World Academy of Science, Engineering and Technology
International Journal of Nutrition and Food Engineering
Vol:9, No:07, 2015

Effect of UV-B Light Treatment on Nutraceutical Potential of an Indigenous Mushroom Calocybe Indica

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Abstract : Medicinal mushrooms are acceptable all over the world not only because they have a unique flavour and texture but also due to the presence of great nutritional, nutraceutical and functional properties. High content of physiologically active substances like ergosterol, vitamin D, phenolic compounds, triterpenoids and steroids make these medicinal mushrooms a key source of nutraceuticals. Calocybe indica is a popular medicinal mushroom of India which is known to possess high amount of secondary metabolites including ergosterol (vitamin D2). The ergosterol gets converted to vitamin D in the presence of UV rays by a photochemical reaction. In lieu of the above facts the present study was undertaken to investigate the effect of UV-B light treatment on the vitamin D2 concentration, phenolic content and non volatile compounds in Calocybe indica. For this study, UV-B light source of intensity 5.3w/m2 was used to expose mushrooms for the time period of 0min, 30min, 60min and 90 min. It was found that the vitamin D2 concentration increased with the time duration i.e. 85±0.15 (0 min), 182±1.6 (30 min), 187±0.4 (60 min) and 182 ±0.8 (90 min) µg/g (dry weight). Highest concentration of vitamin D2 was found at 60 min duration. No discoloration in sliced mushrooms was observed during the exposure time. The results revealed that the exposure of mushrooms for a minimum of 30 min duration under UVB source can be a novel, convenient and cheapest way to increase the vitamin D content in mushrooms. This can be one of richest source to fulfil the recommended dietary allowances of vitamin D in our daily diets. The paper provides information on the enhancement of vitamin D content by UV lights and its effects on the non volatile (soluble sugars, free amino acids, 5′-nucleotides and phenolics) compounds will also be presented.

Keywords : Calocybe indica, ergosterol, nutraceutical, phenolics
Conference Title : ICFSNPH 2015 : International Conference on Food Safety, Nutrition and Public Health
Conference Location : Zurich, Switzerland
Conference Dates : July 29-30, 2015