

EFFECTS OF DIFFERENT SUBSTRATES COMPOSITION ON THE GROWTH OF *Pleurotus ostreatus* and *Pleurotus florida*

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Abstract: The nutritional composition of mushroom is majorly affected by the growth substrate and the method of cultivation. This research evaluated the growth performance of *Pleurotus ostreatus* and *Pleurotus florida* on sawdust (Mahogany), rice bran, corn flour, yam peel, corn flour+ maize bran, sawdust + rice bran, yam peel + sawdust. Preparation of substrates was carried out by weighing 2kg of each sterilized substrate homogeneously mixed with calcium carbonate in a bag. The spawns were inoculated with sterile knife on the substrate. The bags were then tied and left in a dark room at room temperature and good ventilation for 21 days. Data collected were subjected to Analysis of Variance (ANOVA). The results on morphological studies on *P. florida* growth revealed that mushroom grown on sawdust has the highest value in height (7.50cm) and weight (12.13g). Mushroom grown on maize bran has the highest value in length of stipe (5.23cm) and sawdust + yam peel has the highest maturity period (6.67days). Mushroom grown on sawdust + yam peel has the highest number of fruiting body (3.67) and highest number of days for pin head formation was recorded in sawdust (51.00). The results on *P. ostreatus* growth revealed that, mushroom grown in substrate sawdust + rice bran has the highest value in height (7.03cm), Mushroom grown on maize bran has the highest value in weight (18.66g). Sawdust has the (3.40cm) value in length of stipe and number of days for pin head formation of mushroom growth. Mushroom grown in substrate maize bran has the highest number of mushroom fruiting body (7.00). The results on proximate composition of *P. florida* grown in sawdust was 16.15% moisture content followed by sawdust + rice bran (14.55%). Sawdust + rice bran recorded 17.70% fibre followed by maize bran (15.30%). Mushroom grown on rice bran, sawdust + rice bran was recorded highest in ash content (14.05%) while sawdust + rice bran was 17.00% in protein followed by maize bran (14.65%). The highest percentage of carbohydrate was obtained from mushroom grown on yam peel (67.65%) while the least was 21.7% on sawdust + rice bran. In *P. ostreatus* highest percentage of moisture content and fibre was obtained (16.70%) and (16.95%) respectively. Mushroom grown on maize bran was having the highest percentage of lipids and protein (8.55%) and (17.50%) respectively. Percentage Ash was highest in mushroom grown on rice bran (14.05%) followed by sawdust (13.65%). Mushroom grown in corn flour + maize bran produced the highest percentage of carbohydrate (64.95%).

Keywords: *P. florida*, *P. ostreatus*, mushroom, substrate

Introduction

Mushroom has been defined as a macro-fungus with a distinctive fruiting body, which can be hypogeous or epigeous, large enough to be seen with the naked eye and to be picked by hand (Chang and Miles, 2014). Oyster mushroom (*Pleurotus* species) belongs to the family of Tricholomataceae and is usually found clustering naturally on dead trees at spring season (Lee, 2016). Among all species of mushroom, the oyster mushroom is the second widely cultivated mushroom worldwide following the *Agaricus bisporus* (Kües and Liu, 2012). *Pleurotus* spp. are of their simple, low cost production technology and high biological efficiency (Mane et al., 2016). Mushrooms are increasingly being recognized as important food products for their significant role in human health, nutrition and disease. Several species of mushrooms are of great importance because of their medicinal properties, for example, they are active against hypercholesterolaemic conditions, hypertension, diabetes, cancer and other infections (Alam et al., 2014). The nutritional