

The potential of treated palm oil mill effluent (POME) sludge as an organic fertilizer

ABSTRACT

Palm oil mill contributed a significant benefit to agro-based industry and social-economic for Malaysia. Palm oil mill effluent (POME) is considered as a polluted wastewater and the treated POME sludge was produced from the open treatment ponds. The objective of this study was to determine the physicochemical characteristics of treated POME sludge and its potential as an organic fertilizer. It was collected from the dumping ponds in Felda Jengka 8, palm oil mill. Physicochemical characteristics, sampling and preparation of samples were analyzed according to the standard method of soil and the wastewater. The samples were collected after one and six month of age with different depths (one, two and three meters). The statistical analysis revealed that the depth was not significant on the physicochemical characteristics. The characteristics of the treated POME sludge was measures using CHNS-O, C/N ratio, solid analysis, heavy metal, macro and micronutrient, moisture content, and pH. However, the elements of oxygen, iron and pH were shown an interaction effects with time. In conclusion, the treated POME sludge has shown significant effect and the potential used as an organic fertilizer. Indeed, further studies on crops response are being conducted to prove the findings.

Keyword: Dumping pond; Organic fertilizer; Treated POME sludge