ENDOPHYTIC ENTOMOPATHOGENS: APPLICATIONS AND OPPORTUNITIES FOR BIO-ENTREPRENEURSHIP IN AFRICA

BY

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SUB THEME

AGRICULTURAL BIOTECHNOLOGY IN ECONOMIC DEVELOPMENT (ABD)

AGRICULTURAL BIOTECHNOLOGY, IMPROVED FOOD VALUE AND PRESERVATION (ABF)



BECP5

Evaluation of The Antibacterial and Coagulation Potentials of Empty Oil Palm (*Elaeis Guineensis*) Fruit Bunch Ash for the Treatment of Kitchen Wastewater

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ABSTRACT

In domestic waste, kitchen wastewater is a major contributor of water pollution. Kitchen Wastewater is highly organic, biological in nature containing suspended solids, oil and grease, and can pose health treats on humans and the environment when it is not properly managed. Their search aims to determine effect of different concentrations, 2g/100ml, 4g/100ml, 8g/ 100ml and 10g/100ml of Empty Oil Palm Fruit Bunch (EOPFB) asha natural coagulant on the physicochemical parameters of Kitchen wastewater generated in a Private University cafeteria. Kitchen wastewater was collected for a period of ten days and was analyzed using standard physicochemical and microbiological procedures. Physicochemical parameters (pH, EC, TDS, TSS, BOD and COD) and microbiological indicators; total aerobic and E. coli count were used to assess the effect of the treatment. Statistical analysis using one-way analysis of variance (ANOVA) showed significant differences in pH, EC, TDS, TSS, and COD while there was no statistical difference in BOD and turbidity. Furthermore, the microbiological indicators showed an increase in total aerobic count ranging from 0.5x 10⁷ cfu/ml (2g/100ml of EOPFB ash in day 0) to 13.4 x 10⁷ cfu/ml (10g/100ml of EOPFB ash in day 10). Coliforms were observed to be present throughout this analysis at the different concentrations. In addition to being cheap, abundant in nature, non-toxic, effective and biodegradable, EOPFB ashcan be regarded as a good option for the treatment of Kitchen wastewater because there was a statistical reduction in BOD, COD, TSS, and turbidity. However, there was no significant reduction in the microbial load; also, E. coli was seen post treatment, thus indicating poor antibacterial properties of EOPFB ash as natural coagulants. Furthermore, the treatment of wastewater using EOPFB ash will drastically reduce problems associated with solid wastes caused by palm oil industries ultimately.