XXII euro FOOD chem

PROGRAM BOOK

XXII Congress

EuroFoodChem

June 14-16, 2023 | Belgrade, Serbia

https://xxiieurofoodchem.com
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Serbian Academy of Sciences and Arts
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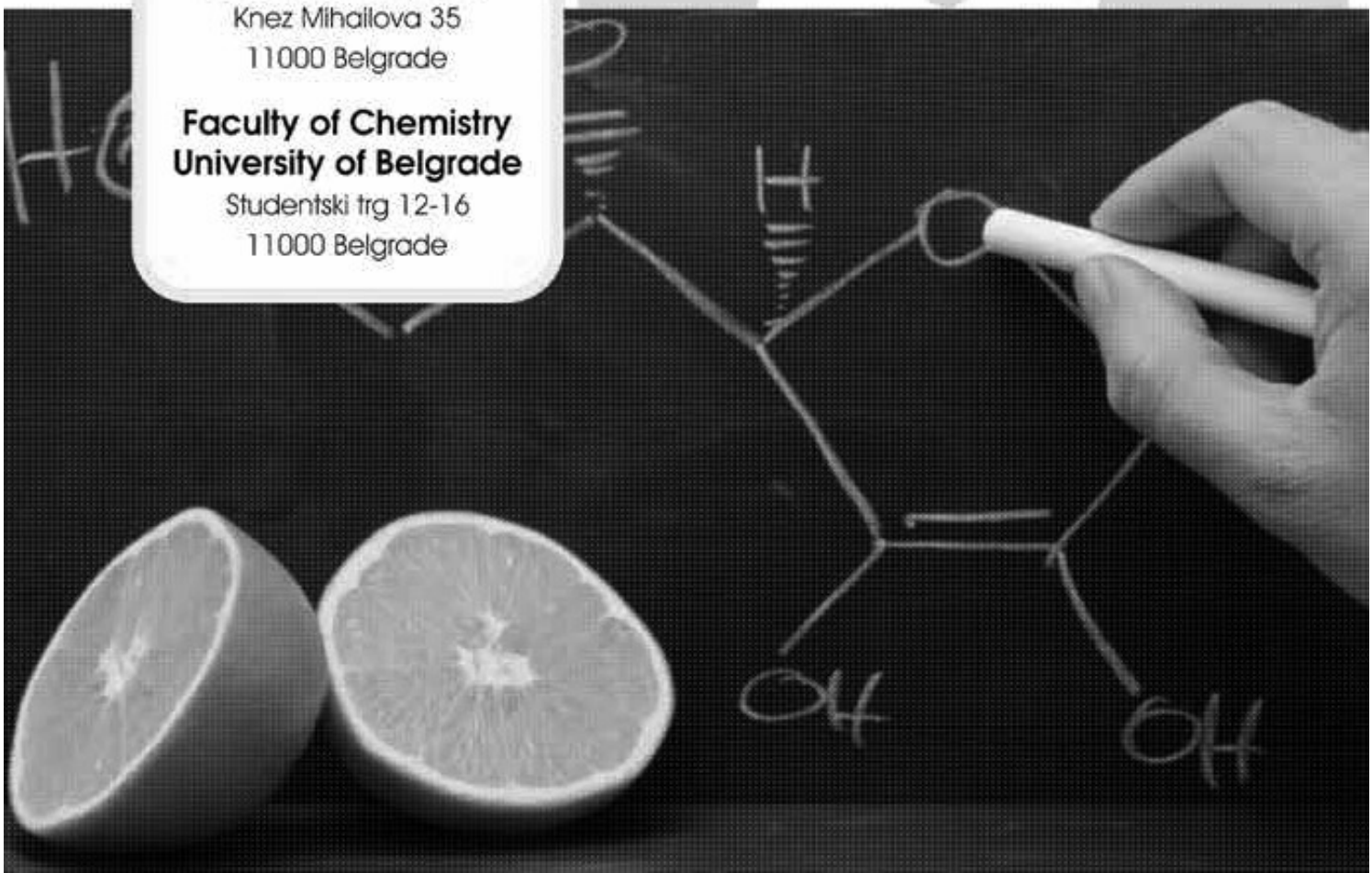

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Under the auspices

Ministry of Science, Technological Development and Innovations, Republic of Serbia

Serbian Academy of Sciences and Arts

Organizers

EuChemS, Division of Food Chemistry

Serbian Chemical Society

WELCOME ADDRESSES

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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LOCAL ORGANIZER

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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.

