
<i>Artemisia absinthium</i> L. (Asteraceae)	Pelen, Gorčika	Wormwood	Tea is used as digestive, carmanative, antihelminthic, emmenagogue, antipyretic, nervine. Aboveground parts should be collected before blooming; root should be collected in autumn or early spring. Administration of aboveground parts: tea, tincture, extract; root: flour.
<i>Artemisia campestris</i> L. (Asteraceae)	Runka, Rudinski	Northern, Boreal, and	Tea is used as antihelminthic, antiseptic, emmenagogue, tonic, nervine. Externally, as poultice of crushed leaves for wounds and sore eyes.

	pelen	Canadian wormwood	
<i>Artemisia scoparia</i> Waldst. et Kit. (Asteraceae)	Žuta metla, Metlovina	Red-stem wormwood	Tea is used as antipyretic, cholagogue, diuretic, vasodilator. Against urinary tract infections and hypertension.
<i>Artemisia vulgaris</i> L. (Asteraceae)	Komonika, Crni pelin, Trlomet	Mugwort, Common wormwood	Emmenagogue, antiseptic, purgative, diuretic (tea from leaf, flower, root); against epilepsy, flu and rheumatism (root extract). Against abdominal disorders, edema, spasms and nerve disorders, for menstrual disorders, uteral cleansing. Should be collected in the blooming period.
<i>Asparagus officinalis</i> L. (Asparagaceae)	Vilina metla	Garden asparagus	A diuretic, antirheumatic, antitussive. Against heart diseases, rheuma, haemorrhoids, cough; externally against skin complaints. Syrup is made of 100 g of root which is being parboiled with 3 l of water and left for 12 h; after percolation, liquid is boiled with 2 kg of sugar. This syrup is taken 2-3 times a day in amount 30-60 g. It is useful as a diuretic, in the treatment of jaundice, dropsy, kidney and liver diseases.
<i>Asparagus tenuifolius</i> Lam. (Asparagaceae)	Rebruša	Narrow-leaved asparagus	Same as <i>A. officinalis</i> .
<i>Asplenium trichomanes</i> L. (Aspleniaceae)	Vlasak	Maidenhair spleenwort	Tea is used as emmenagogue, expectorant, laxative. To induce menstruation, for chest complaints and cough.
<i>Aster linosyris</i> (L.) Bernh. (Asteraceae)	Zvezdičica, Zlatni lan	Goldilocks aster	An astringent. Tea is used for liver disorders, for uteral cleansing.
<i>Atropa bella-donna</i> L. (Solanaceae)	Velebilje, Beladona	Belladonna	Antitussive, antineuralgic, relaxant. Tea is used against gastric ailments; whooping cough, gout, neuralgia, cancer. Induces pupil dilation. Leaves should be collected several times over the growing period; whereas root should be taken in second year of life cycle, only in spring time. Leaf extract is used against stomach disorders; leaves and dried, crashed root can be used for making anti-asmatic cigars.
<i>Ballota nigra</i> L. (Lamiaceae)	Modri tetrljan	Black horehound	Tea is used as relaxant against nerve ailments, convulsions, palpitations, hypochondria; as antihelminthic. Externally, against skin and hair ailments.
<i>Berberis vulgaris</i> L. (Berberidaceae)	Žutika, Šimširika, Žutotrn	Common barberry	Analgesic, antispasmodic, purgative, antiscorbutic. For treating abdominal pain (liver, spleen, stomach) and against convulsions. Tea from root is used to treat jaundice, obstipation, liver and kidney pain. Tea from fruits and leaves is used for cleansing, against scorbut and dropsy. Tea from root bark is used for throat rinsing, strengthening of teeth and gums (20 g of root bark is poured with 0.5 l of boiled water and left covered for 7-8 h; daily dosage 2-3 cups).
<i>Betula verrucosa</i> Ehrh. (Betulaceae)	Bela breza, Metlika	European white birch	Antianemic, antiscorbutic, antihelminthic, antipyretic, diuretic and for wound treatment (tea). Young leaves (and leaf buds) taken in spring should be dried in draught. Alcohol extract of leaves is used against fever, lung ailments and colitis.
<i>Bromus tectorum</i> L. (Poaceae)	Vlasulja	Cheatgrass	For relieving the chest pain, a paste (seeds in grease) is applied externally.
<i>Bryonia alba</i> L.	Debelotikva,	White bryony	Root extract is used as a purgative, diuretic, mucolytic; against dropsy, gout, lung catarrh,

(Cucurbitaceae)	Bljuštac		diarrhea, epilepsy; externally for ulcers and wounds. Root should be collected in autumn.
<i>Calamintha acinos</i> (L.) Clairv. ex Gaudich. (Lamiaceae)	Divlji bosiljak, Ježić	Basil thyme	Tea is used as an expectorant, nerve tonic. Against painful menstruation and menstrual disorders, depression.
<i>Calendula officinalis</i> L.* (Asteraceae)	Neven	Pot marigold	Emmenagogue, light purgative; for inducing perspiration. Tea is used against abdominal complaints (jaundice, stomach, intestinal and liver ailments: 10 g of flowers in 100 g of boiled water). Flowers in oil are used against swelling, blisters, scorchs and warts (25 g of fresh flowers is put in bottle with 1 l of oil; enveloped bottle is put into jar with water to boil slowly; thereafter, warm oil is percolated and kept in cold place). Tincture or grease for external usage (against scurf and eczema).
<i>Capsella bursa-pastoris</i> (L.) Medik. (Brassicaceae)	Rusomača, Hoću-neću, Devojačka trava	Shepherd's purse	Antidiarrheal, astringent, antiscorbutic; against heavy menstrual bleeding; for scorbut and ulcer treatments (fresh plant). As haemostatic, against lung bleeding, kidney and uterine ailments (tea or tincture). Should be collected in the blooming period.
<i>Carduus nutans</i> L. (Asteraceae)	Stričak, Crveni čkalj	Nodding plumeless thistle	Antipyretic. Tea is used for blood purification.
<i>Carlina vulgaris</i> L. (Asteraceae)	Vilino sito, Kravljak	Carline thistle	A diuretic, diaphoretic, tonic, cholagogue. Root should be collected in autumn and dried immediately. It can be used as tea (20 g/1 l water) or as wine (30 g/1 l of wine). Externally, applied as paste, is useful in the treatment of wounds, ulcers and skin complaints.
<i>Centaurea cyanus</i> L. (Asteraceae)	Različak	Garden cornflower	Tea has diuretic properties, useful for stomach ailments; externally is used as antiseptic, against eye catarrh.
<i>Chelidonium majus</i> L. (Papaveraceae)	Rusa, Trava od rosopasa	Celandine	Antiseptic. Fresh juice and tea have bactericidal and fungicidal properties; both are used against convulsions of pylorus and bronchi. Tea is used to cure jaundice, liver, bile and intestinal ailments; to treat asthma or pain in digestive organs. Externally applied fresh juice helps in removal of warts; can be used as local anesthetic; against eye infections. Externally applied extract is used against skin tuberculosis, haemorrhoids, wounds, rheuma, syphilis.
<i>Chenopodium hybridum</i> L. (Chenopodiaceae)	Pepeljuga	Mapleleaf goosefoot	Tea is used as analgesic for abdominal pain, against diarrhea.
<i>Clematis recta</i> L. (Ranunculaceae)	Pavitac, Pavitina	Ground virgin's bower	Tea is used as a diuretic, diaphoretic. Externally for skin ulcers. Young leaves should be collected before the blooming period.
<i>Clematis vitalba</i> L. (Ranunculaceae)	Pavit, Bela loza	Evergreen clematis	Tea is used for edema and cancer treatment. Externally applied, to heal bruises and wounds.
<i>Colutea arborescens</i> L. (Fabaceae)	Pucalina, Žuta bagra	Bladder senna	Tea is used as purgative (10 g of dried leaves or follicles is boiled in 300 g of water for 15 min, filtrated and drunk at once).
<i>Conium maculatum</i> L. (Apiaceae)	Kukuta	Poison hemlock	Tincture is as antispasmodic, antineuralgic and analgesic; against muscle convulsions, nerve disorders, nerve movements, Parkinson's disease. Also is useful against spasms of respiratory

