



STUDIES ON NUTRITIONAL AND MEDICINAL CHARACTERISTICS OF SOME EDIBLE MUSHROOMS

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ABSTRACT

Mushrooms are extensively used in recent days because of their nutritional and medicinal traits. This study focused on examining nutritional and medicinal characteristics of hot water, Sodium hydroxide, aqueous ethanolic extracts of *Agaricus bisporus*, *Pleurotus florida*, *Pleurotus eous* and *Hypsizygos ulmarius*. The nutritional characteristics were studied by estimating total carbohydrate, total crude protein and total reducing sugars for hot water extracts of mushrooms. Total carbohydrate content revealed the variations in the mushrooms, the highest carbohydrate content was observed in *Agaricus bisporus* (4.5 g/ 100 g dry Wt) and protein and reducing sugars content observed in *Hypsizygos ulmarius* of 2.5 g/ 100 g and 59 mg/ 100 g respectively. This study also investigated the DPPH free radical scavenging activity of the hot water, sodium hydroxide and aqueous ethanolic extracts of mushrooms. The antioxidant activity of mushroom extracts on oxidation was *P. florida* > *A. bisporus* > *H. ulmarius* > *P. eous* for hot water extract. Similarly, for Sodium hydroxide and aqueous ethanolic extracts, the orders were *A. bisporus* > *H. ulmarius* > *P. eous* > *P. florida* and *P. eous* > *H. ulmarius* > *A. bisporus* > *P. florida* respectively. Among all the extracts of mushroom aqueous ethanolic extract of *Peous* showed a highest value of 82%. Hence it concluded that *Hypsizygos ulmarius* is a better candidate in terms of nutritional content and *Pleurotus eous* for medicinal uses.

INTRODUCTION

Mushroom a group known as fungi lacks chlorophyll and cannot therefore make its own food. Among the fungi mushrooms have been used for untold centuries as food and medicine. Edible and medicinal mushrooms most remarkably can produce notable mycopharmaceutical, myconeutraceuticals and myocosmeceuticals for many years mankind has benefited source of drugs and herbal remedies, the major source of pharmaceuticals and medicinal foods. Mushrooms have been evaluated for their nutritional status on the basis of their chemical composition. Cultivated and wild mushrooms contain reasonable amount of proteins, carbohydrates, minerals, fibers and vitamins. Furthermore mushrooms are low in calories, sodium, fats and cholesterol. Free radicals are responsible for aging and causing various human diseases. A study shows that antioxidant substances which scavenge free radicals play an important role in the prevention of free radical induced disease. By donating hydrogen radicals, the primary radicals are reduced to non radical chemical compounds and are then converted to oxidized antioxidant radical.

MATERIALS

Sample collection: The mushroom samples were collected from Podhigai mushrooms, Vadavalli, Coimbatore, Tamil Nadu.

Preparation of the sample

The fresh mushroom sample was collected, shade dried, ground and powder was stored in airtight container for further use.

METHODS

Total carbohydrate content was determined by Anthrone method, total protein content was estimated by Lowry's method and Total reducing sugar was calculated by Di-nitro salicylic acid method.

DPPH Radical Scavenging Activity

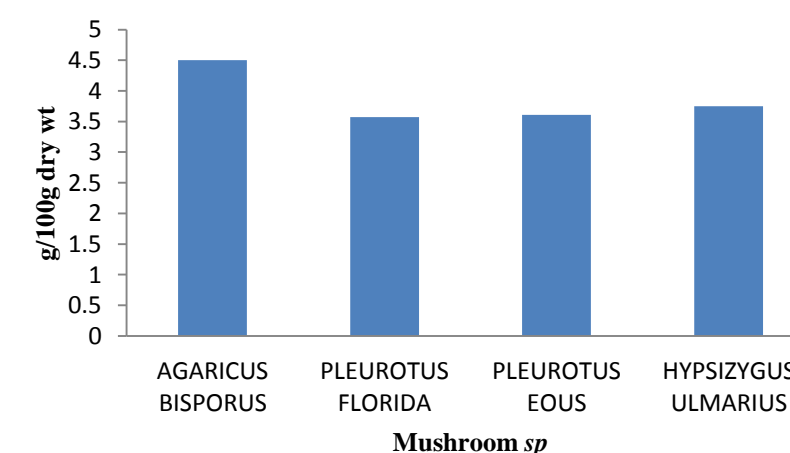
The 1, 1 Diphenyl 2-Picrylhydrazyl (DPPH) methods was used to determine for radical scavenging activity of mushroom extracts according to the Mirunalini *et al.* Methanolic solution (1mM DPPH) was mixed with 0.2mL of mushroom extracts. The mixture was vigorously shaken and left to stand for 20 min under subdued light. The absorbance was measured at 520 nm. The DPPH radical scavenging activity (%) was calculated by the following equation:

$$\text{Radical scavenging activity (\%)} = (1 - A \text{ sample}/A \text{ control}) * 100$$

Where, A sample is the absorbance in the presence of sample and A control is the absorbance in the absence of sample, respectively. All extracts were analyzed in triplicate.

