



Work Instruction WIN202/002 Collector Manual

This document represents an abstract of the WIN202/002 Collector Manual. To get free access to the complete version please contact us by email or the contact button on the website.

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Abstract

Related document: SOP202 Resource Use

The WIN Collector Manual shows an example how to implement the sixth step “Development of collectors manual” of the SOP Resource Use. It shows how a collector manual can look like and gives hints about the necessary information such a manual needs to contain: personnel, collection, basic rules for wild-collection, post-harvest treatments, packaging, storage and transportation and documentation.

For this WIN the first thirteen pages are relevant because the following pages deal with plant monographs and are part of WIN202/007.

Group of authors

MEDICINAL PLANTS

Manual for Collectors
Based on Principles of
Organic Production

Bosnia and Herzegovina, April 2003

MONOGRAPH

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INTRODUCTION

Collecting of medicinal and aromatic plants in Bosnia and Herzegovina has a very long tradition; first documents are dated from the 13th century. It is estimated that altogether approximately 100.000 people are involved in the collection of medicinal and aromatic plants in Bosnia and Herzegovina. Processing into value added natural ingredients like essential oils, teas, tea mixtures, spices, lotions, tinctures has been established in more than 250 small and medium enterprises.

The training of collectors is imperative and precondition of a sustainable and controlled collection of medicinal and aromatic plants. It is of great importance that every company, especially organic certified, organises permanent training of its collectors during whole year.

The main reason why we decided to publish this "Manual for Collectors" was in order to support companies to train their collectors. The Manual consists of 2 parts: General part and Plant monographs. In the general part, main information that collectors should know about collection, post harvesting treatment, packaging, storage and documentation, is presented. The part with monographs consists of 40 plant monographs. Beside plant description each monograph consists of 3 photographs of plants in their natural setting, botanical survey as well as a photograph of a dried plant.

Indisputable some omissions have been made in the "Manual for Collectors". That is why we would be very grateful to readers to point out the errors and make suggestions in order to improve next edition.

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Ljiljana Dunjiæ i Dragana Peæanac, GTZ

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Manual 1/2002

For Raw Material Procurement Through Controlled and Sustainable Wild Collection

A. Personnel

1. All raw material procurement should fully confirm with regional and/or national guidelines on food hygiene and personnel based on adequate training regarding their hygiene responsibilities.
2. The welfare of all staff involved in collection and processing should be ensured.
3. Personnel must be protected from contact with toxic or potentially allergenic plant material by means of adequate protective clothes.
4. Persons suffering from transmittable infectious diseases and open wounds must be kept from areas where they are in contact with plant materials.
5. Personnel should receive adequate botanical training before performing tasks that require this knowledge.
6. Collectors must have sufficient knowledge of the plant species they have to collect. This includes: identification, characteristics and habitat requirements such as shade, humidity, soil etc.
7. Collectors must be able to differentiate between the collected species and botanically related and/or morphologically similar species to avoid any risk to public health and to avoid threat to other plants.
8. Collectors should have sufficient knowledge about the best time-to harvest and the harvesting techniques and the importance of raw material procurement to guarantee the best possible quality.

9. If collectors are without sufficient knowledge, a local supervisor should guarantee the education, supervision and documentation.

10. It is obligatory to educate all personnel dealing with the plant species and all those engaged in its collection techniques according to this manual.

11. Collectors of plant species should be instructed on all issues relevant to the protection of the environment and conservation of plant species. This will include information on regulations related to protected species.

B. Collection

1. Supervisors have to be designated to identify and verify collected plant material and to supervise collectors.

2. Collection must be carried out in compliance with existing regional and national species conservation and sustainable use legislation and the Manual 1/2002 handed out to each collector.

3. Collection methods must not damage the growth environment ensuring optimum conditions for regeneration of the plant species harvested.

4. Plant species listed as endangered species must not be collected unless the relevant competent authority (CITES) has given its authorisation.

5. Collection shall take place in areas identified as non-polluted, or with minimum distance to the sources of potential contamination sources (roads, industry, housing areas, waste deposits and areas under agriculture). The minimum distance is according to the conditions imposed in the respective certification.

C. Basic rules for sustainable wild collection

1. Plant species can be harvested only, when they are at the best possible quality for the proposed use. Therefore each collector has to wait for the agreement of his/her company before he/she starts the collection season.
2. The exact quantity and the exact plant part, as demanded by the company, may be harvested - nothing else.
3. Damaged plant material must be excluded from the marketing of plant raw material, or labelled for alternative use.
4. Plant species should be harvested under the best possible conditions avoiding wet soil, dew, rain or exceptionally high air humidity as mentioned in the plant monographs.
5. Cutting tools must be cleaned and prepared between two collections to reduce contamination.
6. The harvested plant material should not come into direct contact with the soil. It must be promptly collected and transported in dry, clean conditions.
7. During harvesting no other species growing in the collection area must be mixed with collected plant material.
8. All containers used during harvesting must be clean and free of contamination from previous (plant) material. When containers are not in use, they must be kept in dry conditions free of pests and inaccessible to mice/rodents, livestock and domestic animals.
9. In case the collectors are using sacks for the collection, new sacks have to be distributed by the company.
10. Mechanical damage and compacting of the collected fresh plant material that would result in undesirable quality changes must be avoided. In this respect, attention must be paid to overfilling of the sacks, and stacking up of sacks.

11. Freshly harvested plant material must be delivered as quickly as possible to the processing facility in order to prevent thermal degradation.

12. The harvested plant material must be protected from pests, mice/rodents and domestic animals. Any pest control measures taken should be documented.

13. Poison and pesticides may not be used as pest control measures. Pest control has to be done mechanically with the help of closed doors, fly screens, lime strips etc.

14. In case of harvesting of roots or bulbs 80% of the plant population have to be left untouched.

15. For the harvest of leaves 70% of the plant leaves have to remain.

16. During the harvest of flowers 30% of the flowers of each plant and 20% of the population have to stay untouched.

17. When seeds are harvested 30% have to be left for regeneration.

18. During collection of fruits 20% have to remain for regeneration.

19. Recommendations for regeneration for other plant parts will follow.

20. For harvest, adult plants may be used only.

21. Harvesting methods prohibited are beating of plants with sticks, tearing out (parts of) plants, chain sawing of branches.

D. Post harvest treatment

1. Primary treatment includes washing, cutting before drying, freezing, drying. All of these treatments must conform with national laws and regulations.

2. On arrival at the processing facility the harvested plant material has to be promptly unloaded and unpacked.

Prior to primary treatment the material should not be exposed directly to the sun, except where there is a specific need. The raw material has to be protected from additional humidity and rainfall.

3. In case of natural open air drying, the plant raw material must be spread out in a thin layer. In order to secure adequate air circulation, the drying frames must be located at sufficient distance from the ground.

4. Drying directly on the ground or under direct exposure to the sunlight should be avoided unless specifically required. Attempts must be made to achieve uniform drying of the fresh plant material to avoid formation of mould and fungi.

5. Except in the case of open air drying, the drying conditions such as temperature, duration must be selected taking into consideration the respective plant part collected, i.e. root, leaf or herb. Where the special nature of the plant ingredients demand specific treatment due to its characteristics active ingredients, like essential oils, a defined range of drying temperature has to be maintained.

6. The source of heat in direct drying should be limited to butane, propane or natural gas.

7. All materials must be inspected and where necessary sieved in order to eliminate substandard product and foreign bodies. Sieves must be maintained in a clean state and should be serviced regularly.

8. Clearly marked waste-bins should be available, emptied daily and cleaned.

9. Individual conditions must be recorded in detail.

E. Packaging

1. In order to protect the product and to reduce the risk of pest attacks, early packaging is advisable.

2. The product should be packaged in clean and dry, preferably new sacks, bags or cases.

3. The label must be clear, permanently fixed and made from non-toxic material.
4. Information must confirm with regional and/or national labelling regulations.
5. Re-usable packaging material should be well cleaned and perfectly dried before use. No contamination should occur through re-using of bags.
6. Packaging material must be stored in a clean and dry place, free of pests and pesticides, and inaccessible to livestock and domestic animals. It must be guaranteed that no contamination of the product occurs by the use of packaging materials, particularly in the case of fibre bags.

F. Storage and transport

1. Packed dried plant material has to be stored in a dry, well- aired building, in which daily temperature fluctuations are limited and good ventilation is ensured.
2. Storage and transport facilities have to be free of pesticides and other toxic materials.
3. In case of bulk transport, it is important to secure dry conditions. Furthermore, in order to reduce the risk of mould and/or fungi formation or fermentation, it is advisable to use ventilated containers or other ventilated transport vehicles and facilities.
4. Fumigation has to be co-ordinated with the client and reported in the documentation. For fumigation of warehouses, only substances permitted by the regional and/or national regulations should be used.

G. Documentation

1. All processes and procedures that could affect the quality of the product must be documented.

2. Extraordinary circumstances during the growth period that may influence the chemical composition of the plant material, such as extreme weather conditions and pests, must be documented.
3. It is essential to document the type, quantity and the date of harvesting.
4. The application of fumigation agents must be documented. For organic certification fumigation is not acceptable.
5. All raw material procurement and processing steps must be documented including, the area of collection habitat, climate, soil and other circumstances which may influence quality.
6. The geographic location of the collection area should be described as precisely as possible (scale 1: 25.000). Each collector has to identify and define his/her collection area on a map.
7. All batches from each designated area should be unambiguously and accurately identified by the batch number (code number of collector, date of collection, product and quality (organic/conventional)).
8. Batches from different geographical areas shall be mixed only if it can be guaranteed that the mixture itself is homogenous. Such process should be well documented.
9. A written contract should be established between each collector and the company. It should contain an agreement referring to the guidelines given in the Manual 1/2002.
10. After each charge delivery the purchasing company has to hand out a voucher to the collector indicating product, Quantity, quality, name of the collector and the code number. The vouchers have to be kept for 2 years.
11. The raw material procurement is subject to regular audits. The result of audits should be documented in an audit report to be stored for a minimum of 10 years.

12. Documentation to be kept by the purchasing company includes the map of the collection areas (scale 1:25.000), purchase documents in the form of vouchers and the purchase list, processing diary, assortment list (organic/conventional), sales documentation in form of invoices and sales diary.

13. Separation of conventional/organic qualities different types of harvest containers have to be used by the collectors (example given:green label for organic quality - red label for conventional quality).

14. Different and clearly identified places for post harvest treatment have to be used for conventional/organic plant material.

15. Different rooms have to be used for storage of organic/conventional plant material.

16. Different documentation has to be used for purchasing, processing and sales of conventional/organic products. In case of organic quality the word "organic" has to be mentioned in all invoices and diaries.

PLANT MONOGRAPHS

Botanical name

***Abies alba* Mill.**

Local names

**Jela, obièna jela, jelovina,
èam, borika**

Plant description

Jela is the plant from the Abiaceae (Pinaceae) family. The plant is on average a 40 m high tree, with diameter over 2 m. The root system is composed of strong lateral root and of short central root penetrating deep in the ground. The bark of younger trees is greyish and smooth; on older trees becomes dark, longitudinally and transversely chapped.

The crown of the tree is pyramidal and cylindrical; when older, the top is horizontal.

The needles are flat and on the front side are dark-green, and on the back side with two parallel whitish lines, length up to 3 cm breadth up to 3 mm. The needles are distributed like a comb, on the top are pointed and at the base are thinner, ending with oval end connecting with the branch. Needles remain on the branch up to 8 years and sometimes even longer.

