Morphological and Nutritional Study of Low Heat Air Dried (Bio-dehydration System*) Oyster Mushroom *(Pleurotus sajor-caju)*

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ABSTRACT

Edible mushrooms have been widely consumed as food or food ingredients in different prepared food items for a long time. The choice of selecting this fungus is because of their antifungal, antioxidative properties and for their ability to reduce hypercholesterolemia and the possession of high radical scavenging activity. Oyster mushroom (*Pleurotus sajor-caju*) is utilized in an effort to investigate its morphological and nutritional properties upon drying using Bio-dehydration*, sun and oven drying techniques. The majority of the fibrous materials of oyster mushroom are joined to each other in a 'Y' shape form giving substance to the spongy multi layered rubbery network. The fibrous cut of oyster mushroom dried with the laboratory oven was more compact and dense compared to those dried with Bio-dehydration* method. Oyster mushroom dried with Bio-dehydration* technique retained the highest concentration of β-glucan at 336 mg/100g and significantly higher than the other treatments. Oyster mushroom dried with low heat air system is able to sustain their nutritional compositions well, while at the same time improve its physico-chemical qualities. Taken together the findings suggest that dried oyster mushroom may potentially improve nutritional value of any processed food products.

Keywords: Oyster mushroom, Scanning Electron Microscope, Nutritional Composition

INTRODUCTION

Mushrooms have been broadly cultivated mainly for the food and health product industries. These fungi are cultivated on decayed organic material while producing edible portion on the surface of the substrate. *Pleurotus sajor-caju,* also known as oyster mushrooms, is easily cultivated and is done so widely in the tropical regions and many other parts of the world. It is reported to possess distinctive aroma and are highly palatable.

In the South East Asian countries, oyster mushroom is widely used in the preparation of vegetable and soup. This edible fungus is thought to possess considerable value in the human diet as they are rich in non-starchy carbohydrates, dietary fibre, β-glucans, minerals, vitamin B and are low in fat. β-glucans, also a components of soluble or insoluble dietary fibre (SDF, IDF) is present in appreciable amounts in mushrooms and are linked to the ability to lower blood cholesterol levels and also to lower the glycaemic response *in vivo* (Manzi *et al.*, 2004).

Mushrooms are highly perishable commodities as they start deteriorating immediately after harvesting. Their shelf life is between 1-3 days at room temperature and is linked to the occurrence of post-harvest changes. One of the solution is to dry the mushroom so that it can last longer. But drying may alter the natural properties of the product. These changes are due to the high moisture content of the carpoforus and to the high activity of both protease or polyphenol oxidase enzymes which are responsible for protein and sugar reduction in the browning reaction during storage (Czapski and Szudyga, 2000).

In order to capitalize on the healthy benefits and medicinal value of mushroom, its production and consumption should be increased based on market demand. Further, mushroom production does not require much land, but helps in the bioconversion of potential pollutants like agro-wastes to useful and nutritive food for human consumption. These activities can be essential to a developing country like Malaysia and other Asian countries alike.