



اَوْنِيُوْرَسِيْتِي تِيْكْنُوْلُوْجِي مَارَا
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**FINAL YEAR PROJECT
(REPORT)**

TITLE:

**OPTIMIZATION OF AB FERTILIZER FOR PLANT GROWTH IN
FERTIGATION USING CENTRAL COMPOSITE DESIGN**

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ABSTRACT

The COVID-19 pandemic is a health and humanitarian crisis threatening the food security and nutrition for people worldwide, including Malaysia. Urban Agriculture Program initiated by the Ministry of Agriculture and Food Industry is seen as a program that helps urban households reduce the cost of living through the self-production of some of the foodstuffs needed. One of them is the fertigation method. Fertigation is a fertilizer application process in which the drip system mixes fertilizer within the irrigation water. The fertilizer solution is uniformly distributed in the irrigation system. The chosen method is a hydroponic method and suitable in an urban area with no soil for planting. Fertigation is also an easy and cost-effective method. To satisfy its demand, the plant needs to consume ample essential nutrients because of its production speed. This study investigated the optimum condition for water spinach growth of wick technique fertigation. The optimum condition for the water spinach height was determined through central composite design (C.C.D.) as the experiment (D.O.E.) design. The critical factors selected for this study were the concentration of A.B. fertilizer and wick length. Obtaining an adequate A.B. fertilizer concentration is crucial because it will affect the growth of water spinach. The statistical analysis based on a C.C.D. showed that 1.5 mL concentration of A.B. fertilizer and 12 cm of wick length were the optimum conditions to achieve the best water spinach growth in 21 days. The C.C.D. as a response surface method was proved to be useful to obtain optimum conditions of water spinach plant growth.

Keywords: COVID-19, Fertigation, Food Security, Statistical Analysis, Urban

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