Characteristics of the collection areas

Abies alba grows in mixed forest with beech, juniper and white pine trees. It likes deep, fertile soil. High humidity and not high temperature is ideal for this tree.



Plant parts harvested

- Buds (Abies turones)
- Bark (Abies cortex)
- Needles (Abies mugonis)

Time period of collection

- Buds - Apri
- Bark and needles - whole year

Harvesting tools

- Sharp chisels or scissors
- Scales and other tools

It is not allowed to use chains and climbing tools with sharp spikers that damage the trees! Great care needs to be taken not to damage the tree in any way!

**Collection method**

Abies alba is a high and pliant tree and because of that collecting of buds at the top of the tree is very difficult. Buds are collected while they are still in shell. No climbing tools with sharp spikes penetrating the wood and damaging the trees are allowed! One possibility is also to work together with the forestry department to use freshly chopped trees. Only 30% of the buds needles can be collected.

Scales and other tools could be used. Buds could be collected from the tree, but also from the ground by hand and with a stick.

Needles are collected from the top of the branches.

Bark is collected by hand JUST and ONLY from already cut trees. It can be used immediately for distillation.

Post collection treatment

The buds are dried in closed, well-ventilated places. Take good care to preserve main substances and to preserve the quality of buds.

The needles should be distilled right after collection. If they are dried they lose vitamin C.

It is recommended to distil the bark right after collection.

Botanical name

Achillea millefolium L.

Local names

Hajduèka trava, hajduèica, kunica, stolisnik, božje drvce, sporiš

Plant description

Achillea millefolium belongs to the Asteraceae (Compositae) family. It is luxuriant herbaceous perennial plant up to 80 cm high.

The root system is strongly developed and creeping, at the bottom, woody.

Stem is simple, branchy at the top, with rare and wooly little hairs; or it is almost smooth, very often brownish-red.

Leaves are elongated elliptic or elongated lanceolate and alternately disposed along the stem. They are double or triple divided, intensively green. In lower parts leaves have a stem and in higher parts they are without a stem. Parts of the leaves are linearly lanceolate, congested and hairy at the surface.

Flowers are like small heads, 3 – 5 mm, and united in branchy corymbs. The colour is mostly white.

Characteristics of the collection areas

Achillea millefolium grows in meadows and sometimes in forests and stony areas. The plant likes dry and moderately humid soil of limestone parent material. For organic production do not collect in meadows and near cultivated fields!



Plant parts harvested

- Overground part of the plant; stalk with leaves and flowers (Millefolii herba)
- Flowers (Millefolii flos)

Time period of collection

Overground part-from June until September.
Flowers - June, July, August.

Harvesting tools

Knives, scissors

Collection method

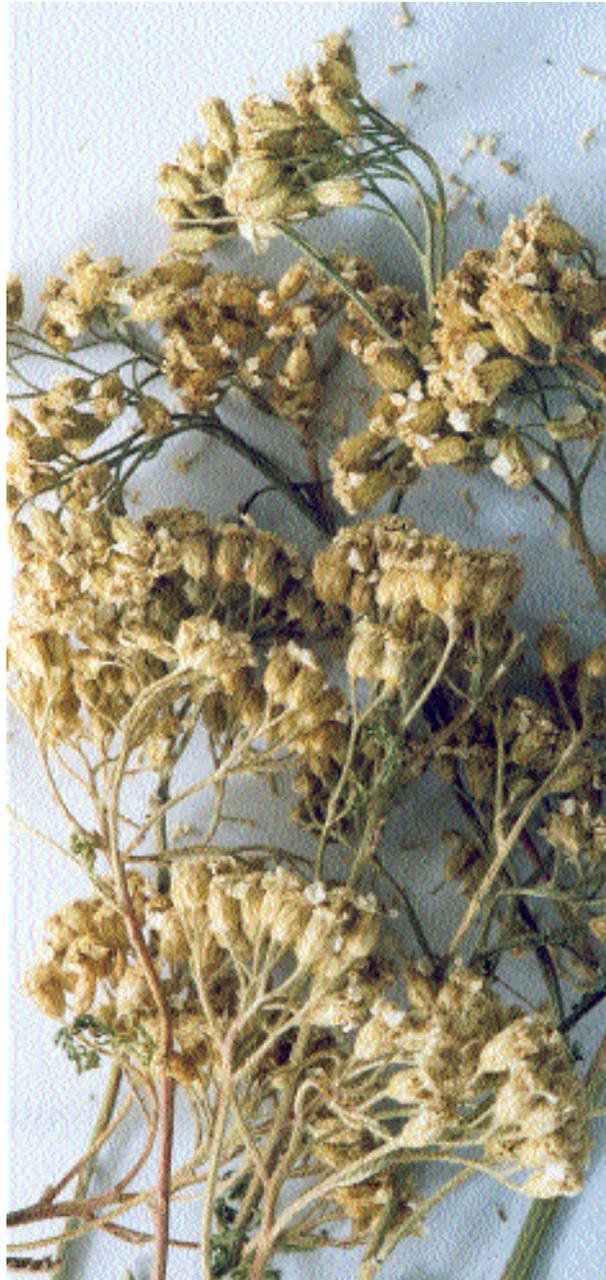
To collect green parts (herb) - cut over ground part of the plant with flowers and leaves up to 25 cm long.

To collect flowers - cut just inflorescence 10 cm long.

30% of the flowers per plant and 20 % of the population has to stay untouched! It is not allowed to pull out the plant from the soil!

Post collection treatment

Dry naturally smaller quantities in shade in protected and well-aired places (wind). Dry larger quantities in dryers with maximum air temperature of 40^o C.
To be packed in paper or jute bags until used.



Botanical name

***Agropyrum repens* L.**

Local Names

**Pirika, zubaèa, kalac, pirak, puzava
pirika, tkalac, bored, pirovina,
vornica, galac, glistnik, perjovica, pir**

Plant description

Pirika belongs to the Gramineae family. It is permanently greenish plant, up to 60 – 120 cm high. Long, thin, narrow, rough leaves are placed on the stem.

The flowers, usually 7–8 of them, are gathered in thin, dense ears 10 cm long. The plant flourishes in the summer.

Pirika has crawling roots. Rhizomes are well developed, long and flexible. Yellowish-whitish rhizomes are 2–3 mm in diameter. The stem is hollow between the internodes. Plant multiplication is through rhizomes.

**Characteristics of the
collectinon areas**

The plant grows in fields and damp meadows. For organic collection do not collect in the fields!

Plant parts harvested

- Rhizomes (*Graminis rhizoma*).

Time period of collection

Rhizomes should be collected in March. The best time for the collection is October when the weather is dry.

Harvesting tools

Hoe or shovel, gloves.



Collection method

Collect rhizomes from the ground with hoe or shovel. ONLY 20% of the rhizomes are allowed to be collected from one area!

Post collection treatment

Wash collected rhizomes with cold water, clean from small roots and dry exposed to the sun or in drying premises. Dried rhizome is thin, flexible, yellowish white with white longitudinal lines. Put dry roots in paper bags or in cardboard boxes.



Botanical name *Allium ursinum* L.

Local names Medvjeđi luk, srijemuša, šumski luk, divlji luk, pasji luk, cremoš

Plant description

Allium ursinum belongs to the Liliaceae family. It is greenish, perennial plant with an underground oval bulb about 2 – 4 (-6) cm long, whitish or yellowish when broken.

The stem comes out of the bulb, and it is up to 30 cm long. It bears a shield blossom with white star-shaped flowers. Before flourishing the blossom is covered with a whitish cover, and is made of several whitish flowers characteristic of onions.

The leaves grow directly from the ground (bulb), are flat, thin, shiny green, elliptical, lancet shaped, on the top pointed, and at the base gradually narrower becoming the leaf's stem, about 5 – 20 mm long. There are usually 2 – 3 leaves (seldom 1 – 3), 25 cm long and 3 – 5 cm wide.

The fruit has several sooty-black seeds spread out by ants.

Flowering time is in April and May.

An onion smell is characteristic of the plant and a whole young plant may be used for food, for seasoning.



Characteristics of the collection areas

The growth of the plant is optimal in beech or beech-conifer forest. On flat land and valley it creates a dense population. The plant favours humus, loose soil, alkaline, neutral or moderate acid soil, and places where the snow stays longer. It is possible to find it on sandy, rocky or slightly loamy surface.

Plant parts harvested

- Leaves (*Allium ursini* flos)
- Bulbs (*Allium ursini* bulbus)

Time period of collection

Collection take place during the period of vegetation (April-October). Collect young leaves in April and May, before flowering.

Collect the bulbs in places where the population of *Allium ursinum* is noticed; before leaves comes out (April) or at the end of vegetation, when leaves are dried (October).

Harvesting tools

Knives, scissors, shovel and hoe.

Collection method

Cut young leaves on the level of leaf stem and put them in to adequate packing material.

Dig the bulb using the shovel or hoe, clean the soil and put in to adequate packaging.

!Be careful: do not confuse *Allium ursinum* with lily of the valley, meadow saffron or hellebore. The smell of the onion is a reliable guarantee to avoid confusion!

80 % of the bulbs and 30 % of the plants at one area need to stay untouched!

Post collection treatment

Dry in covered place, in shade and in a well - ventilated place. Dry bigger quantities in drying facilities exposed to the temperature of 40°C. Dry bulbs like onions. Pack dried plants in suitable package.



Botanical name

***Althaea officinalis* L.**

Local names

Bijeli sljez ,pitomi šljez, sliz, linja, šljezovina, šljez, belodun, ōilj.

Plant description

Althaea officinalis belongs to the Malvaceae family. It is perennial plant with fleshy, strong and branchy white roots. From the root few green leaves grow out with the tree up to 2 m high.

Leaves are thick, wrinkled and hairy.

From the corners of the leaves white or light red flowers with a stem develop. Flowering season is from April to October.

Characteristics of the collection areas

Collection areas are usually wet places, flooded meadows, river islands, swampy and wet ground and similar areas.

Plant parts harvested

- Root (*Althaeae radix*)
- Flower (*Althaeae flos*)
- Leaves (*Althaeae folium*)

Time period of collection

Collect the flowers during the flourishing period (April – October).

Leaves are to be collected in autumn (August till September).

Dig out the roots in autumn (October) or spring (March), when the flourishing season is over.



Harvesting tools

Scissors, gloves, shovel.

Collection method

Collect leaves two or three times per a year always early in the morning when the weather is dry. Put already collected plants in jute bags, and transport to drying facilities.

It can not be allowed to plough considerable areas to collect wild plants! 80% of the roots, 30 % of the flowers and 70 % of the leaves have to stay untouched! 20 % of the population at one area has to stay completely untouched.

Post collection treatment

Place fresh collected material in drying premises, in dark and dry place. Clean the root from the woody head and other parts and wash it with cold water. Husk the root and cut it in several pieces longitudinally. After that the root is ready for drying - temperature 50-60°C.

Roots have to be dried very quickly to avoid fungus!



Botanical name

***Arctostaphylos uva ursi* L.**

Local names

Medvjeđe uho, gornik, jabučar, opirnik, medvjedovka, mlivnjak.

Plant description

Medvjeđe uho belongs to the Ericaceae family. This is perennial, greenish, flattened bush, 1m high.

The leaves are dark green, round oval shaped. On the reverse side of the leaves nerves are bulged, and on the front are deepened.

