



USE OF INDOLE-3-BUTYRIC ACID (IBA) AND NANOFORMULATED HORMONE IN MARCOTTING OF MALAYSIAN HYBRID OF CACAO (*THEOBROMA CACAO* L.)

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ABSTRACT

Experiments were conducted at Agricultural Experiment Station, Lagalag, Tiaong, Quezon (13.8⁰ North latitude, 121.40⁰ East longitude, 35 m.a.s.l) to examine rooting response of marcotted Malaysian hybrid of cacao (*Theobroma cacao* L.) stems as influenced by Indole-3-butyric acid (IBA) at 0, 100, 200, 300, 400, 500, 600, 700, 800, 900 ppm, nanoformulated hormone at 0, 50, 100, 150, 200, 250, 300, 350, 400, 450 ppm and distilled water. Experiments were arranged in Randomized Complete Block Design (RCBD) replicated three times. Results showed IBA and nanoformulated hormone concentrations were significant on all root parameters. 900 ppm IBA and 250 ppm nanoformulated hormone developed callus in 5 days, produced highest percent rooting (80 and 100 %), root density (4.00 and 5.00), roots dry matter (4.80 and 3.67 g plant⁻¹), root length (7.77 and 12.17 cm), number of roots (8.33 and 15.67), number of lateral roots (15.67 and 16.67), specific root length (1.60 and 3.40 cm g⁻¹) and root diameter (0.40 cm), respectively. Increasing concentrations of IBA tends to increase rooting responses of marcots and decrease rooting characteristics at every increasing level of nanoformulated hormone. Proximate analysis showed significant changes in nitrogen and carbohydrate concentrations before and after experiments. Cacao can be vegetatively propagated via marcotting in combination with either IBA or nanoformulated hormone for increase supply and year round availability of planting materials which is limited due to the long gestation period of cacao.

Keywords: Callus, Development, Gestation, Influence, Rooting.