OPTIMISATION OF PECTIN EXTRACTION ASSISTED BY MICROWAVE FROM BANANA (*Musa sapientum* L.) FRUIT PEELS USING RESPONSE SURFACE METHODOLOGY

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ABSTRACT

In this study, microwave-assisted extraction (MAE) was used to extract pectin from waste banana (*Musa sapientum* L. CV. Kluai Namwa) fruit peels. Central composite design (CCD) was used to study and optimise the effects of processing parameters' variables (microwave irradiation, extraction time, and pH) on the pectin yield, degree of esterification (DE), and galacturonic acid content (GA) of pectins extracted from dried banana fruit peels with hydrochloric acid of 0.05 M. Extraction parameters applied in this study are microwave irradiation (300-600 watt), extraction time (5-15 min), and pH (1-3). The results showed that all the process variables had significant effect on the responses. The optimum conditions for the maximum pectin yield (13.47%), DE (92.45%), and GA (87.99%) were obtained at microwave irradiation of 580 watt, extraction time of 15.86 min, and pH of 1.71. Under the optimal conditions, close agreement between experimental and predicted values was obtained. From the results, second order polynomial model was developed and it adequately explained the data variation and significantly represented the actual relationship between independent variables and the response.