IDENTIFICATION OF ANTHOCYANINS IN CHERRY CONCENTRATES USING BRIGGS-RAUSCHER METHOD COUPLED WITH NIR SPECTROSCOPY

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Briggs-Rauscher reaction is a very useful and applicable method in determination of antioxidant activity because the pH of it is about 2, what is the pH of the stomach. The results can more realistic demonstrate the efficacy of antioxidants in human body. The BR reaction is an oscillating reaction and the oscillations are quenched, when free radicals (from fruit) are added. When in the suspension are no free radicals any more, the oscillations will start again. The time of no oscillations is called inhibition time (IT) and it is monitored potentiometrically, because the inhibition time is proportional to the concentration of antioxidants of added sample. To try to identify the monitored samples, near infra read spectra (NIR, 900-1700 nm) were recorded.

In the work are phenol extracts of cherry's analysed by use of Briggs-Rauscher method. The samples of cherry's were stored under different conditions (basement-without light source, room temperature, termostated). Total phenol content was determined colorimetrically with Folin-Ciocalteu reagent using gallic acid as a calibration standard and the results are expressed as gallic acid equivalent (mg GAE/L).

The samples were tested also with the NIR spectra with the aim to identify (distinction) of different stored cherry samples according their absorption.

The correlations between the total phenols and inhibition time wary between 0.85-0.94. Using mathematical models, relative antioxidant activities of antioxidants in cherry and amount of total phenols are estimated. In the model, the antioxidant activity is the output value calculated according input value, the total phenols and the correlation for this prediction model is 0.98.

Data for NIR spectra, total phenols and antioxidative capacity have shown also a good correlation (over 0.8).

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