

Optimization of ultrasound-assisted extraction of antioxidant phenolics from *Capparis spinosa* flower buds and LC–MS analysis

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Description

The proposed mathematical model allowed to predict total polyphenols (TP) yields and antioxidant activity (AA) of the extracts in a wide range of experimental conditions: time (t) (0–240 min), ultrasound power (US) (0–100 W), ethanol concentration (S) (0–50% ethanol in water) and temperature (T) (20–60 °C). Optimization for TP predicted that the best results was obtained at $T=60$ °C, $S=50\%$ ethanol, $US=100$ W and $t=240$ min which was 39.96 mg GAE/g dm. Simulations were made also for the antioxidant activity; optimization predicted that highest antioxidant activity should be obtained at $T=+1$, $S=+1$, $US=+0.1$ at 240 min, corresponding to 116.1 $\mu\text{mol TE/g dm}$. Both experimental and model results showed that presence of ethanol in the solvent enhanced incredibly the extraction productivity. Temperature effect was positive, but less pronounced. In addition, the phenolic ...

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