



PROGRAM
BOOK

XXII Congress

EuroFoodChem

June 14-16, 2023 | Belgrade, Serbia

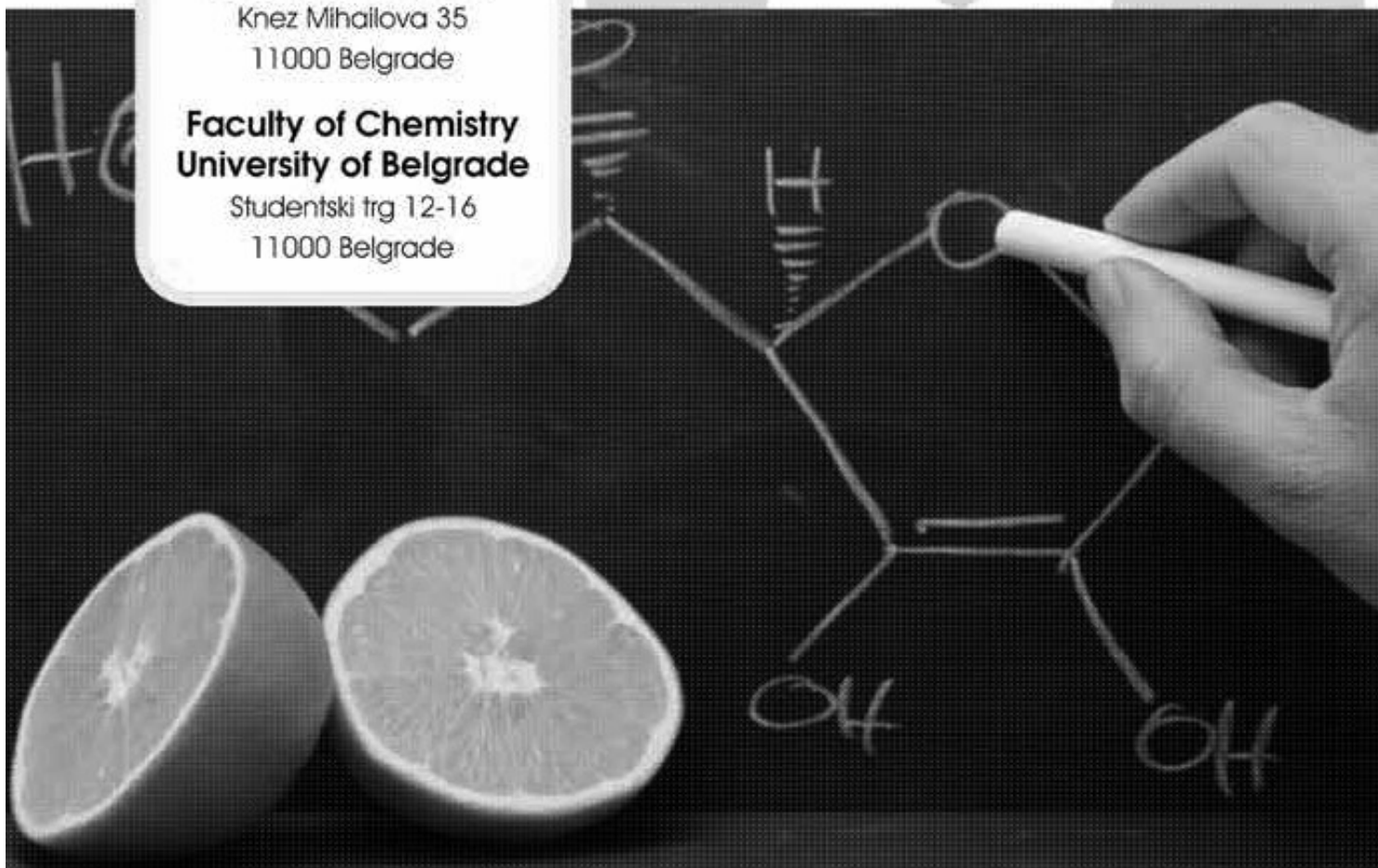
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**Serbian Academy of
Sciences and Arts**

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WELCOME ADDRESSES

Under the auspices



Ministry of Science, Technological
Development and Innovations,
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Serbian Academy of
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Organizers



EuChemS, Division of Food Chemistry



Serbian Chemical Society

Dear Colleagues and Friends,

On behalf of the Food Chemistry Division of EuChemS and Serbian Chemical Society with support of the Serbian Academy of Sciences and Arts, I am delighted to welcome all the experts from different countries to Belgrade, Serbia to XXII EuroFoodChem.

Following the previous successful meetings of EuroFoodChem since 1981, Belgrade is for the first time honored to host this important international gathering in the field of food chemistry.

After a very successful virtual edition in 2021, we are thrilled to organize a face-to-face meeting again.

The Congress program offers both exciting recent trends in food chemistry research and engaging networking opportunities that we all have missed over the last couple of years. In addition to abstract presentations and lectures by world renowned speakers, we will be offering a variety of networking options. The EuroFoodChem is an excellent opportunity for initiating or strengthening cooperations and knowledge.

