

## Biochemical Characteristics of *Agaricus geesteranii* Bas et Heinem. (Agaricales s.l. Basidiomycotina)

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Many species of the genus *Agaricus* are edible or medicinal [*A. bisporus* (J. Lge) Imbach, *A. bitorquis* (Bres.) Sacc, *A. blazei* Murr., *A. silvaticus* Schaeff., etc.]. We present the biochemical characteristic of the species recently described as new for science, *Agaricus geesteranii* Bas. et Heinem. belonging to section Duploannulatae S. Wasser (=sect. *Magici*, = genus *Allopsalliota*). It is known from five localities in the Netherlands and Germany. We also found it in Israel. It was a first record in Asia. The aim of the present investigation was to study some biochemical properties of *A. geesteranii*. The studies of the biochemical parameters showed that the total content of proteins in biomass of the caps of *A. geesteranii* is 17.6% of dry weight, but only 7.2% in the stipes. Available data on the content of proteins in carpophores of certain species of mushrooms show it to vary over a broad range: from 4.2% to 55.1%. Proteins of carpophores of *A. geesteranii* were found to contain 19 amino acids, with especially high amounts of aspartic acid, glutamic acid, proline, and glycine. The electrophoretic study of soluble proteins of *A. geesteranii* carpophores showed a marked heterogeneity; 24 fractions were revealed on electrophoregrams. The biomass of the caps and stipes of *A. geesteranii* contained the same con-

centrations of free mono- and disaccharides: in the pileus, 2.73% and in the stipes, 2.67% of dry weight, but different quantities of storage polysaccharides (2.58% and 0.78% respectively). Histochemical reaction with Lugol's reagent resulted in heightening of reddish-brown color of the storage polysaccharides of *A. geesteranii*, which was characteristic of glycogen, evidence of their higher degree of branching. In accordance with absorption spectra and with circular dichroism of polyiodic complexes of storage polysaccharides isolated by preparatory techniques, as well as with the value of their  $\beta$ -amylolysis limit, the reserve polysaccharides of Cyanophyta tended to be highly branched polyglucans of the glycogen type with a great number of  $\alpha$ -1,6 links. Analysis of structural polysaccharides of the cellulose type showed that the content in the stipes was higher (5.67% of dry weight) than in the caps (4.16%). The same was established for easily hydrolyzing polysaccharides of the hemicellulose type in different morphological elements of *A. geesteranii*. The biomass of *A. geesteranii* has been established to have a low amount of lipids. So, the caps accumulated them to 4.2% of dry weight, while the stipes accumulated approximately half that amount.