

Physicochemical changes in windrow co-composting process of oil palm mesocarp fiber and palm oil mill effluent anaerobic sludge.

ABSTRACT

The objective of this study is to investigate the characteristics and physicochemical changes in windrow co-composting process of oil palm mesocarp fiber (OPMF) and palm oil mill effluent (POME) anaerobic sludge at pilot scale. The addition of POME anaerobic sludge as a nutrient source and microbial seeding into the OPMF compost led to the prolonged of thermophilic condition (50– 68°C) until day 39 of treatment. The pH value was remained stable (6.8-7.8) throughout the process whereas the moisture content was reduced towards the end of treatment with final moisture content around 50%. The final matured compost was achieved within 50 days with C/N ratio of 12.6. In addition, considerable amount of nutrients and low level of heavy metals were detected in the final matured compost. The results is indicated that windrow co-composting of OPMF and POME anaerobic sludge could produce acceptable quality of compost that can be used as fertilizer or soil amendment.

Keyword: Oil palm mesocarp fibre; Palm oil mill anaerobic sludge; Compost.