			organs, relieves whooping cough, bronchitis and asthma; relieves problems from gastritis, hypersensitiveness in venereal ailments. Externally, fresh leaves could be applied as poultice (alternatively oil or grease from dried plant could be applied through waxed cloth) for wounds, gland edemas, skin cancer.
<i>Consolida regalis</i> Gray (Ranunculaceae)	Žavornjak	Royal knight's-spur	Herbal tea is used as a diuretic; externally against scab. Tea from flowers is used as a diuretic, antihelminthic, antitussive; for cough relieving, externally for wound treatment, eye infections.
<i>Convallaria majalis</i> L. (Liliaceae)	Đurđevak, Đurđić	European lily of the valley	Herbal tea is used as a diuretic, relaxant; against heart diseases, lung ailments, headache and epilepsy. Dried and crashed flowers are used as 'snuff' against cold. Tincture from flowers is used for treating heart attack, accelerated heartbeat, irritability. Tea from rhizome is used for regulation of heartbeat frequency, strengthening the cardiac muscle, relieving convulsions.
<i>Convolvulus arvensis</i> L. (Convolvulaceae)	Poponac, Slak, Slatkovina	Field bindweed	Tea from root is used as purgative, carmanative. Herbal parts are used externally for wound treatment.
<i>Cornus mas</i> L. (Cornaceae)	Dren, Drenak	Cornelian cherry	Tea from fruits is antidiarrheal and antihaemorrhagic; against diarrhea and bleeding. Tea from bark has similar properties.
<i>Cornus sanguinea</i> L. (Cornaceae)	Svib, Svibovina	Bloodtwig dogwood	Tea is used as an astringent. Externally for sore eyes.
<i>Coronilla varia</i> L. (Fabaceae)	Ajčica, Bagrenak	Crownwetch, Purple crownwetch	Tea is used as a diuretic, purgative and remedy for heart diseases.
<i>Corydalis cava</i> (L.) Schweigg. et Körte (Fumariaceae)	Mlada, Kokočica	Bird-in-a- bush, Hollowroot	Tea from dried tuber is used as nerve relaxant. Flour from dried tuber (10 g of flour is left for 12 h in one cup of cold water; thereafter, 1 tablespoon is taken every 2 h) is used as antihelminthic, antihaemorrhagic, emmenagogue; against intestinal parasites, gum bleeding, for promoting menstruation. Fresh tuber is used in the treatment of uterine cancer.
<i>Corydalis solida</i> (L.) Clairv. (Fumariaceae)	Behar, Crvenkasta mlada	Spring fumewort	Similar properties as <i>C. cava</i>
<i>Cotinus coggygria</i> Scop. (Anacardiaceae)	Ruj, Rujevina	European smoketree	Tea from leaves is used as antihaemorrhagic, antidiarrheal, for gorge rinsing. Tea from bark is used against fever.
<i>Crataegus monogyna</i> Jacq. (Rosaceae)	Beli glog	Oneseed hawthorn	Tea is used as relaxant, cardiac sedative; against insomnia, hypertension. After 5-7 days of taking the tea, 3-day pause is recommended. Tincture from crashed fruits (20 g of fruits in 100 g of alcohol) is used for regulation of heartbeat.
<i>Cynanchum vincetoxicum</i> (L.) Pers. (Asclepiadaceae)	Divlja paprika	White swallow-wort	Tea is used as a diuretic, for promoting the perspiration.
<i>Cynodon dactylon</i> (L.) Pers. (Poaceae)	Zubača	Bermudagrass	Tea is used as a diuretic.

<i>Cynoglossum officinale</i> L. (Boraginaceae)	Mišinac, Pašji jezik	Gypsyflower	Internally, tea from root (30-60 g of dried root in 1 l of water) is used as astringent against diarrhea and cough. Externally, warm poultice made from crashed root is used for healing gonorrhea, erysipelas, haemorrhoids. Crashed fresh leaves are used for wound and ulcer treatment. Fresh juice is used against scab.
<i>Dactylis glomerata</i> L. (Poaceae)	Ježevica	Orchardgrass	Tea is used as a diuretic against urinary bladder complaints.
<i>Dictamnus albus</i> L. (Rutaceae)	Jasenak	Gasplant	Tea from dried root is used as nerve relaxant, antipyretic, antihelminthic, for strengthening the immunity; against stomach pain, fever, intestinal parasites, uterine ailments. Tea from fresh root is antihelminthic. Tea from seeds is used as resolvent against kidney stone, as emmenagogue for promoting menstruation. Tea from bark and leaves is used as a diuretic, relaxant; against stomach pain and convulsions, insomnia. Tincture from leaves and flowers is used externally against rheumatic pain.
<i>Digitalis ambigua</i> Murray (Scrophulariaceae)	Krupnocvet- ni naprstak	Yellow foxglove	Tea is used as a relaxant; against heart diseases, high temperature, pneumonia, tuberculosis, meningitis. Leaves from rosette should be collected in the first growing year; stem leaves should be collected in the second year before blooming.
<i>Digitalis lanata</i> Ehrh. (Scrophulariaceae)	Digitalis vunasti, Zubačica	Grecian foxglove	Tea is useful as a relaxant, for regulation of heart beat and overall circulation, and also as a diuretic for the treatment of dropsy. Leaves should be collected in the same way as for <i>D. ambigua</i> .
<i>Digitalis lutea</i> L. (Scrophulariaceae)	Naprstak žuti	Straw foxglove	Used for same ailments as <i>D. ambigua</i> , but has faster and stronger effect. Leaves should be collected in the same way as for <i>D. ambigua</i> .
<i>Draba verna</i> L. (Brassicaceae)	Draba	Spring draba	Anti-inflammatory agent. Externally as poultice for skin inflammations.
<i>Echium vulgare</i> L. (Boraginaceae)	Vučji rep, Lisičina, Lisičji rep	Common viper's bugloss	Antianemic, for blood purification and overall strengthening; ailments of the endocrine glands, tuberculosis, syphilis, bone weakness. Usually is administered as tea, but the juice extract has the same properties (dissolved in water in ratio 1:100, dosage is 1 teaspoon 3 times a day, before meals).
<i>Equisetum arvense</i> L. (Equisetaceae)	Rastavić, Preslica	Field horsetail	Tea is used as a diuretic, haemostatic in initial tuberculosis; against arteriosclerosis, hypertonia, chronic kidney inflammation, gout; as appetizer, against flatulence and leucorrhea. Leaves should be collected in mid-summer, only if they are green, and dried to keep green color.
<i>Equisetum limosum</i> L. (Equisetaceae)	Barski rastavić	Water horsetail	Tea is used as a diuretic. Should be collected and dried same as <i>E. arvense</i> .
<i>Equisetum palustre</i> L. (Equisetaceae)	Žabnica	Marsh horsetail	Tea is used as a diuretic. Should be collected and dried same as <i>E. arvense</i> .
<i>Equisetum ramosissimum</i> Desf. (Equisetaceae)	Razgranati rastavić	Branched scouringrush	Tea is used as a diuretic. Against diarrhea, jaundice. Should be collected and dried same as <i>E. arvense</i> .
<i>Erigeron canadensis</i> L. (Asteraceae)	Repušnjača	Fleabane	Tea is antidiarrheal, antiseptic, resolvent; against diarrhea and infections of digestive system, bronchial catarrh, rheumatism.
<i>Erodium cicutarium</i> (L.) L'Hér.	Živa trava,	Redstem	Tea is used as haemostatic, against uterine bleeding out of menstrual cycle. For healing the early

ex Aiton (Geraniaceae)	Čapljina	stork's bill	state of diabetes. Small dosage increases, high dosage lowers blood pressure. Plant should be collected in the blooming period.
<i>Eryngium campestre</i> L. (Apiaceae)	Vetrovalj, Vetrovac, Kotrljan	Field eryngo	Tea from root has diuretic and aphrodisiac properties. Herbal juice is used externally for treatment of skin complaints and internally as a diuretic and for relieving the menstrual problems.
<i>Eupatorium cannabinum</i> L. (Asteraceae)	Resnik, Konopljuša	Hemp agrimony	A diuretic, diaphoretic. Tea is a strong cleansing agent, causing perspiration and urination; used against fever and disgoring. Flour from root should be taken in amount of 4-5 g daily, several times a day, as cholagogue, for lowering blood cholesterol and blood pressure. Externally, for skin complaints. Taken in small amounts improves appetite, taken overmuch can cause vomiting. Should be collected in the blooming period.
<i>Euphorbia cyparissias</i> L. (Euphorbiaceae)	Vučji mlečac	Cypress spurge	Externally, fresh crashed leaves are used for wart removal, and for relieving a toothache.
<i>Euphorbia esula</i> L. (Euphorbiaceae)	Gorska mlečika	Leafy spurge	Similar properties as <i>E. cyparissias</i> .
<i>Euonymus europaeus</i> L. (Celastraceae)	Kurika, Kurkovina	European spindletree	Tea is used as cholagogue, stimulant, tonic. In small dosage stimulates the appetite, whereas in larger doses causes sickness.
<i>Filipendula hexapetala</i> Gilib. (Rosaceae)	Griželj, Pasja ruta	Dropwort	Tea from flowers is used as a diuretic for urinary inflammations. Flowers are part of mixtures for blood purification. Tea from root is used against diarrhea, bleeding, influenza; externally against rheuma. Fresh root is used against ailments of heart, kidneys and bladder (25 g of root is preboiled with 0.5 l of water and left over the night; dosage 1 cup before meal, 3-4 times a day).
<i>Fragaria vesca</i> L. (Rosaceae)	Šumska jagoda	Woodland strawberry	Tea from leaves is antidiarrheal, antihelminthic, diuretic, blood purifier; relieves the pain from kidney stone, in liver and bladder area. Tea from very young leaves is used as antitussive, for healing asthma, catarrh and cough. Tea from herbal parts is used as nerve relaxant. Tea from rhizome is used against heart pain, heavy menstrual bleeding. Tea from fruits is used for same purposes, and also against kidney sand and stone, gout, rheuma. Fresh fruits are used against constipation.
<i>Fragaria viridis</i> Duchesne (Rosaceae)	Pucavica, Truska	Green strawberry	Similar properties as <i>F. vesca</i> .
<i>Fraxinus ornus</i> L. (Oleaceae)	Crni jasen	Flowering ash	Manna made from ash tree is used as antitussive and laxative, against constipation and cough, especially for kids (bark of 7-30 year old tree should be cut during July-August; brown juice turns into yellow-white mass 'manna' after contact with air). Leaf boiled in wine is used for treatment of swollen feet and leg pain. Cold extract of bark appeases stomach convulsions; also is used against intestinal parasites.
<i>Fumaria officinalis</i> L. (Fumariaceae)	Dimnjača, Rosopas, Rosnica	Drug fumitory	A diuretic, laxative, resolvent, appetizer, relaxant; used as remedy for intestinal ailments, stomach catarrh, against chronic obstipation, dropsy, liver ailments, arteriosclerosis, cancer, leprosy. Externally is used against scorbut, haemorrhoids, skin lichens. It has beneficial effect on heart and nervous system. For extract, 1 tablespoon of dried plant is decanted with 1 cup of warm water, left over the night; filtered liquor is taken in the morning, before meal. It can be also used for face cleansing, and for healing skin complaints. The juice made from fresh plant is used