RESULTS

Figure.1. Total Carbohydrate Analysis



Total carbohydrate content revealed the variations in the mushrooms, the highest carbohydrate content was observed in *Agaricus bisporus* (4.5 g/ 100 g dry Wt).

Figure.2. Total Protein Analysis (No.1)

Figure.3. Total reducing Sugars Analysis (No.2)

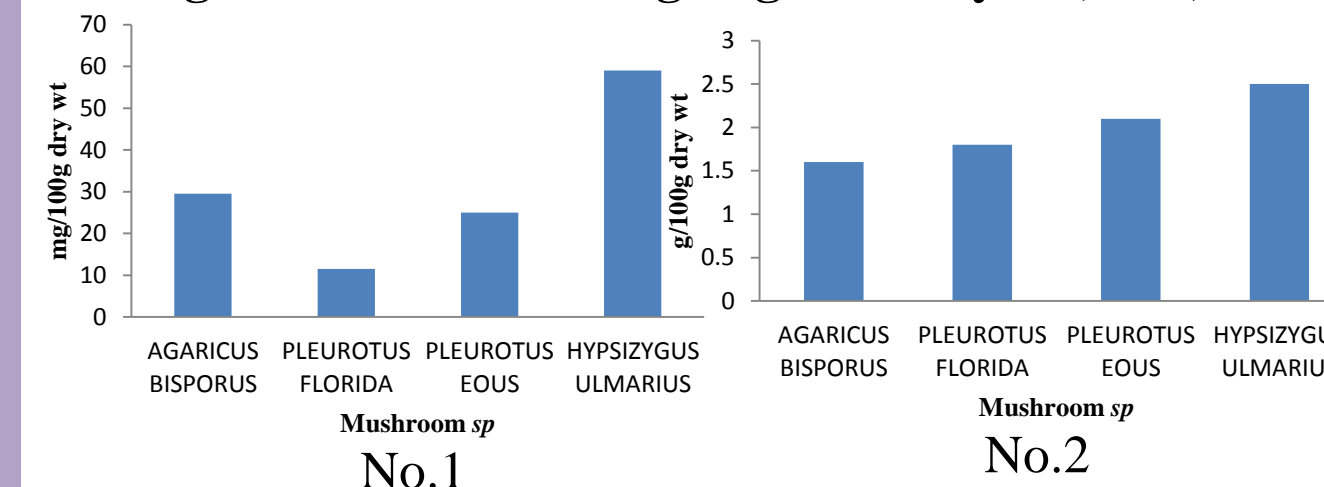
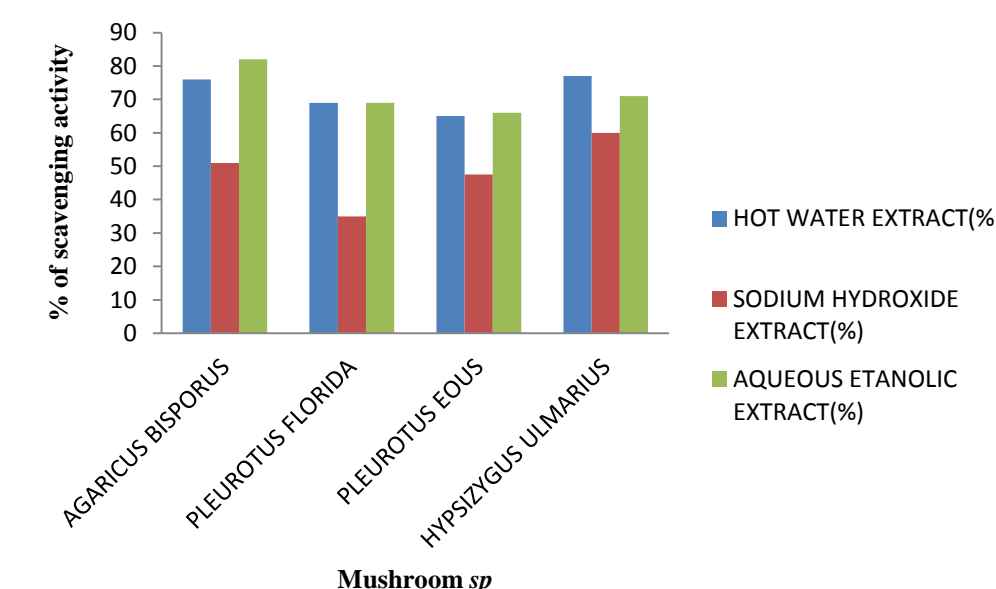


Figure.4. DPPH Radical Scavenging Activity



CONCLUSION

From the present study among all the four mushrooms *Agaricus bisporus* contain large amount of carbohydrates. *Hypsizygos ulmarius* contain large amount of protein and reducing sugar compare to others. Antioxidant activity was highly shown in *Pleurotus florida* mushroom of aqueous ethanolic extract. In conclusion, these nutrients content made mushrooms may also be used as protein supplementary diet.

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