

Alternative for Polypropylene Bags in Oyster Mushroom (*Pleurotus ostreatus*) Cultivation in Sri Lanka

IJA Ruhunuge^{1*}, HNK BT Chandrasiri¹, DTS De Silva¹, ARDD Priyashadeera¹ and JP Kirthisinghe²

¹Department of crop management, Faculty of Agriculture, Aquinas College of Higher Studies, Colombo, Sri Lanka

²Postgraduate Institute of Agriculture, University of Peradeniya, Sri Lanka.

*isuriruhunuge999@gmail.com

Oyster mushroom (*Pleurotus spp.*) is a commercially significant, predominantly grown mushroom variety in Sri Lanka. Oyster mushrooms are currently grown in polyethylene bags commercially. At the end of the cultivation period, polypropylene bags are thrown out, as bags cannot be reused for the next season. This practice causes serious environmental pollution in Sri Lanka. Therefore, the present study was carried out to find a suitable substitute for polypropylene bags in Oyster mushroom cultivation. The experiments were conducted at the mushroom unit in Udathenna Matale. The experiment was laid according to Complete Randomized Design (CRD) using 4 treatments with 5 replicates. Treatments were: 15 cm height and 8 cm diameter polypropylene bags (T1), 15 cm height, 8 cm diameter glass bottles (T2), wooden trays (90×40×12cm) (T3) and plastic crates (60×40×12cm) (T4). The substrates contained the department of agriculture (DOA) recommended ingredients including sawdust (125kg), rice bran (12kg), soya bean (1.2kg), mung bean flour (1kg), calcium carbonate (2.4kg), and Magnesium sulfate (250g). Results revealed the least time taken to spawn running was in T2 and T1 (22 days) the highest time was in T4 (26 days). The least time taken for pinhead formation was in T2 and T1 (27 days). The least time taken for the first flush was in T2 and followed by 57 days in T4. The minimum time taken for the first harvest is 54 days from inoculation in polypropylene bags and 52 days in glass bottle containers. Moreover, there was no significant difference between T1 and T2 on spawn running, pinhead formation and first harvest. Hence, glass bottles can be recommended as a substitute for polypropylene bags since T1 and T2 gave a great biological efficiency (BE%) than the wooden trays and plastic crates.

Keywords: *Environmental Pollution, Mushrooms, Plastic Crates, Reusable Glass Bottle, Wooden Trays*