<i>Galanthus nivalis</i> L. (Liliaceae)	Visibaba	Snowdrop	against hypertension (100-150 g daily dosage). Tea is used as emmenagogue, relaxant. Externally, against neuralgia.
<i>Galega officinalis</i> L. (Fabaceae)	Ždraljevina, Piskavac	Professor-weed	Tea is used as a diuretic, diaphoretic, galactagogue, anti-toxin for animal bite wounds; as remedy for diabetes. Should be collected in the blooming period.
<i>Galium aparine</i> L. (Rubiaceae)	Bročanka, Divlji broč	Stickywilly	Tea is used as a diuretic, for dropsy; as nerve relaxant for respiratory ailments, for liver and kidney ailments, for epilepsy. Externally, for skin complaints and wounds; as antiscorbutic. Should be collected in the blooming period.
<i>Galium mollugo</i> L. (Rubiaceae)	Belo iva- njsko cveće	False baby's breath	Tea is used as a nerve relaxant, antiscorbutic, for skin complaints.
<i>Galium palustre</i> L. (Rubiaceae)	Beli primak	Common marsh bedstraw	Similar usage as <i>G. mollugo</i> .
<i>Galium verum</i> L. (Rubiaceae)	Ivanjsko cveće	Yellow spring bedstraw	Sedative properties. Tea is used to treat epilepsy and other nervous ailments; against stomach, liver, kidney and respiratory ailments. Externally, for wound treatment and skin infections.
<i>Genista tinctoria</i> L. (Fabaceae)	Žutilova trava	Dyer's greenweed	A diuretic, resolvent. Tea is used against kidney and bladder ailments, gout, bile complaints.
<i>Gentiana pneumonanthe</i> L. (Gentianaceae)	Mala svećica	Marsh gentian	Tea is used as a tonic. For strengthening the digestive organs and improving appetite.
<i>Geranium pusillum</i> L. (Geraniaceae)	Ilja crvena sitna	Small geranium	Tea is used as an astringent, antidiarrheal agent.
<i>Geranium robertianum</i> L. (Geraniaceae)	Živa trava	Robert geranium	Light tea is used as antidiarrheal, antihemorrhagic, against skin ulcers (10 g of dried herba in 100 g of water).
<i>Geum urbanum</i> L. (Rosaceae)	Zečija stopa	Herb bennet	Tea is helpful as mucolytic against intestinal and bronchial catarrh, hemorrhoids, against diarrhea, headache, rheuma; externally as rinsing agent for reproductive organs. Tincture is used for throat rinsing and against gum inflammation.
<i>Glechoma hederacea</i> L. (Lamiaceae)	Dobričica, Dobričavka	Ground ivy	Tea is used as a stimulant, tonic, diuretic (especially for kidney and bladder stone), against jaundice, malaria, lung ailments, ear inflammation; for improving digestion and appetite (20 g of dried herba is preboiled with 1 l of water and left for ½ h). Juice is used to heal wounds and ulcers. It can be mixed with equal amount of sugar and used internally for the same purposes as tea.
<i>Glycyrrhiza glabra</i> L. (Fabaceae)	Slatki koren, Sladić	Cultivated licorice	Tea is used as antitussive, against lung ailments, for relieving the cough, cold, bronchitis; against flatulence, gastritis, obstipation and glossitis. Light diuretic properties. Root should be collected in the autumn.
<i>Gratiola officinalis</i> L. (Scrophulariaceae)	Prolevak, Vodeni dubačac	Hedgehyssop	Tea is used as a diuretic, purgative. Against fever, dropsy, heart diseases, kidney, liver and lung ailments. Externally, it is used against skin and venereal ailments, hemorrhoids and ulcers.
<i>Gymnadenia conopsea</i> (L.) R.	Vranjak	Fragrant	Salep from floured tuber is used against gastro-intestinal complaints (10 g of flour is left for 12 h

Br. (Orchidaceae)		orchid	in one cup of cold water; 1 tablespoon is taken every 2 h). Tuber should be collected after plant senescence.
<i>Hedera helix</i> L. (Araliaceae)	Bršljan, Bršljika	English ivy	Tea from leaves is used as haemostatic for menorrhagia, chronic intestinal catarrh. Fruits are used for cleansing and promoting the perspiration. Pulverized leaves are used for drying the scabs. Fresh leaves can be applied on burns and purulent wounds.
<i>Helleborus odorus</i> Waldst. et Kit. (Ranunculaceae)	Kukurek	Fragrant hellebore	Tea from root mixed with tobacco is used against head-lice infestation and scab.
<i>Hieracium pilosella</i> L. (Asteraceae)	Zečja loboda	Mouseear hawkweed	Antidiarrheal, antihaemorrhagic, mucolytic; against bronchial catarrh, diarrhea, uremia, heavy bleeding. For tea preparing, only fresh root, leaf and fruits should be used (10 g of herba with 100 g of boiled water). Fresh juice is used as remedy for eye and mouth inflammations and wounds; for almost all ailments of internal organs, for mouth rinsing.
<i>Humulus lupulus</i> L. (Cannabaceae)	Hmelj	Common hop	Fresh powder from strobili is used as a relaxant for abdominal and bladder pain. Strobili with powder can be used as alcohol extract, or syrup, against weak appetite. Galls are used for stuffing the pillows, since they have relaxing effect.
<i>Hyoscyamus niger</i> L. (Solanaceae)	Bunika	Black henbane	Tea is used as a nerve relaxant, remedy for wheezy breathing and dry cough; pain relieving; against asthma, hysteria, hypochondria and eclampsia. Leaves should be collected in the blooming period, dried to preserve color and kept in covered vessel. Seed has similar properties. Oil obtained after boiling the crushed leaves can be used against rheuma.
<i>Hypericum perforatum</i> L. (Hypericaceae)	Kantarion, Gospina trava	Common St. John's wort	Tea is used as a diuretic, antidiarrheal, mucolytic; against liver and kidney ailments, diarrhea, bleeding, against lung catarrh, abdominal pain, painful menstruation, uterine convulsions and for rinsing and treating wounds. Flowers can be put into oil and left 30-40 days in the sun, to get dark red color; externally, oil is used to treat wounds. All plant parts should be collected in the blooming period.
<i>Hyssopus officinalis</i> L. (Lamiaceae)	Isop	Hyssop	Tea is used as a relaxant, blood purifier, strengthening agent; against lung ailments, for swollen glands, weakness of digestive organs, against night perspiration, toothache and bronchitis, menstrual pain. Tea is made from 4 g of herba and 200 g of boiled water. Syrup is used as remedy for catarrh and asthma; oil is used against rheuma; alcohol extract is used for mouth and gums rinsing.
<i>Inula helenium</i> L. (Asteraceae)	Oman, Beli oman	Elecampane inula	Tea is used as an expectorant against bronchitis, cough; as a diuretic, stomachic and uterine tonic. Helpful in treating asthma, tuberculosis, convulsions, stomach ailments, dropsy. Rhizomes should be collected in early spring, from several years old plants. As prevention, it is used in the protection of respiratory mucous membranes (10 g of crashed rhizome is preboiled with 200 g of water, left for 2 h; daily dosage 1 teaspoon every 2 h). Oil is used externally, against skin complaints, wounds, haemorrhoids, sciatica, snake and insect bites. It is made from 25 g of mixture of inula root and Common St. John's wort flower put into 200 g of fish oil; covered vessel is kept in boiled water for 3 h; thereafter oil should be filtrated. It can also be used as tincture.
<i>Juniperus communis</i> L.	Kleka,	Common	Tea is used for strengthening the immunity, to speed up the metabolism and overall activity, as a

