Antioxidant capability of polysaccharides fractionated from submerge-cultured Agaricus blazei mycelia

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摘要

Abstract

Five polysaccharide fractions (AB-1, AB-2, AB-3, AB-4, and AB-5) were obtained after a systemic solvent extraction and precipitation of Agaricus blazei mycelia with yields of 5.20, 9.03, 2.84, 17.47, and 0.44%, respectively. Among which, AB-1 and AB-3 demonstrated great DPPH・ radical scavenging ability around 85.0 and 72.0%, respectively, at a concentration of 5 mg/mL. The ferrous ion chelating powers were even more excellent at a concentration of 1 mg/mL, reaching almost over 99.65% for fractions AB-2, AB-3, and AB-4 as compared to the reference control of citric acid (35%); at a dosage of 5 mg/mL, fraction AB-1 even showed 105% in efficiency. In terms of the absolute chelating power (ACP), the mole numbers of ferrous (Fe2+) ions chelated were inversely related with the mean molecular mass of the polysaccharides in each fraction. In addition, gel permeation chromatography analysis showed that the more potent fractions were residing in those fractions with lower molecular masses, such as fractions AB-1 (757 kDa), AB-2 (887 kDa), and AB-4 (631 kDa) etc., and surprisingly, the free radical scavenging capability was also not closely correlated with the mean molecular masses, alternately being well-associated with the solubility of polysaccharides.