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Erasmus+

INNOVATIVE INTEGRATED TRAINING IN HEALING PLANTS BUSINESS

IO3 - The Total Business Plants Training Material

Module No. 3

“Quality assurance of the final product (Medicinal plants)”

Unit 2: Sampling of the final product

- Summary

This unit is explaining how the sampling of medicinal plants is made, what substances should be avoided when sampling, how to remove any admixtures, what tests can be performed in order to maintain quality and what steps are needed in the production of medicinal plants.

- Learning outcome descriptors

By the end of this unit the trainee should be able to

1. Inspect the contents of the units that are selected for sampling for certain factors.
2. Be able to follow and complete the sampling procedure correctly.
3. Perform the essential tests for the first step of quality control.
4. Know the basic steps of medicinal plants production

- General and transferable skills:

1. Plan a research task
2. Work independently or with a minimal guidance where appropriate
3. Work in team with minimal guidance where appropriate.
4. Be able to perform computer searches regarding quality control.

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Quality assurance on medicinal plants and the final product in general begins with sampling them. Sampling is the procedure in which amounts of product are gathered and packaged accordingly. The form of the final product depends on the starting material and it can be an emulsion, an extract, fine powder, seeds, liquid, flowers or roots. After the opening the first sample taken, you must inspect the contents of the units that are selected for sampling for:

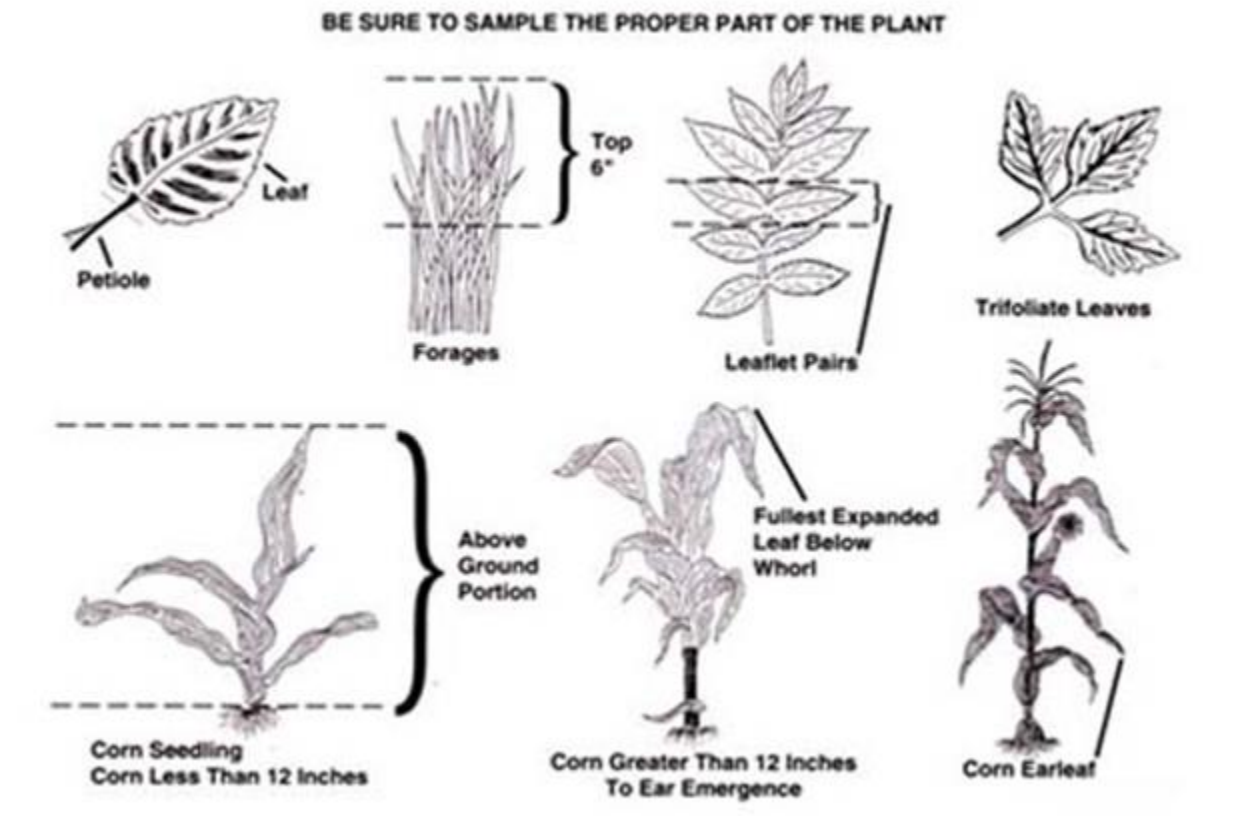
— Organoleptic characteristics (color, texture and odor);

— Presentation of the material (raw, cut, crushed, compressed);

— The presence of admixtures, foreign matter (sand, glass particles, dirt), mold or signs of decay;

— The presence of insects;

— The presence of packaging material originating from poor or degraded containers.



After this procedure, three samples must be taken from each package. This should be done from the top, the middle and the bottom of the package to ensure uniform gathering. The three original samples should then be combined into a pooled sample, which should be mixed carefully. Then, an average sample needs to be created. This happens via quartering the pooled

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sample after mixing it. Take two diagonally opposite parts and mix carefully. Repeat the process as necessary until the required quantity, to within ± 10%, is obtained (100– 200 g for flowers and up to 10 kg for certain roots). Any remaining material should be returned to the batch. Using the same procedure that creates quarters, divide the average sample into four final samples, while making sure that each portion is representative of the material as a whole. The final samples are then tested for the following characteristics:

— Degree of fragmentation (sieve test);

— Identity and level of impurities;

— Moisture and ash content;

— Level of active ingredients, where possible.

A portion of each final sample should be retained to serve as reference material, which may also be used for re-test purposes, if necessary (6).

The production of herbal drugs involves three basic steps: (i) identification, (ii) evaluation, and (iii) standardization. Identification of herbs is based on macroscopical and microscopical features. Macroscopical feature involves odor, taste, color, size, shape, and special feature of plant and microscopically involves leaf content, trichome, stomata, and so on. Certain microscopic features and chemical test come under evaluation and standardization of herbal drugs. The term “evaluation of drugs” means the confirmation of their identity, determination of their quality and purity, and detection of any adulteration (7).

References

6. WHO (1998) Quality control methods for herbal materials, World Health Organization, Geneva

7. Kokate, C. K., Purohit, A. P., Gokhale, S. B. (2006) Pharmacognosy, (35th edn). Nirali Prakashan: Pune, 98-114.

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