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## **Application of Compost Enhanced the Secondary Root Structure Which Reduced the Fertilizer Requirement in Oil Palm Main Nursery**

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**Abstract.** The use of compost in the produced from oil palm empty fruit bunch and palm oil mill effluent anaerobic sludge mix media was tested to evaluate the plant growth in oil palm main nursery. Even Conventional inorganic fertilizer increased production but consumption and excessive application that eventually led to environmental pollution. This study was carried out to evaluate of the reduction of applied inorganic fertilizer and effect compost as mixed media from oil palm waste. Mixed media containing 50% compost in soil with soil and chemical fertilizer as the control composition of 25%, 50%, 75% and 100% chemical fertilisers were tested for the plant growth and root structure. All the treatment with compost with compost showed significantly improved plant growth compared to the control corresponded directly to the enhanced secondary root structure. Interestingly, the plant growth and secondary root structure in the mixed media with 50% chemical fertilizer composition was not significantly different to that with 100% and 75% inorganic fertilizer. Therefore it is concluded that application of 50% compost in the mixed media resulted enhance secondary root structure which helped to reduce the chemical fertilizer requirement by 50% in oil palm main nursery.

**Keywords:** compost planting media, oil palm nursery, secondary root structure