Highly active xylanase used in juice clarification

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Xylan makes a significant part of cereals and fruits, which are used in the food industry. Therefore, enzymes that hydrolyze xylan (xylanases) have found application in the modification of cereal-based food, improving the digestibility of animal feed, and improving the texture of bakery products[1]. In the juice industry, the main problems are turbidity, viscosity, and sedimentation during standing, which are caused by polysaccharides present in fruit (pectins, cellulose, and hemicellulose (xylan))[2]. Pineapple, apple, orange, and tomato have a high content of hemicellulose, so xylanases are suitable for improving the properties of these juices[3,4]. The *Aspergillus tubingensis* FAT 35 strain (considered safe for use in the food industry) growing on SSF medium composed of corn cob produced a high level of xylanase enzyme (4.03 U/mL) and not that high pectinase (1.02 U/mL) and cellulase (1.43 U/mL) activities at pH 3 which is pH of freshly prepared apple, pineapple and organge juice.. The fermentation extract was used for clarification of pineapple, apple, and orange juice and for increasing the filtration rate and yield of these juices. Results indicate that *A. tubigensis* xylanase could be used for clarification and improvement of properties of juices of fruits that contain hemicellulose in high proportion.

Acknowledgments: The authors would like to thank the Ministry of Education, Science and Technological Development of Republic of Serbia (Contract numbers: 451-03-47/2023-01/200026,451-03-47/2023-01/200168,451-03-9/2023-14/200017) for financial support.

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Potential application of green extracts rich in phenolics for innovative functional foods: Natural deep eutectic solvents as medium for isolation of biocompounds from berries

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Natural Deep Eutectic Solvents (NADES) are novel and promising solvents for green extraction of phytochemicals from food and agricultural products. NADES are made of natural origin compounds that are connected via hydrogen bond and have unique tuneable properties[1]. Numerous studies investigated the extraction of bioactive compounds using NADES resulted in better extraction efficiency compared to conventional solvents, suggesting large potential of these solvents[2,3]. Low-toxicity, natural origin and affordability of NADES-based extracts enables their application as a preservative in the food industry or functional ingredient of food supplements. The aim of this study was to develop an efficient eco-friendly method for the extraction of phenolic compounds from berries, blueberry, chokeberry and black goji berry, using NADES. This goal will be achieved through investigation of extraction efficiency of applied NADES based on three different approaches, a) chromatographic, through high-performance thin layer chromatography (HPTLC) fingerprint analysis, ultra-high-performance liquid chromatography with a diode array detector and a triple-quadrupole mass spectrometer (UHPLC-DAD-MS/MS) target analysis and bioautography, b) spectroscopic, through quality control parameters, total phenolic content (TPC), total flavonoid content (TFC) and radical scavenging activity (RSA), and c) microbiological, through well diffusion method and minimum inhibitory concentration (MIC).

In this study, 36 NADES mixtures, prepared from primary plant metabolites, were tested as green alternatives for extraction of phenolics from three berries. Different hydrogen-bond acceptors (HBA), such as choline chloride, L-proline, L-glycine, and L-lysine were mixed with various hydrogen-bond donors (HBD), four organic acids, two sugars, glycerol and urea, at various molar ratios for NADES preparation. Guided by the fact that extraction efficiency depends on polarity, viscosity and dissolving ability of solvents[4], the influence of HBA, HBD and water content were investigated. Methanol, as conventional solvent, was used as contrastive solvent.

Choline chloride-based NADES in combination with malic acid, glycerol or urea showed as most efficient. All groups of studied NADES showed various extraction capabilities for phenolic compounds based on chromatographic evaluation and spectrophotometric tests. These results indicate great power of NADES solvents towards selective extraction of phenolics and shows that NADES are designer solvents. Appropriate selection of components for NADES preparation can result in selective extraction of specific phenolic compounds, regardless of how similar structures of targeted compounds are or how complex the matrix is, which gives a significant advantage for application of NADES.

Acknowledgments: Ministry of Science, Technological Development and Innovation of Republic of Serbia Contract number: 451-03-47/2023-01/200168 and 451-03-47/2023-01/200288

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