

Determination and optimization of flavonoid and extract yield from brown mango using response surface methodology.

ABSTRACT

The optimum extraction conditions to obtain the highest flavonoid content and extract yield from *Mangifera pajang* pericarp (MPP) were analyzed using response surface methodology (RSM). A full factorial central composite design was used to investigate the effects of ethanol concentration (20-80%), temperature (30-65°C) and liquid to solid ratio (20-50 mL/g) on the recovery of extract yield and flavonoids. A second order polynomial model produced a satisfactory fitting of the experimental data with regard to extract yield ($R^2 = 0.9890$, $p < 0.0001$) and flavonoids ($R^2 = 0.9652$, $p < 0.0001$). The optimum conditions to obtain higher extract yield, were 54%, 50°C, and 42.4 mL/g, while for flavonoids were 68%, 57°C, and 20.2 mL/g, respectively. The experimental values agreed with those predicted with 99% and 96% confidence interval for extract yield and flavonoids respectively. This indicates the suitability of RSM in optimizing the extraction of flavonoids and extract yield from MPP.

Keyword: Flavonoid content; *Mangifera pajang*; Optimisation