GROWTH RESPONSES OF *Brassica Rapa Chinensis L.* (PAK CHOY) PLANTED USING NFT HYDROPONIC SYSTEM AND NFT VERMIPONIC SYSTEM IN A GREENHOUSE

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DECLARATION

This Final Year Project is a partial fulfilment of the requirements for a Degree of Bachelor of Science in Agrotechnology (Hons.) Horticulture Technology in the Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA.

It is entirely my own work and has not been submitted to any other University or higher education institution, or for any other academic award in this University. Where use has been made of the work of other people it has been fully acknowledge and fully referenced.

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ABSTRACT

GROWTH RESPONSES OF *Brassica Rapa Chinensis L.* (PAK CHOY) PLANTED USING NFT HYDROPONIC SYSTEM AND NFT VERMIPONIC SYSTEM IN A GREENHOUSE

Pak choy is one of the Malaysian's most common leafy herbs. It has been widely grown in a greenhouse to increase the crop production by creating the optimal climate conditions needed for plant growth. However, rising in the demand and issues on the overuse of chemical fertilizers may affect production cost and harmful to environment. Therefore, approach of using the vermiponic NFT system using the vermicompost leachate is established as a substitute to the chemical fertilizer. Vermicompost leachate appears to be a viable option in the vermiponic system. The objective of this study was to determine growth responses of Brassica rapa chinensis L. (Pak choy) in hydroponic and vermiponic nutrient solution and to evaluate the overall plant growth responses of Brasicca rapa chinensis L. (Pak choy) in hydroponic and vermiponic nutrient solution. The study was carried out in a greenhouse that located at Plantation Unit UiTM, Perlis branch using a Randomized Complete Block Design (RCBD) with two (2) treatment and three (3) replications in each treatment. The nutrient solution is applied in both NFT system (hydroponic and vermiponic). The number of leaf and plant biomass of Brassica rapa chinensis L. was collected in 45 days of treatment. The Independent T-test ($p<0.05$) was used to evaluate the growth response of Brassica rapa chinensis L. From the findings, it was shown that the use of vermiponic solution gives significant increase in the mean plant height which is 18.824cm in treatment 1 (hydroponic) and 22.753cm in treatment 2 (vermiponic), mean of the fresh weight which is 89.277g in treatment 1 (hydroponic) and 153.389g in treatment 2 (vermiponic). The mean dry weight of Pak choy is 8.039g in treatment 1 (hydroponic) while 10.741g in treatment 2 (vermiponic). Besides, there is no significant different found in the root length which is 21.305cm in treatment 1 (hydroponic) and 27.064cm in treatment 2 (vermiponic) and number of leaves is 20.277 in treatment 1 and 27.028 in treatment 2 (vermiponic). Thus, it was proven that the vermiponic NFT system could gives higher quality of Pak choy as compared to the common hydroponic NFT system in the greenhouse.

TABLE OF CONTENTS