Comparison of nutritional composition of the Button mushroom and Oyster mushroom

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Abstract

Mushrooms are low calorie, high fibre source of protein that has high antioxidants and bioactive compounds. Mushrooms are also very much favourite of people so serve as common table delicacy across the country. Many kind of mushrooms in the market are available like the button mushroom, milky oyster mushroom, snow mushroom and white pubs, etc. Originally, mushrooms are native of Eurasia and North America. Traditional mushroom *Agaricus bisporous* belongs, to basidiomycetes are traditionally grown in India and it takes approximately six months to cultivate it. Whereas an easy way of growing it takes up just three months to get the first harvest.

Key Words- Mushrooms, Fibre, Protein, Antioxidants, Bioactive compounds.

DOI: 10.48047/ecb/2023.12.Si13.171

Introduction

Mushroom is basically a big sized fungus which has got fruiting heads above the substratum and those who can be observed with the naked eyes. Most of the mushrooms are either through basidiomycetes or ascomycetes of the kingdom fungi. The mushrooms are source of antioxidants vitamins, minerals along with the bioactive molecules which are of prime importance to the mankind. A bioactive compound is a compound which basically affects any living cell tissue and organism. It is not a nutritive substance for themselves but these are extra nutritional components present in the food and can affect the health of the living organism positively. Some common Bioactive compounds caffeine are caffeine, carotenoids, carnitine, choline, coenzyme Q, anthocyanins, prebiotics, carotenes, flavonoids, lycopene, taurines, polyphenols, etc. These kind of compounds have gathered to you very much attention and importance in the past few years as these are easily consumed via diet and mushrooms are the natural and potent source of such compounds. Mushrooms possess a wide variety of such compounds like ascorbic acid, flavonoids, lycopene, beta-carotene etc. Mushrooms have attained an incredibly remarkable position in the meals these days due to all these bioactive

compounds, easy consumption, good aroma, palatability and exotic flavour and high nutritional values also. Moreover, they are rich source of proteins, unsaturated fatty acids, vitamins, minerals etc.

The process of mushroom cultivation is more about a practical processing and less about imparting intensive laborious agricultural practice. Discovery of this much number of uses are the outcomes of various micro biologists trying to extract maximum benefit out of this so but beautiful balloon like structures called mushrooms. The qualities which make the mushrooms so favourite and necessity of the diet or their low calorie richness, high amount of antioxidants, good quality protein content, vitamins minerals and certain kind of bioactive materials also it possesses a low glycaemic index which is very beneficial for people suffering from obesity and diabetes. This paper aims to compare the nutritional values of the button mushroom and the another famous type of mushroom called oyster mushroom or dhingri in India.

Material and methods

The popular methods are:

Phenol estimation

Total phenols estimation per gram tissue was done by the method of Hossain et al., 2013.

Flavonoid estimation

The amount of flavonoids in the mushrooms was assessed according to the methods of Chang et al., 2012.

Quercetin estimation

Quercetin equivalent (mg per gram) of the extracted compound indicated the amount of flavonoid present.

Protein estimation assay

This was performed to assess the presence of proteins via Lawry et al., 1951 method, using a calibration curve using BSA (a standard protein).

Carotenoid estimation assay

Carotenoids were estimated in the mushrooms using calibration curve made by analysing standard High purity of β-carotene.

Ascorbate estimation assay

Ascorbate was analysed by Nakano et al., 1981 showing in the presence of ascorbate peroxidase and its activity.

Glutathione reductase assay

Glutathione reductase was analysed by Stalin and Gopalkrishan, 2013.

Results and discussion

Out of button mushroom and oyster mushroom a comparative analysis, value of the highest protein content was present in white button mushroom that is 4.91± 0.12 microgram/100 grams. And in oyster mushroom grown on paddy and it was 3.64± 0.100 µg/100gram. This result of our study is in agreement with Ogoke et al., past study of 2015. The amount of polyphenols was more in case of oyster mushroom i.e. 14.20± 0.12 micro gram per gram rather than in white button mushroom i.e. 13.21±0.44microgram/100gram.

This result was also found in accordance with Kaviyarasan et,al (2014) study as the past result declared high polyphenol values in oyster mushroom.

The highest flavonoid values were found in oyster mushroom grown on paddy straw followed by the white mushroom i.e,12.96± 0.19 mg/100 gm

According to Arthy et al., oyster mushroom's flavonoid content was more than the button mushroom.

The highest carotenoids and content was observed in oyster mushroom than in white button mushroom

This value was also in accordance with the past study of MC Gowon (2001), which showed that oyster mushroom had high carotenoids value than the white button mushroom.

Hence, the findings of present study were in accordance with the earlier estimation done by researchers in past.

Table number 1: comparative results of nutritional value assessments in both the mushroom varieties

Serial no.	Name of bioactive compound	Button mushroom	Oyster mushroom
1	Polyphenols	Low	High
2	Protein	High	low
3	Flavonoids	Low	High
4	Ascorbic acid	Low	High
5	Carotenoids	Low	High

Conclusion

On the basis of the above conducted study we can conclude that the oyster mushroom (grown in paddy straw) is rich in total phenols carotenoids flavonoids but the white button mushroom is rich in protein.

Conflict of interest

The authors report no conflict of interest.

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