PHYTOCEMICAL RESEARCH OF JERUSALEM ARTICHOKE

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The Jerusalem artichoke (Helianthus tuberosus L.) is used in folk medicine since ancient times. The tubers of this plant contain to 22% inulin, that is insulin substance of plant origin. Inulin is the unique natural polisakharid, it consists 95% of fructose. In a stomach inulin is not assimilated, the part of it dissociates to short fructose chainlets and separate molecules of fructose, which get to the bloodstream. It is very important for people, who are ill with the diabetes mellitus, because fructose is being assimilated without insulin participation (unlike glucose). That's why such people are recommended to use the Jerusalem artichoke tubers.

The purpose of research is a phytochemical study of Jerusalem artichoke herb and tubers,which are cultivated in Ukraine.

The previous study of chemical composition of herb and tubers by high-quality reactions was fulfilled. Monosugars, aminoacids, polysaccharides, phenolic substances were found out. A chromatographic study was carried out on the «Filtrak» paper in the following solvent systems: acetone – butanol – water (7:2:1) – for a study monosaccharide composition of water-soluble polysaccharides; n-butyl alcohol – acetic acid – water (4:1:2) and 15% acetic acid – for the detection of phenolic substances – flavonoids and hydroxycinnamatic acids, aminoacids; ethyl acetate – acetic acid (8:2) – for identification of ascorbic acid. For determination of quantitative content of a number of biologically active substances such methods as gravimetry, alkalimetry, permanhanatometry, spectrophotometry were used.

Rhamnose, arabinose, glucose, lactoglucose, xylose, fructose from monosugars were identified. Not less than 12 substances from aminoacids were found out, among them aspartic and glutaminic acids, methionine, arginine, phenylalanine were identified. Chlorogenic and neochlorogenic acids from hydroxycinnamatic acids in both types of raw material were identified. Polysaccharides content was not less than 10% in a herb, in tubers – 38%. Ascorbic acid content was 0,012% for tubers and 0,015% – for a herb, organic acids content was 1,866% for tubers, 1,194% – for a herb, phenols oxidation sum was not less than 6% for tubers, not less than 25 % – for a herb, hydroxycinnamatic acids sum was about 1,17% for tubers, 7,7% – for a herb, flavonoids sum was 1,7% for a herb.

Conclusion: the jerusalem artichoke herb and tubers phytochemical study is a perspective way for development in medicine.