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Title : A preliminary study: effects of high voltage stimulation on the expensive edible mushrooms in Thailand

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Related RISH mission : Mission 1 (Environmental Diagnosis and Regulation of Circulatory Function)

Abstract

Effects of high voltage stimulation on a cultivated Shiitake mushroom by using a device called “Raizo”. Results show the total weight of cultivated Shiitake mushroom increased by 1.8 times compared with the traditional method.

Introduction

Mushrooms are traditionally used by many Asian dishes and medicine. In general, mushrooms have higher protein contents than most vegetables, composed of unsaturated fatty acid and are rich in minerals. In addition, there are various of vitamin and high antioxidant [1]. Therefore, Thailand abounds in cultivated mushrooms, and at least four kinds are commonly available throughout the year in markets of Northern Thailand such as Straw mushrooms (Hed fang), Shiitake mushrooms (Hed hom), Mouse-ear mushroom (Hed hu nu) and Lady heaven mushroom (Hed nang far).

Moreover, during the raining season (June – October), there are various of edible wild mushrooms such as *Phlebopus portentosus* (Hed har), *Termitomyces spec* (Hed khon) and *Amanita princeps* (Hed kai Kao) were available in a local market and more expensive than cultivated mushrooms because people prefer to consume them due to their flavor and texture. Therefore, an alternative technique to increase the yield of mushroom both in the cultivated mushrooms and edible wild mushrooms is very important for Thai mushroom farmer.

Methods and Results

Since 2016, we have started to survey the effects of high voltage stimulation on a cultivated Shiitake mushroom in Chiang Rai, northern Thailand by using a high voltage stimulation device called “Raizo” from Japan. The result showed that the total weight of cultivated Shiitake mushroom in the first crop season by applied voltage of 20 kV with 10

seconds increased by 1.8 times when compared with the very traditional method by beating the top of substrates with a sandal [2].

In this study, we extend our research on the effects of electrical stimulation on the expensive edible mushrooms in Thailand. There are 2 kinds of mushroom, namely, *Lentinus polychrous* Lev. (Hed kra dang) which cultivated on a matured sawdust-based substrate and an edible wild mushroom called “*Phlebopus portentosus* (Hed har or hed tub tao dum)” is suspected to form ectomycorrhizae with many host trees by using a high-voltage device called “Raizo” from Japan were investigated. More details about electrical stimulation which conducted in Chiang Rai will be presented in the presentation.



Fig.1 : An expensive edible mushroom in Thailand



Fig.2: A high voltage stimulation on Hed kra dang

REFERENCES

- [1] N. Sirival, NU Science Journal 2010; 6(2): 165 - 172
- [2] R. Norarat et al., ISHPMNB 2016, 17.