METHOD OF ISOLATION OF INULIN FROM DRY ROOT OF CHICORIUM INTYBUS L. PLANT

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Abstract. *Extraction method of inulin from roots of Chicorium intybus L. It is obtained from the root composition of the substance by a new method not known in the literature. The infrared spectroscopy (IR) method was used to determine the qualitative composition of the isolated substance, the analysis showed that it was inulin. This method was performed under simple conditions compared to other methods. Small amounts of 96% ethanol and distilled water were used.*

Keywords: *Chicorium intybus L, roots, extract, ethanol, distilled water, centrifuge, infrared spectroscopy (IR).*

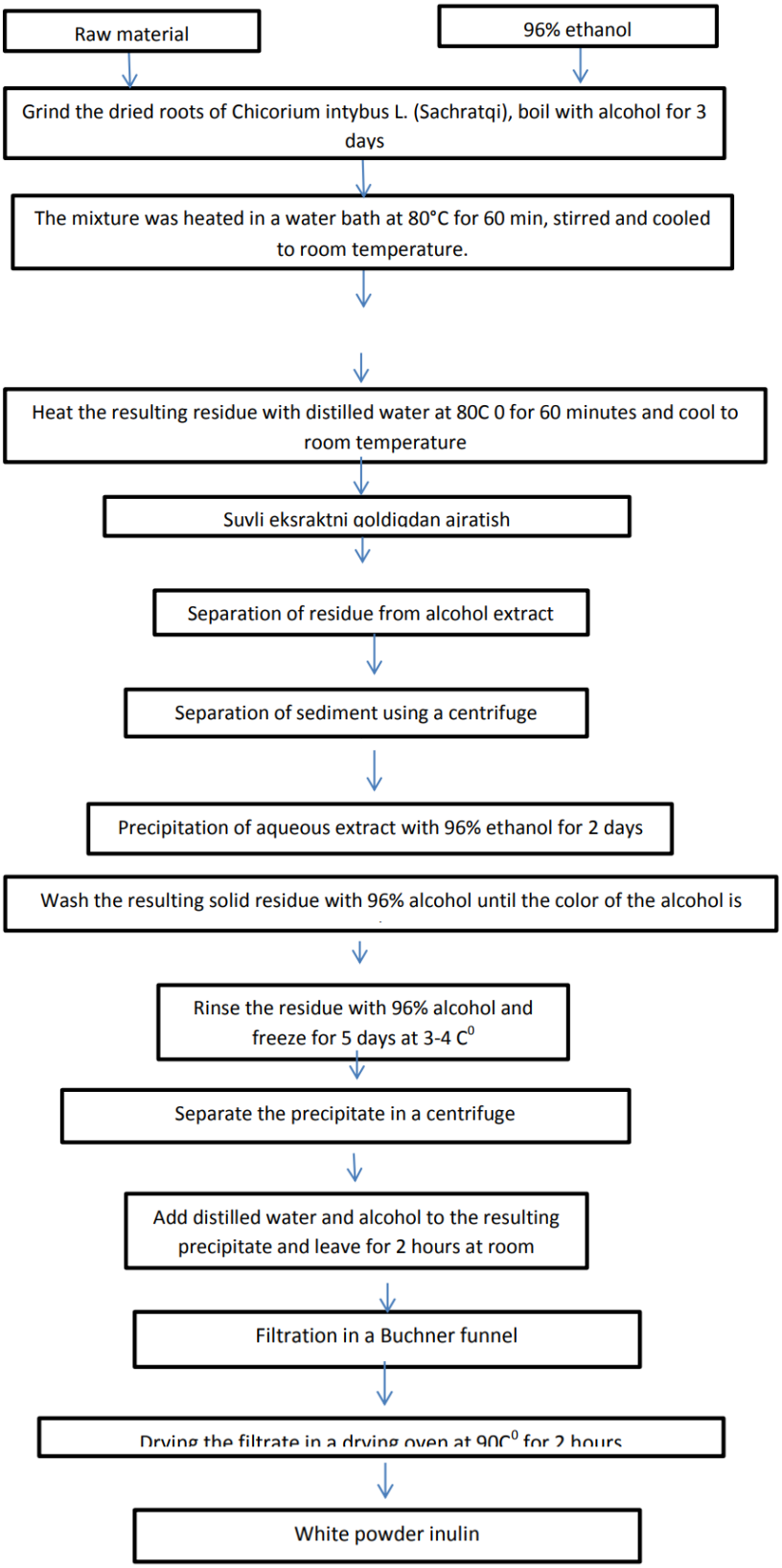
Introduction. The species belonging to the Chicorim family are widespread in the world, 11 species have been studied by botanists. The species we are studying is called Cichorium intybus L. Sachratqi (local name - common chicory, Russian name - Цикорий obyknovennyy).

