

Suitability of Some Organic Wastes as Substrates to Promote Oyster and Milky Mushrooms

M. Niroja^{1*}, K. Niranjan² and G. Mikunthan¹

¹Department of Agricultural Biology, Faculty of Agriculture, University of Jaffna, Kilinochchi, Sri Lanka

²Department of Botany, Faculty of Science, University of Jaffna, Jaffna, Sri Lanka

*nirojah1992@gmail.com

Mushroom cultivation is nowadays a feasible income generating venture to many people in the Northern Province of Sri Lanka. Even though the cultivation of mushrooms is depending on sawdust, which is being used as the major ingredient of the bedding material, nowadays, the availability of sawdust is limited as many people started to grow mushrooms and cutting of trees is limited because of conservation of environment. Therefore, there is a necessity to find locally available alternative substrates to support the new growers and to sustain the production of mushroom by those who are already being engaged in mushroom cultivation. Considering the benefits of recycling of organic wastes and a feasible alternative for sawdust as organic bedding materials, this study was aimed to determine the efficacy of different locally available plant wastes as organic bedding materials for mushroom cultivation. The plant wastes selected for this study were onion, maize, banana, paddy (straw and husk), sawdust and combination of paddy husk and broken rice (1:1 ratio). American oyster (*Pleurotus ostreatus*), Bhutan oyster (*Pleurotus pulmonarius*) and milky mushrooms (*Calocybe indica*) were grown on selected organic wastes and the yield was determined. The culture maintenance and production of spawn were carried out at the laboratory of Department of Agricultural Biology of the University of Jaffna and rest of the processes such as mushroom bedding, fruiting and evaluation were performed at a grower's household at Point Pedro, Sri Lanka. Maintenance of culture, spawn production and bedding were carried out as per the standard procedure adopted by the growers. Significantly high yield of *P. ostreatus* was obtained from the wastes from the cultivation of onion (71.72±6.35 g), maize (62.46±5.76 g), banana (66.60±10.44 g) and paddy straw (64.81±6.29 g), thus, found to be the suitable substrates for the cultivation of *P. ostreatus*. Onion trash produced the highest yield (122.58±14.34 g) for *P. pulmonarius*. Other wastes also produced fruiting bodies of *P. pulmonarius*, however, the yields were low. Onion, maize, and banana trashes were also found to be suitable for the cultivation of *C. indica*. Fruiting body was not produced in combination of paddy husk and broken rice (1:1 ratio). Thus, from this study it can be concluded that there is a potential and possibility to use the farm wastes of this nature as organic bedding substrates for the cultivation of oyster and milky mushrooms in the Northern Province.

Keywords: Bedding materials, *Calocybe indica*, mushroom, organic wastes, *Pleurotus ostreatus*, *Pleurotus pulmonarius*