

Utilization of Spent Mushroom Compost in Grey Oyster Mushroom Cultivation

Abstract

Utilization of spent mushroom substrates (SMS) in mushroom cultivation is considered useful to overcome the short supply of wood sawdust and environmental pollution. Composted form of SMS is found to have improved in their carbon and nitrogen content that is needed in mushroom cultivation. This study is aimed to investigate the effect of supplementing spent mushroom compost (SMC) in the mushroom cultivation substrate. Five formulations for the mushroom substrates were prepared by mixing both the SMC and rubber sawdust in the ratios of 1:1, 1:2, 1:3, 2:1, and 3:1 by dry weight, respectively. The commercial sawdust substrate bags were used as a control. The comparisons were evaluated based on the growth rate of the mycelium and also the time is taken by the spawn to fully colonize the substrate bags. The results showed that the amount of SMC between 25 and 50% was suitable for the cultivation of grey oyster mushrooms. The average growth rate of mycelium from both the ratios of 1:2 and 1:3 at 0.8184 and 0.8281 cm day⁻¹ respectively, did not show any significant difference ($P > 0.05$) over the control at 0.8246 cm day⁻¹. This was followed by the ratio of 1:1 at 0.7375 cm day⁻¹. The slowest growth rate was obtained from both the ratios of 2:1 and 3:1 with 0.5783 and 0.5414 cm day⁻¹ respectively. The highest mushroom weight was obtained from rubber sawdust substrate (210.77 g) and closely followed by 25% (198.74 g) to 33.3% (188.44 g) SMC. This study proved that SMC can be used as an alternative substrate to replace the current rubber sawdust used in mushroom cultivation as it did not significantly affect the growth rate of the mycelium.

Keywords

Compost; Mushroom cultivation; Oyster mushroom; Spent mushroom