DEVELOPMENT OF TECHNOLOGY FOR EXTRACTING LOCAL PLANT RAW MATERIALS - SCUTELLARIÁ ISCANDERI

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Abstract

The development and introduction of a resource-saving method of extraction into practice (due to the maximum depletion of raw materials), as well as the preparation of stable preparations based on plant extracts, is an urgent task. The technology of obtaining the extract from the aerial part of the plant of Shlemnik Iskanderi (Scutellari Iscanderi) includes such steps as: water-alcohol extraction, concentration of the combined plums, cleaning of ballast substances, evaporation of the cleaned extracts.

Keywords: extract, extractant, extraction, water-alcohol extraction, concentration, purification, ballast substances.

Introduction: In recent years, approaches to the development of new products from plant materials have tended to develop resource-saving technologies, which is ensured by the use of various extractants, extraction schemes and modes, the use of equipment, which allows to significantly increase the yield of extractive and active substances [1]. The purpose of the study is to develop a technology for extracting the method of water-alcohol extraction from the aerial part of the plant Scutellari Iscanderi, growing in the vicinity of the village of Chadak, Namangan region, Pap district, collected in June in the flowering phase.

Research methods: Extraction was carried out according to the following method: 30 g of crushed plant materials were loaded into a flat-bottom flask with a volume of 1 l, poured with 40% ethyl alcohol solution in a ratio of 1:15 taking into account the water absorption coefficient and heated in a water bath to 600 ° C with constant stirring during 3.5 hours. Extract was filtered into a collection. The process was repeated three times, filling the raw material with a new portion of the extractant in an amount equal to the drained extraction. After a certain period of time each contact of the extraction phases was decanted and analyzed. Next, alcoholic extracts are combined and concentrated to 1/3 of the initial volume and purified from ballast substances.

Thus, it was found that the main controlled factors affecting the speed and completeness of extraction of active substances are the type of extractant, the ratio of raw material to extractant, the extraction temperature, the degree of grinding of raw materials, the duration and frequency of extraction. On the basis of experimental data in laboratory conditions, the following optimal conditions for the extraction of raw materials were established: the grinding degree was 0.2–3 mm, the temperature was 600 ° C, the extraction number was 3, the phase ratio (raw material: extractant) was 1:15 and the extraction time was 210 minutes. Purification of extraction. When extracting plant materials with water or aqueous-alcoholic solutions, in addition to the active substances, such ballast substances, such as mucus, starch, pectin and protein substances, and polysaccharides are extracted, which must be removed before evaporation. Decomposing during storage, these impurities give the extract an uncharacteristic odor and may have an undesirable effect on biologically active substances. To remove the ballast substances from the aqueous-alcoholic extracts, the liquid extract was settled for 2 days at a temperature of 8-100 ° C and filtered through a paper filter. Evaporation extract. Purified extracts are evaporated under vacuum at a temperature of 50-600C and a vacuum of 80-85 KPa (600-650 mm Hg) to the desired consistency. When the alcohol-water extracts are concentrated after cleaning, the alcohol is first distilled off, not including the vacuum, and then the water is distilled off under vacuum.

Drying of the condensed extract is carried out in a vacuum oven. For this, the condensed extract in the form of a thin layer (0.5 cm) is placed on trays and dried at a temperature of 50-60° C and a pressure of 600-650 mm. Hg An increase in the drying temperature above 600° C is undesirable, since the thermolabile substances that are part of the total dry extract can be destroyed.

Results: According to the developed technology, a dry extract was obtained in the form of an amorphous powder of brown, light brown color, non-hygroscopic, not crumpled, with a fragrant, pleasant smell, bitter taste, bulk density is 0.6 g / cm3.

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