For centuries Serbia has been strategically the most important region in the Balkans; many conquerors fought for this piece of land and left their own traces in time and space. We can only hope that the rich and tightly packed scientific program will allow you to explore the capital of Serbia and historical places nearby.

Serbia is a country of diversities and the city of Belgrade, as a place of intersection of different cultures and history, is the most beautiful example of it. Wine making has a long tradition in Serbia and it is now experiencing its renaissance. Vineyards have been a part of the diverse Serbian landscape since before the times of Romans. Belgrade is also a new hot spot on the European gastronomical map. In a city with so many historical influences, tradition intertwines with innovation.

I would also like to thank all of you who have worked with devotion on putting up this meeting together. On behalf of all of us involved in the event preparation, I wish you a great time at EuroFoodChem, and thank you for your participation and contribution to the high scientific quality of the event.

Hope that you will find the Congress and your stay in Belgrade valuable, enjoyable, and memorable!

Congress Chairman

Tanja Ćirković Veličković

COMMITTEES

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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
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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.

Application of organic sunflower cake to composite flour and effect on the properties of the dough and the fiber content of the bread

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Enriching bakery products is a promising way to increase their nutritional value and make them more attractive to consumers [1]. Daily fibre intake should range from 17g (children aged 7-11) to 26g (men aged 19-34) [2], however bread made from wheat flour, or wheat rye flour is poorer in fibre content [3]. As part of the research, homogenized organic sunflower cakes obtained as a secondary residue after pressing sunflower oil were applied to wheat rye flour. It is one of the options for the recovery of by-products and the sustainability of food production [4]. The effect of the addition of 5%, 10% and 15% on the rheological properties of the dough (Mixolab) and objective (Volscan) and sensory properties of the experimental bread was evaluated. The addition of sunflower cake reduced water absorption of composite flour and dough yield, but extended dough development time, which must be considered when setting the kneading mode in the technological process. The addition of sunflower cake also affected the rate of gelatinization of starch and weakened the protein structure in composite flours. The fermentation activity of the dough was not fundamentally affected by the additions, which we perceive positively. The amount of sunflower cake added negatively affected the volume of experimental breads, however, breads with an addition of up to 10% were sensorily acceptable. The consumption of bread (10% sunflower cake in composite flour) at a rate of 150 g per day (recommended amount) [5] covered the daily fibre requirement at 26.5% to 38.3% (Fig. 1). In addition to its contribution from the point of view of the circular economy, the application of by-products of the food industry is also potentially beneficial from a nutritional point of view and from the point of view of providing sufficient sources of valuable substances, e.g., fibre, in the nutrition of the population.

Fig.1. Ensuring the daily fibre requirement by consuming bread with the addition of sunflower cake of 10%

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Obtaining of FOS by controlled hydrolysis of inulin with *Aspergillus welwitschiae* FAW1 endoinulinase

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Most of the functional oligosaccharides (OS) consist of monomers, present in varying degrees of polymerization (DP) ranging between 3 and 10 units [1]. DP of inulin-type fructooligosaccharides has a great impact on fermentability and their utilization by probiotic bacteria such as Bifidobacteria, thus they have a great impact on their health-promoting effect [2]. Technological properties of fructooligosaccharides (FOS) can improve the physicochemical and sensory characteristics of food products, leading to their increased application in the food industry [3,4]. It has been found that microbial endoinulinase plays an important role in production of inulin-type fructooligosaccharides. *Aspergillus welwitschiae* FAW1 strain has proven to be non-toxicogenic with the absence of biosynthetic gene clusters for mycotoxins (ochratoxins and fumonisins) and therefore safe for use in food production [5]. Growing on the natural substrate, triticale (*Triticosecale* sp) FAW1 strain produced inulinase complex from which endoinulinase (InuA) was purified by chromatographic techniques. FOS was prepared by time-controlled hydrolysis of inulin. Monitoring kinetics and determining the amount of obtained FOS by TLC and HPLC methods led to a conclusion that FOS production by hydrolysis of inulin is kinetic dependent reaction. Depending on the reaction time, FOS with different compositions are obtained. The largest amount of produced FOS (DP 2-6) has been in 15-20 minutes of the reaction, where the resulting mixture contains small amount of mono- and disaccharides. The obtained FOS were characterized on antioxidant capacity. Produced FOS showed significant antioxidant potential according to ORAC method which classifies them as potent candidate as additives in functional food. Endoinulinase (InuA) form *A. welwitschiae* FAW1 considered as key enzyme in FOS preparation. The composition and length of the produced FOS can be varied by controlling the reaction time, depending on the needs of the market and their eventual application.

Acknowledgments: This study was supported by a grant from the Ministry of Science, Technological Development and Innovation of Republic of Serbia (Contract numbers 451-03-47/2023-01/200026, 451-03-47/2023-01/200168)

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