The flowers are white-pink, hanging in small branches on the top of the branch.

The fruit is edible, sharp, bony, intensive red berry and diameter is around 8 mm. There are 5 – 7 stones, each with one seed.

The plant blossoms in May, gives fruits from July till October.

It is important not to mix the leaves of this plant with similar varieties:

- Borovnica (*Vaccinium myrtillus*)
- Kravljih bobica (*Arctostaphylos fructus*)
- Žutikovina (*Berberis vulgaris*).

Leaves of this plant have parallel nerves.

Characteristics of the collection areas

This plant grows in conifer forests, surrounded with different bushes, on sunny and predominantly limestone ground.



Plant parts harvested

- Leaves (*Uvae ursi folium*).

Time period of collection

The collection of the leaves takes place at the end of spring (June, July).

Harvesting tools

Knives or scissors

Collection method

Consists of cutting of the flattened branches. It is forbidden to take out whole plants from the ground, and to tear the branches!

Only 30 % of the leaves of each plant may be collected! 20 % of the population from one area needs to stay completely untouched!

Post collection treatment

Drying of cut branches takes place in a windy place in shade. When dried, it is necessary to shake branches and collect the leaves. The leaves should be cleaned from other parts. After drying, the leaves are very fragile and it is necessary to handle them carefully. The quality of leaves is not satisfactory if they are broken and without green colour.



Botanical name **Arnica montana L.**

Local names **Brđanka, arnika, veprina, vuèji zub**

Red list species! Arnica is not suitable for organic wild collection. It may only be collected if there is official permission and strict conditions concerning collection area and quantities. Besides Arnica can be easily cultivated and there is no need to endanger the natural population by collecting it in the wild.

Plant description

Arnica montana belongs to the Asteraceae (Compositae) family. It is perennial greenish plant, up to 60 cm high. The upright stem rises from a flat rosette of leaves on the bottom. It is hairy and has at least one independent pair of leaves.

On the top it bears a golden yellow flower head smelling pleasantly. The outer flower leaves have 3 teeth, which is a characteristic of Arnica.

The leaves are small, slightly toothy and alternating.

The spindle-shaped root creeps, 9 cm long, looks like letter S. It is rough, hard and with dark red colour.

Flowering time is between June and July.

Characteristics of the collection areas

Arnica montana grows in the ground, poor lime, on dry, rocky meadow and on mountains higher than 2 000 m.

Plant parts harvested

- Flower (Arnicae flos)
- Root (Arnicae radix rhizoma) - Roots are not allowed to be collected!



Time period of collection

Collection of the flowers takes place in the second year during the summer (June, July, August).

Harvesting tools

Scissors, baskets.

Collection method

Cut with scissors to collect the flowers and young leaves.

Do not collect too much of this plant! It grows in a subalpine/alpine condition and regeneration of a damaged population is difficult. Roots should not be collected! 30% of the flowers need to stay untouched!

Post collection treatment

The flowers have to be dried in a thin layer in well-ventilated premises, in shade. Well dried flowers are to be packed separately in paper bags and boxes.



Botanical name

***Berberis vulgaris* L.**

Local names

Žutika, šimširika, žuti šipak, žutotrń, trpkovina, žutikovina, èesmika, èesmin, berberika, divlji šimšir, žutokora, cigansko grožđe, šimširaèa, šimširovo drvo, berberovina

Plant description

Berberis vulgaris is a thorny bush high up to 2 m and it belongs to the Berberidaceae family. Sprouts are flattened, cut yellow with smooth grey-green bark.

Leaves are greyish-green, oval shaped, strong, solid. At the edge they are slightly toothy, hairy and netlike on the surface 3 – 6 cm long. Several leaves are placed in one part shaped like vertebra, and some of leaves are transformed into thorns.

Flowers are yellow, small, gathered in grape-like hanging blossom, with unpleasant fragrance.

Fruit is red-orange oval berry slightly sour, 1 - 2 cm long with 2 - 3 seeds. They are hanging in small grape-like forms like flowers.



Characteristics of the collection areas

Berberis vulgaris grows on sunny, dry and stony hills and in bushes and in thickets and at the edge of forests and meadows. It grows in valleys and in mountains high up to 1 200 m.

Plant parts harvested

- Bark (Berberis cortex)
- Root (Berberis radix)
- Ripe fruit (Berberis fructus)

Time period of collection

The fruit should be collected when ripe, at the end of summer before

first frosts.

The bark and root should be collected from November until February.

Harvesting tools

Because the thorns are sharp it is necessary to put on gloves and to have suitable scissors.

For bark and root it is necessary to have a shovel and pickax.

Collection method

The material should be collected when weather is dry and sunny.

Fruit-grapes should be collected by hand or scissors when they start to fall down. Put them in a basket. 20% of the fruits have to be left for regeneration!

Take off the strips of the bark from the plant and place them in the basket. 80% of the plant population needs to stay untouched!

When the root is taken out be careful to leave 80% of plant with root! The root should be cleaned from earth and dirt and placed in the basket.

Post collection treatment

Fruit and bark should be dried in ventilated place. Storage in dark and dry place in suitable package.

Root should be washed with cold water, clean from small roots and dry exposed to the sun or in dry premises, and place in carton or paper package.



Botanical name

Betula pendula Roth.

Local names

Obièna breza, žalosna breza, brez, brizovina, briza, metlika, metlovina, bradavièava breza, jadika, breza crepuša

Plant description

Betula pendula belongs to the family Betulaceae. It is deciduous tree, up to 30 m high, with irregular sparse treetop and thin elastic, red-brown branches. The bark of the branches and of the trunk is white and peels in horizontal strips. The bottom part of the trunk is black and cracked. The trunk diameter is 40-60 cm.

The root system has good expanded lateral branches.

In the beginning of development the leaves are a little sticky, 3,5-7 cm long, 2-4 cm wide, round triangle, double jagged with 6-9 pairs of leaves, nerves and stem 2-3 cm long.

Flowers are gathered in special bloom. Male flowers are catkins 4-8 cm long hanging in pairs at the end of the branches, emerging in the spring. Mature female catkin falls down from the tree. The fruit is one seed nutmeg with two lateral wings.

Characteristics of the collection areas

The birch is the tree of a cold and temperate zone, resistant in very low temperature. Brown-acid soil creates pure birch forests, but appears also separately or in groups in light forests. It likes dry, sandy ground and much space, so it is easy to find it on dry plains, hills, and mountains. The differences are determined by the habitat. Common Birch grows in the oak forest; on acid and swampy ground we can find white or hairy Betula pubescens.

Plant parts harvested

- Leaves (Betulae folium)
- Bark (Betulae cortex)
- Sap (Betulae succus)



Time period of collection

Collection of the leaves takes place in the spring (May, June). After this period of time the quality of leaves decreases.

Bark to be collected in March or October.

Sap to be collected in April and May, depending on the altitude.

Harvesting tools

Knives, holder for sap.

Collection method

Leaves must be handpicked while young and in some parts sticky. No cutting of branches. 70% of the leaves have to stay untouched!

Remove bark from the tree and take out the outer part. Bark should stay yellow-brown colour. Just smooth bark with 0,5–2 cm diameter is good to be used. Collection of the bark must be done without damaging the living tree parts. Only 30% of the bark should be harvested! Next harvest is possible after 3 years! The collector should collect only from trees which have no risk of getting damaged by sunburn (single trees)!

To collect sap of *Betula* cut the “letter T” in the tree with knife. Put the holder of sap under this. It is not

allowed to take more than 1 litre of sap from one tree! It is also not allowed to fertilise the tree for better sap harvest. T-cut must be done as small as possible that the tree can close wound. Collection of sap is ONLY possible during spring!

Post collection treatment

Collected leaves should dry in thin layers, shade and windy covered place. If the layer is thick the leaves become dark and are without commercial value. Well-dried leaves are shiny green colour on the front side; the colour is slightly lighter on the reverse side. It has weak characteristics smell. Dried leaves should be packed separately in jute or paper bags. Put sap in to glass bottles.



Botanical name	Calluna vulgaris (L.) Hull.
Local names	Primorski vrijesak , vres, vrišt, vrijesak.

Plant description

Calluna vulgaris belongs to the Ericaceae family. It is an evergreen shrub, not very high.

The stem lies on the ground and creeps up to 1 m.

The branches are upright and green-grey. They have little, opposite, four-ranked leaves like needles, which are dark green about 1 – 3 mm long, linear lanceolate and hairy.

The tiny spikes of flowers are situated on the sides. Their colour ranges from rose to pink.

The plant flowers from August to October.



Characteristics of the collection areas

Calluna vulgaris grows in meadows, high moor, dry forest, hilly mountains.

The plant favours poor, sandy, well drained, acid soil.

Plant parts harvested

- Leaves (Callunae folium)
- Flowers (Callunae flos)
- Overground part (Callunae herba)

Time period of collection

Collect leaves during vegetation period (August to September).

Collect flowers from July to August.

Harvesting tools

Knives, scissors.

Collection method

For herb, collect the upper 25 cm of the plant.

30 % of the flowers per plant and 20% of the plant population need to stay untouched!

70 % of the leaves need to stay untouched!

If whole plant is collected at least 30 % of the population needs to be left untouched!

Never tear the whole plant out of the ground!

**Post collection treatment**

After collection do the separation and then the drying. Dry naturally in shade on a thin layer in a protected and well-aired place.

Dry larger quantities in dryers on 60° C.



Keep in a dark and dry place in order to save the content of medicinal active principles.

Botanical name

Colchicum autumnale L.

Local names

Jesenji kaæun, kaæunka, baluèak, vranji luk, mrazovac, jesenji šafran, voèak, leskovik, mrazova sestrica

Plant description

Belongs to the family Liliaceae. Meadow saffron is a perennial greenish plant up to 20-40 cm high. The underground part of the plant is a brown bulb. Every year, during the summer the new bulb with bud appears, and the old one perishes during the winter.

At the beginning of autumn under the ground the flower sprout develops from the bud as the basis for one or more pink-violet flowers. Flowering season of meadow saffron is after the leaves disappeared.

The leaf shape is spear-like (looks like hyacinth) Next year in spring the leaves emerge with green capsule in between, 6 cm long, containing the seed.

The seed is dark brown, or black, round, on the surface wrinkled, 2-3 mm in diameter at the bottom covered with warts. The seed taste is bitter, hot without smell.



Characteristics of the collection areas

The plant grows in continental regions, on moist mountain meadows.

Plant parts harvested

- Flower (Colchici flos)
- Mature seed (Colchici semen)
- Bulb (Colchici tubes) - IT IS NOT ALLOWED TO COLLECT BULBS!

Time period of collection

Collect flower at the end of summer or in autumn.

Collection of the seed takes place in the summer (June, August).

Harvesting tools

Scissors, knives.

Collection method

30% of the plants (regularly distributed) of a collection area must stay untouched!

Cut flowers with scissors.

For seed the whole capsule can

be collected. The yellow capsules are mature (the seed from green capsules is not of a good quality) and during the harvest the capsule should be yellow and closed.

30 % of the capsules have to stay untouched for regeneration!

Post collection treatment

Dry flowers in thin layers in well-ventilated place without direct sun light. The capsules should be exposed to the sun while drying. The time necessary to have the capsules opened and for the seed to come out from the capsule is 10 to 15 days. It is necessary to dry seeds 4 more days. Pack dried seeds into paper or jute bags.



Botanical name *Crataegus monogyna* L.

