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Abstract
Grifola frondosa is an eatable fungus which can also be used for pharmaceutical purposes. It contains biologically active compounds that can be utilized as anti-tumor, anti-inflammation, anti-oxidation, hypolipidemic and hypoglycemic agents. This research studied submerged culture of Grifola frondosa under different media compositions for the production of mycelial biomass and exopolysaccharides. In addition, the effect of introducing NaCl into the medium werealso examined. The molecular weight distribution of the produced exopolysaccharides were analyzed by GPC.
The result of 21-days-long cultivation process of Grifola frondosa under different combination of glucose concentrations(10, 20, 40 g/L) and basic media(potato, malt and unpolished rice extracts) showed that the potato extract is the best basic medium either for the mycelial growth or for the exopolysaccharide production. The richest mycelial biomass can be obtained with 40 g/L of glucose while the cultivation with 20 g/L of glucose produced largest amount of exopolysaccharide.
To examine the effect of NaCl addition on the mycelial growth and exopolysaccharide production, different concentration ofNaCl (0, 0.5, 1, 3, 5, 7, 9 g/L) added at different period of cultivation(the 3rd, 6 th and 9 th day) were performed. The results indicated that a low dosage of NaCl (0.5 g/L) is beneficial for mycelial growth while high dosage of NaCl(9 g/L) will inhibit mycelial growth in the early stage of cultivation but can stimulate the production of exopolysaccharide in the later stage(10.46 g/L). Based on these results, a two stage NaCl addition was conducted, that is 0.5 g/L of NaCl was added at the 3 rd day and 9 g/L of NaCl was added at the 9 th day of cultivation, and the cultivation result of two stage NaCl addition produced the largest amount of exopolysaccharide(11.41 g/L).
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