(Cupressaceae)	Borovica	juniper	diuretic; against gout, rheuma (30-50 g of root and 1 l of water; it is recommended for a short time usage in order to avoid kidney inflammation). Externally, oil with root flour is used as antiseptic; fruits soaked into brandy are used for poultice and massage against cold, rheumatism.
<i>Juniperus virginiana</i> L. (Cupressaceae)	Virdžinijska somina	Eastern redcedar	Tea is used as antiseptic, diuretic. Externally, massage can help in relieving the symptoms of cold and rheumatism.
<i>Knautia arvensis</i> (L.) Coult. (Dipsacaceae)	Zvezdo- glavka, Crno oko	Field scabiosa	Tea is used for blood purification, as relaxant for relieving pain in the uterus; fresh crushed leaves are used against ulcers.
<i>Lamium purpureum</i> L. (Lamiaceae)	Mrtva kopriava	Purple deadnettle	Tea is used for blood purification, antianemic; against respiratory and urinary tract ailments; for weak menstruation and against neural ailments. Externally is used against rash in children, and as haemostatic.
<i>Lavandula officinalis</i> Chaix.* (Lamiaceae)	Lavandula, Lavanda	English lavender	Oil is used in the treatment of wounds, against bloats, migraine; as a diuretic and against flatulence; against unconsciousness; heals headache. Tea is used for similar purposes, and also for improving appetite, as relaxant, for relieving the nervous tension. Flower stems should be collected before full development of flowers.
<i>Lavatera thuringiaca</i> L. (Malvaceae)	Slez beloružičasti	Tree lavatera	Tea is used against respiratory ailments, gastric catarrh and diarrhea. Externally, for relieving the inflammations, mechanic injuries, toothache and otitis.
<i>Leonurus cardiaca</i> L. (Lamiaceae)	Srdačica, Srčanik	Common motherwort	Tea is used for strengthening cardiac muscle, as a diuretic, emmenagogue; for expelling kidney stone; as sedative (20-50 g of fresh herba in 1 l of water). Should be collected in the blooming period and used fresh.
<i>Ligustrum vulgare</i> L. (Oleaceae)	Kalina, Zimzelen	European privet	Tea is used for rinsing and treating mouth and throat wounds; as antiscorbutic. Flowers are useful as remedy for diarrhea, enteritis and dysentery.
<i>Linaria vulgaris</i> Mill. (Plantaginaceae)	Divlji lan	Common toadflax	Tea is a diuretic; it is used against bladder stone, jaundice and dropsy. Oil is used against haemorrhoids, skin complaints and wounds (paste made by boiling of fresh crushed flowers in milk could be used for same purposes).
<i>Linum usitatissimum</i> L. (Linaceae)	Lan	Flax	Main administration is externally, as poultice from seeds (seed paste is made by soaking 10 g of seeds in 100 g of water for 12 h), for enema; it can be used internally, against inflammation of the mucous membrane, obstipation, inflammation of the urinary organs. Oil is used to treat burns (mixed with lime water); as poultice for swollen glands (with added sulfur). Paste made from flax's flour (by adding boiled water to obtain a light mixture) can be used as poultice for ulcers, abscesses, purulent wounds.
<i>Lithospermum arvense</i> L. (Boraginaceae)	Divlja proja	Corn gromwell	Tea is used as a diuretic against urinary infections.
<i>Lithospermum officinale</i> L. (Boraginaceae)	Vrapčije seme	European stoneseed	Tea is used as a diuretic against kidney or bladder stone, against flatulence (50 g of crashed flower stems is boiled in 1 l of water for 20 min; after 3 h is filtrated; dosage is 2 cups every morning before meal).
<i>Lonicera xylosteum</i> L.	Crveno	Dwarf	Tea from leaves is used as a diuretic for inducing perspiration, against flatulence and for rinsing

(Caprifoliaceae)	pasje grožđe	honeysuckle	and treating wounds. Tea from flowers is used as relaxant for cardiac disorders, cough and for delayed urination. Externally, as plaster for ulcers.
<i>Lotus corniculatus</i> L. (Fabaceae)	Zvezdan	Bird's-foot trefoil	Relaxant. Tea is used for tremor and neurosis (1 table spoon of dried flowers in 1 cup of boiled water should be taken 3-4 times a day).
<i>Lycopsis arvensis</i> L. (Lamiaceae)	Zavratnica, Krivošija	Wild (Small) Bugloss	Tea is used against cold and in healing the initial stage of smallpox and measles (15 g of flowers in 2 dl of water).
<i>Lycopus europaeus</i> L. (Lamiaceae)	Vučja noga, Gagatica	Gypsywort or European bugleweed	Tea is used as a relaxant for tachycardia and other cardiac disorders; as an astringent and tonic.
<i>Lysimachia nummularia</i> L. (Primulaceae)	Trava od metilja	Creeping jenny	Tea is used as antihaemorrhagic for wounds treatment and against bleeding; against fever, scorb, rheuma, tuberculosis.
<i>Lysimachia vulgaris</i> L. (Primulaceae)	Protivak, Zlatnoglav	Garden yellow loosestrife	Similar properties as <i>L. nummularia</i> .
<i>Lythrum salicaria</i> L. (Lythraceae)	Vrbičica, Vrbica	Purple loosestrife	Extract is used as an astringent, antihaemorrhagic, against external and internal bleeding, diarrhea and various inflammations (dense syrup can be used for the same purposes).
<i>Malva neglecta</i> Wallr. (Malvaceae)	Sitni slez	Common mallow	An expectorant. Tea is used for mouth and dental bumps rinsing; against pectoral pain. Leaves should be collected in the blooming period.
<i>Marrubium peregrinum</i> L. (Lamiaceae)	Očajnica, Gorčika	Horehound	Similar properties as <i>Marrubium vulgare</i> .
<i>Marrubium vulgare</i> L. (Lamiaceae)	Marulja, Očajnica bela	White horehound	Tonic, excitant, resolvent, secretory stimulant. Tea is used to treat dry cough, anemia, menstrual disorders, bladder or uterine pain, jaundice, arrhythmia, overall weakness. Essential oil is used to cure haemorrhoids. The best medicinal properties are achieved by soaking 60 g of herba in 1 l of white wine, left for a week, and therefore taken 100-150 g of wine daily.
<i>Matricaria chamomilla</i> L. (Asteraceae)	Kamilica, Titrica	German chamomile	Emmenagogue, diaphoretic, relaxant. Strong tea (2 full tablespoons of flowers preboiled with 2 dl of water and left for 1 h) should be taken after meal. For mouth rinsing, against flatulence, digestive disorders, for enema. Flour made from dried flowers (and mixed with sugar) is used externally to relieve pain in legs and loins (can also be used internally with water; dosage 3-5 g, 6 times a day, before meals). Diluted essential oil is used against skin and mucous inflammations, burns, wounds. Strong tea used for hair washing can improve hair roots; also is used for lighting up the hair color. Flowers should be collected at the end of May – beginning of June.
<i>Melandrium album</i> (Mill.) Garcke (Caryophyllaceae)	Veliki pucavac	Bladder campion	Tea is used as an anti-inflammatory agent for kidney inflammations; against rheumatism.
<i>Melilotus officinalis</i> (L.) Pall. (Fabaceae)	Kokotac, Ždraljica	Yellow sweetclover	A diuretic, analgesic. Tea is used as expectorant for respiratory ailments (10 g of herba and 200 g of water; dosage 2-3 cups daily). Fresh crashed flower stems and flowers are used as poultice for rheumatic pain and rheumatic bumps of angles, swollen glands, furuncles.
<i>Melissa officinalis</i> L.	Matičnjak	Common balm	Tea is used as appetizer, digestant, against light intestinal disorders, against flatulence; as

(Lamiaceae)

relaxant, against headache, palpitation, toothache, insomnia, against menstrual pain, anemia, depression; as galactagogue for milk secretion (a handful of dried leaves is preboiled with 0.5 l of water, covered and left for 2 h; filtrated liquor should be taken shortly before meal or with added honey after meal). Alcohol extract is used for same purposes (several drops on sugar lump). Against angina pectoris, tea mixture of common balm with valerian (*Valeriana officinalis* L.), cumin (*Carum carvi* L.) and wild tyme (*Thymus serpyllum* L.) is used. Oil is used externally for neuralgia and rheumatism. Leaves should be collected before blooming, immediately dried and kept hermetically covered to preserve medicinal properties.

Mentha aquatica L.
(Lamiaceae) Vodena metvica Water mint

Tea is used as relaxant, antispasmodic, against lung ailments, asthma, cough, hysteria and convulsions; also as antiseptic, digestive, carmanative, emmenagogue, abortion agent. Should be collected in the blooming period.

