猴頭菇液體培養液中多醣類之抗腫瘤及免疫活性探討

Antitumor and immunoenhancing activities of polysaccharide from culture broth of Hericium spp

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摘要

某些食（藥）用菇類之子實體或液體培養液含水溶性多醣類，而許多報告亦證實一些多醣類可促進免疫效用。本研究利用猴頭菇（Hericium erinaceus 及 H. laciniatum）以液體振盪方式，25℃，培養 25 天後，由發酵液中抽取並純化，取得分子量 10 萬以上的水溶性多醣類，鑑定出其主要構成單醣分別爲葡萄糖（H. erinaceus）及半乳糖（H. laciniatum）。將兩種純化之水溶性多醣類，利用 ICR mice 進行抗人工轉移肺腫瘤及免疫效用試驗，發現兩種水溶性多醣類在抗肺腫瘤上均具顯著效果（$p<0.05$），而在施予 H.erinaceus 之水溶性多醣類的效果優於 H. laciniatum 者。免疫效用方面，對巨噬細胞及 T 細胞之增加亦具顯著促進作用，尤其 CD4+細胞及巨噬細胞的增加率較高，與對照組比較具顯著差異（$p<0.05$），兩種水溶性多醣類在抗腫瘤及免疫效用上則無顯著差異（$p>0.05$）。

Abstract

The fruiting body and culture broth of many edible mushrooms contain watersoluble polysaccharides. Numerous researchers have reported that these polysaccharides have immunoenhancing effects. In this study, Hericium erinaceus and Hericium laciniatum were separately cultivated in a shaker at 25℃ for 25 days. Polysaccharides were extracted from the culture broth. The molecular weights were larger than 1 × 105 k Da and their polysaccharide components were mainly glucose in H. erinaceus and galactose in H. laciniatum. Furthermore, we investigated these two purified water-soluble polysaccharides for their anti-artificial pulmonary metastatic tumor and immunoenhancing effects in ICR mice. The results revealed that both polysaccharides had significant anti-artificial pulmonary, metastatic tumor effects in mice ($p<0.05$). Additionally, the polysaccharide from H. erinaceus was more effective than that from H. laciniatum. However, both of the polysaccharides enhanced the increase of T cells and macrophages. The numbers of CD4+ cells and macrophages were significantly higher in the test group than in the control group ($p<0.05$). From our results, no differences were found between the two purified

water-soluble polysaccharides in the antitumor effects and immunoenhancing activities ($p>0.05$).