Local names Glog, bijeli trn, bijela draèa,
bijeli glog, oštri trn

Plant description

Crataegus belong to the family Rosaceae. White hawthorn is a thorny, branchy and resistant shrub or a small tree, up to 4 m high.

The leaves are separated mostly in 3 – 5 slices, jagged on the edge, the upper side is dark green, the underside lighter green or blue-green.

The flowers are white, lightly pink with a symmetrical form. Red, apple-shaped fruits that are less than 1 cm across follow the blossoms. They are smaller than the fruits of red hawthorn, containing a stone and are edible.

Flowering time is from May to June.



Characteristics of the collection areas

The plant grows in stony and dry places, mountain meadows and sunny slopes. Sometimes it grows on an altitude of 1 500 m.

Plant parts harvested

- Flowers (*Crataegi flos*)
- Leaves (*Crataegi folium*)
- Mature fruits (*Crataegi fructus*)

Time period of collection

Collection period of flowers is in April and May with or without leaves, always after dew.

Collect the leaves until July.



Collect the fruits in June and July when ripe.

Harvesting tool

Collect plant by hand.

Collection method

Collect the fruits without a stem. Fruit without colour does not have good quality and should not be collected. 20% of the fruits have to be left for regeneration!

It is not advised to collect dark flowers or leaves with branches or fruits that have lost their colour - in that case the quality is not good.

30 % of the flowers and 70 % of the leaves per plant need to be left, 20 % of the population in one area has to stay completely untouched!

Post collection treatment

Dry flowers and leaves separately in thin layers in covered and well-ventilated places.

Dry the fruits in the sun or in closed places.

Pack in paper or jute bags.



Botanical name

***Equisetum arvense* L.**

Local names

Preslica, barska jela, vretenika, rataviæ, konjogriz, poljska preslica, rastavièe, barska metlika, hvast, štukavac, konjorep, zglobara, kreš, prešluga, zukva, boriæ, vošèenka, konjski rep, poljski cinkrot, vošèe, vretenka.

Plant description

Equisetum arvense belongs to the Equisetaceae family. It is a herbaceous perennial plant, 20 – 40 cm high. It has very well developed rhizomes.

The green shoots have a stem, which is hollow and sharp and has long needle “leaves”. The fertile stem has many whorls of slender, green jointed branches.

Only these sterile stems are used in medicine.

It is very important to differentiate between this plant and other related species, which are poisonous and not possible to be used in medicine.

Other related species are:

- Kositerika, sudoper, oštri kreš

(*Equisetum hiemale* L.)

- Barski rastaviæ, vodeni cinkrot, žablja preslica (*Equisetum limosum* Roth.)

- Kosmata žuèica, veliki rastaviæ (*Equisetum maximum*)

- Rastavak, konjska žuka, livadski kreš (*Equisetum palustre* L.)



Characteristics of the collection areas

Equisetum arvense is native and common in areas with high water tables. It favours humid swampy humus soil, relatively acid meadows, and swamps.

Plant parts harvested

Just sterile, branchy stems together with main stem.

Time period of collection

The collection is possible from May to September.

Harvesting tools

Gloves, scissors.

Collection method

Collect top of the plant stem 15-20 cm long without flowers. Collect during sunny weather. 30 % of the population should stay in nature untouched!

Post collection treatment

Dry naturally in closed places, well-aired in thin layer or in dryers with maximum 60^o C. Pack in clean jute bags.



Botanical name	Erythraea centaurium Pers. = Centaurium umbellatum Gilib
Local names	Kièica, gorka kitica, gorèica, gorko zelje, sunèani cvit

This species is protected in some European countries so it is necessary to have a strict limitation of collecting activities! Official permission has to be asked for before any activities take place!

Plant description

Erythraea centaurium belongs to the Gentianaceae family. It is a delicate annual plant, up to 40 cm high. The stem is branchy and has four edges, flat in the upper parts where the flowers are placed. The stem is completely smooth. Numerous red (rose lilac) flowers, star-shaped are placed on the top of the stalk with a grape stem.

The plant has lanceolate leaves with long nerves placed at the rosette on the base and on the stem alternating in pairs.

Flourishing season is from July till September.



Characteristics of the collection areas

The plant grows in dry meadows, in clearings, always out of the forest. It is unusual to find the plant in lower parts; it favours the altitude of 400 m and higher. It appears periodically.

Plant parts harvested

- Plant without low parts;
- Leaves and flowers (Centaurii herba).

Time period of collection

Collect the plant during the flourishing period from May till September when the plant is at its best. The optimal period is August.

Harvesting tools

It is easy to collect by hand; it is easy to break the stem. The tools for the collection are scissors with longer blades, and a sickle in case a bigger quantity of plant is to be collected.

Collection method

Collect plant by hand because it is easy to break the stem.

It is rare to find the plant in groups. Usually single plants are collected. Never collect dewy flowers, because in that case it changes the colour and become dark when dried.

At least 30% of the population in one area need to stay untouched!

Post collection treatment

Dry exposed to the sun extended in thin layers. The plant dries fast, and flowers do not fall off. It is not necessary to cut it, but in case the plant is longer cut in two.

Pack in jute bags or in cardboard boxes - packages with holes in the sides.



Botanical name *Frangula alnus* Mill. = *Rhamnus frangula* L.

Local names Krušina, krkovina, smrdljika, pasija
lijeska, mišije drvo, kosova trešnja

In some European countries *Frangula alnus* is protected! Collection may only take place in well defined areas and quantities.

Plant description

Frangula alnus belongs to the Rhamnaceae family. The plant is a low tree (or bush), up to 3 – 5 m high. The bark is dark and smooth with many grey-white lines. Young branches are red-brown.

The alternating leaves are longitudinally elliptic, 8 – 12 cm long, 5 – 8 cm broad. They are shiny, dark green on the front side and on the reverse side and limb yellow-green, not jagged.

The insignificant flowers are auxiliaries, bisexual, shaped in shield blossom and arranged singly or 2-7, in the angle of leaves.

From these white-yellow flowers develop fruits, which are at the beginning, green, than red and when ripe blue-black. Fruits diameter is 6-8 mm, and they have three segments.

In our regions the fruits are ripe in August-September.

Characteristics of the collection ares

Usually the plant grows near rivers or springs, in wet forests, in deep clay ground, swampy area, loamy but also on sandy ground.

Plant parts harvested

- Bark (*Frangulae cortex*), with horizontal, light, whitish lines.

Time period of collection

Collect *Frangula cortex* at the end of the winter or at the beginning of



the spring, before the plant becomes covered with leaves (end of february until beginning of April).

Harvesting tools

Suitable saw, sharp knife, fruit scissors, and in case the bark is to be collected from higher plant it is necessary to have a suitable ladder.

Collection method

To collect the bark, it is necessary to cut it circularly choosing thicker branches making the distance of 30 – 35 cm between the lines, than to make a longitudinal cut between two circular cuts, and to peel (take off) band of the bark. The bark thickness should not exceed 1- 2 mm. The bark should be smooth, shiny, dark red.

Collection of bark must be done without damaging the living tree parts! A maximum 30% of the bark can only be harvested! Next harvest is possible after 3 years! The collector should collect only from trees which have no risk of getting damaged by sunburn (single trees)!

Post collection treatment

Dry bark immediately after peeling, first few hours exposed to the sun and afterwards in shade in well-aired place. Keep dried bark in jute bags.

The bark is ready for use after one year of keeping it in suitable premises, or after thermal processing and exposure to a temperature of 100°C for 1h. If one use the fresh dried bark without thermal processing it may cause stomach troubles.



Botanical name **Gentiana lutea L.**

Local names **Lincura, srèanik, sirištara,
raven, rakiska trava**

Red list species! Gentiana lutea is not suitable for organic wild collection. It may only be collected if there is official permission and strict conditions concerning collection area and quantities!

Plant description

Gentian belongs to the family Gentianaceae. It is perennial herbaceous plant, 1,5 m high. The stem is round, strong and vertical. The leaves are oval and big (leaves near the ground are bigger than others, 30 cm long and 15 cm large) with arc shaped nerves.

On the upper half of the stem, in the angle of the leaves, the bipolar green-yellow flowers are placed. The fruit is an oval shaped capsule 6cm long with plenty of seeds. Seed is light-brown, small lancet-shell shaped. The weight of 1000 seeds range from 0,9 to 1,3 g.

The root of the gentian is well developed and branchy. The wight depends on the age with a possibility of achieving several kilograms. If we cut fresh root, it is white, soft, easy to cut and bitter taste.

The plant flowering from the end of June till August.



Characteristics of the collection areas

Gentian grows in the Balkan, on mountain pastures and meadows, sparse forests and rocky zones, at an altitude from 800-2000 m (and more). The plant favours carbonate, slightly acid ground. Clay ground is not suitable because collection and cleaning of the roots is difficult. The plant favours mountain climate with daily temperature up to 18°C during the vegetation period, and maximum daily temperature of 30°C.

Plant parts harvested

- Root (*Gentianae radix*).

Time period of collection

The collection of the roots takes place at the end of the summer and at the beginning of autumn (September, October).

Harvesting tools

Spade and shovel

Collection method

Only older roots to be collected! 80% of the population must stay untouched! The hole in the ground must be filled with earth after the harvest of the roots! Re-collection in the same area is not possible 10 years after the first collection!

It is necessary to clean them of earth, rotten parts, and stem etc. It is not allowed to take out all plants in one area! The person collecting the roots should cut the head of the root with buds and place it in the hole and cover with earth. In this way we will protect the plant and we will collect the roots after several years again.

Post collection treatment

Cut the root in peaces 10 cm long and dry. If the part of the root is larger than 3cm it should be cut along to dry it easier. It is possible to dry it in the sun, in special premises or in drying facilities, the temperature 35-40°C. It is not allowed to dry it in a temperature higher than 60°C. Dry root of gentian is yellow-white, bitter, and fragile. From 3,5-4 kg of fresh root it is possible to obtain 1kg of dry. For practical use it is important to know how to estimate the weight of the roots. The weight of the root is triple the weight of the over ground part of the plant.



Botanical name

Hedera helix L.

Local names

Bršljan, brštan, bršlin, brsijan, zelengora, zimzelen, prljuč , barsijan, bestran, bristanj

Plant description

Hedera helix belongs to the family Araliaceae. It is a permanent, wooden, evergreen, climbing plant. The plant climbs on trees and stones using the adventive roots. The length may reach 50 m.

Shiny, leathery, dark green leaves come in different shapes (separated in 3 – 5 segments or heart shaped).

It bears yellow or greenish yellow fragrant flowers in round clusters in the fall. Flowers develop in November.

Small fruits in the shape of peas, dark blue berries, ripen during the winter.

The plant is bitter and poisonous on the whole.



Characteristics of the collection areas

Hedera helix is a widespread plant, wild growing, appearing in all regions, at lower and higher altitude. The plant grows on trees, stone fences, abandoned ruins.

Plant parts harvested

- Fresh and dry leaf (Hederae folium)
- Fruit (Hederae fructus)

Time period of collection

The evergreen leaves have to be collected fresh at any time, regardless the season. Dry leaves to be collected from June until October.

The fruit is to be collected in winter, from December until February.

Harvesting tools

Scissors and basket

Collection method

Dewy leaves are not to be collected including the stem. Be careful to collect only undamaged leaves without spots. Put collected leaves in the basket and afterwards in the drying premises.

70% of the leaves have to stay untouched! 20% of the fruits have to be left for regeneration!