Mentha longifolia (L.) Huds.
(Lamiaceae) Konjski bosiljak Spearmint

Tea is used as digestant, relaxant against asthma, lung ailments and cough.

Morus alba L.
(Moraceae) Beli dud White mulberry

Syrup is used to treat throat and month inflammations; against fever.

Morus nigra L.
(Moraceae) Crni dud, Šamdud Black mulberry

Syrup is prepared from fruits and used same as for *M. alba*. Tea from dried fruits and bark is used as purgative; tea from bark as antihelminthic. Tea from leaves is used for reducing blood sugar. Extract can be used instead of tea, taken in dosage of 30-50 drops before every meal.

Muscari comosum (L.) Mill.
(Liliaceae) Vilin luk Tassel grape hyacinth

Tea is used as appetizer, diuretic.

Narcissus poeticus L.
(Liliaceae) Beli narcis Poet's narcissus

Externally (floured bulbs mixed with honey) for sunburns, for relieving rheumatoid joint pain.

Narcissus pseudonarcissus L.
(Liliaceae) Zelenkada, Žuti narcis Daffodil

Tea is used as expectorant for cough (2 g of dried flowers is preboiled with 200 g of water). Syrup is used to treat whooping cough, lung catarrh and asthma (100 g of fresh flowers is boiled with 250 g of water for 5 min; filtrated liquor is mixed with 500 g of honey; daily dosage 2-3 tablespoons). Externally (floured bulbs with honey) for sunburns.

Nigella arvensis L.
(Ranunculaceae) Mačkovi brkovi Wild fennel

Tea is used as a diuretic, emmenagogue, tonic. Against cold, influenza, headache.

Ononis spinosa L.
(Fabaceae) Zečji trn Spiny restharrow

Diuretic, perspiring agent. Tea is used to treat jaundice, dropsy, catarrh of bladder, sand in gallbladder and bladder. Extract can be used for the same purposes (2-4 g daily if taken orally). Also, 20 g of root is boiled in 1 l of water, until total evaporation; then, 5 g of fennel seed is added, and sweetened with honey; this should be taken during 24 h. After several days of administration, pause of several days is recommended. Externally, against eczema. Root should be collected in September.

Orchis mascula (L.) L.
(Orchidaceae) Mledac, Salep-kačunak Early purple mascula

Young tubers collected immediately after blooming should be cleaned and over-washed in cold water; threaded on yarn or placed into bag, they are put into boiled water for several minutes; thereafter dried in draught and kept for a long period. Floured and preboiled herba is used as poultice against inflammations, or against diarrhea in children.

<i>Orchis militaris</i> L. (Orchidaceae)	Kaćunak	Military orchid	Same way of preparing and administration of remedy as for <i>O. mascula</i> .
<i>Orchis morio</i> L. (Orchidaceae)	Vranak	Green-winged orchid	Same way of preparing and administration of remedy as for <i>O. mascula</i> .
<i>Origanum vulgare</i> L. (Lamiaceae)	Vranilova trava	Oregano	Tea is used as an antispasmodic, relaxant; against convulsions, tingle, intestinal and urogenital ailments; also against liver ailments, epilepsy, cough, asthma, weak digestion, jaundice; against snake bit, rabies, neuralgia and depression (ratio of herba and boiled water is 5:100). Essential oil from leaves and flowers is base for the pasta which is used externally for rheuma and as warm poultice for sore throat.
<i>Paeonia officinalis</i> L. (Paeoniaceae)	Božurak, Ženski božur	Common peony	Tea from root is used as relaxant, antihaemorrhagic; against migraine, bleeding, convulsions, gout, neural ailments, stress, asthma and epilepsy. Tea from flowers is used for the same purposes, and also against cough. Tincture can be used for the same purposes (5-15 drops in 2 dl of water, 3 times a day).
<i>Paeonia tenuifolia</i> L. (Paeoniaceae)	Božur	Fern leaf peony	Tea is used as expectorant, antiseptic, relaxant.
<i>Papaver rhoeas</i> L. (Papaveraceae)	Bulka, Bulkica	Flanders poppy, Corn poppy, Field poppy	Relaxant, against cough in children. The best healing properties has fresh grinded herba, for relieving chest pain, for cough and roughness, induces perspiration. For tea, ½ of teaspoon of herba is preboiled with 1 cup of water. Syrup is useful against convulsive cough. For syrup, 100 g of coronal leaves is preboiled with 1300 g of water, then mixed with juice of ½ lemon, covered and left for 8 h; after filtration, 2.5 kg of sugar is added to liquor, heated to boil once and kept until needed. Coronal leaves should be collected in dry days, carefully and quickly dried (without any touching, to preserve natural color).
<i>Parietaria officinalis</i> L. (Urticaceae)	Vijošnica, Mrtva kopriva	Upright pellitory	A diuretic, mucolytic. For tea, a handful (or 20 g) of fresh herba is preboiled with 1 l of water; dosage is 1 cup 2-3 times daily. Externally, for wound cleansing.
<i>Phragmites communis</i> Trin. (Poaceae)	Trska, Trstika	Common reed	A diuretic, diaphoretic. Should be used fresh (dried can be toxic).
<i>Physalis alkekengi</i> L. (Solanaceae)	Ljoskavac, Pljuskavac	Strawberry groundcherry	A diuretic, analgesic; against gout, rheuma, jaundice. Tea is prepared by cooking 60g of berries (calyx should be removed) in 1 l of water for 5 min, without boiling; dosage ½ cup, several times a day. For same purposes, berries can be taken fresh (20-30 berries with honey should be eaten every morning before meal, for 10 days); or as juice (20 g of juice should be taken in the same way). Liquor obtained by soaking berries in brandy is useful in treating kidney and bladder ailments. Floured berries are used externally for rash and syphilis.
<i>Phytolacca decandra</i> L. (Phytolaccaceae)	Vinobojka	American pokeweed	Anti-inflammatory. Oil is used to treat mastitis. Root should be collected during July-August, cleaned, cut in small peaces, soaked in oil and kept until needed.
<i>Pimpinella saxifraga</i> L. (Apiaceae)	Bedrinac, Mala	Solidstem burnet	Flour and tincture are used as mucolytic, relaxant, antihelminthic; against intestinal and lung catarrh, tachycardia, roughness, throat pain, tapeworms, externally for purulent wounds. Flour,

	bedrenika	saxifrage	tea and extract drops are used against rheumatism, kidney inflammation and nervous ailments. Tincture diluted in water is used for mouth, eyes and throat rinsing.
<i>Pinus nigra</i> J.F.Arnold* (Pinaceae)	Crni bor	Austrian pine	Tea is used as antiseptic, analgesic, diuretic; against urinary ailments, rheumatism.
<i>Pinus sylvestris</i> L.* (Pinaceae)	Beli bor	Scots pine	Tea from buds is used against lung catarrh, gout. Syrup has the same effect (100 g of buds is preboiled with 0.5 l of water and left for 2 h; then filtrated and mixed with 1 kg of honey; dosage 4-5 tablespoons daily); inhalation of steam from tea stimulates a discharge of mucous from the throat and lung. Tea added to bath water has beneficial effect on rheumatism. Tea from needles is used to treat neural ailments, neurasthenic, tuberculosis, to strengthen bones (10-20 needles are boiled in 0.5 l of water, filtrated, sweetened with honey). Oil from needles is used to cure rheumatism and skin complaints. A tar obtained after burning of Scot pine dissolved in water turns into yellow syrup which is used as a diuretic, as antiseptic for urinary tract, induces perspiration, heals respiratory organs.
<i>Plantago indica</i> L. (Plantaginaceae)	Buačak	Sand plantain	Tea is used as laxative, to reduce blood cholesterol level.
<i>Plantago lanceolata</i> L. (Plantaginaceae)	Muška bokvica, Uskolista bokvica	Narrowleaf plantain	Tea from leaves is used as blood purifier, antipyretic and for stomach strengthening. It is used in the protection of respiratory mucous membranes, against bleeding from lungs and bronchi, against eye inflammations. Crushed fresh leaves are used externally for ulcers, bee and wasp bites. Syrup from leaves is used to treat cough. Juice from fresh leaves is used to treat neuralgia in ear area , uncontrolled urination and toothache. Tea from root is used against toothache.
<i>Plantago media</i> L. (Plantaginaceae)	Srednja bokvica	Hoary plantain	Similar properties as <i>P. lanceolata</i> .
<i>Polygonatum officinale</i> All. (Liliaceae)	Pokosnica, Zglobača	Solomon's Seal	Tea is used as cleansing agent and diuretic; for wound rinsing.
<i>Polygonum aviculare</i> L. (Polygonaceae)	Ptičja trava	Prostrate knotweed	Tea is used as relaxant against pains in bladder, kidneys and colon (50 g of root is preboiled with 1 l of water; daily dosage 500 g mixed with quince syrup). It is beneficial for expelling kidney stones, against diabetes, lung ailments, epilepsy, menorrhagia, diarrhea, stomach and intestinal ulcers.
<i>Polygonum lapathifolium</i> L. (Polygonaceae)	Troskavica	Curlytop knotweed	Tea is used as antiseptic, astringent. Against stomach disorders, fever; externally against burns.
<i>Polygonum hydropiper</i> L. (Polygonaceae)	Papreni lisac, Vodeni biber	Marshpepper knotweed	Tea is used as haemostatic, diuretic, sedative; against excessive bleeding, against kidney ailments, rheuma, dropsy, uteral inflammation, uteral displacing, painful menstruation and after abortion. Externally against haemorrhoids, toothache.
<i>Populus alba</i> L. (Salicaceae)	Bela topola	White poplar	Tea from buds is a diuretic, induces perspiration. Crashed buds with grease are used against gout. Buds should be collected before leaf development. Fresh bark is external remedy for sciatica.
<i>Populus nigra</i> L. (Salicaceae)	Crna topola	Lombardy poplar	Fresh crushed leaf buds are used for preparing paste for wounds, rheumatic complaints and haemorrhoids. Buds should be collected in February-March. Bark is used for obtaining activated

