

Antioxidant properties of cultivated edible mushroom (*Agaricus bisporus*) in Kenya

Abstract

Antioxidant activities and phytochemical compounds of ethanol and hot water extracts of *Agaricus bisporus* species fruiting body and mycelia cultivated in Kenya were spectrophotometrically determined and evaluated. The total antioxidant activity was analysed using 1,1-diphenyl-2-picrylhydrazil, hydroxyl, superoxide radical scavenging and reducing power assays, while phytochemicals were assayed through calorimetric assays. Total phenolic, β -carotene, lycopene, flavanoid and ascorbic acid composition of *A. bisporus* extracts was analysed by calorimetric assays and found to contain 40.26 to 4.61 mg/g, 48.99 to 2.86 mg/g, 67.82 to 11.87 mg/g, 93.8 to 17.2 mg/g and 11.62 to 10.22 mg/g) respectively. The mineral elemental analysis done using energy dispense x-ray fluorescence (EDXRF) analytical method revealed that the samples contain zinc (42.9 mg/l), iron (33 to 48.5 mg/l), copper (18 to 24 mg/l) and manganese (7.5 to 9 mg/l). Generally, the mycelium extracts were more effective radical scavengers than the fruiting bodies. Due to the above characteristics, *A. bisporus* mushroom could be considered a food complement with antioxidative activity in the diet for the health benefits they present. Their effectiveness was also evaluated by their EC_{50} values through interpolation from linear regression analysis of their respective data.

Authors.

GA Muna

M John

M Benson

D Ogoyi