Evaluation of Antioxidant Activities Using the DPPH• Scavenging Method and β-Carotene/linoleic Acid System in Enriched Mushrooms

Vieira, P.A.F.¹; Vieira, B.C.¹; Faustino, V.A.¹; Oliveira, L.M.A.²; Mendonça, E.G.¹
Kasuya, M.C.M³; Oliveira, M.G.A.¹

¹Dep. de Bioquímica e Biologia Molecular, UFV, MG; ²Dep. de Medicina, Universidade Federal do Maranhão, MA; ³Dep. de Microbiologia, Universidade Federal de Viçosa, MG, Brazil

INTRODUCTION: Food enrichment with minerals has been an alternative of increasing health benefits. Several researches on the antioxidant activity of mushroom Pleurotus ostreatus have been carried out because of the possibility of food to be used as a treatment of oxidative stress in various tissues. The aim of this work was investigated the antioxidant activities in oyster mushrooms P. ostreatus, enriched with iron (Fe), zinc (Zn) and lithium (Li).

MATERIAL AND METHODS: The antioxidant activities from methanol extracts of the enriched mushrooms were investigated for tests DPPH• and β-carotene/linoleic acid assay. Was used for growth of the mushrooms coffee husks. This coffee husk was boiled in water for 2 h and centrifuged at 1800 g for 5 min and autoclaved at 121 °C for 2 h. After that, were added in each bag, 25 mL of ferrous sulfate (0.8 mg/kg), or 25 mL of zinc carbonate (2.13 mg/kg) or 25 mL of lithium chloride (0.5 g/kg) to produce mushrooms enriched with iron (PloFe), zinc (PloZn) or lithium (PloLi), respectively. Substrates without enrichment were also used for the production of non-enrichment mushrooms (PloNE).

RESULTS AND DISCUSSION: The DPPH• radical decreased in the order of PloNE > BHT > PloLi > PloZn > PloFe. The DPPH• antioxidant test showed differences among treatments by Tukey test (P < 0.05). No was observed difference in antioxidant activity using the β-carotene/linoleic acid test.

CONCLUSION: The present study was the first report to demonstrate the understanding of how mineral supplementation reduces antioxidant activity in P. ostreatus enriched with iron, zinc or lithium.

Keywords: mushroom enrichment, DPPH•, antioxidants, Pleurotus ostreatus
Supported by: FAPEMIG and CNPq