Post collection treatment

The leaves and fruits of ivy dry in well-aired and windy place in thin layers, or in drying facilities exposed to the temperature 40°C. Pack well dried material in paper bags or boxes.



Botanical name *Helichrysum italicum* L.

Local names Smilje, cmilje, cmilj, žuto smilje, žuto cmilje, laška kamilica, smeljak, zlatnocvita trava, smil, marijetica.

Plant description

It belongs to the family Asteraceae (Compositae). Immortelle is a perennial herbaceous greyish plant covered with woolly hair.

The stem is, vertical, not ramified, 10-40 cm high, covered with oval leaves, with head-shaped blossom on the top. The plant blossoms in the summer.



Characteristics of the collection areas

It grows on sandy ground scarce in humus, sunny slopes, at an altitude between sea level and 800 m. The habitats of this plant are distributed between these altitudes. Plant is distributed exclusively in the Mediterranean region with suitable weather and climate conditions, in Herzegovina-Dinara zone reaching partly Montenegro and Albania.

Plant parts harvested

- Head-shaped blossoms (*Helichrysi flos*)

Time period of collection

In June, July, August and September.

The collection period starts when the flower's blossom begins to open in sunny weather.

Harvesting tools

Sickles and knives.

Collection method

For the collection use sickles and knives with a bag to put the blossom in. Cut the top of the plant, 10 cm using the sickle. 30 % of the plant population has to stay untouched!

Plants must not be turned out from the ground. Plants in one collection area must not be harvested more than once a year.

Post collection treatment

To dry the plant, extend it in thin layer in covered spaces well ventilated, without exposure to the sun, also in drying facilities up to 40°C, to obtain dry herb light golden coloured. To pack and storage, put in jute bags.



Botanical name **Hypericum perforatum L.**

Local names **Kantarion, kantarija, bogorodièna
trava, gospin cvijet, zvonèac,
žuta marina, tantur**

Plant description

Hypericum perforatum belongs to the Hypericaceae (Guttiferae) family. It is perennial, upright, herbaceous plant, about 30 – 100 cm high. Stems in the upper part are branchy, the branches are alternating. The stems bear two characteristic longitudinal ridges that distinguish the plant from other species.

It has simple, opposite leaves, which are narrow, elliptic and oval, sessile and well dotted with glandular dots with essential oil.

Branched clusters of golden yellow flowers with tiny black spots are produced from May to August. The fruit consists of a three-celled capsule with hard black or brown seed, opening only when the weather is nice.

Characteristics of the collection areas

Hypericum is well spread over continental Bosnia and Herzegovina. It grows in thin forests, underbrush and near swampy ground.

Plant parts harvested

- Flower (Hiperici flos)
- Upper green parts of the plant with flowers (Hiperici herba)



Time period of collection

Collect in June-July, when the flowering season starts.

Harvesting tools

Sickle, scissors and basket.

Collection method

Collect by cutting with sickle or scissors and put in the baskets to avoid the damaging of bright dots on the leaves where the essential oil is placed.

30% of the flowers of each plant have to be left! 20% of the plant population have to stay completely untouched! If whole plant are collected 30% of the population need to stay untouched.

**Post collection treatment**

Dry the 20-30cm long stem with leaves and flowers in shade in ventilated places in thin layers. The plants with dark leaves and without flowers are without any commercial value. Pack dried parts in jute bags.



Botanical name

Juniperus communis L.

Local names

Klekinja, kleka, plava kleka, fenja, smreka, smrekovina, borovica, brinja

Plant description

Juniper tree belongs to the family Cupressineae. It grows up in mountain regions as evergreen bush 1m high, or as a small tree, 10m high, in the region of lower altitude. Single tree has pyramid shaped treetop, but if several trees are growing in the same place, the treetop is irregular.

Leaves are thin, needle-shaped, 10 - 20 mm long.

Flowers are small, yellow-green placed in the angle of leaf. Juniper tree is bicameral plant-one plant has male, and the other one has female flowers.

The fruit is a berry maturing the next year. At the same time the plant has green and ripe fruits. The fruit, if green at the beginning, later rust, and as ripe fruit has ashen blue-black colour.

Other varieties as sources for adulteration:

- Juniperus oxycedrus L. (Crvena kleka)

We can find Red Juniperus diffused in southern parts of BH. The berries are bigger than the berries of Juniperus communis; 12 mm in diameter, dark red coloured.

- Juniperus macrocarpa (Pukinja)

The berries of Juniperus macrocarpa are bigger than the berries of Juniperus commu-



nis. The difference is the bluish coating. The berry doesn't have commercial value.

- *Juniperus sabina* L. (Somina, Glušac, Gluha smreka)

Juniperus sabina is present in BH near the Adriatic Coast. The berries are blue-black or black, 5-8 cm in diameter, poisonous.

- *Juniperus phoenicea* L. (Gluhaè)

We can find *Juniperus phoenicea* in coastal region. The berries are much bigger than the berries of *Juniperus communis*, yellow or red-yellow, poisonous.

Characteristics of the collection areas

We can find Juniper tree growing in sparse pine and birch forest, in mountain-cleared land, in uncultivated, neglected, dry, bare, rocky places.

Plant parts harvested

- Ripe fruit (*Juniperi fructus*)

Time period of collection

The berries are ripe and ready for the collection when blue-black. In our region this happens from the end of August till October, depending on the altitude.

Harvesting tools

Jute linen 2 x 2 m, gloves, metal or wooden hook, umbrella.

Collection method

Berries can be picked by hand or shaken from the shrub on previously prepared linen or similar cloth (umbrella). Shaking should be done carefully in order not to shake the green berries. It is important to collect ripe berries.

20% of the fruits need to be left for regeneration. No cutting of *Juniperus*! Important to know that forest fire represents special danger for this plant since it doesn't have the possibility to regenerate.

Post collection treatment

The juniper fruit should dry in a windy place and should be turned from time to time. A thin layer allows easier turning of the berries and uniform drying. After drying the berries should be clean from eventual dirt, needles, green berries etc. To pack in jute bags.

The dried fruit is fleshy and 5-9mm in diameter, dark-violet. The pulp is dark-green, soft, and after longer time it becomes spongy. The fruit of juniper has agreeable smell and sweet bitter flavour.



Botanical name

Malva silvestris L.

Local names

**Crveni sljez, crni sljez,
šumski sljez, gušèije cvijeæe**

Plant description

Common mallow belongs to the Malvaceae family. It is greenish permanent plant with well developed root.

Stem, height up to 1 m, is branchy with flattened branches. Leaves are palm shaped with 3–5 marked divisions and long stem.

Flowers are pink-violet and in group placed in the angle of the leaf on the top of the stalk. Flower petals are heart shaped 3-4 cm long, and 3 – 4 times longer than calyx leaves.

The plant flourishes from June to September.



Characteristics of the collection areas

Malva silvestris is a common plant which prefers fertile ground, growing near housing areas and fences. For organic collection do not collect near housing areas and fences!

Plant parts harvested

- Leaves (Malvae folium)
- Flower (Malvae flos)
- Stem - overground part (Malvae herba)
- Root (Malvae radix)

Time period of collection

The leaves and flowers should be collected when the plant is flourishing (from June until September).

If collected material is the flower with stem, then the best period of time for the collection is August.

The root should be taken out in spring and in autumn.

Harvesting tools

Small shovel, chisel, knife.

Collection method

Collect flowers without stem and completely flourished. Collect when the weather is dry and sunny. 30% of the flower per plant and 20% of the population need to stay untouched! Cut over ground part with leaves and flowers leaving 50 – 60 cm of plant. Collect the plant with clean leaves without white or any other spots. If whole plants are collected, 30% of the population need to stay untouched!

When the root is taken out with the shovel be careful to leave 80% of plant with root! The root should separate from other parts of the plant.

Post collection treatment

Dry fresh collected material in shade and in ventilated place. Cut root as well as over ground part of the plant into the pieces 4cm long. Dry in thin layers exposed to the air.

Dry material place and pack into dense jute or linen bags. The best paskaging material for roots is dense net bag.



Botanical name **Origanum vulgare L.**

Local names **Vranilova trava, vranilovka, divlji èaj, planinska metvica, origano.**

Plant description

Origanum vulgare is part of the Lamiaceae family. Oregano is semi-vertical perennial plant up to 20 – 50 cm high.

The root is strong with horizontal rhizomes and underground stolons. Oval shaped leaves have short leaf stem. Leaves are not toothy.

The flowers are long up to 20 – 25 mm single, with short stem, and placed in the angle of the upper reddish leaves. The colour of crown leaves range from light red to dark red (the colour of the pulp).

The plant flourishes from June to September.



Characteristics of the collection areas

Origanum vulgare grows in dry, warm habitats, hillsides, and underbrush. It grows in the mountain regions of Herzegovina up to 2.000 m altitude, but it is widespread in all Bosnia and Herzegovina.

Plant parts harvested

- The upper, over ground part of the flourishing plant (Origanum herba).

Time period of collection

Collect in July and August.

Harvesting tools

Fruit with scissors, sickle, clean linen or paper bags.

Collection method

Collect over ground parts of the plant with flower length up to 10 – 20 cm. The plant with white flowers or the plant, which is not complying to the requirements, should not be collected.

30% Of the plant population needs to be untouched! If the roots are also collected, 80% of the population needs to stay untouched!

Post collection treatment

Collected material gathered in small sheaf should dry in well-aired place and in shade, hanging on stretch ropes or wires. Bigger quantities *Origanum vulgare* are possible to dry in drying premises at 40°C.

Dry material should be placed into clean jute or paper bags and kept in dry, clean and dark storage.



Botanical name **Pinus mugo Turra**

Local names **Klekovina, planinski bor,
boriæ, krivulj, krivi bor, cret**

Pinus mugo is endangered in Bosnia and Herzegovina. Not suitable for organic wild collection! Wild collection may only take place when trees are felled or branches cut away. Otherwise official collection permission needs to be sought!

Plant description

Pinus mugo belongs to the family Pinaceae. It appears as flattened bush.

The root system is branchy and reaches 10m in diameter.

Irregular trunks lie on the ground, branches are dense and vertically saber-shaped up to 20 m. The bark is brown (black or reddish-brown); it is possible to take it off in small shells 4 mm thick.

Buds are long, oval and covered with pitch; leaves are needle-shaped and dark green on both sides. Two needles grow from white skinny cover remaining on the branch 5 – 10 years.

Male flowers are long and yellowish and female are round and bluish. At the beginning of development cones are sitting, bluish, later brown and round and become mature in third year in spring. Small oval seeds are placed in cones.



Characteristics of the collection area

Pinus mugo grows in the forest belonging to the sub-Alps and Alps zone at an altitude up to 2 600m on habitats exposed to the sun.

Plant parts harvested

- Top of young branches (Pini mugonis)

Time period of collection

Collection time is active vegetative time, from June to August.

Harvesting tools

Sharp cutters or scissors to cut branches.

Collection method

Cut young top of the branches up to 20 cm long with needles. Put together obtained material in sheaf and transport.

Always keep in mind that plants at high altitudes grow very slowly so damage to the plants needs to be prevented by all means. Only material from already felled trees or cut branches can be used for collection!

**Post collection treatment**

Collected material should be exposed to steam distillation to obtain essential oil.



Botanical name **Plantago lanceolata L.**

Local names **Uskolisna bokvica,
truputac, žilovlak,
duga bokvica, ženska bokvica,
kopljasta bokvica**

Plant description

Plantago lanceolata is a perennial greenish plant from the family Plantaginaceae.

