

DRYING TECHNOLOGY OF ALCOHOL EXTRACT FROM *TANACETUM PSEUDOACHILLEA* FLOWERS

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Introduction: *Tanacetum pseudoachillea* is a perennial herb belonging to the Asteraceae family. Structurally, it has been found to contain 8-pinene, camphene, myrcene, o- and p-cymenes, nerol and geraniol. Tanapsin was isolated from *Tanacetum pseudoachillea* flower heads. On the basis of spectral characteristics and chemical changes, it was determined that thanapsin has the structure of 6-angeloyloxy-1,4-dihydroxyeudesm-11(13)-ene-8,12-olide. Phytochemical studies have shown that the sesquiterpene lactones isolated from the tops of mountain ash are tanaxin, tanasin, tanapsin, tachylin and tavulin. In addition, this plant contains flavonoids. It is known that extracts obtained from many species of *Tanacetum pseudoachillea* have choleric, antispasmodic, anti-inflammatory, anti-microbial and anti-viral, anti-protozoal, anthelmintic activities. The role of flavonoids as the main active substances in the treatment of various diseases of the liver and biliary tract is important. According to preliminary studies conducted by us have shown that the extract obtained with 70% ethyl alcohol from mountain ash has high choleric properties. For this reason, we continued our scientific research on the process of drying the extract obtained from the *Tanacetum pseudoachillea* collection using 70% ethyl alcohol. One of the important processes in obtaining biologically active substances in the form of powder is the drying of the semi-finished product. The correct selection of the drying method and conditions determines the quality and price of the finished product. In the pharmaceutical industry, various types of capture drying equipment are used to obtain dry extracts. Currently, spray drying equipment is widely used in industry. In spray drying equipment, two processes are carried out at the same time - evaporation and drying. This method ensures a fast drying process. In conclusion, it can be said that the efficiency of the process of extracting biologically active substances depends on many technological factors. In addition, depending on the type of raw materials and the physical and chemical properties of the obtained substances, special conditions are required for the extraction process, cleaning and drying of separations. In this case, the correct selection of the sequence of technological stages and their optimal conditions allows the production of phytopreparations of stable quality with high yield.

The aim of the study. The optimization of obtaining of dry extract of *Tanacetum pseudoachillea* and drying process.

Materials and methods: The process of cleaning the extract from foreign substances was determined using the methods mentioned in . For this, the obtained extracts were condensed, mixed with water in a ratio of 1:1 and treated with various organic solvents immiscible in water 6-7 times in an aqueous solution in a volume ratio of 1:1. Extracts obtained were analyzed for the yield of flavonoids and foreign substances. For this, the chloroform fractions were condensed to constant weight and the yield of fatty substances was determined by weight. In order to remove the residual ethyl alcohol contained in the

concentrate, 2.0 l of purified water was added to the evaporation unit at the end of the process, and the condensation process was continued until the amount of dry matter in the drying solution reached 10%. The resulting concentrate (drying solution) is prepared under the following conditions in "Anhydro No. 2" (Denmark) was dried in a spray dryer: the temperature of the dryer (hot air) is 170-180°C, at the outlet 75-80 °C; the speed of the injected aqueous solution - 4 l/hour; the pressure of the injected aqueous solution to the spray nozzle is 0.2 MPa. The obtained dry extracts of samples 1-4 were crushed in a knife mill and passed through a sieve with a hole diameter of 0.5 mm.

Results and discussions: Studies on selecting optimal conditions for drying flavonoids obtained from *Tanacetum pseudoachille* raw materials in a spray drying device have shown that the moisture content of the dry extract decreases as the inlet temperature of the drying agent increases. It was observed that 10-15% of the product being dried sticks to the chamber wall of the dryer due to insufficient heat when the inlet temperature of the dryer is 150 °C and the outlet temperature is 55°C. When the inlet temperature of the drying agent is 190 °C, and the outlet temperature is 80 °C, an increase in the mixing of the product with the drying agent was observed. Based on the obtained results, the inlet temperature of the drying medium was set at 155 °C, and the outlet temperature was set at 60 °C.

Conclusion: The developed technology was tested by obtaining dry extract in 5 series. As a result, the yield of dry extract was 5.0-5.2% by weight of raw material. This shows that the developed technology is profitable. In order to obtain a dry extract from the flowers of *T. pseudoachillea* with a choleric effect, it is necessary to perform the steps of extracting the raw material in 70% ethyl alcohol, condensing the extract, diluting the cubic residue with water, degreasing the aqueous mixture with chloroform and drying it in a spray dryer marked.

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