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THE PROCESS OF PACKAGING MEDICINAL PLANTS

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Annotation. This article describes the methods of collecting and drying medicinal plant raw materials, as well as methods of storing finished medicinal products.

Basic concepts. Leaves, above-ground part of the plant (grass), buds, bark, flowers, fruits and seeds, underground organs (roots, rhizomes, tubers and bulbs)

Enter. Drying of medicinal plant raw materials. Freshly harvested medicinal plant products contain up to 85% moisture, and up to 45% moisture in the roots. If the moisture in the plant is not lost (by drying), the plant will rot, the medicinal substances will break down, and it will become unfit for making medicine. The plant product is dried in the open air, in the sunlight or in the shade, artificially (stove, gas stove oven). If the plant is well dried, the flower and leaf are well rubbed by hand.The simplest and easiest way to dry is to dry in natural conditions, i.e. in the open air. However, the above-ground parts of plants (except bark, fruits and seeds) cannot be dried in the open air in the sun. Otherwise, the green coloring chlorophyll in the cells of the above-ground organs of the plant and the coloring pigments in the flower parts will break down, and the stems, leaves, and some flowers will turn yellow (often the flowers will become discolored). Along with the decomposition of the chlorophyll pigment, other chemical compounds in the plant can also be hydrolyzed. That is why usually only underground organs, bark, fruit and seeds are dried in the sun.Fruit dryers can also be adapted to dry medicinal products. In addition, you can dry wet fruits, for example, blueberries, raspberries, cranberries in a Russian oven (after closing the bread).Some of the valuable chemical compounds in some medicinal plants (eg, glycosides) can naturally break down during prolonged drying. Therefore, it is better to dry them artificially. In addition, when dried artificially, the medicinal product dries quickly and is of high quality.

It should be remembered that medicinal products containing essential oil are dried at 25-30°C, and medicinal products containing alkaloids, glycosides and other substances are dried at 50-60°C. The product should not be dried too much. Otherwise, it will turn into powder.Bags, bags (packages), boxes and boxes made of wood and cardboard, as well as boxes for packaging, etc., are used for placing products. Containers to be used must be dry, clean, odorless and identical for each batch. Containers in which the products are placed, the weight of the products in the container

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is determined depending on the type of medicinal products and they are specified in the relevant regulatory and technical documents (MTH). for example, it is indicated in the pharmacopoeia article (FS) and GOST.

The following containers are used for packaging dried medicinal products:

Bags made of fabric according to GOST 19317-73 or bags woven from flax-jute-hemp fibers according to GOST 18225-72. These bags can be used as one or two layers. The mouth of the bags is sewn by hand (with hemp thread according to GOST 17308-85) or by machine (with linen thread according to GOST 14061-85). The weight of the packed product should not exceed 40 kg. Multi-layer paper bags according to GOST 2226-75 and double or single-layer paper bags according to GOST 24370-80. The mouths of paper bags and bags filled with products are sewn by hand or by machine with the above-mentioned threads.Special papers (according to GOST 2229-81 YE and GOST 1760-81) are used for making one or two-layer bags. No more than 15 kg of products should be placed in a paper bag, and no more than 5 kg in a paper bag.Long and six-sided box-shaped balls made of fabric according to GOST 19298-73. No more than 50 kg of medicinal products are put into the horses, and their mouths are sewn by hand or by machine with the above-mentioned threads specified in the relevant GOSTs.

Boxes made of wood according to GOST 5959-80. B-grade paper (GOST 8273-75) or bag sewing paper (GOST 2228-81) specified in the relevant GOSTs are placed in the boxes, and then filled with medicinal products. Medicinal products weighing up to 30 kg are placed in wooden boxes. Then its cover is nailed. Cardboard boxes according to GOST 15629-83. Before filling these boxes with medicinal products, appropriate papers are placed inside them. At the end, cardboard boxes are glued with special adhesive paper tapes or wrapped with steel wire on both sides (GOST 32822-74). The weight of medicinal products packed in cardboard boxes should not exceed 25 kg.

Containers necessary for placing medicinal products are selected according to the relevant GOST depending on the type and characteristics of these products. For example:

• the above-ground part of plants, leaves, bark, sometimes flowers, roots and rhizomes are usually first pressed and then placed in special boxes. This method is cheaper than packing and placing in bags or boxes, and during transportation or storage, the medicinal product is well protected from heat, moisture, and sunlight.

• dried fruits, nuts and some expensive and heavy products are stored in bags sewn in two layers.

In the packaging of medicinal products for sale to the population, according to GOST 64-026-87, boxes made of paper (cardboard), paper and polyethylene bags, etc. are used.