The leaves are gathered in rosettes on the bottom of the stem, at the limb are longer with highlighted nerves.

The stem of the flower has longer leaves and has five deep ruts up to 40 cm high with 2–3 cm long, pink, flower ears at the end. Flowers are twice longer than crown with yellow stamen.

There are similar varieties such as:

- Plantago major (širokolisna bokvica); shape of the leaf is different from the Plantago lanceolata
- Plantago media (srednja bokvica); hairy - leaves are making rosette with the arc nerves.



Characteristics of the collection areas

Plantago lanceolata grows in meadows and pastures. It likes nutritious, sandy ground. It grows on the hills in light forests and in high mountains up to an altitude of 2 000 m.

Plant parts harvested

- Leaves (Plantaginis folium)

Time period of collection

The leaves should be collected from May to October while plant is flourishing.

Harvesting tools

Scissors and baskets.

Collection method

The leaves should be collected with scissors when they are not covered with dew. Collect young, healthy, undamaged leaf while plant is flourishing. 30% of the population has to be left untouched!

Post collection treatment

The leaves of *Plantago lanceolata* should be dried in thin layers in well-aired place and in shade to maintain nice green colour, characteristic flavour and slightly bitter taste. Dry material should be packed into paper bags or in cardboard boxes.



Botanical name	Primula veris (L.) Huds.
Local names	Jagorèevina, jaglika, jagorèika, bijela bukvisa, cviæac, vesnaèak, gajèin, grmuljica, jaglica, jagotac, sunašce, jagorèina, krstato iglièe, kunjavac, lestedaj, osljepar, petoprs, piskalica, pramaliæe, prvi cvit.

Collection needs to be strictly limited and quantities supervised as the abundance of this plant has decreased in many parts of Europe due to collection for medicinal use. Roots must not be collected!

Plant description

Primrose belongs to the family Primulaceae. It is a perennial greenish plant developing light-green leaves situated at the base of the plant, arranged in a rosette. The leaves are wrinkled and folded at the edge, they gradually become narrower and transform into a whitish and juicy stem.

From the middle of the leaves, the stem up to 15 cm high, appears, bearing the flower on the top. There are several light-yellow, tubular five-petal flowers, with a pleasant moderate fragrance.

Rhizome is 10 cm long with a lot of thin yellowish small root.



Characteristics of the collection area

Primrose grows mostly on sunny, dry meadows and hillsides near bushes, and in light places in deciduous forests. It grows up to an altitude of 1 200 m.

Plant parts harvested

- Flower (Primula flos);

Time period of collection

The flowers of the primrose have to be collected early in the spring (March and April).

Harvesting tools

Scissors and baskets.

Collection method

Collect only dry, not dewy flowers in dry and sunny weather. 30% of the plants need to stay untouched! In habitats with rare population collection is not allowed!

Post collection treatment

Dry flowers of the primrose in a well-aired place in shade to preserve the natural colour. After drying pack the flowers in paper bags or boxes.



Botanical name **Rosa canina L.**

Local names **Divlja ruža, šipak, šipurika, šip, šopkovina, pasja ruža, šipurina, šipurak**

Plant description

Rosa canina belongs to the family Rosaceae. it is a branchy and thorny bush, up to 3 m high. The branches are long and thin banded in arcs; leaves are pinnate, made of 5 – 7 toothy small leaves. Flower is nice and large, made out of 5 rosy or white petals. The fruit is red, 1–1,5 cm long, and arises from the flower's base. Flowering in May and June and fruits are ripe in September and October.

Close relatives:

- Rosa dumetorum Thuill, živièna divlja ruža – it is a bush up to 1–1,5 m high. It is quite similar to Rosa canina. Leaves are light green and hairy on both sides; the fruit is the same as the fruit of Rosa canina.
- Rosa rugosa L., rđasta ruža – is a bush up to 1–2 m high with hooked thorns enlarged on the base. In comparison with Rosa canina, the fruit of Rosa rugosa is oval, and the flower has much more stamens.
- Rosa acicularis - planinska ruža – this is a bush up 0,5–2 m high. Flowers are red, fruit is much longer than the fruit of Rosa canina (20–25 mm), grows up to an altitude of 2 000 m.



Characteristics of the collection areas

Rosa canina grows all over Bosnia and Herzegovina. it grows near forests, hedges, in the valleys as well as on the mountains. For the organic production do not collect near the hedges and settlements!

Plant parts harvested

- Fruit (Rosae fructus)

Time period of collection

September and October.

Harvesting tools

Scissors and leather gloves.

Collection method

Collect mature and hard fruits without stem.

20% of the fruits need to be left for regeneration!

Post collection treatment

The fruits can be dried as whole or cut in two halves in drying premises or in a well-ventilated place. Fruits dried in drying premises have better quality and are better.



Botanical name	Salix alba L.
Local names	Vrba, bijela vrba, vrbanja, vurba, vrbica, bela vrba

Plant description

Belongs to the family Salicaceae. Salix alba is a deciduous tree up to 20 – 30 m high, with grey and cracked bark. It has a large crown on the tree and long forked, elastic branches.

Leaves of the Salix alba are pointed on both ends, on the front side dark-green and on the reverse side whitish.

The flowers are gathered in so called “pussy cats” growing with the leaves. Female flowers are thinner and hanging. Salix alba flourishes in March and April.

The fruit is smooth quiver filled up with seeds.



Characteristics of the collection area

Salix alba grows in flooded ground and river valleys.

Plant parts harvested

- Bark (Salicis cortex).

Time period of collection

The bark should be collected early in the spring, in April.

Harvesting tools

Knives and scissors.

Collection method

The bark should be collected from trees 2 – 3 years old, taking off the strips of the bark 5 – 10 cm long.

Collection of bark must be done without damaging the living tree parts!

Only 30% of the bark should be harvested! Next harvest is possible after 3 years! The collector should collect only from trees which have no risk of getting damaged by sunburn (single trees)!

Post collection treatment

Collected bark should be dried in thin layers on dry and well-aired place and placed in cardboard boxes or jute bags.



Botanical name

***Salvia officinalis* L.**

Local names

Žalfija, kadulja, pelim, kus, kalaver, džiger trava, kaloper, zajbel, janovdence, slavulja, salvija, kaduna

Plant description

It belongs to the Labiatae family. Sage grows up as a little bush with perennial wooden trees. Strong, dark-brown root penetrates deeply in the ground and enables the plant to live in sparse conditions such as limestone or rocky ground.

The sprout of the plant is 70 cm high, covered with white hairs. The colour varies from dark green to grey-witish.

Leaves, 3 to 8 cm long, and 1 cm wide, oval or elliptic shaped are strong and hairy with stalk up to 5 cm long. From the angle of the leaves emerges a short sterile sprout.

Violet flowers, 6–10 of them, create a ring at the top of the tree and make the impression of a flower crown. The plant blossoms from the end of April till July. Sharp, pleasant smell comes from the essential oil present in 1-2,5%, and bitter taste comes from tannin and other bitter substances.



Characteristics of the collection areas

Sage is spread all over Mediterranean region. It grows in the Adriatic Coast, and can also grow far into the continent.

As the plant can be collected wild we can find it on sandy and sparse ground and rocky places. It favours moderately dry and long summers.

Plant parts harvested

- Over ground parts (*Salviae herba*)
- Leaves (*Salviae folium*)

Time period of collection

The collection takes place in July when the plant is mature, in dry and clear weather, early in the morning and late afternoon. If the weather conditions allow, hot and dry weather, the collection continues all summer and autumn till the beginning of the first rain.

Harvesting tools

Sickles and scissors.

Collection method

Herb is collected mostly for the production of essential oils. To cut top of the plant, 2/3 of it.

Collect leaves by hand when it is sunny and dry weather.

Always leave 30% of population in one area!

Post collection treatment

Drying takes place in covered windy place without exposing it to direct sun light, or in drying facilities at 40°C.



Botanical name

Sambucus nigra L.

Local names

Zova, zohva, bazga, abzov, bažoina, bazag, bazdov, bazgovina, crna zova, bazovika, belika, boz, buzovka, zovik, zoha, zovljika, zofa, budzova.

Plant description

Sambucus nigra belongs to the Caprifoliaceae family. It is a high bush or small tree with a height up to 6 – 8 m. Leaves are odd, pinnate and jagged at the edge.

Flowers are small white-yellow and gathered in big, flat inflorescence of 10 – 15 cm.

The flowering season is from May to July.

The fruits in autumn are little dark-violet berries 5-6 mm, with 3 brownish seeds.

A similar, related plant could create confusion:

- Sambucus ebulus L.

(haptovina) - is a one year bush with height up to 2 m.

Fruits are quite similar to the fruits of Sambucus nigra, but with unpleasant smell (poison).

- Sambucus racemosa L.

(crvena zova ili divlja zova)

is very similar to black elder and has similar trees and leaves. Flowers in April, and grows up to an altitude 1 700 m.



Characteristics of the collection areas

Sambucus nigra is quite widespread in BH. It grows and should be collected near rivers, springs, in light forests, under bushes, and other places.

It can grow up to an altitude of 1.200 m.

For organic production do not collect near houses!

Plant parts harvested

- Flowers (Sambuci flos)

Time period of collection

In our region collection of the elder takes place when the flowers start to open, from May and June, depending on the locality and the altitude.

Harvesting tools

Knives and scissors.

Collection method

The whole inflorescence has to be cut. 30% of the flowers need to be left untouched!

Post collection treatment

Dry collected flowers in a dry and aired place. Well-dried flowers have the same light-yellow colour. Throw away dark flowers because they are not for use.



Botanical name

Satureja montana L.

Local names

Vrijesak, vrisak, planinski èubar, jaber, kubar, osogriz, osoguz, primorski vrisak, serenak, serženak, cupar, èober, èubrika, èumborak

Plant description

Satureja montana belongs to the Labiatae family. It is an annual and perennial herbaceous branchy plant up to 50 cm high. Leaves are narrow, green, linear lanceolate, without stems or on very short stems, about 3 cm long. Underside of the leaves is greyish. Flowers are small, white, pink or light pink with the stem placed in branch corners making an impression of a small broom. The special, nice smell comes from the essential oil with a high content of carvacrol. The flowering-time depends on altitude and starts from July until the October, first in higher altitudes and later in lower altitudes.

There are some related varieties:

- Satureja hortensis – èubar, èubrika, setraj, vrisak, vrijesak
- Satureja subspicata – modri vrijesak

Characteristics of the collection areas

It grows in dry, stony and warm places on sunny slopes. It is a Mediterranean plant that grows on sea-side of Adriatic. In Herzegovina the habitat of this plant is in mountains and in low land.

Plant parts harvested

- The herb (Saturejae herba)



**Time period of collection**

Collection takes place during flowering time, from July until October. Best time for collection is during dry, sunny weather, early in the morning and late afternoon. It is possible to collect it all summer until autumn if the weather is dry. If it is collected for distillation, collecting season is at the end of September and the plant does not have to be dried.

Harvesting tools

Sickle and scissors.

Collection method

Collect 10-15 cm of herbaceous part over the ground when plant is full flowering.

Leave 30% of population in one area untouched!

Post collection treatment

It should be cleaned from dirt, dry the plant in thin layer in covered place well-aired, without exposure to the sun, also in drying facilities up to 40°C. Storage in aired, dry places. To pack, put in jute bags.