Chemical composition and use. The roots and leaves of the plant contain a large amount (up to 11%) of inulin polysaccharide, protein substances (4%), intibin glycosides, which give them a unique bitter taste, tannins, organic acids, vitamins - thiamine. , riboflavin, ascorbic acid, carotene; present in flowers; bitter substances in milk juice (lactusin, lactucopyrin), etc.); seeds contain 15-28% fatty oil; in young leaves - carotene, ascorbic acid (up to 0.08%), potassium salts. This article presents a new method of extracting inulin from the root of the Chicorium intybus L plant and the results of the IR spectroscopy analysis. Literature review and methodology. Inulin is a polysaccharide that is used in the preparation of various probiotics. It is recommended to use it regularly in the diet of patients with diabetes. Currently, the number of patients with diabetes is increasing not only in Uzbekistan, but also in the whole world, and due to this situation, the need for inulin is also increasing. For this reason, it is necessary to develop a cheap and effective method of obtaining inulin. To date, inulin has been isolated using various methods. This article presents the steps and scheme of inulin extraction by a method not known in the literature. This method is simpler than other methods, takes less time and costs less inulin.

Experimental part. 100 g of dry root of Chicorium intybus L(sachratqi) plant was placed in a container with a closed mouth, 100 ml of 96% ethanol was poured, and the mouth of the container was closed and shaken for 5 days. Then the alcohol mixture was heated at 80 degrees for 20 minutes. The alcoholic extract was separated and 100ml of distilled water was poured over the residue (root) and heated at 80C for 15 minutes. Then, the aqueous extract was separated and an equal volume of 50 ml of 96% ethanol was added to it, so that the solution formed oozing, gel-like clots and was precipitated for 2 days. The precipitate was then separated from the solvent by centrifugation at 2000 rpm for 15 minutes. After separation, the precipitate (8g) was washed several times with 96% alcohol until the color of the alcohol became clear and separated from the solvent by centrifugation at 2000 rpm for 15 minutes. The mass of the residue was 7.72 g. 50 ml of 96% ethanol was added to the separated residue and kept in a refrigerator at 3-4 degrees for 5

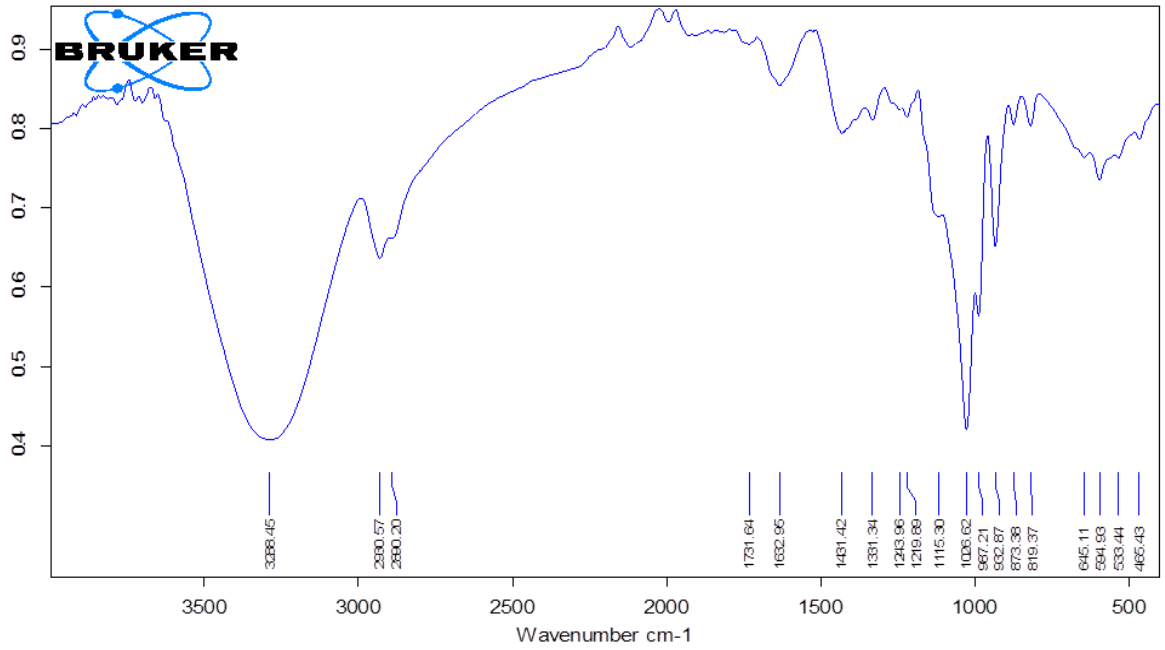
days. Then, the precipitate was separated again, 200 ml of distilled water was added and 100 ml of 96% ethanol was added and it was precipitated for 2 hours. Then this mixture was filtered through a Buchner funnel. The filtered mass weighing 6.95 g was dried in a drying oven at 90 degrees for 2 hours. The dry mass was 6.04 g. As a result, a white substance was obtained.

Schematic representation of the stages of inulin production



A sample of this obtained substance was examined in the IR spectrum and the result of the analysis obtained was found to be related to inulin.

IR spectrum analysis result



Summary:

1. The experiment was carried out in a new way, and as a result, a colored, powdery substance, inulin, was isolated.

2. The first advantage of this method is that it is cheap, that is, a small amount of ethanol and distilled water was used. Secondly, it didn't take much time.

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