

## Study of the sorption capacity of soluble forms of yeast beta-glucan

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### Abstract

Beta-glucans are polysaccharides that consist of *D*-glucose residues linked together in the main and side chains by glycosidic bonds. They are obtained from plant and microbial raw materials. Beta-glucans obtained from various sources differ in molecular weight, backbone length, branching of additional chains and their number. Beta-(1,3,1,6)-glucan from the yeast *Saccharomyces cerevisiae* has the highest physiological activity. The soluble fraction of beta-glucan has a higher physiological activity than its insoluble fraction.

As a rule, soluble beta-glucans appear to be more potent immunostimulants than insoluble ones. In this regard, obtaining soluble forms of beta-glucan from yeast is relevant.

The purpose of this work was to study the effect of the content of the soluble fraction in yeast beta-glucan on the ability to adsorb heavy metal ions, mycotoxins and cholesterol.

Evaluation of the effectiveness of ultrasonic treatment for obtaining soluble forms of yeast beta-glucan was carried out. It was found that the maximum content of the soluble fraction, equal to 95%, at a frequency of ultrasonic treatment of 85 kHz for a laboratory sample of beta-glucan, is achieved with a treatment time of 20 min, and for a commercial one – in 30 min. The sorption properties of soluble forms of yeast beta-glucan with different content of the soluble fraction in relation to cholesterol, aflatoxin and bivalent copper cations were studied. The sorption capacity of samples of laboratory and commercial preparations of beta-glucan was determined for the above compounds. It was found that an increase in the content of the soluble fraction to more than 50% does not lead to a noticeable increase in the sorption capacity. It was shown that purified samples of beta-glucan have higher sorption characteristics.

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