

Myo- and D-chiro-inositol are health-promoting substances, necessary for proper functioning of the body, and their rich source are buckwheat seeds (free myo-inositol (MI) and D-chiro-inositol (DCI): 0.3 and 0.2 mg/g and total inositol 3.2 and 3.1 mg/g). The aim of the work was to investigate the influence of physical and biochemical factors on enzyme-assisted extraction of inositols from buckwheat seeds. Using statistical optimization – the design of experiments (DoE), optimal conditions for synthesis of bioactive inositols and an effective method of their extraction were found. An attempt was made also to use buckwheat grains to obtain a fermented beverage and a beer enriched in both MI and DCI. The enzyme-assisted extraction in the presence of phytases used in the work resulted in the releasing of 52.2 - 71.74% of MI. For the α -galactosidase preparation, the yield was 45% DCI. Among the four tested methods of supporting extraction of inositols (starch saccharification, ultrasounds, autoclaving and germination), grain germination turned out to be the most effective, where the extraction efficiency was obtained (MI free - 3.2 mg/g, DCI free 3.1 mg/g). Using the method of planning and analyzing of experiment, it was possible to obtain an extract with a content of about 3.7 mg/g of MIO and about 3.5 mg/g of DCI. The obtained buckwheat beer contained 183 mg/l of MI and 301 mg/l of DCI, and the fermented buckwheat beverage contained 291 mg/l of MIO and 231 mg/l of DCI.

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