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In what containers and how many medicinal products should be packed, as well as how the mouths of bags and boxes should be glued with glue, how many bags and boxes should be placed in the boxes for sending to pharmacies and warehouses are specified in the relevant regulatory and technical documents.In accordance with GOST 17768-80, the following must be written on the container of medicinal products (cardboard box, polyethylene bag, box, etc.) that is released to pharmacies for sale:

— the ministry, the company that prepared it and its trademark; the name of the product in Latin, Russian and Uzbek; product weight, method of use, storage conditions, registered number, serial number, shelf life and price in the most permissible state of moisture.

According to GOST 14192-77, the following should be written on the container of the medicinal product sent by means of transport: the ministry (institution, department), the name of the sending enterprise, the name of the product, the product in the most permissible state of moisture, pure (netto) weight, (gross) weight together with the container, year and month of manufacture, batch number, level and number of the normative-technical document (MTH) of the specified product.

Prepared, dried and packaged products should be sent to places where they are stored and used in a timely manner. If the appropriate rules are not observed when sending products by means of transport, it may get wet, crumble and lose its quality due to other reasons. RESEARCH RESULTS

Storage and shelf life of medicinal products. Prepared medicinal products are stored in large (central warehouses, factory, factory and laboratory warehouses) or small (pharmacies) quantities for a certain period of time before use. During this period, certain rules must be followed so that the medicinal product does not lose its quality and value.

Buildings and rooms where medicinal products are stored should be clean, dry and ventilated. The products must not be exposed to the sun, and the floor of the room must be made of wood, and the walls must be white.Medicinal products are placed on special racks or shelves. The height of the shelves should be up to 4 m, the width should be 1.5 m, the distance to the wall should be 25 cm, the distance between the shelves should be 50 cm, and the height from the floor should not be less than 15-20 cm. rooms should be cleaned daily, room temperature should be 10-15°C. To store medicinal products, it is necessary to divide them into groups. Medicinal products that are poisonous and have a strong effect, for example, belladonna, angishvonagul, marvaridgul, bangidevona, mingdevona, etc., should be kept in separate rooms. Also, medicinal products containing essential oil should be stored as far as possible in separate rooms or away from other medicinal products.

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Dried fruits, for example, raspberries, blueberries, etc., should be stored in well-ventilated places or hung if the quantity of the product is small. Insects and rodents will take revenge on these fruits. Because of this, it can quickly become wormy.

A label is attached to each medicinal product. The name of the product, when, where, who made it, and when it was delivered to the warehouse are written on the label. In addition to the general label, a pink label is also attached to the poisonous medicinal products. depends on the structure of chemical compounds.

In home conditions, medicinal products are divided into certain groups, taking into account their effective power, and each type of plant raw materials or aggregates prepared from them separately, in special containers: in paper bags, cardboard , should be stored in baskets made of thick cardboard or plywood, in glass, porcelain, enameled and stainless mouth-sealing devices. The raw materials of medicinal herbs placed in containers are stored in special cabinets, in dark places where direct sunlight does not fall on them. In this case, the house temperature should not exceed 20-25°C, it should be ventilated from time to time and always under control.

If the recommendations and rules are fully followed in the storage of raw materials of medicinal plants, they will not lose their strength and effectiveness, i.e., their properties, and will keep them sufficiently. Medicinal raw materials are stored for different periods:

- leaf and flower raw materials 1-2 years;
- above-ground parts (hashagi) 2-3 years;
- urugo' and fruits 2-3 years;
- bark, roots, rhizomes, nodules 3-5 years;
- some (andiz, rovoch, yetmak) roots can be stored for 10 years.

After the expiration date of medicinal products, the amount of active chemical compounds or the strength of their effect is determined.

CONCLUSION. Failure to harvest medicinal plants within the specified period, non-observance of the rules for preparation and drying of raw materials causes a decrease in the quality of the prepared raw materials, as well as a decrease in the quantity and quality of biologically active substances contained in them. Medicines prepared from them will not have sufficient effectiveness. If these substances are present in a certain dose, they will heal well and benefit human health. If the dose is exceeded, it is toxic. Biologically active substances are not found in the same amount in all plant organs. They may be more or less in the organs of plants, and in some cases they may not be at all. The amount and quality of substances depends on the geographical environment of the plant, its development period, age and many other conditions and changes. Collected plants should be cleaned from various impurities, dry and rotten parts should be removed. It is impossible to dry the prepared raw materials in the sun, because the quality of the biologically active substances contained

in them deteriorates. For this reason, it is recommended to dry them at a low temperature (in special rooms), in shady places away from the wind, and in dry rooms.

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