OREGANO AS FOOD SUPPLEMENT: DETERMINATION OF THE CONTENT OF EXTRACTIVE SUBSTANCES

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Salvia L. (sage) is one of the most widespread genera of the Lamiaceae family. The genus includes about 900 species distributed mainly in tropical and subtropical regions. Sage grows predominantly in the foothills, plains, and riverbanks of the Eurasian continent. Salvia officinalis L. is cultivated as a medicinal raw material in Eastern European countries such as Ukraine, Russia, Slovakia, and Serbia. Seventeen species of this genus are found in Uzbekistan.

One of the valuable medicinal plants belonging to the Lamiaceae family is mountain oregano (Origanum tytthanthum). The stem of this plant reaches 30–80 cm in height, has numerous straight stems, is slightly branched, and covered with soft hairs. The leaves are elongated or ovate-elongated, 2–5 cm long and 1–3 cm wide, with sparsely serrated margins. The flowers are small, unisexual or bisexual, and ovate in shape.

Taking into account scientific data on the effective anti-inflammatory properties of biologically active compounds contained in Origanum tytthanthum (mountain oregano) and Salvia officinalis (medicinal sage), the plants were mixed in a 50:50 ratio, and a food supplement called “Oregano AS” was developed.

The technology for obtaining the natural food supplement “Oregano AS” consists of the following stages. The raw materials of Origanum tytthanthum

and Salvia officinalis were dried in a drying cabinet at a temperature of 40–45 °C for 10–14 hours until the residual moisture content reached 8–10%. The dried mass was ground to a particle size of 1–3 mm and packaged.

The product was approved by the Committee of Sanitary-Epidemiological Welfare and Public Health of the Republic of Uzbekistan on 15 November 2024 under Technological Instruction No. TY 303271-760-010:2024 for the production of food supplements.

Substances extracted from medicinal plants using various solvents are called extractive substances. Most commonly, water and ethanol solutions of different concentrations (40%, 50%, 60%, and 70%) are used as solvents, as well as other organic solvents and their mixtures. Therefore, the composition and amount of extractive substances obtained from the same medicinal plant may vary depending on the solvent used.

The content of extractive substances is one of the important indicators determining product quality. For this reason, pharmacopoeial requirements mandate the determination of extractive substances in medicinal plant materials.

The determination of extractive substances in the product was carried out in accordance with pharmacopoeial requirements (GOST 24027.0-80). The percentage of extractive substances was calculated using the following formula:

$$X = ((a - b) \times 200) / c$$

where:

X – percentage of extractive substances;

a – mass of the dish with dried extractive substances;

b – mass of the empty dish;

c – mass of the sample taken for analysis.

As a result of the experiment, the content of extractive substances in the product was found to be 24%. According to GOST requirements, the minimum acceptable content of extractive substances is 10%. Therefore, the product fully complies with GOST standards.

For the analysis, 1 g of the crushed product (sieved through a 1 mm mesh) was placed into a conical flask and 50 ml of water was added. The flask was closed with a stopper and weighed with an accuracy of 0.01 g. The mixture was left to stand for one hour, then gently boiled for two hours using a vertical glass air condenser. After cooling, the flask was weighed again. If the mass decreased due to evaporation, the solvent was replenished to restore the original mass. The solution was mixed thoroughly and filtered through dry filter paper. From the filtrate, 25 ml was transferred to a porcelain dish, evaporated on a water bath, and dried at 100–105 °C for 3 hours. After cooling in a desiccator, the dish was weighed on an analytical balance.

Conclusion

The results of the analysis of extractive substances in the food supplement “Oregano AS,” prepared from Origanum tytthanthum and Salvia officinalis, showed that the product complies with regulatory requirements. The obtained data confirm that “Oregano AS” is a pharmaceutically valuable product composed of environmentally friendly and safe natural components. The supplement has high potential for use as a medicinal product or functional food additive and can be considered a promising means of promoting a healthy lifestyle.

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