STUDY OF INULIN COMPLEX FROM DAHLIA TUBERS KEN'S FLAME CULTIVAR

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Introduction. In medical practice together with medicines commonly used plants that contain reserve polysaccharide – inulin. It affects the regulation of metabolism in diseases of diabetes, obesity, and atherosclerosis. Plants of the genus Dahlia are promising sources of inulin. According to the literature Dahlia tubers can contain up to 50% inulin. Plants of the genus Dahlia widely cultivated throughout the world and are a good source of raw materials. The pharmacological effects of fructans depend mainly on the degree of polymerization. Low molecular inulins (or oligofructose) are used in the food industry and as prebiotics. High molecular weight inulins have a pharmacological effect in the distal parts of the colon, fermented more slowly, have a prolonged effect.

Aim. The aim of this work was to study was to study of inulin complex from Dahlia tubers Ken's Flame cultivar.

Materials and methods. For the experiment we used tubers of Dahlia Ken's Flame cultivar, collected in September 2014 (Kharkiv, Ukraine) and were cut to a particle size of about 1x1 cm were dried to air-dry state at ambient temperature. Water-soluble polysaccharides obtained by the usual method. Inulin complex was purified by calcium carbonate (to remove water-soluble pectins, proteins and organic acids) and aluminum oxide (to remove phenolic compounds). Chains of degree of polymerization was determined high-performance anion exchange chromatography coupled with pulsed amperometric detection (HPAEC-PAD) using Dionex DX 500 system, equipped with the electrochemical detector ED40 and a CarboPac PA1 (9 x 250 mm) analytical column. The evaluation of inulins with different chain polymerization was carried out using a simple normalization.

Result and discussion. Yield was 15.4% of air-dried raw materials. After purification the complex does not contain pectic substances, organic acids, amino acids and phenolics. Using HPAEC-PAD in the inulin complex short, medium and long chain inulins content was determined. The results of the experiment showed that the complex contained 39.36% of inulins with a low degree of polymerization, 35.88% with a medium degree of polymerization and 13.00% with high degree of polymerization.

Conclusions. Purified inulin complex from Dahlia tubers Ken's Flame cultivar more contained inulins with a low degree of polymerization. The obtained data will be used in the development of drugs with specific pharmacological effects.