<i>Populus tremula</i> L. (Salicaceae)	Jasika, Trepetljika	European aspen	carbon which has great adsorptive properties, useful against intestinal gases. Similar properties as <i>P. nigra</i> .
<i>Populus pyramidalis</i> Rozier (Salicaceae)	Jablan	'Pyramidalis' White Poplar	Tea from buds is a diuretic, used for inducing perspiration, for various inflammations. As plaster, buds are used against haemorrhoids, cracked skin, wounds. Buds should be collected in March-April. Fresh bark is used against sciatica; tea from bark is used against fever. Syrup is useful against bronchitis and other respiratory complaints.
<i>Potentilla recta</i> L. (Rosaceae)	Petoprsnica	Sulphur cinquefoil	Tea from floured rhizome is used as astringent, styptic, stomachic. Against bleeding, diarrhea, for internal and external inflammations; against gonorrhea, for lung and throat cleansing, for wound and ulcer rinsing.
<i>Potentilla reptans</i> L. (Rosaceae)	Žabnik, Petolista	Creeping cinquefoil	Similar properties as <i>P. recta</i> . Tea is used against diarrhea, cardiac pain, bleeding, convulsions.
<i>Prunus avium</i> L.* (Rosaceae)	Trešnja	Wild cherry, Sweet cherry	Tea from fruits and petioles is used as a diuretic and against cold.
<i>Quercus cerris</i> L. (Fagaceae)	Cer	European turkey oak	Tea is used as astringent, antihemorrhagic, antidiarrheal.
<i>Quercus pedunculata</i> Ehrh. (Fagaceae)	Lužnjak	Pedunculate oak	Tea from dried bark is antihemorrhagic, antidiarrheal. Bark should be collected from the youngest branches in spring. Baked seeds are used to treat weak digestion, acute diarrhea and heavy menstrual bleeding.
<i>Ranunculus acris</i> L. (Ranunculaceae)	Žabnjak ljutić	Common buttercup	Tea from dried herba is used against skin tuberculosis. Fresh herba is toxic.
<i>Ranunculus repens</i> L. (Ranunculaceae)	Puzavi ljutić	Creeping buttercup	Similar properties as <i>R. acer</i> .
<i>Rhamnus catharticus</i> L. (Rhamnaceae)	Pasdren, Pasja leska	Common buckthorn	Syrup is made from the mature fresh fruits; it is used against obstipation, jaundice, gout, dropsy, skin rash. Both fresh and dried fruits are used against obstipation, as a diuretic and blood purifier. They should not be given to children. Tea from bark of young branches has weaker effect, but it is used as cleansing agent, for better digestion and chronic obstipation; as a diuretic, against dropsy; in larger amounts it causes vomiting, intestinal complaints.
<i>Rhamnus frangula</i> L. (Rhamnaceae)	Krušina, Krkovina, Smrdljika	Glossy buckthorn	Liquid or dry extract, or decoct (5-25 g of bark in 500 g of water) is used as antihelminthic; as digestive, against flatulence; as cleansing agent, against chronic obstipation; against haemorrhoids and abdominal pain. The strongest effect is achieved by administration of boiled tea (2-5 g of dried bark is boiled in 150 g of water for 25 min, left for 4-9 h; filtrated liquor should be taken before bedtime). Bark should be collected in early spring before tree leafing, from trunk and stronger branches; it should be dried for at least 2 years before preparation.
<i>Robinia pseudacacia</i> L. * (Fabaceae)	Beli bagrem	Black locust	Tea from flowers is an expectorant, antispasmodic; in larger amounts purgative; against convulsions, cold (10 g of dried flowers in 200 g of boiled water). Tea from leaves stimulates bile secretion (10 g/200 g of boiled water). Honey from black locust has relaxing effect.
<i>Rosa canina</i> L.	Šipurak,	Dog rose	Tea from fruits is used as a diuretic to treat bladder and kidney disorders, fever, intestine catarrh,

(Rosaceae)	Šipak, Divlja ruža		dropsy. Matured fruits with seeds should be collected, cleaned from hairs and dried quickly to preserve the natural color. Tea from coronal leaves is used as relaxant against stomach convulsions. Coronal leaves are used for obtaining the rosol oil, rosol water and rosol pasta, which are used for refreshing and strengthening.
<i>Rubus caesius</i> L. (Rosaceae)	Kupina, Ostruga	European dewberry	Tea is used as astringent, against diarrhea and dysentery.
<i>Rubus fruticosus</i> L. (Rosaceae)	Kupina	Shrubby blackberry	Tea from leaves (20 g of leaves/100 g of water) is used as astringent, diuretic; against diarrhea, cardiac pain, cold and cough. Tea from young dried shoots is used against lichens and skin edema, diarrhea and bleeding. Crashed root mixed with honey is used against cardiac pain and dropsy. Fresh or dried fruits are used for stomach strengthening. Warmed wine induces perspiration; it is used to treat cold, influenza, bronchial catarrh, as mucolytic. Fresh leaves are being chewed for gum strengthening and against scorbout.
<i>Rubus idaeus</i> L.* (Rosaceae)	Malina	American red raspberry	Tea from leaves and young shoots is a diuretic, induces perspiration; it is used against diarrhea, cardiac pain, colitis, menorrhagia and various bleeding. Syrup from fruits, young shoots and leaves is used to treat scarlet fever. Juice from fruits is used for refreshment and as cleansing agent.
<i>Rumex acetosa</i> L. (Polygonaceae)	Kiseljak, Velika kiselica	Garden sorrel	Tea from leaves is used as blood purifier, digestant, emmenagogue, antiscorbutic. Tea is not recommended to patients with rheumatic diseases. As tea, root and seeds are used against scorbout and headache, against skin complaints, haemorrhoids and jaundice; boiled in wine are used as analgesic and diuretic.
<i>Rumex hydrolapathum</i> Huds. (Polygonaceae)	Vodeni konjštak	Water dock	An astringent, antiscorbutic. Root should be collected in early spring, dried and kept until needed; light tea is prepared from floured root.
<i>Ruta graveolens</i> L. (Rutaceae)	Ruta, Rutvica	Common rue	Tea is used as relaxant against headache, unconsciousness, hysteria, epilepsy, wheezing, palpitation; for uteral ailments, as emmenagogue and for inducing abortion. Externally against scorbout, skin complaints, for throat rinsing, against rheumatism. Tea should be used in small amounts (1 g of leaves on 1 l of boiled water; daily dosage 2 cups of tea or 2-6 drops of extract in sweetened water). Seeds are antihelminthic.
<i>Salix alba</i> L. (Salicaceae)	Bela vrba	White willow	A diuretic; against cold, fever, for perspiration, rheuma. Bark from 2-3 y old branches should be collected in early spring, dried and floured; flour should be taken 2-3 g before every meal. Flour can be administrated with milk or as tea (50-100 g daily). Plaster of oil from unopened leaf buds are used against ulcers, psoriasis and other skin complaints.
<i>Salsola kali</i> L. (Chenopodiaceae)	Slankasta solnjača	Russian thistle	Tea is used as antihelminthic, purgative, diuretic.
<i>Salvia officinalis</i> L. (Lamiaceae)	Žalfija	Kitchen sage	Tea is used against night perspiration, especially in condition of tuberculosis; as mucolytic against catarrh and cough; antidiarrheal agent and galactagogue. Externally, for purulent wounds and ulcers, for throat and mouth rinsing. Leaves boiled in wine (80 g of leaves in 1000 g of red wine) are used against liver and kidney ailments. Juice from leaves mixed with honey relieves cough. Floured dried leaves in hot sup are used against fever. Fresh leaves are used for teeth and gums massaging and strengthening. Boiled, evaporated root and leaves are used to treat ailments

