TITLE:

Valorization of agro‐industrial waste for the advancement of mushrooms and their production yield

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Abstract:

Volvariella volvacea is one of the world-famous edible mushroom varieties cultivated in lignocellulosic agricultural waste as a growth media. The present study aimed to investigate the growth and characteristics of V. volvacea and analyze the diference between the V. volvacea production yield using pineapple leaves medium compared to the oil palm empty fruit bunch (EFB) medium. The biochemical analysis of the substrate was conducted to estimate the substrate’s moisture percentage, crude fber, ash content, and mineral content. The study results revealed that the type of substrate signifcantly (P < 0.05) afected the mycelial growth, moisture content, and yield of V. volvacea. The fastest growth of mycelium was exhibited on pineapple leaves substrate with mycelium invasion within 3 days. Pineapple leaves also have the highest fruiting body formation diameter (2.57 cm) and moisture content (91.61%). However, there were no signifcant diferences (P > 0.05) observed in other parameters, including cap diameter and stipe length, weight, and biological efciency (BE) of V. volvacea. In summary, the results demonstrate the possible expenditure of pineapple leaves to cultivate V. volvacea, which would provide a protein-rich food source and help farmers grow V. volvacea with the biological conversion processes of agro-industrial wastes.

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