



PROGRAM
BOOK

XXII Congress

EuroFoodChem

June 14-16, 2023 | Belgrade, Serbia

<https://xxiieurofoodchem.com>

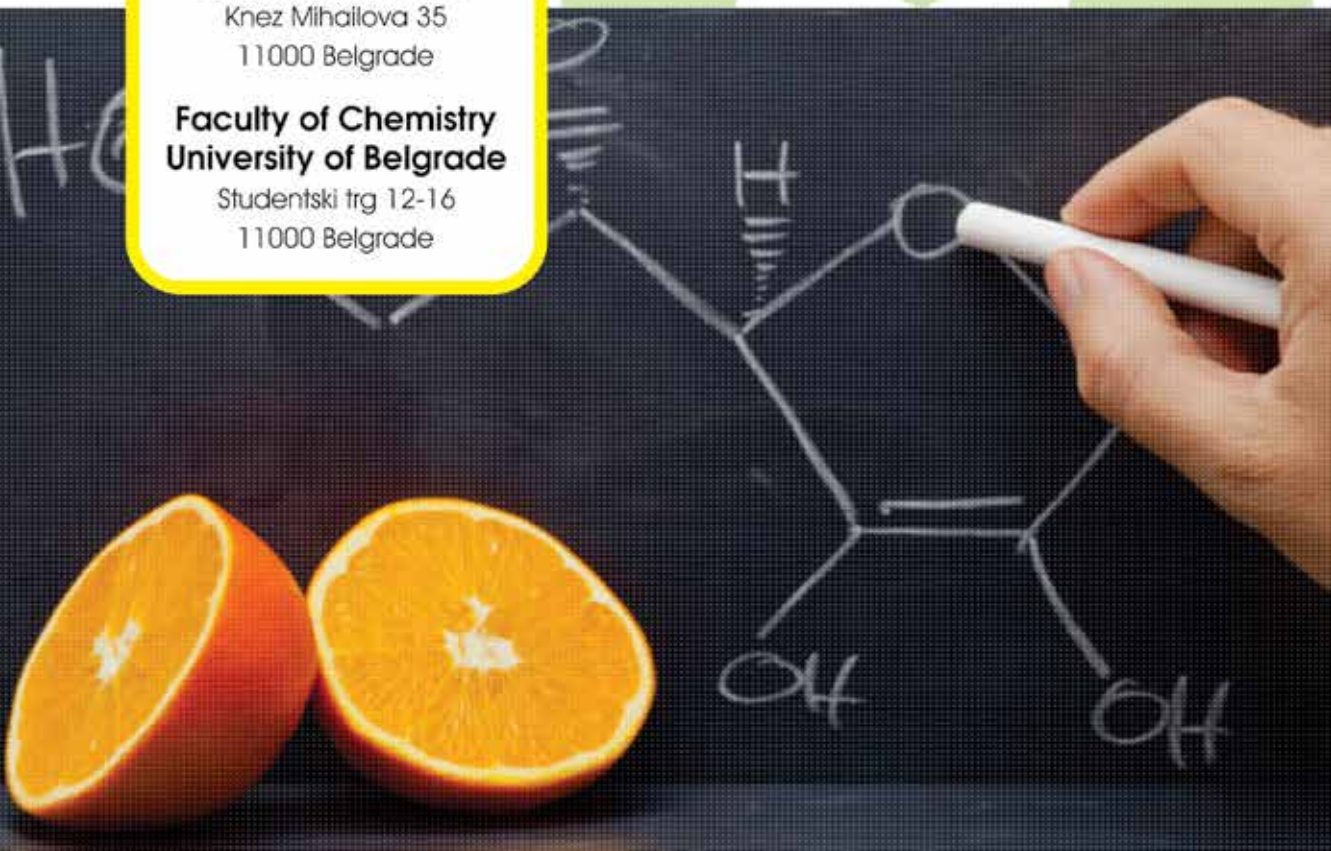
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**Serbian Academy of
Sciences and Arts**

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11000 Belgrade

**Faculty of Chemistry
University of Belgrade**

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XXII Congress EuroFoodChem

**June 14-16, 2023
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WELCOME ADDRESSES

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

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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Serbian Academy of Sciences and Arts

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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

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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.

Experimental design and the desirability function in the estimation of overall food quality

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The overall quality of processed food depends on many processing parameters such as temperature, processing time, mixing speed, pressure, pH value, size of food pieces, type of added ingredients, etc. The goal of food products development is not only to improve the quality of the final product but also to reduce the energy consumption and to improve resources management. Independent evaluation of a single parameter or response is not the best way to set and optimize experiments, because improving one response by controlling one parameter can negatively affect other responses. Experimental design is frequently used for experiment planning when multiple variables should be optimized, while the desirability function allows the determination of operating conditions that provide the "most desirable" response values. The desirability function allows the optimization of several responses simultaneously and the determination of the overall/cumulative/global quality. In this way, it is possible to determine the most suitable conditions for achieving the best overall product quality. In the desirability function, all responses are transformed into dimensionless individual desirability functions (d_i), which take values from 0 to 1. The value 0 indicates an undesirable response of the system, while the value 1 represents the most desirable response. All values between 0 and 1 indicate more or less desirable responses. There are three different equations for evaluating individual desirability functions depending on whether it is ideal for the response to be maximal, minimal or to have some target value. After calculating the individual desirability functions, they are combined into one global/overall desirability function (D) [1,2]. If the value of this function is different from 0, it means that for all responses, the desired responses were achieved at the same time. If the value of the D is equal to 0, it means that for at least one response the desired response has not been achieved. The overall desirability function represents the geometric mean of individual desirability functions. When applying the experimental design, this means that one composite desirability function is obtained for each experiment. The function D with the highest value represents the experimental conditions under which the most optimal responses of the system are obtained, i.e. the best quality of the final product. Various quality parameters of food products, such as color, taste, odor, the content of minerals, vitamins, fibers, appearance, texture, etc., can be measured as system responses. However, despite the advantages of this approach, the traditional approach that uses the optimization of only one factor and one response is still the most used.

Keywords: desirability function, experimental design, food quality, multiple responses, various parameters

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References:

[1] G. Derringer, R. Suich, Simultaneous Optimization of Several Response Variables, *J. Qual. Technol.* 12 (1980) 214–219. <https://doi.org/10.1080/00224065.1980.11980968>.

[2] L. Vera Candioti, M.M. De Zan, M.S. Cámara, H.C. Goicoechea, Experimental design and multiple response optimization. Using the desirability function in analytical methods development, *Talanta*. 124 (2014) 123–138. <https://doi.org/10.1016/j.talanta.2014.01.034>.

IMPRESUM

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Prof. dr Tanja Ćirković Veličković

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