<i>Sambucus ebulus</i> L. (Caprifoliaceae)	Apta, Burjan	Dwarf elderberry, Danewort	of reproductive system of women; tincture is used to treat stomach ailments and fever. Antirheumatic. Root can be administrated orally and externally (1 kg of crashed root is boiled in 10 l of water for 2 h; painful area should be soaked into warm decoct, and 2-3 cups daily should be taken internally). Juice from fruits is used as a diuretic, for cleansing and inducing perspiration (fresh fruits are crashed and left 2-5 days to ferment; obtained juice is filtrated and sweetened with honey). Fresh crashed fruits are used externally for wart removing.
<i>Sambucus nigra</i> L. (Caprifoliaceae)	Zova, Bazga	Black elderberry	Tea from flowers is used as a diuretic for inducing perspiration, as antiseptic for inhalation and throat and mouth rinsing. Tea from leaves is diuretic and purgative. Juice from fresh fruits is used as relaxant, sedative for relieving the pain; juice can be boiled to turn into syrup and used for the same purpose (1 teaspoon every hour). Juice from crashed fermented fruits is used as cleansing agent. Tea from bark is used for kidney inflammation, heart and liver ailments (2 hands of inner bark in 1 l of water; to be boiled until ½ l of water evaporate). Fresh bark is used as purgative. Flowers should be collected during the period of full bloom; fruits when mature.
<i>Sanguisorba officinalis</i> L. (Rosaceae)	Dinjica, Lubeničica, Oskorušica	Official burnet	Fresh leaf is used for strengthening the immunity. Fresh, crashed rhizome is used against snake bite. Tea from rhizome has bactericidal properties, and is used as antiseptic to treat dysentery.
<i>Saponaria officinalis</i> L. (Carryophyllaceae)	Sapunjača, Sapun-trava	Bouncingbet	Tea from root is used as a diuretic, blood purifier, for strengthening glands activity, for dissolving and expelling stones from kidney, against rheuma, skin complaints. Fresh leaves are used for blood purification (20-30 g is preboiled with 1 l of water).
<i>Scrophularia nodosa</i> L. (Scrophulariaceae)	Trava od šapa, Šap trava	Woodland figwort	Tea from roots and shoots is used against cancer, goiter, rabies (10 g of herba in 1 l of boiled water; dosage 2 cups daily). Pasta from crashed roots and shoots is used against skin ulcers, haemorrhoids, rash and eczema. Seeds are used as antihelminthic. All plant parts should be collected during summer and autumn.
<i>Senecio erucifolius</i> L. (Asteraceae)	Žabija trava velika	Hoary ragwort	Antihelminthic, diuretic. Tea is used as purgative. As poultice against scorbut, relaxant against abdominal pain.
<i>Senecio jacobaea</i> L. (Asteraceae)	Kresnica, Velika goluzdravka	Common ragwort	Tea is used against menstrual disorders (10 g of herba in 200 g of boiled water; to be taken during the day). Used in small amounts it increases blood pressure, in larger amounts lowers it. Plant should be collected in the blooming period.
<i>Setaria viridis</i> (L.) P.Beauv. (Poaceae)	Muarika	Green bristlegrass	Tea is used as a diuretic.
<i>Sinapis alba</i> L. * (Brassicaceae)	Bela slačica, Gorčica	White mustard	Seeds soaked in water are used as purgative.
<i>Sisymbrium officinale</i> (L.) Scop. (Brassicaceae)	Strižica, Strižuša	Hedgemustard	Syrup is stimulant, resolvent, diuretic, antiscorbutic; it is used as expectorant and for complaints of respiratory organs. Fresh herba is used against acute laryngitis (10-20 g daily); same purpose has the alcohol extract (50 g of fresh plant in 200 g of brandy, dosage 3-4 teaspoons daily; or 50 g of extract mixed with 500 g of honey, dosage 1 teaspoon 4-5 times daily).
<i>Solanum dulcamara</i> L.	Razvodnik,	Climbing	Tea is used as a diuretic, mucolytic, antirheumatic; against respiratory catarrh, asthma, skin

(Solanaceae)	Paskavica	nightshade	complaints, rheuma (30 g of peeled, crushed branches is boiled in 1 l of water). Syrup has the same properties (100 g of peeled, crashed stem is preboiled with 1500 g of water, left for 6 h; when liquor is cleared up, it is filtrated and sweetened with sugar in ratio 180 g of sugar on 100 g of liquor; obtained syrup is shortly boiled and quickly filtrated; dosage 50-100 g daily). Against rheumatism, 10 g of herba is preboiled with 0.5 l of water and left for 2 h; dosage 1 cup 3 times a day before meals. Young shoots and branches should be collected in autumn, after leaf senescence, or in early spring, before leaf development.
<i>Solanum nigrum</i> L. (Solanaceae)	Pomoćnica, Crno- grozdak	Black nightshade	Juice obtained from fresh plant is used as a diuretic and relaxant against stomach, bladder or gallbladder convulsions (dosage 1 tablespoon). Externally, as poultice for ulcers, inflammations, haemorrhoids. Oil is used externally, for burns, haemorrhoids, ulcers, fistulae (100 g of fresh herba is soaked in 100 g of strong brandy and left for 24 h; thereafter, 1 l of oil is added and boiled in hot vapor until alcohol is evaporated; after boiling oil is filtrated and kept covered until required). Plant should be collected at the start of the blooming period.
<i>Solidago virgaurea</i> L. (Asteraceae)	Zlatnica, Čelebi grana	Golden rod	Tea is used as digestive, carmanative, diuretic, sedative. Syrup is used as relaxant for cough relieving, against asthma; as a diuretic against kidney ailments, chronic nephritis; against diarrhea (100 g of flower stems is boiled in 100 g of water for 10 min, left for 12 h; after filtration, 1500 g of sugar is added; daily dosage 100-200 g). Oil (or grease) is used externally against inflammation of reproductive organs, rheuma, for wounds.
<i>Sorbus domestica</i> L. (Rosaceae)	Oskoruša	Service tree	Tea is used as antihaemorrhagic, antidiarrheal agent; against cardiac pain, bleeding. Syrup is used for refreshment, as laxative and diuretic (1 l of fresh juice is mixed with 1 kg of honey).
<i>Stachys officinalis</i> (L.) Trevis (Lamiaceae)	Ranilist, Bukvica	Common hedgenettle	Tea, syrup, flour and wine are used as mucolytic, for strengthening, as sedative, diuretic, carmanative. Against lung ailments, asthma, bladder and kidney ailments, neural ailments, epilepsy, rabies, headache, against bleeding; externally for wounds and gum inflammation. Juice of fresh plant is used against dropsy and jaundice. Against fever, 4-5 g of floured leaves is mixed with 1 yolk and taken 4 h after the fever stroke. Plant should be collected in the blooming period.
<i>Stachys recta</i> L. (Lamiaceae)	Čistac	Stiff hedgenettle	Similar properties as <i>S. officinalis</i> .
<i>Stellaria media</i> (L.) Vill. (Caryophyllaceae)	Mišje uvo	Common chickweed	Tea is used against lung ailments, as mucolytic, antipyretic, for kidney and bladder cleansing. Externally, against inflammations and erysipelas.
<i>Symphytum officinale</i> L. (Boraginaceae)	Gavez, Crni gavez	Common comfrey	Tea from roots is used as astringent, expectorant, antihaemorrhagic; against diarrhea, hard urination, stomach and intestine ailments; externally against injuries, mouth inflammation, old ulcers, against gout, hard milk glands, skin complaints (50 g of root is preboiled with 400 g of water, left for 8-10 h; mucous liquor should be taken 3 times daily after meal). Mucus from root is beneficial against rheuma, bone break. Roots should be collected in autumn or early spring, chopped and dried. Tea from flowers and leaves is used as a diuretic, against respiratory ailments and cough (10 g of herba in 1 l of water). Syrup from leaves and flowers has similar properties, dosage is 0.5 dl 2-3 times daily after meals. The whole plant can be boiled in wine to obtain remedy with similar properties. For open bone break, 100 g of herba is preboiled with 1 l of milk,

