

**OPTIMIZATION OF pH AND TEMPERATURE STABILITY ON
THE EXTRACTION OF NATURAL PLANT PIGMENTS
BETACYANINS FROM LEAVES OF RED SPINACH
(*Amaranthus Gangeticus Linn.*) FOR A POTENTIAL
FOOD COLORANT PURPOSE**

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**Final Year Project Report Submitted in
Partial Fulfilment of the Requirements for the
Degree of Bachelor of Science (Hons.) Chemistry
in the Faculty of Applied Sciences
University Teknologi MARA**

JULY 2016

This Final Year Project entitled “**Optimization of pH And Temperature Stability on The Extraction of Natural Plant Pigments Betacyanins from Leaves of Red Spinach (Amaranthus Gangeticus Linn.) for a Potential Food Colorant Purpose**” was submitted by Zamir Aliff Bin Zafri, in partial fulfilment of the requirements for the Degree of Bachelor of Science (Hons.) Chemistry, in the Faculty of Applied Sciences, and was approved by

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ABSTRACT

OPTIMIZATION OF pH AND TEMPERATURE STABILITY ON THE EXTRACTION OF NATURAL PLANT PIGMENTS BETACYANINS FROM LEAVES OF RED SPINACH (*Amaranthus Gangeticus Linn.*) FOR A POTENTIAL FOOD COLORANT PURPOSE

Red spinach (*Amaranthus Gangeticus Linn.*) or “sayur bayam merah” is one of the abundance vegetables in Malaysia comes from the family Amaranthaceae. The leaves of red spinach is a potential sources of betacyanins which responsible for the bright red-violet color. The objective of this study was to assess the stability of betacyanin extraction from the red spinach leaves. In this study, the betacyanin is extracted from the leaves by using soxhlet extraction with three types of solvent which is first hexane followed by ethanol and lastly water. The first test is conducted by reacting the red-violet betacyanin extract with Iron (III) Chloride which change the color to dark green shows the presence of water soluble phenols. The total betacyanin content was determine by using T80+ UV/VIS Spectrometer (PG Instruments Ltd) and calculate which give a result of 204.035 mg/100g with wavelength of 536 nm. As for the stability study, the effect of pH towards the betacyanin extraction was studied with pH range from 2 until 12. The data showed the betacyanin extract is stable in a pH < 7 which in weak acid condition. In the study on temperature stability, the betacyanin extract was sequentially heated at temperatures of 10, 20, 30, 40, 50, 60, 70, 80, 90, and 100°C. The analysis indicate that the betacyanin displays a stable maximum absorbance at temperature range from 10°C to 70°C. As conclusion, the color extracted from the red spinach leaves have an ability to be utilized in acidic condition and high temperature.