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PROTEIN CONTENT OF *TRICHOLOMA GIGANTIUM* MASSE, AN EDIBLE MUSHROOM

It is well known that developing countries like India do not provide adequate amounts of protein of high nutritive value for human consumption. The suffering from malnutrition is most severe among the low income groups and in school children aged upto 6 years consisting nearly 80 percent of the population. The problem is so immense that scientists and technologists will have to be geared up to develop all possible source of protein, conventional and non-conventional ones, to save the people from acute protein malnutrition. The present study was undertaken to evaluate the protein content of the local edible mushroom, *Tricholoma gigantium* Masse, by submerged fermentation technique and to see the possibility of utilizing this protein as an additional source.

The basidiocarps of *T. gigantium* was collected from different local markets and brought into the laboratory. From the fresh basidiocarps, tissue cultures were made in *potato-dextrose-agar* slants. These tissue cultures were maintained as stock cultures and was used in the present investigation. All together six strains were obtained and the relevent field data were given in Table 1.

Table 1. Field data of the different strains of *T. gigantium*

Strain No.	Date of Collection	Name of the local market from where obtained	Place of growth
T. g.–1	1.7.71	Bowbazar Market	Baruipur ; on soil ;
T. g.–2	1.7.71	New Market	Diamondharbour ; on soil ;
T. g.–3	3.7.71	Lake Market	Garia ; on soil ;
T. g.–4	3.7.71	Garia Market	Garia ; on soil ;
T. g.–5	4.7.71	Shyambazar Market	Dum Dum ; on soil ;
T. g.–6	5.7.71	Sealdaha Market	Barrackpur ; on soil ;

All the above mentioned six strains were then grown in *glucose-cæsin* hydrolysate medium of Lilly and Barnett (1951), supplemented with KCl, 0.5 gm and yeast extract 2 percent per liter, taken in a 250 ml Erlenmeyer flask and incubated (stationary) for 15 days at 30°C and in duffused laboratory light. After 15 days of incubation period, the mycelia were harvested by filtration through tared Whatman No. 1 filter paper. It was washed several times to remove any trace of medium, then dried to constant weight at 105°C, cooled and weighed.

Total nitrogen content of the dried mycelia was determined by micro-kjeldahl method (Oser, 1965). The crude protein value was calculated on the basis of 16 percent nitrogen content of protein. The complete set of experiment was done in triplicate.

The result obtained during the experimental period are given in Table 2.

Table 2. Data (mean) showing the protein production by the six strains of *T. gigantium* in submerged cultural condition

Strain No.	Mycelial yield (mg/50 ml of the medium)	Protein content (in percent of dried mycelium)
T. g. – 1	17.20 ± 0.20	32.25 ± 0.20
T. g. – 2	25.20 ± 0.22	33.17 ± 0.15
T. g. – 3	23.60 ± 0.16	30.16 ± 0.16
T. g. – 4	27.15 ± 0.18	46.26 ± 0.30
T. g. – 5	20.18 ± 0.26	31.06 ± 0.24
T. g. – 6	22.87 ± 0.21	32.70 ± 0.22

From the Table 2, it is evident that the mycelial growth and protein content differ widely among the different strains of the test-fungus. It has further been noted that there is possibly no relation between the yield of vegetative mycelia and protein production by the different strains of the test-organism. However, so far the protein production is concerned, strain T. g. – 4 is the best. Further research works are already in progress with this strain (T. g. – 4) to find out the different optimum physical and chemical environmental conditions necessary for the maximum production of this protein.

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