

ABSTRACT

Mushrooms are valued for their nutrition, medicine and culinary uses. They can grow on agricultural and forestry wastes, but the sources are affected by declining agricultural productivity and seasonality. Bagasse is the best substrate for mushroom production. However, its availability is fast diminishing from the sugar industry. Mushroom production is an economic activity in Vihiga County, largely promoted by Vihiga Mushroom Project. The project is faced with imminent collapse due to suspension of bagasse supply from sugar factories. As a result, production declined from 73370kg in 2009 to 1782kg by 2011. In an attempt to promote mushroom production, there has been need to identify alternative materials to replace bagasse. A potential substrate identified was water hyacinth. The plant is able to produce 10m tons of dry biomass annually from L. Victoria. Studies showed that it can be used for mushroom production. However, issues of concern including possible use as a replacement to bagasse, the effect of water hyacinth mixed with sawdust and economic profit on production of oyster mushroom are unknown. Therefore, the purpose of this study was to conduct an economic evaluation of water hyacinth and sawdust as alternative substrates for oyster mushroom production in Vihiga County. The objectives were to; evaluate the possible use of water hyacinth as a replacement to bagasse for production of oyster mushroom, evaluate the possible use of water hyacinth mixed with sawdust as a substitute to bagasse for production of oyster mushroom and determine the effect of water hyacinth alone and when mixed with sawdust on economic profit of oyster mushroom production. The study was anchored on the Discovery and a Creation theory of Entrepreneurship. It was guided by a conceptual framework showing interrelationships of water hyacinth, sawdust, bagasse and oyster mushroom production. Completely Randomized Design was used. Primary data was collected from experiment while secondary data was through review of records. The data was analyzed using ANOVA and BCA techniques. The results of mushroom yield using water hyacinth was 1861g implying low yield, 4049g from water hyacinth mixed with sawdust meaning high yield compared to 4350g of bagasse. There was a significant difference in mushroom yield between water hyacinth and bagasse (39.11) meaning water hyacinth was inferior to bagasse. Water hyacinth mixed with sawdust compared to bagasse was insignificant (0.51) at $p=0.05$. This implied that yields are the same at $P=0.05$. All the substrates had positive Economic net present value and economic benefit-cost ratio meaning there was no significant difference. Conclusions are that water hyacinth alone cannot replace bagasse but water hyacinth mixed with sawdust can be a substitute to bagasse. ENPV and EBCR for economic profits were low and high respectively. The study recommended use of water hyacinth and water hyacinth mixed with sawdust to replace bagasse. From an economic front, both types were recommended. These results are useful to Vimpro, Vihiga County and scholars.