

Partial Characterization and Cytotoxic Effect of Exopolysaccharides Produced by Several Basidiomycetes Isolated from Paraná State – Brazil

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Polysaccharides derived from mushrooms have emerged as an important class of bioactive substances and have been used in traditional Oriental therapies due to their antitumor and immunomodulating properties. These compounds can be obtained directly from fruiting bodies or mycelia. The present study aimed to produce and characterize exopolysaccharides from twelve basidiomycetes using submerged fermentation and to evaluate their *in vitro* cytotoxicity. The basidiomycetes were cultivated using submerged fermentation in flasks containing basal medium (pH 6), 120 rpm, 28°C during 15 days. The exopolysaccharides (EPS) were obtained after filtration and treatment of the filtrate with ethanol (3v). GC-MS analysis (as alditol acetates) showed that EPS fractions present quantitative different sugar composition but with mannose, glucose and galactose as the major sugars together with small amounts of fucose, rhamnose, xylose and arabinose. In order to evaluate the cytotoxic effects of EPS (2, 20 e 200 µg/mL), macrophages, Sarcoma 180 and Ehrlich tumor cells from mice were used as models. EPS from *Agaricus silvaticus* inhibited (80%) the growth of Sarcoma 180 tumor cells when it was used at 200 µg/mL. *Ganoderma australe* EPS inhibited about 70% of Ehrlich cells growth. The highest cytotoxic effects against macrophages were observed in the presence of EPS produced by *Psilocibe cubensis*. These results show that the EPS produced by native basidiomycetes using submerged fermentation present biotechnological potential as bioactive compounds.

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Key words: Native basidiomycetes, submerged fermentation, exopolysaccharides, cytotoxic effects.