

UNIVERSITI TEKNOLOGI MARA

**THE EFFECTS OF PARTIALLY OIL
FREE DECANTER CAKE
APPLICATION ON GROWTH
PERFORMANCE OF OIL PALM
SEEDLINGS**

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MSc

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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ABSTRACT

Oil palm decanter cake (OPDC) has a high potential to be used as organic media for oil palm seedlings due to its substantial nutrient content. However, the residual oil in OPDC could give negative effect to plant growth. This study was conducted to examine the potential of hot water treated OPDC as organic media and its effects on the growth performance and nutrient uptake of oil palm seedlings. OPDC was treated with hot water (100°C) to remove the oil content and chemical analysis was determined on N, P, K, Ca and Mg. The removal of residual oil was determined by using soxhlet extraction method with hexane as exchange solvent. The treated OPDC was utilized as organic media for oil palm seedlings under nursery condition. The ratios used for media were 25 %, 50% and 75% of treated OPDC on dry basis. The results showed that after the hot water treatment, the residual oil was reduced from 15% to 11%. There was also reduction on pH content by 11% and moisture content increased up to 84.32%. Once applied as planting media, the highest growth performance and biomass accumulation were recorded using 25% treated OPDC. The plant height, stem girth, leaf number, leaf area, leaf dry weight, stem dry weight and root dry weight were improved 28%, 15%, 10%, 60%, 72%, 45% and 18%, respectively as compared to the control. This study concluded that, appropriate amount of treated OPDC addition in growing media could improve the growth of oil palm seedling and reduced the dependency on inorganic fertilizer.

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