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شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

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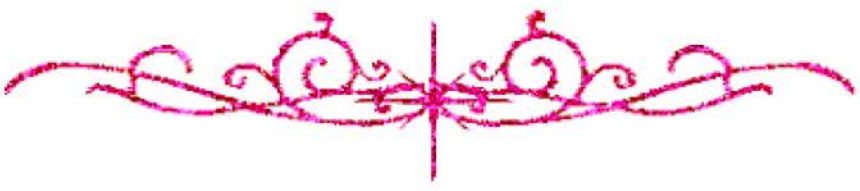

Biochemical and Ecological Studies On Production Of Some Chinese Mushroom Species to be used as special diets.

By

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Summary

The commercial cultivation of edible mushrooms has speared in many countries throughout the world. Since cultivated mushrooms can be grown on agricultural and industrial wastes, they provide a solution to many problems pf global importance including protein shortages, resource recovery, recycling and environmental management. Many edible mushrooms are receiving additional recognition for their medicinal and qualities.

For this reason trials to introduce new strains of Chinese mushroom which could be of nutritional and medicinal value were carried out in this study. Twelve mushroom culture strains obtained from China were tried to be cultivated under Egyptian conditions. The successfully grown mushroom strains in Egypt were chemically analyzed for their chemical composition and evaluated for some medicinal properties.

Results could be summarized in the following: The propagation resulted in the success of four Chinese strains i.e., Auricularia polytricha, Flammulina velutipes, Ganoderma lucidium, and Lentinus edodes using PDYA medium in bottles. After propagation and spawn production were carried out using four different master grain media i.e., sorghum, decorticated what, whole wheat, and supplemented sorghum, where sorghum and decorticated wheat were the best. Cultivation of spawn on three different agrowastes media i.e., 100% wheat straw (W); 80% wheat straw +20% sawdust (WS); 60% wheat strawe +(W); 20% sawdust +20% sugar-cane bagasse. (WSB).

A. polyricha reached successfully, fruiting stage in summer and gave two flushes, with total yield of (99.3g/4 bags) and E. velutipes reached successfully, fruiting stage in winter and gave only one flush with total yield of (118g/4 bags).

Samples from the obtained fruit bodies of the two successfully grown Chinese strains A. polytricha and F. velutipes under Egyptian conditions were analyzed for dry matter, protein, fat, carbohydrates, fiber, and ash. Differences in chemical composition due to the growing media were observed. Differences in chemical composition due to the geographical zone of cultivation were also reported. Minerals content of ash was determined in both cultispecies and results as following; ash content is not related to minerals content. Differences in minerals content due to growing media were noticed as well as between cultispecies and between that grown in Egypt and China. The highest relative percentage fatty acid in A. polytricha and F. velentipes was $C_{18:2}$ which reached (44.43%) and (38.55%) of total fatty acids respectively followed by $C_{18:1}$ in A. polytricha (24.67%) while in F. velutipes it was $C_{16:1}$ (23.41%).

The major amino acids in both A. polytricha and F. velutipes were tyrosine (12.8%, 13.8%), aspartic acid (9.0%, 8.9%) and glutanic acid (8.8%, 8.9%) respectively. Electrophoresis pattern of soluble protein reveal on the presence of 5 bands with M.W (64, 56, 33, 22 and 17 kd) in those grown in Egypt compared with only three bands for that grown in China. The band of M.W 17 and / or 22 kd could be a glycoprstion (lectin) which needs further studies fore its chemicals and biological properties. The hot water extracted and purification of polysaccharides sidement were studied and results could be summarized in the following. Soluble polysaccharides content in both A. polytricha (5.02%) and F. velentipes (6.80%). HPLC indicated the presence of glucose as major component (A. polytricha; 99.4% and F. velutipes; 98.5%), which may recommended a β- glucans. Low molecular weight compounds extracted by dialysis from Auricularia mushroom grown in Egypt reached to 2.15% on dry weight basis were tested for its effect as anticoagulant. The minimum inhibitory platelet aggregation could be in the range of 35-36 µg/ml of dialysate.

M. A. Osman

O. A. A. Shaban

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