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Czech J. Food Sci.

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Multi-experimental characterisation of grape skin extracts

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Grape skins contain a plenty of different flavonoids, most of them revealing significant antioxidant properties. In this contribution, a complex study is presented of grape skin ethanol extracts, prepared from grape skins of two vine grape varieties, Svatovavřinecké (St. Laurent) and Alibernet. Extracts were prepared from two different amounts of lyophilised grape skin powders using the pressurised fluid extraction (PFE). The antioxidant activity of the extracts was tested by EPR spectroscopy in Fenton system generating reactive radicals ($\bullet\text{OH}$, $\text{O}-\bullet$, $\bullet\text{R}$) followed by spin trapping technique. In addition, radical scavenging activity of the extracts was assessed applying 2,2-diphenyl-1-picrylhydrazyl ($\bullet\text{DPPH}$) free radical and 2,2'-azino-bis-(3-ethylbenzthiazoline-6-sulfonic acid) cation radical ($\text{ABTS}^{\bullet+}$) assays. Total phenolic content (TPC) of the individual

extracts and their tristimulus colour values (CIE Lab) were evaluated, using an UV-VIS spectrophotometer. All the data obtained were subsequently correlated and discriminated, using the multivariate statistics, involving the canonical discriminant analysis, principal component analysis, and canonical correlation analysis. Results obtained indicated that PFE is a suitable extraction technique, only slightly influencing antioxidant ability as well as composition of the so-prepared extracts. The influence of extraction conditions on the entire monitored characteristics was insignificant.

Keywords:

grape skin; ethanol extracts; PFE; EPR; DPPH; ABTS

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