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# Effect of Complex-diverse Microbial Ecosystem Application (Bio-fertilizer) on Vegetative Growth of Oil Palm Seedlings\*

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The objective of this research was to determine the combination effect of inorganic fertilizers and complex-diverse microbial ecosystem (CDME) on vegetative growth of oil palm nursery. This research was carried out from November 2012 until November 2013 at Surya Adi Estate - PT Binasawit Makmur, South Sumatera. The trial was arranged in randomized complete block design (RCBD), with nine combinations of trial and three replications. These replicates were :  $P_1B_1$  (50% inorganic fertilizer);  $P_1B_2$  (50% inorganic fertilizer + medium CDME);  $P_1B_3$  (50% inorganic fertilizer + standard CDME);  $Pft_1$  (75% inorganic fertilizer);  $Pft_2$  (75% inorganic fertilizer + medium CDME);  $Pft_3$  (75% inorganic fertilizer + standard CDME);  $Pft_1$  (100% inorganic fertilizer);  $Pft_2$  (100% inorganic fertilizer + medium CDME) and  $Pft_3$  (100% inorganic fertilizer + standard CDME).

The best treatment combination was  $Pft_3$ . This treatment significantly increased the vegetative growth of plant height and bole diameter. The treatment of  $Pft_3$  increased the frond base diameter up to 12.60 per cent (76.47 mm) to the control (67.92 mm). Moreover, it increased the plant height up to 14.30 per cent (120.94 cm) to the control (105.82 cm). This study proved that the application of bio-fertilizer CDME was able to reduce inorganic fertilizer by 25 per cent ( $Pft$ ) and increase growth.

Keywords: Complex-diverse microbial ecosystem, inorganic fertilizer, nursery.

