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of the Chemical Societies
of the South-East European Countries

BOOK OF ABSTRACTS

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UCB - Union of Chemists in Bulgaria
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Optimization RP-HPLC method for determination some bioflavonoids in *Brassica oleracea* species and their antioxidative activity

Andrija Ćirić, Nevena Ivanović*, Milica Cvijović*, Milena Jelikić-Stankov**,
Ljubinka Joksović, Predrag Đurđević

Faculty of Science, University of Kragujevac, P.O.Box 60, 34000 Kragujevac

**Faculty of Agronomy, University of Kragujevac, 32000 Čačak*

***Faculty of Pharmacy, University of Belgrade, Vojvode Stepe 452, 11000 Belgrade*

Rapid RP-HPLC method with UV (DAD) detection for simultaneous quantification of bioflavonoids quercetin, apigenin, catechin, epicatechin, kaempferol and luteolin in some food samples (cauliflower, broccoli and brussels sprouts *Brassica oleracea* species) was developed with the aid of LC-Simulator (ACD Labs® suite) software.

The extracts of food samples obtained either by Soxhlet, ultrasonic extraction, maceration or water extraction were analyzed for bioflavonoid content using standard addition method. The optimized separation was achieved on Hypersil GOLD aQ column with isocratic elution and mobile phase composition A: 2 % acetic acid in water and B: acetonitrile. R_s values were in the range from 1.3 to 3.1, indicating good selectivity of the method. The obtained results (mg/100 g fresh weight) for different bioflavonoids were for quercetin in the range 0.64 – 0.90, 0.54 – 0.71, 0.45 – 0.69, kaempferol in the range 0.62 – 0.80, 0.52 – 0.71, 0.43 – 0.71, catechin in the range 0.31 – 0.52, 0.16 – 0.58, 0.23 – 0.48, luteolin in the range 0.26 – 0.43, 0.11 – 0.27, 0.16 – 0.30, apigenin in the range 0.09 – 0.18, 0.12 – 0.23, 0.08 – 0.19 and epicatechin in the range 0.25 – 0.41, 0.15 – 0.31, 0.23 – 0.38 for cauliflower, broccoli and brussel sprouts samples, respectively and generally show good agreement with published data. Low detection limits (0.014 – 0.063 $\mu\text{g/mL}$) were obtained with acceptable recoveries (90 – 109 %). Total time of analysis was less than 11 min, therefore the proposed method represents significant improvement over existing methods.

Extracts from *Brassica* vegetables, obtained using different extraction procedure, were studied for their radical scavenging effects. Radical-scavenging activity was measured by UV/Vis spectrophotometry using stable 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical. Fresh *Brassica* had the antioxidant activity almost two times higher than frozen samples. Scavenging of DPPH showed second-order kinetics at the beginning of the assay period and later the first-order one. Different kinetics suggested the presence of polymerized and/or less active antioxidants with different scavenging mechanisms for particular polyphenolic compounds.

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