Comparative study of antioxidant activities and total phenolic content of selected edible wild mushrooms

Abstract

The present study aims to assess the antioxidant activities (AOA) and total phenolic content (TPC) of water extracts of selected edible wild mushrooms: Pleurotus porrigens, Schizophyllum commune, Hygrocybe conica, and Lentinus ciliatus. The AOA were evaluated against DPPH radical and ABTS radical cation scavenging ability, ferric-reducing antioxidant power (FRAP) and beta-carotene-linoleate bleaching (beta-CB) assays, and the Folin-Ciocalteu method for TPC. BHA was used as reference. P porrigens showed significantly higher (p < 0.05) DPPH(center dot) scavenging ability (90.78 +/- 0.30%) and FRAP (6.37 +/- 0.22 mM FE/100g), while Sch. commune showed significantly higher (p < 0.05) ABTS(center dot+) inhibition activity (94.96 +/- 0.70%) and beta-CB inhibition activity (94.18 +/- 0.17%), respectively. TPC was found in a descending order of P porrigens > L. ciliatus = Pleurotus ostreatus (cultivated) > H. conica = Sch. commune. Positive correlation was observed between the AOA and TPC. When compared to BHA (2 mM), P porrigens showed significantly higher (p < 0.05) DPPH(center dot) scavenging ability and reducing power, while Sch. commune showed comparable DPPH(center dot) scavenging ability and ABTS(center dot+) inhibition activity. All the mushrooms have better ABTS(center dot+) inhibition activity than BHA (1 mM). The beta-CB inhibition activity of BHA was significantly higher than those of edible wild mushrooms. The water extracts of edible wild mushrooms showed potent antioxidant activities compared to BHA to a certain extent.