			boiled for 20 min and left for 5-6 h; obtained pasta should be applied topically on bone break along with fixing bars.
<i>Tamus communis</i> L. (Dioscoreaceae)	Bljušt, Kuka	Bryony, Black	Fresh rhizome and fruits are used as a diuretic, purgative, emmenagogue. Fresh rhizome is antirheumatic (painful area should be rubbed with herba, then oil, grease or milk should be applied to avoid inflammation). Scraped rhizome soaked in brandy is used against contusions.
<i>Tanacetum vulgare</i> L. (Asteraceae)	Vratič, Povrata	Common tansy	Tea is used as a diuretic, emmenagogue, antihelminthic, antirheumatic; induces perspiration, against stomach and neural ailments (4-5 g of herba in 100 g of water). Stronger tea could be used against tapeworms and for enema (10 g of herba in 150 g of boiled water).
<i>Taraxacum officinale</i> Weber (Asteraceae)	Maslačak	Common dandelion	Tea from roots is used as appetizer, digestant, against gallbladder and liver ailments. Leaves are used as salad or tea, as a diuretic. The whole dried plant is used against diarrhea, for stomach strengthening, against bleeding. Plant should be collected in spring.
<i>Teucrium chamaedrys</i> L. (Lamiaceae)	Dubac, Dupčac	Wall germander	Digestant, tonic, anti-toxin (against snake bite), antipyretic, against liver and spleen ailments, against gout, chronic inflammation of the mucous membranes in the eyes and nose, against ulcers, fever. Methods of administration: tonic from flour (5-10 g daily before meals), tea (10 g of herba in 200 g of water), tincture (20 g of herba in 100 g of strong brandy). Wine is beneficial against weakness, anemia, for wound rinsing (200 g of herba is put in 1 l of red wine and left for 8 days).
<i>Teucrium scordium</i> L. (Lamiaceae)	Vodeni srpac, Lukovina	Water germander	Antiseptic. Tea is used against fever and inflammations of digestive organs (10 g of herba in 200 g of boiled water; dosage 4 cups daily before meals). Floured herba is used for wound disinfection.
<i>Thalictrum flavum</i> L. (Ranunculaceae)	Vredovac, Crevoder	Meadow-rue	Tea is used as a diuretic, purgative.
<i>Thymus serpyllum</i> L. (Lamiaceae)	Majkina dušica	Creeping thyme	Tea is used as relaxant against cough, asthma; against exceeded secretion of bile, weak and painful stomach, diarrhea (10 g of herba in 200 g of boiled water is left for 2 h). Oil is used as digestant, carmanative, antihelminthic, for improving the circulation; for inhalation.
<i>Tilia tomentosa</i> Moench (Tiliaceae)	Bela, Srebrna lipa	Silver lime, Silver linden	Tea is used as relaxant, against respiratory ailments. Flowers should be collected in June-July.
<i>Tragopogon pratensis</i> L. (Asteraceae)	Turovet	Jack-go-to- bed-at-noon	An astringent, a diuretic, expectorant. Tea is used for blood purification, to induce urination, for removing mucous from the lungs.
<i>Tribulus terrestris</i> L. (Zygophyllaceae)	Babin zub	Puncturevine	Tea is an astringent, diuretic, galactagogue; against gonorrhea, pain in neck and eyes.
<i>Trifolium repens</i> L. (Fabaceae)	Bela detelina	White clover	Tea is diuretic; against cold, cough, fever.
<i>Tussilago farfara</i> L. (Asteraceae)	Podbel	Coltsfoot	Tea from fresh or dried leaves (only young leaves should be collected) is used as astringent, expectorant (1 teaspoon of herba is put in 1 cup of boiled water and left for ½ h; dosage ½ of cup before bedtime). Tea from flowers (the whole inflorescence without petals, carefully dried to keep yellow color) is used against respiratory ailments, cough, tuberculosis, asthma, for inducing

perspiration (10 g of flowers in 200 g of boiled water).

<i>Ulmus campestris</i> L. (Ulmaceae)	Brest, Rušten	Wych elm	Tea from inner bark is used as a diuretic, for inducing perspiration, mucolytic, antihemorrhagic, antirheumatic; externally against burns and chilblains, skin complaints (130 g of bark from trunk or 1-2 y old branches is boiled in 2 l of water until half of water is evaporated; left for 5 h and filtrated; dosage 250 g in the morning and in the evening). Pasta from fresh chopped leaves or bark is used as poultice for wounds and ulcers (bark is boiled with grease on hot vapor).
<i>Urtica dioica</i> L. (Urticaceae)	Kopriva, Velika kopriva, Žara	Stinging nettle	Tea from young leaves and roots is used as blood purifier, diuretic, mucolytic for lung catarrh, for stomach cleansing. Tea from the whole plant is used as an astringent against bleeding, diarrhea (50 g of chopped herba is boiled in 1 l of water for 15 min, left over the night; in the next day it is taken instead of water). In spring, young leaves are used for diet, being beneficial for pancreas and stomach. Extract has the same properties (juice is evaporated in hot vapor until becomes dense as honey; daily dosage 5-10 g of extract with honey). Fresh juice from leaves is used against anemia, jaundice, dropsy, urinary ailments (100-125 g daily dosage), for mouth rinsing and against gum inflammation. Syrup has the same effect (250 g of herba in 1500 g of boiled water is left for 12 h and filtrated; then, double amount of sugar is added to liquor. It should be boiled for 20 min in 0.5 l of rain-water, covered and left for 8 h; thereafter, it is filtrated and 200 g of vinegar is added). This liquor is useful against hair loosing, it should be rubbed in hair roots every evening.
<i>Valeriana officinalis</i> L. (Valerianaceae)	Odoljen, Odolenak	Garden valerian	Extract is used as sedative, for stomach disorders, neuralgia, insomnia, asthma, convulsions in children; antipyretic, antihelminthic; it is helpful for heart diseases, hypertension, headache, reproductive ailments in women (10 g of dried rhizome is put in 2 dl of cold water and left for 12 h; dosage 1 tablespoon every 2 h). Rhizomes should be collected in autumn, when aboveground parts are partially senesced.
<i>Verbascum thapsiforme</i> Schrad. (Scrophulariaceae)	Belorepka, Volov rep	Denseflower mullein	Tea is used as antitussive, antirheumatic, emmenagogue (25 g of flowers is preboiled with 250 g of water, left for 1 h, filtrated and sweetened with honey; dosage 1 tablespoon every 2 h).
<i>Verbena officinalis</i> L. (Verbenaceae)	Divlja vrbenka, Ljutovnica	Herb of the cross	Tea from leaves and flowers is used as relaxant against jaundice and pain in liver, chronic cough, convulsions, colitis, fever, migraine; as diuretic against dropsy; antianemic; emmenagogue for late menstruation; antirheumatic (30-50 g of herba in 1 l of boiled water). Poultice from chopped aerial parts is used as antipyretic, it should be administrated on cheek, close to ear and on temple (4 tablespoons of herba and 2 tablespoons of line flour are preboiled with 1 l of milk, left for 4 h and then filtrated).
<i>Veronica spicata</i> L. (Scrophulariaceae)	Divlja lafendija	Spiked speedwell	Tea is used as expectorant for cough, for throat rinsing.
<i>Viburnum lantana</i> L. (Caprifoliaceae)	Crna udika	Wayfaringtree	Tea is used against the hair loose. Herba boiled in wine is used to treat gum inflammation and paradentosis.
<i>Viburnum opulus</i> L. (Caprifoliaceae)	Šibikovina, Kalinovina	European cranberrybush	Tea is used as an antispasmodic, astringent, diuretic, relaxant agent; against painful menstruation, as sedative, for miscarriage prevention (1 teaspoon of fresh bark is chopped, preboiled with 1 cup

<i>Vicia cracca</i> L. (Fabaceae)	Graorica	Bird vetch	of water and left for 30 min; dosage 1-2 cups daily). Tea is used as galactagogue.
<i>Vinca herbacea</i> Waldst. et Kit. (Apocynaceae)	Ženska pavenka	Herbaceous periwinkle	Tea is used as appetizer, for overall strengthening (1 tablespoon of leaves is boiled in 200 g of water for 15 min, left for 2 h; dosage 1 tablespoon 3-4 times a day before meal). Flour has the same effect, dosage 3-6 g daily; tonic wine also has the same effect and it mitigates thirst and reduces urine sugar in diabetics (100 g of leaves is decanted with 1 l of red wine, left for 10 days with frequent meddling; thereafter it is filtrated; dosage 1 tablespoon 3-4 times daily before meal).
<i>Viola tricolor</i> L. (Violaceae)	Maćuhica, Šarena ljubičica	Johnny jumpup	Tea is used for blood purification, relaxant for convulsive strokes in children, against cough; as diuretic, induces perspiration; against rheuma; externally against rash, lichens (3 tablespoons of herba are boiled in 400g of water for 15 min, then filtrated; dosage 100 g 3-4 times daily after a meal). Syrup has similar properties (100 g of herba is boiled in 1.5 l of water in covered vessel for 2 h; 2.5 kg of sugar is added into filtrated liquor, which is boiled for 10 min and filtered through flannel cloth; dosage 1 tablespoon 3-4 times daily after a meal).
<i>Xanthium strumarium</i> L. (Asteraceae)	Zelena boca	Rough cocklebur	Tea is used as haemostatic against bleeding after delivery.

PU (part(s) used): A: aerial part; Ba: bark; Bl: bulbili; Br: branches; C: coronal leaves; Fl: flower; Flb: flower buds; Fr: fruit; H: herbaceous organs; L: leaf; Lb: leaf buds; Ne: needles; P: petioles; R: root; Rh: rhizome; S: seeds; T: tree; Tu: tuber; W: whole plant. RI: relative importance; QI (quotation frequency) based on the number spontaneously mentioned: *quoted by less than 10% informants; **quoted by more than 10% and less than 40% informants; ***quoted by more than 40% informants. * Species found in wild and cultivated;