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Control Of Fungal Contamination Of Oyster Mushroom Spawn By Thermo-Pressure Manipulation & Its Cost Benefit Analysis

D Chakraborty[1] and J Tah*

Genetics and Plant Breeding Laboratory, Department of Botany, Golapbag Campus Burdwan University, Burdwan – 713104, W. Bengal.

ABSTRACT

Wheat grains were taken for preparation of spawn packets. Liquid culture was used for inoculation as it provides operational smoothness of huge commercial lots. Spawn packets were made of ±200 g of boiled wheat grains. Packets were autoclaved at 20lbs/sq.in. pressure for 1.5 h and inoculated thereafter as per schedule with liquid culture media. Contaminated packets, whatever found after 2-3 days, were autoclaved again for 1 h at 20lbs/ sq.in. pressure and again inoculated with liquid culture medium (2-3 ml / packet). For another replication contaminated packets were autoclaved once again for 1.5 h at 20 lbs/ sq.in. pressure and then inoculated with liquid culture media.

Substantial number of spawn packets were contaminated when they were sterilized only once at 20lbs/sq.in. pressure for 1.5 h It was found that fungal contaminants were *Trichoderma harzianum*, *Trichoderma Viride, Aspergillus flavus* var. *columneris* and *Penicillium janthinellum*.

The contamination was found to be checked completely when the spawn packets were given two treatments of 20lbs/ sq.in. pressure for 1.5 h at an interval of 24-48 h But fungal contamination persisted when spawn packets were given two treatments of 20lbs/sq.in. pressure for 2 h followed by 20lbs / sq.in. pressure for 1 h.

It was calculated that cost of spawn packets were lowest when treated twice with 1.5 h at 20 lbs/ sq.in. pressure and then inoculated.

Key words: Thermo-pressure, twice, contamination, persist, followed by.

INTRODUCTION

Apart from congenial climatic conditions, production of mushroom is very much dependent on the quality of spawn and substrate. When quality of substrate is upto the mark, spawn quality is the prime factor to get satisfactory production. Mushroom spawn is being produced by various government and privately run laboratories, which the farmers are using. Supply of spawn from government laboratories is not sufficient to meet the demand of commercial mushroom growers[1]. Private mushroom spawn production laboratories cater to this demand-supply gap. Reports from a number of such laboratories in the tropical plains of West Bengal have revealed that the rate of contamination of spawn packets varies from 40% to 60%. Low rate of success increases the price of spawn packets that become unattractive to the farmers. These units use wheat grain as spawn substrate. It is experimented that even after getting thermo-pressure treatment (single), contaminants remain in the wheat. Regardless of look or health, wheat grains contain microorganisms. The only difference is in the population of the microbes[5]. 10 g of grain sample is observed to have about 500000 to 1080000 bacteria; 2280 actinomycetes; 120000 fungi and large number of yeasts[7]. In order to produce 10g of pure spawn one has to destroy about 1000000 microbes; 'it's a battle between the spawn producer and micro-organism'[1]. The studies on fungal contaminations of spawn[2,5,10,15,16,20,23,24,25] as isolated has been studied by the authors at the spawn unit of the center[1]. It is thought that due importance be given to undertake detailed investigations on management of the fungal spawn contamination by thermo-pressure manipulation technique.

In India, work on oyster mushroom cultivation was started in the year 1962 by cultivating *P. flabellatus* using paddy straw[3] as substrate. *P. sajor-caju* was introduced in 1974[11]. The production technology was standardized on wood logs and sawdust[8].

Though various substrates have been tried to prepare spawn wheat grain remains the most popular one. Wheat and paddy straw are found to be most suitable ones for oyster mushroom cultivation[3,11,14].

Agro-climatic factors in oyster mushroom cultivation

[1] Department of Business Administration, Pakim Palatine College, Pakyong, Sikkim(East), Pin – 737 106

***Author for correspondence**