



ASSESSMENT ON FERMENTATION AND BIOCONVERSION OF SOME OIL PALM (*ELAEIS GUINEENSIS* L.) WASTES

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ABSTRACT

Fermentation is one of the oldest applied biotechnological methods been employed in food processing for many years. Oil palm wastes are acceptable to ruminant at low level inclusion in the diet. Solid state fermentation of oil palm wastes was carried out for five days. Microbial analysis, chemical and proximate compositions of the wet and dry bioconverted samples were determined. The bacterial population of oil wastes during fermentation decreased from 1.0×10^8 to 1.6×10^7 cfu/ml. Isolated bacteria included *Bacillus cereus*, *Bacillus subtilis*, *Micrococcus luteus*, *Proteus vulgaris*, and *Staphylococcus aureus*. Fungi load also increased from 1.0×10^3 to 2.0×10^4 sfu/ml. The isolated fungi were *Aspergillus niger*, *Brachysporium nigrum*, *Neurospora crassa*, and *Saccharomyces cerevisiae*. Titratable acidity, pH and temperature of the oil palm wastes during fermentation were in the range of 0.03 - 0.77%, 4.16 - 4.60 and 29.50 – 32.65⁰C respectively. There was great increase in the protein, fibre, ash and fat content. The study had shown that oil palm wastes can be bioconverted to animal feeds and this would reduce environmental pollution.

Keywords: Assessment, bioconversion, fermentation, oil palm, waste