Botanical name	Taraxacum officinale Web.
Local names	Maslaèak, mleè, mleèika, milosavka, radiè, gorsko zelje, talijanska salata, popino gumno, popina pogaèica, žuæanik, žutnica

Plant description

Taraxacum belongs to the family Asteraceae (Compositae). It is a herbaceous perennial plant. It develops a deep, thick taproot from which a rosette of long, narrow, serrated, shiny dark green or brownish leaves arise.

The hollow flower-stems, about 30 cm high, grow directly from the root and each leafless stem produces a single, golden yellow blossom (3–5 cm). Flowering time is from April to October.

After flowering, when the seeds mature, they form snowy white puff-balls, which will be blown all over by the wind. This is the way in which the plant multiplies itself.



Characteristics of the collection areas

Very widespread plant. It grows everywhere the seeds settle in. For an organic collection it is not allowed to be collected near roads, orchards etc. It may only be collected in “wild” habitat!

It grows well in high mountains but in that case the rosette is smaller. It favours fertile, humus and humid soil. The look of the plant is different according to habitats and ecological conditions.

Plant parts harvested

- Root (Taraxaci radix)
- Whole plant (Taraxaci herba)

Time period of collection

Flowers - April and May

Leaves and whole plant - April, May and June

Roots - September and October.

Harvesting tools

Small shovels, sickles, scissors.

Collection method

Cut leaves and herb near the root. Collectors should take care when they collect leaves (do not squeeze them) because whole plant is full of plant milk. 30% of the plant population need to stay untouched! Collect root using the shovels and sickles. If roots are collected 80% of the roots have to be left untouched!

Post collection treatment

Roots - clean, wash and dry in sun. Thicker roots should be cut.

Leaves - dry in a covered well-aired place in thin layer. From 4kg of fresh plant it is possible to obtain 1kg of dry. Pack in jute or paper bags.



Botanical name **Teucrium montanum L.**

Local names **Trava iva, gorski dubèac, ivica, dubaèac, duèac, bijela metva, bijeli dubèac, gorski cmilj**

Plant description

Teucrium montanum belongs to the family Labiatae. It is a herbaceous, bushy perennial plant, about 10 – 30 cm high. Stems lie down and the top of the stems is upright. They are partly woody, especially in the late developing phase. Young stems are covered with short and soft grey hair.

Leaves are linear lanceolate, not serrated and at the opposite side, white hairy. Leaves are between 0,2–0,5 cm wide with very short stem.

Flowers are in inflorescence, shaped as a half ball and situated at the top of the branches. Crown leaves are light yellow. The flower cup is usually not hairy and has 5 lanceolate lobes.

Flowering season is from June to September. It has specific smell and tastes bitter and harsh.



Characteristics of the collection areas

It grows in dry and warm soil. Mostly it can be found in 800m altitude on lime soil, usually in south exposition to the sun. In our country its main habitat is in hilly mountain areas of Herzegovina and south-west of Bosnia.

Plant parts harvested

- Green part and flowers (Teucree montani herba).

Time period of collection

From June to the beginning of September.

Harvesting tools

Knife or scissors.

Collection method

Cut the plant with a sharp knife or scissors. Do not cut wooden parts of the plant. Clean it from the dirt. Collect plant when flowering season starts.

30% of the flowers need to be left untouched! If the whole plant is collected 30% of the population need to stay untouched!

Post collection treatment

Dry in shade in a thin layer in a well aired place. In dryers on 40°C. Keep and pack in dry places.



Botanical name *Thymus serpyllum* L.

Local names Majèina dušica, timijan, manja mažurana, timas, timljan, popovac, babina dušica, bukovica, vreskovina, vrisak, divlji bosiljak, materka, tamjanika, dušičina.

Plant description

Thymus serpyllum is perennial and small, 10cm high, half-bush plant from the Labiatae family. It has a strong developed root system enabling it to live on poor ground.

The stem is wooden at the base, and partly crawling on the ground, developing the adventive roots in the ground on the lower parts, and upper branches are quadrangular, reddish and hairy with a rosette of leaves at the end.

The leaves are 0,5- 1,5 cm long and 6 mm wide, strong, and linear with gland points with numerous glandulas full of essential oil. The leaves are situated at 3 mm long stem.

Flowers are situated at 5 mm length on the stem, coming out from the angle of the leaves and creating round and long blossoms. Flowering season is summer. Whole plant has nice and aromatic smell.

Similar variety in Bosnia and Herzegovina is *Thymus vulgaris* L. (poljska majcina dusica) and it has white flowers.



Characteristics of the collection areas

The plant grows on limestone ground on fertile sparse soil, neutral or moderate alkaline. Acid and moist soil is not suitable for *Thymus serpyllum*. The plant favours the light and warmth especially in the phases of flourishing. That is why the habitat of *Thymus* are exposed to the sun and protected from the wind. In case cloudy weather and rain dominate during the period of flourishing the collected material has poor quality.

Plant part harvested

- Young, green parts with leaves and flowers
(Thymus herba)

time period of collection

Collection is from May until October.

Harvesting tools

Suitable cutting tools; scissors.

Collection method

While collecting the upper herbaceous part should be cut off and the wooden part of the leaf. It is necessary to collect carefully because the plant is very sensitive. Plants must not be turned out from the soil. Put in to adequate packaging. Plants in one collection area must not be harvested more than once a year.

In the area where the collection takes place, from the biological point of view, it is necessary to leave the minimum of population (at least 1/3 of plants) and leave 70% of leaves on the plant!

Post collection treatment

It is possible to dry it outside (small quantities), in a protected place in shade and exposed to wind. Bigger quantities dry in drying facilities at a temperature 40° C. After drying pack in suitable bags and keep in dry premises to preserve the quality.



Botanical name

Tilia cordata Mill.

Local names

Bijela lipa, zimska, lipa, lipac, lipovec, lipolist, bjelolipa, jalova lipa, lipec, pozna lipa, lipovina, ljetna lipa, rana lipa.

Plant description

It belongs to the family Tiliaceae. Tilia trees (Linden) are up to 25 m high, deciduous, decorative forest tree, with simple asymmetric, big leaves, with long trunk.

Flowers make blossom with branch partly growing together with bractea; white-yellow leaves are heart-shaped pointed on the top with tooth edge.

Flowering season is in June.



Characteristics of the collection areas

It grows mostly on sunny slopes of the mountain forests, in deep ground, at an altitude up to 1000 m. It grows also in parks and in tree-lined paths in housing areas as a cultivated plant. Linden lives a long life. Plant is distributed all over Bosnia and Herzegovina. For the organic collection it is not allowed to be collected in housing areas!

Linden lives a long life. Plant is distributed all over Bosnia and Herzegovina. For the organic collection it is not allowed to be collected in housing areas!

Plant parts harvested

- Blossoms (Flos Tiliae cum bractes)

Time period of collection

The collection of blossoms takes place in May, June and July.

It starts when weather conditions allow it, nice and sunny weather; when the plant starts to flower; when two thirds of flowers are blooming.

Harvesting tools

For the collection it is necessary to have a special extending ladder. The blossoms are collected by hand or with special scissors.

Collection method

Flowers must be picked from the trees by hand. No branches may be cut. No sawing, no beating with sticks!

30 % of the flowers have to remain on the tree for seed regeneration and honey-flow source for the bees.

Post collection treatment

To dry the plants, extend it in thin layers, in covered spaces well aired, without exposure to the sun. In drying facilities up to 40°C, to obtain light yellow-green coloured dry herb.

To pack and to store, put in jute bags.



Botanical name	Tussilago farfara L.
Local names	Podbjel, lopuh, konjski koptac, arpinc, beljuška, tutun, lepuh, arapinac, biloživa, vinogradska kopaèica, konjski lopuh, konjsko kopito, podbil, potoèenca, prolist, svinjarica, stiper, tutun-lepuh, štipor.

Plant description

Tussilago belongs to the family Asteraceae (Compositae). It is a perennial greenish plant with well-developed underground horizontal rhizomes. Early in the spring hairy, scaly white silver stems appear with flourishing yellow inflorescence and a pleasant fragrance. The stems are about 10–20 cm high and the bright yellow flowers placed on the border are tubular in the middle with a garland of hair. After flourishing, first leaves appear on the stem, growing from the root. The leaves are big as a hand, heart-shaped, on the edge rough, jagged. The upper side is dark green and the underside is silver-white covered with short dense hairs.

In the period of the complete development of the leaves, the plant is twice as big as during the flourishing period.

The leaves are slightly bitter, slimy, without smell.



Characteristics of the collection areas

Coltsfoot grows near springs, dams, channels, slopes. It favours wet loamy meadows. Make sure that you only collect plants NOT growing in cultivated area or near roads!

Plant parts harvested

- Flowers (Farfarae flos)
- Leaves (Farfarae folium)

Time period of collection

Collection of flowers without the stem takes place in March and April.

The leaves are to be collected from April until October.

Harvesting tools

Scissors and baskets.

Collection method

Cut with scissors and collect the flowers and leaves without stem and not dewy. 30% of the flowers and 70% of the leaves need to stay untouched, 20% of the plant population have to stay completely untouched! Place in the basket because the insects and fungus often attack coltsfoot. Collect only leaves, which are not damaged or spotty.

Post collection treatment

Dry the flowers and leaves of coltsfoot in thin layers in well-aired premises and in shade. Well dried, pack in paper bags or cardboard boxes.



Botanical name

***Urtica dioica* L.**

Local names

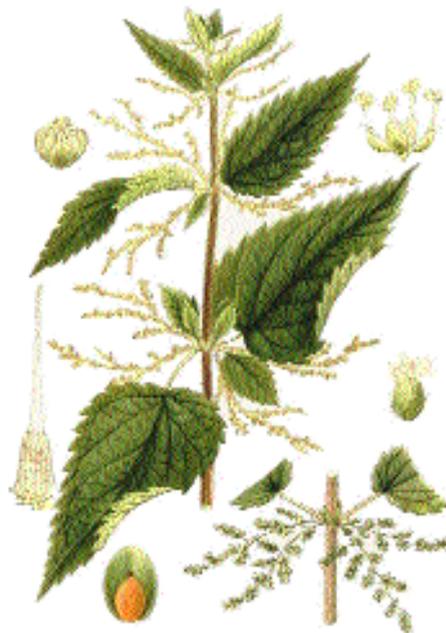
Kopriva, obièna kopriva, žara, velika kopriva, žegovica, pasja kupina, pitoma kopriva, žeža, žegavica

Plant description

Urtica dioica belongs to the family Urticaceae. It is well known as a herbaceous, perennial plant, which burns and turns the skin red when touched.

It has densely entangled underground stems, and that is the reason why it grows always at the same places.

Leaves are dark green, shaped as a triangle-heart, sawed at the margin, mostly longer than 5 cm. Flowering season is from May to September. Flowers are insignificant, green, arranged near the stems as fringed inflorescences, bicameral.



Characteristics of the collecting areas

It favours well-fertilized habitats. It grows mainly in gardens, vineyards, hedges, forests edges etc. For organic collection only plant which grow in wild habitat may be collected! Do not collect in cultivated areas of near the houses!

Plant parts harvested

- Root (*Urticae radix*)
- Leaves (*Urticae folium*)
- Top of the plant, 20 – 30 cm long (*Urticae herba*)

Time period of collection

Collect leaves and herb during the flowering season, from June to Sep-

tember.

Roots to dig in autumn or early spring (April or October).

