

UNIVERSITY OF NIŠ  
Faculty of Technology, Leskovac

**BOOK OF ABSTRACTS**  
13<sup>th</sup> SYMPOSIUM  
" Novel Technologies and Economic Development "

Leskovac, October, 18 - 19, 2019

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## INFLUENCE OF DIFFERENT SOLVENTS ON ANTIOXIDANT CAPACITY OF EXTRACTS FROM RED ELDERBERRY (*Sambucus racemosa* L.) FRUIT

Vojkan Miljković<sup>1</sup>, Biljana Đorđević<sup>1</sup>, Zoran Todorović<sup>1</sup>, Vlada Veljković<sup>1</sup>,  
Marija Marković<sup>2</sup>, Ljubiša Nikolić<sup>1</sup>, Goran Nikolić<sup>1</sup>

<sup>1</sup> University of Niš, Faculty of Technology, Leskovac, Serbia

<sup>2</sup> University of Niš, Faculty of Science and Mathematics, Department of Biology and Ecology, Niš, Serbia

Elderberries (family *Adoxaceae*, genus *Sambucus* L.) consist of 9 species. Elderberry fruit is rich in phytochemicals, of which the phenolic compounds are the most common. Phenols are known for their antioxidant properties. Deep eutectic solvents (DES) represent a new class of solvents, and are considered as ideal substitutes of conventional organic solvents. These solvents provide high efficiency and offer a high yield of a great variety of compounds. The subject of this study was determination of antioxidant capacity of extracts from *S. racemosa* L. (red elderberry) provided with different solvents.

Dried and grinded (0.2-6 mm) fruit of red elderberry (1 g) was extracted with 10 cm<sup>3</sup> of the corresponding solvent (acetone, methanol, chloroform, choline chloride glycerol (ChCl:G) or choline chloride urea (ChCl:U)). The extraction was carried during 180 minutes at 60 °C in a thermostated chamber with constant stirring. Antioxidant activity of extracts was determined spectrophotometrically by using DPPH assay.

The extraction yields obtained by ChCl:U (1:2), acetone, chloroform, methanol and ChCl:G (1:2) were: 6%, 6,5%, 9,6%, 15,2% and 18% respectively. IC<sub>50</sub> values of extracts obtained by different solvents are decreasing in the following order: chloroform 2,940 mg/cm<sup>3</sup>, acetone 1,391 mg/cm<sup>3</sup>, methanol 0,217 mg/cm<sup>3</sup>, ChCl:G 0,138 mg/cm<sup>3</sup>, ChCl:U 0,058 mg/cm<sup>3</sup>. Results in this study shows that extract obtained with ChCl:U posses best antioxidant activity.

Based on the results obtained in this study, it is concluded that DES present better solvents for the extraction of extractive substances from red elderberry fruit than conventional solvents which are often in use. Extraction yield obtained with ChCl:G is higher than ones with ChCl:U, acetone, chloroform or methanol. Also, DES used as solvents for extraction provides extracts which possesses better antioxidant properties than conventional solvents.