

DETERMINATION OF THE POLYSACCHARIDES QUANTITATIVE CONTENT IN SHIITAKE, REISHI AND CORDYCEPS MUSHROOMS

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Shiitake, reishi and cordyceps are mushrooms that have long been used in Eastern medicine for tumor treatment. This type of activity is associated with the presence of polysaccharides. Thus the aim of the work was to determine the quantitative content of polysaccharides in shiitake, reishi and cordyceps mushrooms. The study was carried out according to the following method.

20 g of the dried material were placed into a conical flask of 250 ml capacity where 200 ml of water was added. The flask was attached to a reflux condenser and then heated on a water bath with stirring for 30 min. The extraction in the flask was carried out two more times under the same conditions using 200 ml of water for the 1st time and 100 ml for the 2nd. The water extracts were united, centrifuged and decanted to a volumetric flask with 500 ml capacity through 5 layers of gauze which was placed into a glass funnel with 55 mm diameter and preliminarily washed with water. The filter was washed with water and the volume was adjusted with water to the mark (solution A).

25 ml of the solution A were placed to a centrifuge tube where 75 ml of 95 % ethanol were added, then the mixture was stirred, heated on the water bath to 30°C during 5 min. In 1 hour the tube was centrifuged with 5000 rpm during 30 min. The supernatant was filtered under vacuum at a residual pressure of 13-16 kPa, through dried to the constant weight at a temperature of 100-105°C glass filter POR-16 with a diameter of 40 mm. The residue from the tube was quantitatively transferred to a filter, washed successively with 15 ml of 95 % ethanol and water (3:1 ratio), 10 ml of acetone and 10 ml of diethyl ether. Filters with sediments were dried in the air and then at a temperature of 100-105°C to the constant weight.

The polysaccharides content (X , %) calculated on the dry material was calculated using the formula:

$$X = \frac{(m_2 - m_1) \cdot 500 \cdot 100 \cdot 100}{m \cdot 25 \cdot (100 - W)},$$

where

m_1 – weight of the filter, g;

m_2 – weight of the filter with a sediment, g;

m – weight of the raw material, g;

W – weight loss on drying, %.

As a result of the experiment carried out the polysaccharides quantitative content in shiitake mushrooms was determined to be 9.07±0.41%, in reishi – 4.96±0.20%, in cordyceps – 7.29±0.32%.

The data obtained might be used at new remedies on the basis of these mushrooms and relevant sections of quality control methods working out.