



اَوْبُو سَيِّدِي تَيْكُونُو لُو كِي مَبَارَا
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**DETECTION AND QUANTIFICATION OF ASCORBIC ACID IN
YELLOW CRIMSON WATERMELON (*Citrullus lanatus*) BY
USING REVERSE-PHASE HIGH PERFORMANCE LIQUID
CHROMATOGRAPHY (HPLC)**

By:

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DECLARATION

I hereby declare that this thesis is my original work and has not been submitted previously or currently for any other degree at UiTM or any other institutions.

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ABSTRACT

DETECTION AND QUANTIFICATION OF ASCORBIC ACID IN YELLOW CRIMSON WATERMELON (*Citrullus lanatus*) BY USING REVERSE-PHASE HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC)

Watermelon or *Citrullus lanatus* (Thunb.) Matsum. And Nakai is a good source of phytonutrients and antioxidants such as Vitamin C, water soluble vitamins which is an essential micronutrient that have several important biological functions. Vitamin C as a potent antioxidant can eliminates reactive oxygen and nitrogen species and protective against oxidative damage. Due to lack of an enzyme human cannot synthesize ascorbic acid hence, it has to be supplemented through fruits such as watermelon. However, there are insufficient studies on ascorbic acid identification and quantification by using HPLC with better extraction method that can prevent ascorbic acid oxidation in local yellow watermelon. Therefore, this study was conducted to identify and quantify ascorbic acid compound in local yellow watermelon by using 3% Ortho-phosphoric and 8% Acetic acid extraction with 0.1% Ortho-phosphoric : Acetonitrile (95:5) mobile phase in reverse-phase High Performance Liquid Chromatography (HPLC). The retention time for the ascorbic acid in the chromatogram is 2.798 min for both standard and sample. Standard curves were linear over the concentration range from 100 to 500 µg/mL and the limits of detection and quantification were 0.47 and 1.43 µg/mL, respectively. The method was validated by doing spike recovery. The concentration of ascorbic acid in yellow flesh of local watermelon was found to be 19.05 µg/mL with percentage of 0.00002%. In conclusion, it can be stated that reverse-phase HPLC is the most preferred method to identify the presence of ascorbic acid. In addition, 3% Ortho-phosphoric and 8% Acetic acid in extraction method was a good method in order to prevent ascorbic acid oxidation.

Keywords: *Citrullus lanatus*, yellow watermelon, Ascorbic acid, HPLC, analytical method, Malaysia.