

Determination of experimental domain factors of polyphenols, phenolic acids and flavonoids of lemon (*Citrus limon*) peel using two-level factorial design

ABSTRACT

This study aimed to evaluate the significant extraction factors in achieving higher recovery yield of total polyphenols, phenolic acids and flavonoids content from *Citrus limon* peel using two-level factorial design. The effect of five independent factors including drying temperature (40–60 °C), methanol concentration (20–60%), extraction temperature (28–60 °C), extraction time (30–60 min) and storage duration (0–14 days) were evaluated. Among all the examined factors, results showed that drying temperature, storage duration and extraction temperature were the most significant and contributing factors affecting the total polyphenols, phenolic acids and flavonoids content of lemon peel at $P < 0.05$. On the contrary, methanol concentration and extraction time exhibited the least significant and contribution at P greater than 0.05. In conclusion, the experimental domain factors were successfully obtained from this experiment, Therefore, further study on optimization of the obtained factors will be conducted in the future study using response surface methodology.

Keyword: *Citrus limon*; Polyphenols; Phenolic acids; Flavonoids; Two-level factorial design