

Determination of some flavonoids content in commercial juices from berries using HPLC method

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Abstract

A simple, sensitive, specific, precise and accurate isocratic reversed phase-high performance liquid chromatography (RP-HPLC) method was developed and validated for analysis of some flavonoids (quercetin, kaempferol, rutin, kaempferol-3-glucoside, luteolin-7-glucoside) in commercial juices from berries (black currant and cherry). The developed chromatographic method was optimized for the separations of flavonoids using Phenomenex Luna C8(2) column (150 × 2.0 mm, 3 μm) as stationary phase with mobile phase consisting of a mixture of formic acid, at pH 2.8 and acetonitrile (80 : 20 v/v). Flow rate of the mobile phase was 0.5 ml/min and UV detection at 370 nm was employed. The column was thermostated at 30°C. Chromatographic separations of analytical peaks were achieved within 30 min. Linearity of the method was established over the concentration ranges of 0.05 – 20 μg mL⁻¹ for all compounds with correlation coefficients greater than 0.9985 with LOQ ca. 0.039 μg/ml and LOD ca. 0.013 μg/ml for all analytes. SPE method was employed to extract the bioflavonoids from samples of juices. The efficiency of extraction was better than 95%. The obtained results (mg/100 mL of juice) for different bioflavonoids in black currant and cherry juice were for quercetin, 0.34 and 0.21, for kaempferol, 0.09 and 0.06 mg, for rutin, 0.54 and 0.41, for luteolin-7-O-glucosid, 9.32 and 15.6 and kaempferol-3-O-glucosid, 0.02 and 0.34, respectively. The proposed method was found to be sensitive, specific and was successfully applied for the estimation of flavonoids in commercial juices.

Biography

Andrija Ciric has completed his PhD at Faculty of Science, University of Kragujevac, Serbia and Post-doctoral studies at Faculty of Chemistry, University of Warsaw, Poland. He is presently working as a Teaching Assistant at Faculty of Science in Kragujevac, Serbia.

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