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OCTOBER 5-6 2018

PROGRAM

I

ZBORNIK RADOVA

Programme

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USMENE PREZENTACIJE SEKCIJSKA PREDAVANJA

Datum (Date): **Petak (Friday), 5.10.2018.**

Mesto (Place): **Rektorat BU, Studentski trg, 1 Rectory building, Hall I floor**

16-18h Sala 8 (Hall 8)	**SEKCIJA (SECTION): FOOD AND HEALTH**	Moderatori: Prof. Dr Ljiljana Gojković-Bukarica, Prof. Dr Jelena Lozo Moderators: Prof. Dr Ljiljana Gojković-Bukarica, Prof. Dr Jelena Lozo
16:00-16:15	Razvoj prirodne boje za hranu zasnovane na antocijaninima dobijenim iz epikarpa *Prunus spinosa* L. Development of a natural anthocyanin-based food colorant obtained from the fruit epicarp of *Prunus spinosa* L. ***Sekcijsko predavanje (Sectional Lecture)***	**Barros (Leichtweis et al)** Politehnički institut Braganca i direktor Centra za istraživanje (CIMO), Braganca, Portugal. Direktor Mountain Research Centra (CIMO), Bragança, Portugalija Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança, Bragança, Portugal
16:15-16:25	Polifenol vina, rezveratrol širi renalnu arteriju dijabetičnog pacova aktivacijom vaskularnih kalijumovih kanala Wine polyphenol, resveratrol produses relaxation of isolated renal artery of diabetic rats by activation of vascular potassium channels	**Gojković-Bukarica et al.** Institut za farmakologiju, kliničku farmakologiju i toksikologiju, Medicinski fakultet, Univerzitet Beograd Institute of Pharmacology, Clinical Pharmacology and Toxicology, Medical Faculty, University of Belgrade, Belgrade, Serbia
16:25-16:35	Dijetarni antocijani i njihovi metaboliti snižavaju adheziju i dijapedezu monocita preko mehanizama koji regulišu permeabilnost endotelnih ćelija Dietary anthocyanins and their metabolites lower monocyte adhesion and diapedesis through mechanisms that regulate endothelial cell permeability	**Krga et al.** Centar izuzetne vrednosti u oblasti istraživanja ishrane i metabolizma, Institut za Medicinska Istraživanja, Univerzitet u Beogradu, Beograd, Srbija; Francuski nacionalni institut za agronomska istraživanja, Univerzitet Klermon Overnja, Klermon Feran, Francuska;

Development of a natural anthocyanin-based food colorant obtained from the fruit epicarp of *Prunus spinosa* L.

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Prunus spinosa L. is a wild shrub with bitter and astringent fruits with poor commercial value. Nevertheless, they are rich sources of anthocyanins, more specifically cyanidin 3-rutinoside and peonidin 3-rutinoside, which are concentrated in the epicarp. These compounds possess recognized colouring properties and have been increasingly explored for substitution of artificial colorants, for being safer alternatives. In this context, the present work aimed to develop an anthocyanin-based food colorant obtained from *P. spinosa* fruit epicarp. The conditions that maximize the extraction were optimized, comparing heat (HAE) and ultrasound (UAE) assisted extraction techniques. For that purpose, a response surface methodology was applied, using a circumscribed central composite design with three variables and five levels, being the relevant variables time, temperature (HAE) or power (UAE), and ethanol concentration. The anthocyanin compounds were quantified by HPLC-DAD-ESI/MS. Furthermore, the bioactivity of the optimal extract was assessed through antioxidant, antimicrobial, and cytotoxic activity assays. UAE was the most efficient method, under optimal conditions of 5.0 ± 0.2 min, 400 ± 32 W, and 48 ± 3% ethanol, where the extraction yield was 68.60 ± 2.1%, with a total anthocyanin content of 18 ± 2 mg/g (dried extracted residue-basis) and 11,8 ± 0,8 mg/g (dried epicarp-basis). Additionally, these response values were slightly improved when the solid-to-liquid ratio effect at the optimal conditions in a dose-response format was tested, showing a steady decreasing pattern in the range of 5 to 250 g/L. Regarding bioactive properties, the obtained extract presented antioxidant activity, with EC_{50} values of 204.22 ± 0.02 µg/mL for the TBARS assay and 296 ± 4 and 509 ± 3 µg/mL for OxHLIA method at 60 and 120 min of reaction, respectively; and antimicrobial properties, allowing the growth inhibition of 9 bacteria strains of public health interest in concentrations from 2.5 to 20 mg/mL. Besides, the obtained extract did not show hepatotoxic effects on a porcine liver primary cell culture (PLP2), being thus safe for incorporation into foodstuff. Lastly, the anthocyanin-based extract was introduced in a traditional Brazilian confectionary product, “beijinho”, where its colouring capacity was confirmed.

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