



PROGRAM  
BOOK

XXII Congress

# EuroFoodChem

June 14-16, 2023 | Belgrade, Serbia

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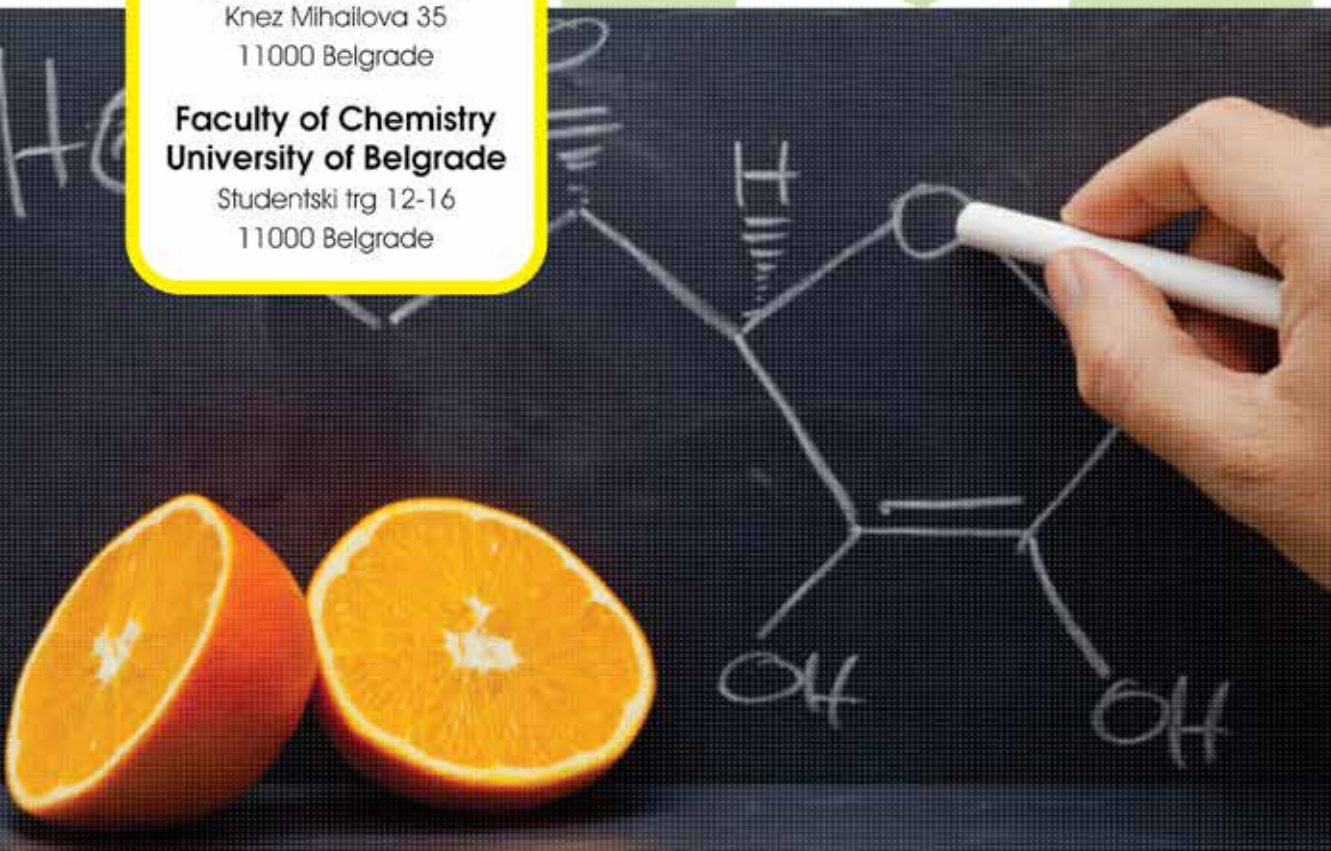
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**Serbian Academy of  
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## **CONGRESS TOPICS**

- **Food composition, quality, and safety**
- **Food sustainability, including byproducts valorization**
- **Novel foods**
- **Food and health, functional foods, and ingredients**
- **Chemical reactions and interactions of food components**
- **Chemical changes in food under processing and storage**
- **Food adulteration, authenticity, and traceability**
- **Novel methods for food chemistry**
- **Food contaminants**

## **GENERAL INFORMATION**

### **Official Language:**

English. No simultaneous translation will be provided:

### **Registration Desk opening times.**

Day 1: June 14, 2023, 8:30-10:30h

Day 2: June 15, 2023, 8:30-10:30h

Day 3: June 16, 2023, 8:30-10:30h

**The Registration Desk is situated in Serbian Academy of Sciences and Arts  
Knez Mihailova 35, 11000 Belgrade**

## **LOCAL ORGANIZER**

### **PCO – ARIA Conference & Events doo**

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**Liability and Insurance:** Neither the Food Chemistry Division of EuChemS nor the local organizers will assume any responsibility whatsoever for damage or injury to persons or property during the Congress. Participants are recommended to arrange for their personal travel and health insurance.

**Certificate of Attendance:** Will be given at the registration desk and sent by email after the end of the Congress.

## Effect of blackcurrant skin ingredients on the physicochemical properties of pork meatballs

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Testing the possibility of using plant origin ingredients in meat products has become a very popular research topic during the last years [1]. Such ingredients may play different roles in meat products, e.g., for partial replacement of expensive animal proteins, inhibition of microbiological and oxidative processes during storage, and increase of health benefits. Small fruit (commonly called berries) ingredients have been tested in meat mainly for their antioxidant potential and high content of bioactive compounds [2]. Moreover, berry processing by-products such as juice pressing pomace have also attracted attention as a source of cheap health beneficial substances, which may be used in meat products [3]. Most recently we applied black currant seed ingredients in meatballs and evaluated their effects on various quality characteristics [4]. Considering chemical and physical heterogeneity of pomace, which consists of seeds, skins and pulp residues, in this study we used the skins, which were mechanically separated from the seeds and afterwards processed into different ingredients for their testing in meatballs. The main hypothesis of this study is based on the possibility to control oxidative and other undesirable processes, which occur during storage and processing of meat and meat products and may have negative influence on their quality. It is well-known that such undesirable changes can be controlled by using antioxidant-rich plant origin ingredients. Blackcurrants are also rich in polyphenolic antioxidants and other bioactive compounds.

The following blackcurrant skin ingredients were tested in meatballs by adding 2% of each: dried and milled raw (RS), defatted by the extraction with supercritical CO<sub>2</sub> (DF), insoluble residues after extracting defatted skins with ethanol and water (IR), combined extract of defatted residues consecutively isolated with EtOH and H<sub>2</sub>O (EHE). Pork meatballs were packed under modified atmosphere (70% N<sub>2</sub> and 30% CO<sub>2</sub>) and stored for 7 days at 4 °C. Due to the presence of high content of red-dark coloured anthocyanin pigments, all added ingredients decreased the lightness (L\*) and yellowness (b\*) of meatballs, while their redness (a\*) significantly increased. There were no remarkable changes in pH-values during the 7 days storage period; however, all the additives except the fibre-rich IR, decreased the pH of meatballs at the day of preparation, most likely due to the addition of black currant organic and other acids. The lowest cooking loss was achieved for the products with RS and IR, due to their high content of insoluble fibres; while the addition of EHE resulted in the highest cooking loss, as it contained only soluble components. The meatballs with rich in antioxidant polyphenols DF and EHE ingredients demonstrated the highest 2,2 diphenyl 1 picrylhydrazyl free radical (DPPH•) scavenging capacity values, while the products with IR gave similar results to control. The effects of blackcurrant ingredients on the composition of volatile compounds were analyzed by head space solid phase microextraction gas chromatography with time-of-flight mass spectrometry (HS-SPME-GS-TOF).

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### References:

1. G. Rocchetti, G. Ferronato, V. Sarv, K. Kerner, P.R. Venskutonis, L. Lucini, *Current Opinion in Food Science*, 49 (2023) 100967.
2. J.M. Lorenzo, M. Pateiro, R. Domínguez, F.J. Barba, P. Putnik, D. Bursac Kovačević, A. Shpigelman, D. Granato, D. Franco, *Food Research International*, 106 (2018) 1095-1104.
3. M.E.D. Silva, C.V.B. Grisi, S.P. da Silva, M.S. Madruga, F.A.P. da Silva, *Food Bioscience*, 49 (2022) 101877.
4. K. Kerner, R. Kazemavičičūtė, I. Jõudu, G. Rocchetti, L. Lucini, A. Tänavots, S. Hussain, P.R. Venskutonis, *Meat Science*, in press (2023), 109160.