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University of Belgrade
210th Anniversary
OCTOBER 5-6 2018

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I
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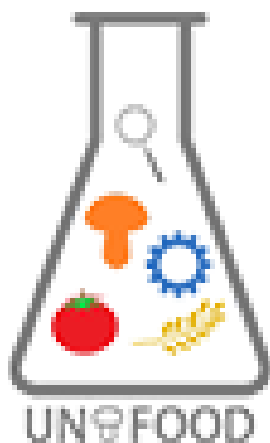
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UNIFood Conference

October 5-6 2018 University of Belgrade **210th Anniversary**



11:15-11:25	<p><i>Amaranthus caudatus</i> L. izvor betacijanina sa antimikrobnim i potencijalom za bojenje</p> <p><i>Amaranthus caudatus</i> L. as a source of betacyanins with coloring and antimicrobial properties</p>	<p>Roriz et al.</p> <p>Politehnički institut Braganca i direktor Centra za istraživanje (CIMO), Braganca, Portugal. Direktor Mountain Research Centra (CIMO), Bragança, Portugalija</p> <p>Nutricija I Bromatologija, Fakultet za farmaciju, Univerzitet u Madridu, Španija</p> <p>Centro de Investigaçao de Montanha (CIMO), Instituto Politécnico de Bragança, Bragança, Portugal</p> <p>Nutrición y Bromatología II. Facultad de Farmacia. Universidad Complutense de Madrid (UCM), Madrid, Spain.</p>
11:25-11:35	<p>Alternativni izvor n-3 masnih kiselina poreklom iz biljaka</p> <p>Alternative sources of n-3 fatty acids from plant origin</p>	<p>Petropoulos et al.</p> <p>Univerzitet u Tesalonikiju, Odeljenje za poljoprivredu, useve i ruralnu sredinu, Volos, Grčka</p> <p>University of Thessaly, Department of Agricultur, Crop Production and Rural Environment, Volos Greece</p>
11:35-11:45	<p>Masno-kiselinski sastav ulja semenki internacionalnih i autohtonih sorti grožđa</p> <p>Fatty acid composition of lipids of international and autochthonous grape seed varieties</p>	<p>Milinčić et al.</p> <p>Univerzitet u Beogradu, Poljoprivredni fakultet, Beograd, Srbija</p> <p>University of Belgrade, Faculty of Agriculture, Belgrade, Serbia</p>
11:45-11:55	<p>Hemijski sastav karotenoida i tokola u masnom ulju iz semena autohtone sorte grožđa - tamjanike (<i>Vitis vinifera</i> L.) i njegova antimikrobna aktivnost</p> <p>Chemical composition of carotenoids and tococls in fatty oil from the seeds of autochthonus grape variety - tamjanika (<i>Vitis vinifera</i> L.) and its antimicrobial activity</p>	<p>Stojković et al.</p> <p>Institut za biološka istraživanja „Siniša Stanković“, Univerzitet u Beogradu, Beograd, Srbija</p> <p>Institute for Biological Research „Sinisa Stankovic“, University of Belgrade, Belgrade, Serbia</p>



UNIFood Conference

Predavanje i usmene prezentacije u okviru sekcija/Lecture and oral presentation within sections
BEZBEDNOST I KVALITET HRANE / FOOD SAFETY AND QUALITY

BKH16 / FQS16 U/O



Amaranthus caudatus L. as a source of betacyanins with coloring and antimicrobial properties

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Amaranthus caudatus L. is a plant belonging to the Amaranthaceae family, and is a very interesting crop, since it resists drought, heat, and pests, and adapts readily to new environments. The visual appearance of this plant is a bright red-violet, being betacyanins the compounds responsible for the color, and several bioactivities. Therefore, and despite being considered a good source of nutrients with high quality proteins, vitamins, minerals and bioactive molecules, such as phenolic compounds, *A. caudatus* can also be commercially exploited as a source of natural colorants. In the last decade, and due to the growing demand of consumers, natural matrices have been used to search natural colorant alternatives, in order to replace the artificial counterparts, which have been revealed some toxic effects. Betacyanins are natural colorants and have been used in the food industry, not only because of the high colouring power, but also due to recognized bioactive properties, such as antioxidant and antimicrobial, among others. Thus, the objective of this work was to obtain an extract rich in betacyanins to be used as food coloring agents, offering an alternative source of these coloring compounds, but at the same time conferring bioactive properties. A dynamic maceration extraction was carried out, being the extracts characterized by HPLC-DAD-ESI/MS regarding betacyanins' composition. The antibacterial activity was evaluated against a panel of four Gram-positive and five Gram-negative bacteria, and the absence of cytotoxicity was confirmed in a porcine liver primary culture. By the chromatographic analysis it was possible to identify four compounds, being amaranthine (171 ± 1 mg/g extract) and isomaranthine (38 ± 1 mg/g) the two major compounds, and betanin (1.6 ± 0.1 mg/g) and isobetanin (1.3 ± 0.1 mg/g) the minor compounds. The extract presented minimum growth inhibitory concentrations (MICs) ranging from 20-10 mg/mL, with no cytotoxicity. After such promising results, this plant can be a viable alternative to obtain natural colorant ingredients.

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