Harvesting tools

Scissors, gloves, small shovel, sickle.

Collection method

It is possible to find plants in groups; to collect use sickle. Cut 20 – 30 cm long parts of the plant.

To dig out roots use shovel.

Do never collect wet aerial parts, especially if it is spraying of orchards and vineyards!

Do not collect all plant from one place! 30% of the population should stay untouched!

If one collects underground parts at least 80% should stay!!



Post collection treatment

Collected aerial parts to dry in covered, well- aired places, without exposure to the sun. It is good to cut collected material in small pieces 4 – 5 cm long.

To pack, put dried plant in jute bags.

Roots should be cleaned from dirt, wash with water. To be dried exposed to the sun. Bulked roots to cut alongside. Dried material to pack in jute bags.



Botanical name *Vaccinium myrtillus* L.

Local names Brosnièica, crna borovnica, brusovnica, divo grozje, burumofinka, bornica, borovaèa , èrna jagoda, brosnica, borovnika, borovnica.

Plant description

It belongs to the Ericaceae family. Bilberry is a small vertical bush up to 20 do 50 cm high. Alternating leaves are thin, 2 – 3 cm long, oval, with short stem, smooth on both sides, with pinnate nerves.

White, slightly pink bell-like, single flowers hang.

Fruit is blue-black, juicy berry with several seeds. On the top of the fruit there is a crown ring. Berry has a pleasant sour-sweet, slightly sharp taste; dry berry is wrinkled, papper size.

Flowering in May.

Characteristics of the collection areas

Bilberry is growing in coniferous and deciduous forests, in mountain thickets, pastures and mountain regions. In these habitats numerous plants create low shrubbery of moist and cold mountain forest and open spaces.

The plant is widespread in the mountains of central Bosnia, but also in sub-Mediterranean regions.

Plant parts harvested

- Leaves (*Myrtilli folium*)
- Fruits (*Myrtilli fructus*)



Time period of collection

Collect leaves in May and June, during flowering season.
Collect fruit in July and August.

Harvesting tools

Fruits should be collected by hands.
The leaves should be collected with special scissors with one blade.

Collection method

Leaves should be collected when the weather is nice and sunny and place them into clean baskets. It is not allowed to cut whole plant, or to take out whole plant from the ground! 70% of the leaves need to stay untouched!

The fruits should be collected by hand, but it is allowed to use special comb under condition that damage the plant is avoided. If a comb is used there needs to be at least 20% of the bushes untouched! If collection is done by hand also 20% of the fruits need to be left for regeneration!

Post collection treatment

Collected leaves should be transported to drying premises the same day and to be dried in thin layers. When drying is natural, then collected material should dry in well-aired place without direct exposure to the sun. In dryers, appropriate source of the heat is gas. The temperature should be up to 40°C. Humidity of dry material should be around 12%.

Fruit should dry in drying premises exposed to the temperature of 65 – 70°C. Dry leaves and fruits should be stored in dry and dark premise in suitable package.



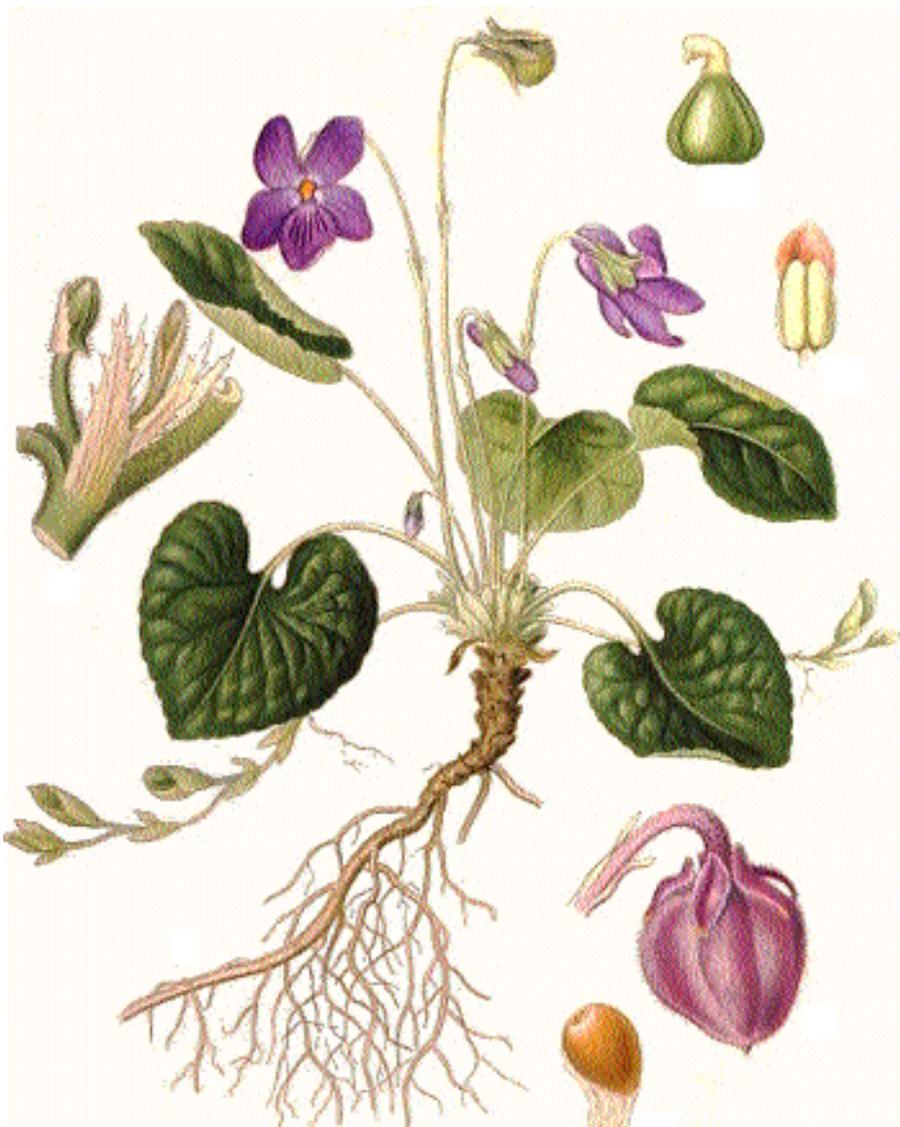
Botanical name

Viola odorata L.

Local names

Ljubièica, plava ljubièica, fiolica

Red list species! This plant is not suitable for organic wild collection. It may only be collected if there is official permission and strict conditions concerning collection area and quantities.



Plant description

It belongs to the Violaceae family. Violet is perennial, greenish plant with short and crawling rhizomes. Leaves gathered at ground level are placed on stems 5 cm long. Flowers made of five violet petals, 1,5 – 2 cm long, are placed on stem 7 cm long.

The plant flourishes from March to May.

Characteristics of the collection areas

Violet grows wild in meadows, in light deciduous forests, hedges, in bushes and thickets.

Plant parts harvested

- Flower without the stem
(*Viola odorata* flos).

Time period of collection

The flowers to be collected in March and April.

Harvesting tools

Hands and scissors.

Collection method

Collect only flowers burst into flower, without stem.

30 % of the plants need to stay untouched!

Post collection treatment

Fresh collected material should be dried in dark ventilated and dry premises. Special attention should be paid to the thickness of the layer. Collected material should be dried in thin layers to avoid spoilage. Dried material placed in paper bags is ready for transport.



Botanical name	Viscum album L.
Local names	Melina, imela, omela, hmelina, veska, visk, omelj, amelje, mela, lepak, višæe

Viscum album is an extremely slow growing plant so it is difficult to collect it on a larger scale in a sustainable way. Viscum album is not suitable for organic wild collection! It may only be collected if there is official permission and strict conditions concerning collection area and quantities.

Plant description

Mistletoe belongs to the family Loranthaceae. It is an evergreen branchy, globular bush, up to 1 m high, living as a semi-parasite on coniferous and deciduous trees. The plant grows on different locations of the tree, but mostly on stick branches. The stem is green-yellowish, wooden, round, with dichotomous branches. The leaves are thick, leathery, green yellowish, and integral on the limb, with 3-5 nerves and a dichotomous position on the branches.

It has separate male and female flowers, which are small, insignificant and slightly yellowish. Birds spread sticky fruit, inserting it in the branch or discarding it undigested with excrement, which is the only method of dissemination. Experiments show that seeds can't germinate in water or soil.

The flowers from white sticky berries.

Mistletoe flourishes from March to May, and gives fruits from August to November.

Characteristics of the collection areas

As a semi-parasite mistletoe appears in habitats of coniferous and deciduous perennial plants. The host of *Viscum album* favours carbonate soil, slightly acid, especially orchards and areas where the plant can get plenty of water. Pear orchards, poplars, apples, are the best for the



development of mistletoe, but others Quercus habitats are not excluded, even if growing in poor soil. Climate, which is suitable for the development of mistletoe, is between moderate warm and moderate continental. Please note that mistletoe can only be collected in wild habitats. NO COLLECTION in orchards! In general mistletoe is a very widespread plant.

Plant parts harvested

- Leaves (*Visci folium*),
- Stem (*Visci stipites*)

Time period of collection

Collection takes place in November, December, January, February, March.

Harvesting tools

Scissors, special ladder with possibility for extension, small bath.

Collection method

Since mistletoe is semi-parasite it is possible to collect 30% of the upper parts of the plant !Remaining 70% are sufficient for survival!
20% of the population needs to be completely untouched!

Place collected parts of the plant in special baskets and afterward in clean bags and transport collected material to drying facilities. Collect exclusively in dry and sunny weather.

Post collection treatment

The same day after collection, the plant has to be transported to drying facilities. If drying is natural, than distribute the plant in a thin layer on net structured wattle - wool 80, in anwell-aired place with warm air, without direct sun exposure. Dry in facilities exposed to a temperature



of 40°C. The humidity level of dried material is around 12%.

Botanical name *Vitex agnus castus* L.

Local names Konopljika, konoplja, fratarski papar,

biber drvo,
r a k i t a ,
konopina,
oštra

šibika, èis-
tila, divlji
biber.



Plant description

Vitex is a plant from the family Verbenaceae. The stem is grey-yellow, grows up to 2 m high. The shrub is branchy, whitish, quadrangular, weak and elastic. Leaves are similar to hemp; there are 5-7 oval leaves, on the underside whitish and bushy, and on the front side dark green and without hair.

Flowers are grey-violet, brown-pink or white, gathered in thick top blossom.

Characteristics of the collection areas

The plant can be collected along riverbanks. It likes moist ground, but prefers water deposits after floods.

Plant parts harvested

- Flower (flos),
- Leaves (folium),
- Fruit (fructus).

Time period of collection

Collection of leaves and flowers is in June and July.

The fruits is to be collected in dry and sunny weather from 15 October to 20 December.

Harvesting tools

Knives and scissors.

Collection method

Collect top of the branches in full bloom. 70% of the leaves need to be left untouched!

Fruits after they are ripe. Collect it very carefully from the branches by hand and put into bags.

20% of the fruits need to be left untouched for regeneration!

Collection of flowers is during flowering season, when the colour of the flower is white or blue; depends on variety.

30% of the flowers need to be left untouched! 20% of the plant population needs to be completely left untouched!

Post collection treatment

Dry in dark places in thin layers (flower and leaves). Or, process it after collection.

Fruit is collected already dried and



additional drying is not needed.
Drying, storage and packaging has to be arranged according to company requirements.

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