

Research Article

Evaluation of different casing materials and casing in *Agaricus bisporus* cultivation

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ABSTRACT

Five different casing materials prepared by making their ingredients in a definite proportions such as FYM -2 years old, spent mushroom compost (SMC) -2 years old, vermicompost, FYM with burnt rice husk and FYM soil + sand with spent compost in different combinations were tested in present investigation with a view to identify the suitable casing media for use in button mushroom cultivation. The different casing materials were analyzed for physico-chemical properties and evaluated in relation to mushroom yield/quality. Medium porosity, water holding capacity and pH 6.5 to 7.6 were found to promote good yield during the early phase of cropping. Casing mixture of FYM+spent compost + sand + soil (1:1:1:1) was found to be the best for getting higher yield (305.00 g/2 kg of compost) and number of fruit bodies (28.25) produced as compared to other casing mixture tried. CAC'ing with spawn run compost at the rate of 1.5 per cent was found to be the best by giving significantly higher yield (275.00 g/2 kg of compost) and number of fruit bodies (24.25) in comparison with 0.5, 1.0 and 2.0 per cent CAC'ing.

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INTRODUCTION

After completion of spawn run mushroom bags/beds needs casing, however, it does not matter how well the mycelium has established in the compost. It will not produce any fruit bodies unless the compost surface is covered with casing layer. The process of applying casing layer on the surface of compost bag/bed is called casing. The casing layer promotes factors responsible for fruit body initiation.

An application of casing layer over spawn run compost is prerequisite to induce pinning in case for *A. bisporus* and *A. bitorquis*. The casing layer stimulates pinhead formation per unit air exchange between compost and air, prevents drying of compost and supports the growing mushroom on compost bed. Nevertheless, the choice of casing materials in any region mainly depends upon ready availability and cost of the materials.

Different materials are being used in different parts of the world (Garcha and Khanna, 1993; Wust and Beyer, 1996).

In Europe, for example peat mass (low in pH) is used, after it is neutralized with chalk or limestone, as the casing medium. However, in several other countries, where peat is not available or too costly to import, then locally available organic material continues to be the popular casing material after steam pasteurized or chemically treated.

In India, several materials like spent compost + slaked lime+ sand, 4:1:1 v/v are used. Farm yard manure + loam soil, 1:1 v/v (Hayes and Shandilya, 1977) farm yard manure + 25 years old spent mushroom compost, 1:1 (Garcha, 1980), paper mulch + 2 years old spent compost, 3:1 v/v (Garcha and Sekhon, 1981) and burnt rice husk+ clay loam 3:1 v/v (Khanna *et al.*, 1995) have been reported to be used for casing in *A. bisporus* cultivation. Besides physical, chemical and biological factors determining the suitability of particular casing medium, cost and availability of materials are other important factors in acceptability by the mushroom growers in a region.

In Rajasthan, there are several material available which qualifies as the casing materials needs to be evaluated for