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Czech J. Food Sci.

Ondrejovič M., Kraic F., Benkovičová H.,

Silhar S.:

Optimisation of antioxidant extraction from lemon balm (*Melissa officinalis*)

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The effects of the propan-2-ol proportion in the extraction solvent (PPES), solid to liquid ratio (SLR), and extraction temperature on the extraction yield of antioxidants measured by 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical-scavenging activity and β-carotene-linoleic acid bleaching inhibition activity (BCLM) were evaluated. Secondly, total polyphenol and flavonoid contents were determined to find possible relations of these parameters with antioxidant activity. The optimal conditions for the extraction were determined using response surface methodology (RSM). The optimal conditions for the extraction of antioxidants measured by radical scavening activity (DPPH) were PPES 50.2% (v/v), 33.8 ° C, and SLR 1:147 (w/v). The optimal conditions for the

extraction of antioxidants measured by BCLM were PPES 1.15% (v/v), 61.8 ° C, and SLR 1:153 (w/v). The optimal conditions for the extraction of total polyphenols and total flavonoids were 23.3% (v/v) (PPES), 67.5 ° C, 1:148 (w/v) (SLR); 1.15% (v/v) (PPES), 80 ° C, 1:179 (w/v) (SLR); respectively. The experimental values agreed with the predicted ones within a 95% confidence interval.

Keywords:

DPPH; BCLM; polyphenols; flavonoids; response surface methodology

[fulltext]