Effects of different rates of Jatropha curcas seedcake waste on growth and vegetative traits of oil palm (Elaeis guineensis)

ABSTRACT

The cost of fertilizer for oil palm planting increases yearly as most soils used in the plantation especially in tropics heavily depend on chemical fertilizer which equally contributes to environmental degradation. A study was carried out to evaluate the effect and suitable rate of J. curcas seed cake waste on growth and vegetative traits of oil palm seedlings as an alternative or substitute to chemical fertilizer. A factorial experiment was carried out using randomized complete blocks design with three replicates. Treatments included ground J. curcas seed cake applied to the seedlings at different rates of 10, 15, 20, 25 and 30 g per plant. Fertilizer, N.P.K Blue 20 g/plant was used as control evaluation. Application of 25 g/plant profoundly performed as the conventional fertilizer N.P.K (control) noticeable in plant growth traits like girth increment. The chlorophyll content in the leaves increased with increasing rate of Jatropha seedcake, but control treatment indicated highest chlorophyll content. There was no significant difference in total dry weight among the treatments, though J. curcas seed cake wastes at 20g, 25g, and 30g showed an increasing total dry weight. Treatment 25 g/plant of J. curcas seed cake gave the highest root: shoot ratio. Results suggest that foliar nutrient from J. curcas was suitable for oil palm seedlings based on nutrient requirements for oil palm seedlings that would achieve high growth vigor and biomass yield.

Keyword: Jatropha curcas seed cake; Oil palm; Elaeis guineensis; Vegetative traits; Fertilizer