Enhancing nutraceutical potential of *Lentinus edodes* mushroom from a pharmaceutical point of view

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Mushrooms have been valued since ages due to their excellent nutritive value and remarkable therapeutic potentials. They are rich in various bioactive molecules and polysaccharides which makes them desirous both in the nutraceutical as well as the pharmaceutical industry. *Lentinus edodes,* the third largest consumed mushroom worldwide, is now a day's effectively utilized to manufacture drugs, extracts and capsules to treat diseases like cancer and tumors. The increasing commercial importance of fungal polysaccharides (glucans) envisages its global usage as a medicine/drug. In this regard, the present research was carried out to study the nutraceutical potential of *L.edodes* grown on different substrate combinations. The beta glucan content and was quantified using enzymatic hydrolysis. Different levels (2%, 3%, 5%, 10% and 20%) of wheat bran, cotton seed cake and mustard cake were used as supplements with the substrate, mix saw dust (MSD) for cultivation. The results revealed that the addition of nitrogen sources significantly enhanced the yield over control. The optimum concentrations of cottonseed cake, mustard cake and wheat bran in enhancing the yield of fruit bodies, was found to be 2, 3 and 5% respectively. Maximum B.E i.e. 60.87% was obtained in case of combination SD+2% CSC. Nutraceutical analysis revealed that the fruit bodies from supplemented substrates were rich in proteins (18.23-25.12 %) and micro as well as macro minerals. Glutamic acid and Tyrosine were the major non essential and essential amino acids with a content of 4.91g 100 g^{-1} dw and 2.99 g 100 g^{-1} dw respectively in the fruit bodies harvested from the combination of SD+2% CSC. Antioxidants such as total polyphenol and flavonoid contents were in the range of 18.87- 40.76 mg/g dw and 0.87-5.23 mg QE/g dw respectively. The maximum beta glucan content was found to be 56.71g/100 g in the fruit bodies from SD+2% CSC. The major bioactive molecules extracted by supercritical CO_2 extraction, tested by GC-MS analysis showed seventy two compounds including those associated with vitamin D synthesis. The study proved beneficial for successful utilization of wood waste (mixed saw dust) thereby producing nutraceutically rich edible *L.edodes* mushroom in India for pharmaceutical applications. All the data pertaining to

yield and nutraceutical components of fruit bodies, from different treatments, extracted by different methods will be presented at conference.

Key words: mushrooms, nutraceuticals, *L.edodes*, beta glucans

Professional Biography (100-150 words)

Dr. Satyawati Sharma is Professor at Centre for Rural Development and Technology, IIT Delhi, India. She did her Ph.D. from IIT Delhi and has more than 140 publications in reputed international and national journals. She has been the member of many international and national academies/societies. Her research interests lies in Bio-inoculants and Bio-fertilizer, Rapid composting/Waste management, Tissue culture, Fungal and botanical bio-pesticides, Wasteland Reclamation, Mushroom technology, Vermitechnology, Silvipastoral technology and Biogas slurry management. She has worked a lot on enhancement of nutraceutical potential of mushrooms in rural villages of Haryana, India.



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