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Tikkimould / Yellow Mould Disease (*Sepedonium spp.)* in Mushroom

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Abstract: ***Mushrooms are known for several nutritional and medicinal benefits and are cultivated worldwide. Several fungal contaminants of mushrooms have been serving as the major restraining factor in the growing mushroom industry for a long time. Fungal contaminants like Trichoderma spp., Mycogone spp., Lecanicillium spp., Cladobotryum spp., Coprinus spp., Sependonium spp., Sclerotiumrolfsii, and Cephalothecumroseum among many, are found to infect mushroom crops at different stages from spawn run period to maturation of fruiting bodies. These contaminants may reduce yield or degrade the quality of fruiting bodies of the mushroom causing economic losses. These contaminants are usually peculiar in terms of their symptomatology on the substrates, disease cycle, epidemiological requirements, and yield losses. Most of these contaminants come from poorly sterilized substrates. Proper pasteurization and incorporation of carbendazim in compost and prevention of entry of spores during spawning are some control methods to avoid the Sepedonium yellow mould disease in white button mushroom.***

Keywords: Fungal contaminants, White button mushroom, Fungal morphology, biological control

1. Introduction

Agaricus bisporus is an edible basidiomycetes mushroom native to Europe and cultivated more than seventy countries and is one of the most commonly and widely consumed mushrooms in the world. White button mushrooms are very low in calories and produce essential amount of proteins, amino acids, sufficient levels of minerals, vitamins and fiber. Button mushrooms carry vitamin-D in the form of ergocalciferol and having excellent levels of selenium, copper, phosphorus, zinc, and potassium and also rich in the B-complex group of vitamins like thiamin, riboflavin, niacin, vitamin B-6 (pyridoxine), pantothenic acid and riboflavin (vitamin B-2). One of the serious disease in White button mushroom is Sepedonium yellow mould. Yellow mould disease is caused by the fungus *Sepedonium* (*Hypomyseschryospermum*) was first reported at India in 1991. A yield loss of 5-20% has been recorded in button mushroom production due to yellow mould. Spores formed on yellow mould surface spreads to compost with the help of wind, flies, human activities. Sometimes, It causes the total failure of the cropping period.

SepdoniumYellow Mould / Tikkimould

Symptoms

- Yellow mould disease is characterized by initially having white mycelium which later turns yellow to tan colored
- Yellow brown corky mycelium on the interphase of compost and casing are initial symptoms of yellow mould disease which emit a strong metallic smell similar to carbide (Tsarev, 2021)

Figure 1: Initial stage of yellow mould

Figure 2: Later stage symptom

Fungal Morphology

- Mycelium is septate, hyaline and 3 to 5 µm in diameter, Conidiophores are erect and bear a lateral simple or botryose cluster of branches which are septate
- At the tip these branches conidia are borne singly from the tip of the phoalids.
- Chlamydospores are globose, wasted, dark yellow, thick walled and 13 to 21 µm in diameter (Rajan and Sivakumar, 2020)

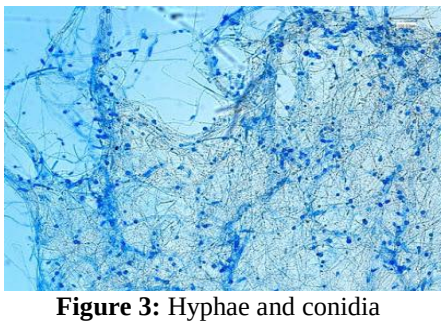

Figure 3: Hyphae and conidia

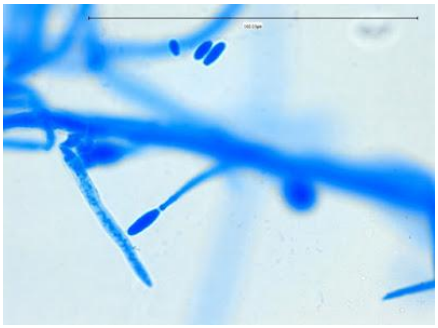

Figure 4: Phialioconidium

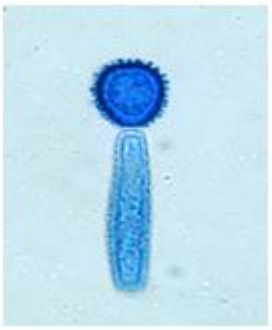

Figure 5: Conidium still attached to a segment of it`s conidiphore

Mode of spread and survival

- Primary infection spreads through Spent from Compost.
- Secondary infection spreads through air.
- Fungus survives through the thick walled chlamydos pores. More wetness leads to its development at the bottom of the compost.

Epidemology

- Sepanodium yellow mould disease is found in spent compost, when the moisture content raises more than 70% moisture and the temperature ranges from 19-20˚C temperature (Sharma *et al*., 2007)
- Higher N content, especially in the form of chicken manure, has been reported to favour the mould development (Gour, 2014).

Management

- Proper pasteurization of the compost and provision of air filters duting spawn running (to prevent the entry of spores) reduces the incidence
- Strict temperature monitoring and control during compost pasteurization and an adequate post-crop cooking out are essential to eliminate the threat of infection.
- Preventing the entry of spores during spawning and spawn-running by installing high-efficiency air filters is essential.
- Incorporation of 0.5% carbendazim in compost and sterilizing chicken manure (for long method of composting) with 2% formalin or 0.5% carbendazim has shown good results.
- Treating finally prepared long method compost with 1.5lit of formalin and 50g of bavistin ton^{-1} of ready compost and covering it with polythene sheets for 2 days prior to spawning almost eliminates the disease **(**Singh, 2012**).**

2. Conclusion

Several fungal contaminants are found to reduce mushroom yield and quality either through competition for food and space or due to the release of metabolites harmful to the mushroom. Contaminants could lead to mouldy growth like yellow mould and pink mould or distortion and discoloration of fruiting bodies as in the case of Dry bubble disease, wet bubble disease, and cobweb disease. These contaminants in addition to competitor fungi like *Sepedonium spp* can be eradicated from the substrates through various sterilization techniques. Therapeutic sprays of botanicals, biological antagonists, and chemicals are also being adopted to eliminate the contaminants. Besides, mushroom house sanitation, roguing, varietal selection, and vector management are a few more economic measures to prevent infection.

References

[1] Gour. H. N., 2014. Annual review of Plant Pathology (Vol.2-6). Scientific publishers. Pg.179, 180, 204.
[2] Rajan. S, Sivakumar. N., 2020. Mushroom Technology. CBS Publishers & Distributors. Pg.108-109.
[3] Singh. V. P, Singh. G., 2012. Diseases of Mushroom: Modern Trends in Microbial Biodiversity of Natural Ecosystem. Daya Publishing House. Pg.281.
[4] Singh, J. K., 2012. Mushroom: Disease and its control hardcover. Enkay Publishers pvt Ltd., Pg.140-143.
[5] Khanna. P. K, Sodhi. H. S, Kapoor. S., 2004. Annual Review of Plant Pathology (Vol.2) 2. Pg.163 – 205.