

Composting paper and grass clippings with anaerobically treated palm oil mill effluent

Abstract

Purpose

The purpose of this study is to investigate the composting performance of anaerobically treated palm oil mill effluent (AnPOME) mixed with paper and grass clippings.

Methods

Composting was conducted using a laboratory scale system for 40 days. Several parameters were determined: temperature, mass reduction, pH, electrical conductivity, colour, zeta potential, phytotoxicity and final compost nutrients.

Results

The moisture content and compost mass were reduced by 24 and 18 %, respectively. Both final compost pH value and electrical conductivity were found to increase in value. Colour (measured as PtCo) was not suitable as a maturity indicator. The negative zeta potential values decreased from -12.25 to -21.80 mV. The phytotoxicity of the compost mixture was found to decrease in value during the process and the final nutrient value of the compost indicates its suitability as a soil conditioner.

Conclusions

From this study, we conclude that the addition of paper and grass clippings can be a potential substrate to be composted with anaerobically treated palm oil mill effluent (AnPOME). The final compost produced is suitable for soil conditioner.