



**DETERMINATION OF ASCORBIC ACID IN *Citrullus lanatus* RED
FLESH JUICE BY THIN LAYER CHROMATOGRAPHY (TLC)
AND REVERSE PHASE HIGH PERFORMANCE LIQUID
CHROMATOGRAPHY (RP-HPLC)**

By

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DECLARATION

I hereby declare that this thesis is based on my original work. I also declare the thesis has not previously or currently submitted by any other degree student at UiTM or other institutions.

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ABSTRACT

Determination of Ascorbic Acid in *Citrullus lanatus* Red Flesh Juice by Thin Layer Chromatography (TLC) and Reverse Phase High Performance Liquid Chromatography (RP-HPLC)

Vitamin C or ascorbic acid is an essential water-soluble vitamin known for its antioxidant properties and act as a cofactor in numerous physiological reactions in the body. Being unable to be synthesized by human, ascorbic acid is consumed from most fruits and vegetables. *Citrullus lanatus*, a tropical fruit with green smooth hard rind and juicy flesh provides a rich source of ascorbic acid. For this study, Thin Layer Chromatography (TLC) and reverse phase High Performance Liquid Chromatography (RP-HPLC) separation methods were used to determine ascorbic acid in the red flesh of *Citrullus lanatus*. Ascorbic acid was extracted from *Citrullus lanatus* red flesh juice using 3 % orthophosphoric acid and 8 % acetic acid by solid-liquid extraction method. Qualitative estimation was carried out by TLC method using several solvent systems and the optimized solvent was applied as the mobile phase in RP-HPLC. As for quantitative analysis, RP-HPLC was performed on a ZORBAX Eclipse XDB-C18 analytical column (250 x 4.6 mm , 5 μ m) using isocratic elution mobile phase 0.1 % orthophosphoric acid and acetonitrile (95:5, v/v) with flow rate of 1 mL/min, column temperature of 25 °C, injection volume of 20 μ l and the wavelength detection of 254 nm. The limits of detection (LOD) and quantification (LOQ) were found as 0.47 μ g/mL and 1.43 μ g/mL respectively. Ascorbic acid was detected by RP-HPLC separation method at retention time of 2.796 minutes. High selectivity and sensitivity of RP-HPLC separation method compared to TLC allows ascorbic acid in red flesh of *Citrullus lanatus* to be detected and quantitated.