

Promotion of hyphal growth and underlying chemical changes in *Antrodia camphorata* by host factors from *Cinnamomum camphora*

徐鳳麟

Hsu FL;Chou CJ;Chang YC;Chang TT;Lu MK

Abstract

The aim of this research was to investigate the hyphal growth-promoting factors (HGFs) of *Antrodia camphorata* from the host-related species, *Cinnamomum camphora* (CC) and the underlying chemical produced. The HGF was identified in the polysaccharide fraction of CC at levels ranging from 80 to 320 mg L⁻¹, and it maximally stimulated growth to 5.50 g L⁻¹ during a 14-day culture period compared to that of the control of 2.88 g L⁻¹. We also investigated the nature and chemical composition of the CC polysaccharide. Herein, size-exclusion column chromatography followed by high-performance anion-exchange chromatography after complete hydrolysis of the CC polysaccharide was performed to derive its molecular weight and sugar composition. The Mw values of the CC polysaccharide were determined to be 728.2, 187.5, 28.7, 7.5, and 1.9 kDa. Compositional analysis of the CC polysaccharide showed that galactosamine, mannose, and glucose were the major monosaccharides. Time-course studies of mycelial extracts of cultures revealed that prolonged incubation with the water-soluble extracts of CC resulted in an increase in the relative amounts of two lanostane-type compounds, i.e., dehydrosulphurenic acid and 15 α -acetyl-dehydrosulphurenic acid, which are found in the fruiting bodies of *A. camphorata*. This finding offers the possibility of the reliable production of this medicinal fungus under laboratory conditions compared to its limited slow growth in nature.