

Production of polysaccharides by submerged mycelial culture of an entomopathogenic fungus *Cordyceps takaomontana* and their apoptotic effect on human neuroblastoma cells

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The effect of medium components and environmental factors on the production of mycelial biomass for the preparation of intracellular polysaccharides (IPS) and exopolysaccharides (EPS) by *Cordyceps takaomontana* were investigated in submerged cultures. The optimal culture condition was as follows (g L⁻¹): glucose 30, yeast extract 4, KH₂PO₄ 0.46, K₂HPO₄ 1, and MgSO₄ 0.5, and 28°C and pH 8. When the fungus was cultivated under various agitation and aeration conditions in a 5-L stirred-tank fermenter, the maximum mycelial biomass (10.7 g L⁻¹) and EPS productions (1.9 g L⁻¹) were obtained at 300 rpm and 2 vvm, respectively. The inhibitory effect of both IPS and EPS on the growth of SK-N-SH cells were studied by treating the cells with crude IPS and EPS at concentrations of 0.5, 1, and 2 mg mL⁻¹ for 24, 48, 72 h, respectively. The maximum inhibitory effect on apoptosis of SK-N-SH cells (64.6%) was observed when IPS was treated at a concentration of 2 mg mL⁻¹, for 72 h. The apoptosis of SK-N-SH cells induced by IPS was evidenced by comet assay.