

FUCOMANNOGALACTAN AND β -GLUCAN FROM THE EDIBLE MUSHROOM *LENTINUS EDODES* (“SHIITAKE”)

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Recently, the biological activities of polysaccharides derived from mushrooms have received much attention in biomedical sciences and are used as antitumor and immunomodulating agents. Thus, knowledge on the isolation, chemical structure, physical-chemical properties, and bioactivities of polysaccharides is essential for further research and application of these molecules. We now describe structural features of two polysaccharides isolated from the *Lentinus edodes*. They were obtained via successive aqueous and alkaline extractions, freeze-thawing, precipitation with Fehling solution, and ultrafiltration. One of them was a fucomannogalactan and the other a β -glucan containing mainly (1 \rightarrow 6) linkages, different from previously described lentinan. The ^{13}C -NMR spectrum of the heteropolysaccharide contained main C-1 signals that corresponded to non-reducing end-groups of β -D-Manp [δ 101.5; $J_{\text{C-1/H-1}} = 162.6$ Hz (coupled spectrum)] and α -Fucp (δ 101.3; $J_{\text{C-1/H-1}} = 172.8$ Hz), 6-O- and 2,6-di-O- substituted units of its α -D-Galp main chain (δ 98.6; 98.2 and 98.0; $J_{\text{C-1/H-1}} = 174.0$ Hz). Signals at δ 66.9; 67.0, 67.4 suggested the presence of substituted $\underline{\text{C}}\text{H}_2$ -6 groups of α -Galp units. Methylation analysis of the heteropolymer showed it to have a highly branched structure, containing non-reducing end- of Manp, and Fucp, besides 6-O- and 2,6-di-O-substituted units of Galp. Accordingly, the fucomannogalactan contained a main chain of (1 \rightarrow 6)-linked α -Galp units, part of them being substituted at O-2 with β -Manp and α -Fucp.

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