Antioxidant activities and total phenolic content of aqueous extract of Pleurotus ostreatus (cultivated oyster mushroom)

Abstract

Pleurotus ostreatus better known as oyster mushroom is widely cultivated and consumed as food in Malaysia. The present study aims to assess the antioxidative potential and total phenolic content of P. ostreatus aqueous extract. The antioxidant activities were evaluated against DPPH and ABTS radical-scavenging activity, ferric-reducing antioxidant power (FRAP) and β-carotene-linoleate bleaching assay, and the Folin-Ciocalteu method for total phenolic content (TPC). The DPPH and ABTS radical-scavenging activity was found to be 63.20% and 87.29% respectively; antioxidant activity using FRAP at 1.45 mM FE/100g and β-carotene-linoleate bleaching assay was 83.51%, while the TPC was found to be 798.55 mg GAE/100g. These antioxidant activities were compared to synthetic antioxidant, BHA and ascorbic acid. Ascorbic acid showed highest scavenging effects on DPPH and ABTS radical, followed by P. ostreatus and BHA (at maximum safety limit). The ferric reducing power of P. ostreatus was significantly higher than BHA and ascorbic acid. The antioxidant activity as assessed in β-carotene-linoleate bleaching assay was found to be higher in BHA compared to P. ostreatus. The aqueous extract of P. ostreatus was found to respond differently in antioxidant assays. The antioxidative activity of the aqueous extract of P. ostreatus correlated with its total phenolic content. Generally, the antioxidant activities of P. ostreatus' aqueous extract are comparable to that of BHA and ascorbic acid to a certain extent.