DEVELOPMENT AND EVALUATION OF CORNCOB-BASED MUSHROOM SUBSTRATE MEDIUM FOR SUSTAINABLE AMERICAN OYSTER MUSHROOM (*Pleurotus* spp.) PRODUCTION

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The American white oyster mushroom (*Pleurotus ostreatus*) is widely cultivated due to its rapid growth, high productivity, and adaptability. But rising costs and limited availability of quality sawdust have driven interest in alternative substrates. Agricultural residues such as corn cobs offer a sustainable and cost-effective option. This study evaluated the suitability of crushed corn cobs as an alternative substrate component for the cultivation of *Pleurotus ostreatus* under local conditions. Five substrate formulations were tested: T1 (Sawdust 100%), T2 (Corncob 25% + Sawdust 75%), T3 (Corncob 50% + Sawdust 50%), T4 (Corncob 75% + Sawdust 25%), and T5 (Corncob 100%). Growth and yield parameters, including mycelial growth rate, days to complete pinhead initiation, number of fruiting body development and effective fruiting body development, fresh weight, dry weight, cap diameter and stem thickness, were observed across three flushes. Data were analyzed using SPSS; one-way ANOVA followed by Tukey's HSD test at 5% significance level. Results indicated that mycelial growth and yield performance varied significantly ($p < 0.05$) among the different corncob-based substrate formulations. The fastest substrate colonization was observed in T2. The shortest duration for pinhead initiation and fruiting body development was recorded in T3 ($p < 0.05$). The highest fresh yield was also obtained from T4($p < 0.001$) and it is significantly different from the other 4 treatments. The highest dry weight was obtained by T5(mean= 64.00±17.29 g). In both morphological features, stable performance was shown by T3. Overall, substrate formulations containing crushed corn cobs demonstrated comparable or superior performance to the conventional sawdust substrate in terms of growth rate and productivity. In conclusion, crushed corn cobs can be effectively utilized as a sustainable alternative substrate component for *Pleurotus ostreatus* cultivation, with the T3 formulation showing the most promising results under the conditions of this study.

Keywords: agricultural waste utilization, edible mushroom, mushroom cultivation, *Pleurotus ostreatus*, sawdust alternative, substrate formulation