



OPTIMIZATION OF PHENOLIC COMPOUNDS EXTRACTION ON *THYMUS CITRIODORUS* INFUSION

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The popularity of infusions consumption has increased significantly in the last three decades due to their related health benefits.

Therefore, the present work aimed to optimize the extraction from lemon thyme (*Thymus citriodorus*) whole leaves, under different conditions of extraction time (t) and temperature (T) to maximize phenolic compounds and antioxidant activity of final infusions.

Ten experimental combinations of time and temperature were selected, following a central composite design, with $4 \leq t \leq 10$ min and $70 \leq T \leq 100$ °C. Each infusion was prepared using 4.5 g of whole dried leaves, and infused in 1.5 L of heated deionized water. Leaves were removed when reaching infusion time.

Phenolic compounds (determined as total phenolics by Folin-Ciocalteu and as individual compounds by HPLC) and antioxidant activity (determined by ABTS method) of the infusions were performed. Quadratic response surfaces were adjusted to phenolic compounds contents and antioxidant activity.

The results showed that longer times and higher temperatures resulted in infusions with higher values of total phenolic compounds (81.98 ± 1.99 mg gallic acid equivalent/g biomass) and antioxidant activity (36.59 ± 0.30 mg ascorbic acid equivalent/g biomass). Phenolic acids such as caffeic, ferulic and p-coumaric acids were individually identified and quantified (40.26 ± 0.89 µg/mL, 4.10 ± 1.03 µg/mL and 0.58 ± 0.06 µg/mL, respectively).

The highest content of phenolic compounds could be achieved when heated for 9.1 min at 100 °C and maximum antioxidant activity was similarly obtained when heated for 10 min at 97.2 °C.

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