

Research Article

Determination of *in vitro* Antioxidant Activity of Cultured Mycelia of Selected Mushroom speciesTanvi Gaur^{1*}, PB Rao¹, Srishti Gaur² and KPS Kushwaha³

¹Department of Biological Sciences, College of Basic Sciences & Humanities,² College of Technology, Pantnagar,
³Mushroom Research & Training Centre, GB Pant University of Agriculture & Technology, Pantnagar- 263145 (US
Nagar, Uttarakhand), India; E-mail. tanvigaurpantversity@gmail.com

Abstract

The antioxidant potential of methanolic extract of cultured mycelia of mushroom species, *Agaricus bisporus*, *Calocybe indica*, *Lentinula edodes*, *Macrocybe giganteum* (MA1 and MA2), *Pleurotus sajor-caju* were examined. All selected species/strains showed presence of phytochemicals such as carbohydrates, proteins, fats, phenolics, flavonoids and tannins. All the selected mushroom species/strains total antioxidants ranged from 15.11 to 38.22 $\mu\text{g mg}^{-1}$, ascorbic acid equivalents; 2, 2'-Diphenyl picrylhydrazyl free radical scavenging ability ranged from 35.04 to 40.00 per cent; ferrous chelating activity from 26.59 to 44.47 per cent at 200 $\mu\text{g ml}^{-1}$ conc. and reducing power activity from 0.079 to 0.171 at 1000 $\mu\text{g ml}^{-1}$ concentration. Total phenolics and total flavonoids content ranged from 3.305-7.88 mg of GAE g^{-1} and 0.133-0.392 mg of Quercetin equivalent g^{-1} of methanolic extracts, respectively in different species/strains. The Ortho-dihydroxyphenols in different species/strains ranged from 0.519 to 0.786 mg of catechol equivalents per g of extract. The EC_{50} value (μg) for DPPH, FCA and Superoxide anion scavenging was lowest in *M. giganteum* (MA2) (190.8), *A. bisporus* (215.5) and *L. edodes* (93.8), respectively, indicating higher antioxidant potential than in the rest of the species/strains. Among the species/strains, reducing power activity was highest in *M. giganteum* (MA2) (0.171) and lowest in *L. edodes* (0.07) at 1000 $\mu\text{g/ml}$ concentration. *A. bisporus* (7.88), *M. giganteum* (MA2) (0.39), *L. edodes* (0.78), exhibited highest content of total phenolics, total flavonoids and ortho-dihydroxyphenols, respectively compared to other selected mushroom species/strains and can be used as potential source of nutraceuticals.

Key words: Antioxidants, mushroom species/strains, mycelia, nutraceutical, phenolics, phytochemicals

Citation: Gaur Tanvi, Rao PB, Gaur Srishti and Kushwaha KPS. 2016. Determination of *in vitro* antioxidant activity of cultured mycelia of selected mushroom species. *J Mycol Pl Pathol* 46(4): 395-404