

UNIVERSITI TEKNOLOGI MARA

**EFFECTS OF DIFFERENT TYPES OF
Trichoderma FORMULATIONS ON
PINEAPPLE (*Ananas comosus*) cv.
MD2 GROWTH PERFORMANCE,
PLANT NUTRIENTS
AND *Trichoderma* AVAILABILITY**

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MSc

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AUTHOR'S DECLARATION

I declare that the work in this dissertation 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.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

An increasing demand for pineapple cv. MD2 has led to the intensification of the crop cultivation. A field study was conducted to determine the effects of different carriers of *Trichoderma* formulations on growth performance; concentration and nutrient content status and inoculant availability in soil. Treatments were applied before planting with T1 (*Trichoderma*+molasses), T2 (*Trichoderma*+molasses+compost) and T3 (uninoculated plant). Chemical fertilizers was applied as recommended by MPIB. Plant (D leaf) and soil analysis were determined using the D leaf samples at 16, 24 and 64 weeks after planting (WAP). Combination of *Trichoderma* with both molasses and compost produced the highest average total dry mass production of pineapple (1107.85g), followed by *Trichoderma* with molasses (1016.04g) and control (975.32g) during final harvesting. Dry mass of D leaf also showed significant difference of plant treated with *Trichoderma* (T1 - 22.3g and T2 - 25.7g) with control (15.9g). T2 produced the highest amount of dry mass production for each plant part compared to T1 and T3. Application of both treatment with *Trichoderma* produced highest average plant height with respectively 56cm at 20WAP. The highest number of leaves and stem diameter were recorded from T1; obtained 35 leaves and 63cm diameter respectively. No significant difference observed in yield production (fruit fresh weight) and total soluble sugars. T2 produced the highest average fruit weight and total soluble sugars (2.35kg & 16.53 °brix) followed by T1 (2.24kg & 16.12 °brix) and T3 (2.04kg & 16.10 °brix). Similar trend was observed in N concentration of pineapple D leaf and root. T2 recorded the highest N concentration in both D leaf and root (1.62% & 0.64%) followed by T1 (1.52% & 0.63%) and T3 (1.36% & 0.54%). The incorporation of *Trichoderma* with molasses and compost gained more inoculant population compared to the single-use molasses. Present study indicated that combination of *Trichoderma* with molasses and compost produced better growth performance, enhanced plant nutrient concentration and produced more inoculant population in soil for pineapple cv. MD2. Therefore, the study suggested that the combination of both molasses and compost with *Trichoderma* spp. can be used by farmers for gaining good quality of pineapple cv. MD2.

Keywords: *Trichoderma*, compost, molasses, growth performance, nutrient status

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