Activity-guided fractionation and evaluation of potent antioxidants from extracts of angel wings mushroom, pleurotus porrigens (higher basidiomycetes)

Abstract

Pleurotus porrigens is a well-known edible, wild mushroom enjoyed as a delicacy by aborigines in Sabah and as source of income for the aborigines who collect and sell them at tamu (local market). This study aimed to evaluate the antioxidant activity in vitro and identify potent antioxidative components of aqueous extracts of P. porrigens. The antioxidant activities were evaluated using DPPH radical scavenging ability, ABTS radical cation inhibition activity, ferric reducing/antioxidant power, and total phenolic content. Activity-guided purifications based on DPPH radical scavenging ability resulted in 5 subfractions (SF). The highest DPPH radical scavenging ability was found in SF-III and SF-IV, but all were lower than butylated hydroxyanisole (BHA) and α-tocopherol. Analysis with high-performance liquid chromatography-diode array detectors found presence of ascorbic acid and (+)-catechin in SFs of P. porrigens, as well as some unidentified components that may have contributed to the radical scavenging ability. In conclusion, aqueous extract of P. porrigens possesses promising antioxidant activities, although they are lesser in their partially purified SFs. Nonetheless, P. porrigens could be promoted as an antioxidant-rich food as part of a normal diet that provides antioxidative benefit.