Medicinal and Aromatic Plants

Manual for Collectors Based on Principles of Organic Production

Bosnia Herzegovina, April 2003

MONOGRAPH

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I N T R O D U C T I O N

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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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 personel 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 (roeads, 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 confirm 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 ingedients, 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 unambiguoudly 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 qualitties 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.