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P2

[27]

SCREENING OF POTENTIAL PLANT EXTRACTS TO CONTROL COMMON LAB CONTAMINANT TRICHODERMA spp

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ABSTRACT

The antagonistic fungi *Trichoderma* is called plant doctor fungi due its ability to control many plant diseases. This *Trichoderma* is also cause green mold disease which is a serious threat to mushroom industry. Green mold fungi adopted to survive wide environmental conditions due unexpected climate change over the last few decades. To control this disease in mushroom cultivation through fungicide is not possible because of both are fungi, and unwanted fungicides application can damage the environment, biodiversity, and raise unwanted health issues to human. Moreover, after cultivation of mushroom, mushroom wastes are being dumped into the environment. This study was carried out to find out an environmental friendly management of green mold disease using extracts form agro-based industries' by-products. Two sets of *in-vitro* experiments containing three different 5%, 10% and 20% extracts, from agro-based industries, such as, coffee (*Coffea Arabica*) waste powder, tea (*Camelia sinensis*) dust and Mahua (*Madhuca longifolia*) oil cake were prepared separately. *Trichoderma* and *Pleurotus* cultures were inoculated into each set with not treated control. All the experiments were conducted using complete randomized design with three replications. Collected data were subjected to ANOVA using SAS 9.1 statistical package. The data on mycelial growth and sporulation of both fungi were measured. Significant among the treatments were analyzed through DMRT mean separation at *P* value of 0.05. *In-Vitro* results showed that the *Trichoderma* mycelial growth was significantly minimum in Mahua (2.5 cm) and coffee (3.6 cm) in comparison to control (PDA-9 cm), whereas, with decreasing concentration of coffee, tea and Mahua extract *P. ostreatus* showed enhanced growth. *Trichoderma* sporulation had significantly affected in coffee treatment and it didn't sporulate in Mahua treated plants. From another *in-vivo* study, it showed that tea and coffee increase the yield of mushroom when it adds to the mushroom substrate straw. Therefore, it is consultable that adding of tea and coffee extracts to the mushroom bed will arrest the *Trichoderma* growth.

Keywords: *Trichoderma*, *Pleurotus ostreatus*, green mold, plant extracts, coffee