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**Bio-composting process development by SSF for utilization agro-industrial wastes** (Conference Paper)Kabbashi, N.A.<sup>a</sup> [✉](#), Zahangir Alam, M.D.<sup>a</sup>, Ainuddin, M.<sup>b</sup> [👤](#)<sup>a</sup>International Islamic University, Bioenvironmental Engineering Research Unit (BERU), Department of Biotechnology Engineering, KL, Malaysia<sup>b</sup>International Islamic University, Department of Biotechnology Engineering, KL, Malaysia**Abstract**[View references \(13\)](#)

The wastes derived from oil palm industries are generated every year and becoming a great concern, consequently, an urgent development of bio-composting process has been investigated. Bio-composting is an environmental friendly bioconversion process where its products could be utilized as plant growth enhancement. In Malaysia about 50 million tons of Palm Oil Mill Effluents (POME) and about 40 million tones of Oil Palm Biomass (OPB) in forms of empty fruit bunches (EFB), oil palm trunks (OPT), and oil palm fronds (OPF) are generated from palm oil industries every year, the management practice pose significant environmental problems. This study was concerning about simple composting process using selected substrates, POME and EFB plus wheat floor as a cosubstrate. The strains of *P. chrysosporium*, *T. harzianum*, *A. niger* (A 106, S 101), and *Penicillium* isolated from POME were used for effective bio-composting process. Tray bioreactor was used to evaluate the efficient composting process through solid state bioconversion. The composting time required to complete the process was two months and some parameters were determined to evaluate the compost quality. In the entire process merely, percentage of OM decreased to about 3% while total nitrogen content initially at 0.744 g/g increased to 2.96 g/g. The C/N ratio and GI achieved were 17 and 95% respectively. The maturity of the compost could be reflected by C/N ratio, pH and GI measurement. The use of POME and EFB as mixed substrates with the induced microorganisms is a new composting trial where it has been expected to receive a good result in order to overcome a conventional composting process. © Springer-Verlag Berlin Heidelberg 2007.

**Author keywords**

C/N ratio GI Microorganisms Oil palm waste SSF

**Indexed keywords**

Engineering controlled terms: Bioconversion Biomedical engineering Composting Effluents Industrial wastes Microbiology Microorganisms Oil shale Plant life extension Quality control Waste treatment Waste utilization

Compendex keywords: C/N ratio Environmental-friendly GI Oil palm waste Palm oil mill effluents Plant growth enhancements Solid state bioconversions SSF

Engineering main heading: Palm oil

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 Kabbashi, N.A.; IIUM, Malaysia, Jalan Gombak, KL, Malaysia

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