



MICROWAVE ASSISTED EXTRACTION OF CUSTARD APPLE (*ANNONA SQUAMOSAL* L.) PEEL

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ABSTRACT

In recent years, custard apple fruit has been applied in food processing with various products. The purpose of this study aimed to valorize the peel as organic food waste produced by fruit processing. Microwave assisted extraction (MAE) of bioactive polyphenols from custard apple peel was performed at different aqueous ethanol composition, extraction irradiation time, solvent to solid ratio, and microwave power. Total polyphenols content (TPC) and antioxidant activities of the extracts were investigated. Response surface methodology was applied to find the optimal condition according to the central composite design with ethanol concentration ranged from 50 to 70%, extraction time from 3 to 7 min, solvent to solid ratio from 20 to 30 mL/g, and microwave power from 154 to 274 W. A quadratic model was respectively developed to correlate the investigated variables to the TPC and radical scavenging activity by DPPH and ABTS of the extracts. Optimum condition was successfully selected at an ethanol concentration of 60%, extraction time of 5 min, solvent-solid ratio of 25 mL/g, and microwave power of 214 W. With a good correlation between predicted values and actual experimental results, the developed response surface model can be used to optimize the extraction of polyphenols from custard apple peel by MAE.
