Vermicomposting of Oil Palm empty fruit bunch and its potential in supplying of nutrients for crop growth

ABSTRACT

Oil palm (Elaeis guineensis Jacq.) plantations generate a large quantity of by-products, such as empty fruit bunches (EFB) and palm fronds. These by-products are very difficult to decompose in natural condition. Vermicomposting of these by-products would be able to provide some useful nutrients for crop growth. There was no information available on the composting condition of these oil palm by-products using earthworms. Therefore, the objective of this study was to evaluate the ability of earthworms in vermicomposting of oil palm by-products and to evaluate the quality of the vermicompost. Only one species of earthworm, Efoetida, was able to survive in these by-products and further evaluated for stocking density, precomposting time and size of organic materials, and vermicompost quality. One month precomposting and the addition of cow dung as food supplement to earthworms would be able to reduce the mortality rate and maintain the growth of earthworms. The ratio of 1:10 (earthworm/media) was the most appropriate for the earthworms to survive in EFB culture. Vermicomposting of EFB was able to provide beneficial nutrients, such as N, K, and Mg to plants.

Keyword: Composting conditions, Cow dungs, Crop growths, Empty fruit bunches, Food supplements, Mortality rates, Natural conditions, Oil palm empty fruit bunches, Oil palms, Organic materials, Stocking densities, Vermi-composting, Vermicompost