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# Alternative Livelihood for Scheduled Caste Population in Cuddalore District through Sustainable Utilization of Marine Waste for Oyster Mushroom Cultivation

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## Abstract

Edible mushroom cultivation is a profitable cottage industry, in which oyster mushroom occupies a prominent place in India. A good substrate is a key factor that determines the profitability of the mushroom cultivation. Marine waste were evaluated for the production of oyster mushroom as a means of managing the vast amount of organic waste that are being generated by fast growing seafood industries. In the present study, sustainable utilization of marine bio-waste for the cultivation of oyster mushroom (*Pleurotus florida*) and the standardized technology was transferred to scheduled caste population in and around Parangipettai, Tamil Nadu, India. The participants have collected marine wastes from the landing centre and processed as per the procedure taught during the lectures as well as demonstration. The experimental work was designed with Completely Randomized Design (CRD) with four treatments (375 g of paddy straw with 125 g of fish waste, shell waste, seaweed and seagrass amended separately) and a control (500 g of paddy straw) with three replications. Continuous hands on training were given for a period of one month to the participants on cultivation of oyster mushroom using marine bio-wastes as supplementary substrate along with paddy straw. During this one month training, the participants understand the technology thoroughly starting from the substrate preparation and processing, spawn handling, mushroom bed preparation, continuous monitoring of the culture environment, harvest, value addition and marketing etc. Further, the nutritive value and biological activities of oyster mushroom cultured on different marine waste were evaluated. Average yield was tested in three flushes of *P.florida* on four different substrates with control. Among various substrates, maximum yield (498.11±7.80 g) was recorded in fish waste. However, minimum average yield (266.91±4.35 g) was recorded in seaweed. The biological efficiency was recorded in four different substrates along with control. Among these, fish waste exhibited highest biological efficiency (99.62±1.56%). Very least efficiency was observed in control (53.38333±0.86784%). The proximate composition such as moisture, protein, carbohydrate, total lipid, crude fiber, amino acids and vitamins were estimated in *P. florida* which harvested from five different substrates. The highest moisture content (90.71%) was recorded in paddy straw and the least value (82.97%) was recorded in shell waste. The highest content of protein was found in fish waste (23.52%) and the lowest protein was found in seaweed (17.18%). The lowest lipid percentage was observed in fish waste (4%) and the highest lipid percentage was observed in paddy straw (8%). The lowest percentage (22.09%) of carbohydrate was observed in seaweed substrate and the highest carbohydrate percentage was observed in fish waste (36.54%). The maximum percentage of crude fiber was observed in fish waste (14.67%) and minimum in seaweed (8.75%). Three training programmes were successfully conducted to scheduled caste women population with the financial support of Department Science and Technology, Government of India. Micro funding was provided to the two self help groups belong to SC population and they became a small entrepreneur in that area. It is interesting to note that the oyster mushroom cultivation using marine waste as supplementary substrate along with paddy straw not only increase the yield and nutritional quality but it could be an alternative livelihood for scheduled caste population.

***Keywords*:** Mushroom, Marine waste, Culture, Proximate composition, Biomolegules