

ABSTRACT

Oil palm (*Elaeis guineensis* Jacq.) is a strategic commodity in Indonesia's plantation sector. Seedling quality, particularly during the pre-nursery phase, is a key determinant of crop productivity. This study aimed to determine the effect of applying oil palm frond compost and NPK fertilizer on the growth of oil palm seedlings. This study used a factorial randomized block design (RBD) with two factors: oil palm frond compost dosage (0, 200, and 400 g/polybag) and NPK fertilizer (0, 2.50, and 2.75 g/polybag), each with three replicates. The results showed that palm frond compost affected leaf chlorophyll content at 90 days after sowing (DAS), root volume, and root length, while NPK fertilizer increased plant height at 30 DAS, stem diameter at 30 DAS, leaf chlorophyll content at 90 DAS, root volume, and root length. The interaction between the two also showed a significant effect on these parameters. However, most other parameters did not show significant differences. In conclusion, a combination of 200 g/polybag of oil palm frond compost and 2.50 g/polybag of NPK fertilizer is the optimal dose for supporting the early growth of oil palm seedlings.

Keywords: oil palm seedlings, pre-nursery, oil palm frond compost, NPK fertilizer