

MORPHOLOGICAL VARIATIONS OF *Pleurotus ostreatus* COMMERCIALY GROWN IN SRI LANKA

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Abstract

Pleurotus ostreatus is a commercially cultivated edible mushroom in Sri Lanka. However, the morphology of *P. ostreatus* can vary with environmental conditions, and with substrate, and techniques used for the cultivation. Cultivation in Sri Lanka, which is done over a range of climatic zones, would certainly result in region-specific morphological variations, but studies investigating such variations within Sri Lanka are extremely rare. This study aimed to examine macroscopic, microscopic, and culture characteristics of *P. ostreatus* strains collected from diverse agro-climatic regions of Sri Lanka. Twenty *P. ostreatus* samples, collected approximately four days after pinhead formation, were obtained from farmers related to the Mushroom Development and Training Centre- Rathmalana, In-service Training Institute- Gannoruwa, and District Agriculture Training Centre- Jaffna, Sri Lanka and analysed for macroscopic features, i.e. pileus, lamellae, stipe, and microscopic features, i.e. spore dimensions, along with culture characteristics on Potatoes Dextrose Agar media. Principal Component Analysis (PCA) in IBM SPSS Statistics (version 26) was used to assess the quantitative morphological variations among the samples. Cap diameter and stipe length showed the greatest quantitative variability, while spore dimensions and stipe thickness remained relatively constant. Most isolates exhibited fan-shaped caps, wavy margins, creamy-white coloration, eccentric stipe attachment, and decurrent gills. Culture features were largely uniform, with fluffy to cottony white mycelium. The PCA analysis revealed four isolates, collected from Kurunegala, Jaffna, Thalathuoya, and In-service Training Institute Gannoruwa, as exhibiting the greatest morphological variability. The findings of the study confirm morphological variation among *P. ostreatus* isolates in Sri Lanka, likely influenced by regional cultivation conditions. Documenting these characteristics can enhance strain identification and classification, i.e. identifying high-yielding, fast-growing, and stress-tolerant strains at the local level, provide a foundation for ensuring uniform commercial production, and be a platform for the choice of better strains.

Keywords: Culture, Morphology, *Pleurotus ostreatus*, Taxonomy