

Wet Bubble- A Threat for Button Mushroom Cultivation

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SUMMARY

Agaricus bisporus is an edible mushroom native in Europe & North America. Button mushroom is cultivated in more than 70 countries and widely consumed mushrooms in the world having medicinal value. India produces 20,000 tons of button mushrooms. The reasons for such a low production can be attributed to lack of awareness regarding a number of harmful fungi are attacked in compost & casing soil during the cultivation which causes damage to mushrooms directly or indirectly which can adversely affect the final yield.

INTRODUCTION

Button Mushroom (*Agaricus bisporus*) belonging to Basidiomycetes and family Agaricaceae is the most popular mushroom variety grown and consumed by the world over such as in Europe (mainly Western part), North America (USA, Canada) and S.E. Asia (China, Korea, Indonesia, Taiwan and India). In India the major producing states are Himachal Pradesh, Punjab, Haryana, Maharashtra, Andhra Pradesh, Tamil Nadu and Karnataka (Largeteau and Savole, 2010). Wet bubble disease (WBD), caused by the mycoparasite *M. perniciosus*, is a worldwide disease affecting commercial cultivation of white button mushroom (*A. bisporus*) and other cultivated fungi such as *Pleurotus citrinopileatus* but also found in the wild, parasitizing a range of basidiomycetes (Glamoclija *et al.*, 2009). *Mycogone* disease has been reported as one of the serious diseases from almost all major mushroom growing countries of the world. In India, this disease was reported for the first time in 1978 from some mushroom farms in Jammu and Kashmir, later this disease was reported from the states of Himachal Pradesh, Haryana and Maharashtra.

Symptoms

M. perniciosus affects the morphogenesis of *A. bisporus* fruit bodies but not the vegetative mycelium (Zang *et al.*, 2017). The easily recognized symptoms of WBD include the presence of masses of deformed tissue with no signs of differentiation into stipe or cap, which can reach 10 cm in diameter. The wet bubbles are initially white, fluffy, and spongy before they acquire a brown color and decay. Later, they can secrete amber liquid drops containing bacteria and spores and eventually rot, releasing an unpleasant smell (Preston *et al.*, 2018).



Management

WBD is managed by cultural practices, sanitation, and chemical fungicides. By the mid-1970s, the control of WBD relied on the use of benzimidazole fungicides, mainly benomyl, because this fungicide was toxic against a wide range of fungi but was not effective in inhibiting the growth of most Basidiomycetes (Edgington *et al.*, 1971).

However, extensive research must be performed before further approval of fungicides to treat WBD, evaluating the presence of residues after treatment as well as clarifying toxicity over the environment and human beings. To date, no solid evidence of resistance occurrence has been reported among *M. perniciosus* strains which are certainly remarkable in comparison to the evidence reported for other mycoparasites. This could be related to the nature of the organism and a limited ability to generate mutations driven toward fungicide resistance.

CONCLUSION

Mushroom is a very delicate crop and curative measures are often difficult. The mushroom itself being a fungus, when fungal diseases appear, it is often very difficult to control as the chemicals used against the disease may affect the mushroom itself. Sanitation and hygienic condition must be properly maintained. The room must be washed with lime and the surrounding must be clean with formalin solution. The workers should be clean. The plastic bags also washed properly in formalin and dried out. Sterilized casing soil, proper temperature and some biocontrol reagent can reduced the growth of this fungi.

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