**9th Conference of Young Chemists of Serbia**

# Book of Abstracts

**4th November 2023**

**University of Novi Sad - Faculty of Sciences**

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***Book of Abstracts***

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Thanks to the Analysis doo for confidence and the promoting material.

## Contents

## Scientific Program

| Time schedule | Program |
|---|---|
| 8:30 | *Registration of the participants*<br>Mounting posters for the Poster Session 1 (**ODD POSTER NUMBERS**) |
| 9:30 | *Conference opening*<br>Serbian Chemical Society<br>Scientific Committee<br>Serbian Young Chemists' Club presentation |
| 9:45 | *Plenary Lecture*<br>**PP OP 01 – Gordana Krstić**<br>University of Belgrade, Faculty of Chemistry, Belgrade, Serbia<br>*"Determining the structure of natural products using NMR spectroscopy - is it enough or not?"* |
| 10:20 | *Popular Scientific Lecture*<br>**Luka Mihajlović** (Analysis doo) |
| 10:50 | *Invited Lecture*<br>**PPP OP 01 – Jelena Lazić**<br>University of Belgrade, Institute of Molecular Genetics and Genetic Engineering, Belgrade, Serbia<br>*"From waste streams to biotherapeutics: making a connection using bacteria"* |
| 11:15 | *Coffee break* |
| 11:30 | *Invited Lecture*<br>**PPP OP 02 – Alen Albreht**<br>National Institute of Chemistry, Ljubljna, Slovenia<br>*"Towards future food supplement ingredients: chemical modification of natural antioxidants"* |
| 11:55 | *European Young Chemists' Network (EYCN)*<br>**Gaia De Angelis** – Global Connection Team Leader<br>Soft-skill presentation |

| | |
|---|---|
| 12:25 | *Oral presentations, Session 1* |
| | **DSC OP 01 – Nikola Radnović**<br>University of Novi Sad, Faculty of Sciences, Novi Sad, Serbia<br>*"Syntheses and structures of Ag(I) complexes with pyrazole-type ligand"* |
| | **PFC OP 02 – Nikola Horvacki**<br>Innovation Centre of Faculty of Chemistry Ltd., Belgrade, Serbia<br>*"Comparative assessment of preeminent sugars and organic acids in fruits of several apple cultivars"* |
| | **PCC OP 02 – Katarina Ćeranić**<br>Innovation Centre of Faculty of Chemistry Ltd., Belgrade, Serbia<br>*"Benzene coordination strengthens cation-π interactions: A DFT study"* |
| | **SCCE OP 01 – Andrija Vukov**<br>University of Novi Sad, Faculty of Sciences, Novi Sad, Serbia<br>*"Hydration properties of the antidiabetic drug metformin in the presence of selected artificial sweeteners"* |
| | **SCFM OP 01 – Daliborka Odoboša**<br>University of Belgrade, Vinča Institute of Nuclear Sciences, National Institute of the Republic of Serbia, Belgrade, Serbia<br>*"A novel gamma rays dosimeter based on organic dye and PVA: microwave synthesis and spectroscopic studies"* |
| | **PFC OP 03 – Nikolina Sibinčić**<br>Innovation Centre of Faculty of Chemistry Ltd., Belgrade, Serbia<br>*"Arthrospira platensis and Porphyra sp. – prospective serum-substitute in HEK293T cell culture"* |
| 13:25 | ***GROUP PHOTO*** |
| 13:30 | *Poster session 1* (**ODD POSTER NUMBERS**) |
| 14:20 | *Lunch*<br><br>Removing posters from Poster Session 1<br>Mounting posters for Poster Session 2 (**EVEN POSTER NUMBERS**) |

| | |
|---|---|
| 15:10 | *Workshop*<br>University of Novi Sad, Faculty of Sciences – Parliament<br>University of Belgrade, Faculty of Chemistry – Parliament<br>Young Division of Croatian Chemical Society |
| 15:55 | *Invited Lecture*<br>**PPP OP 02 – Tatjana Majkić**<br>University of Novi Sad, Faculty of Sciences, Novi Sad, Serbia<br>*"Polyphenols as modulators of prostaglandin $E_2$ and thromboxane $A_2$ production"* |
| 16:20 | *Oral presentations, Session 2* |
| | **PCC OP 01 – Milica Bogdanović**<br>University of Novi Sad, Faculty of Sciences, Novi Sad, Serbia<br>*"The crystal structure of 3-(1-pyrazolyl)-L-alanine and its Ag(I) polymeric complex"*<br>**PFC OP 01 – Mihajlo Jakanovski**<br>Innovation Centre of Faculty of Chemistry Ltd., Belgrade, Serbia<br>*"Validation and optimization of ion chromatography based method for citric acid determination in Robinia pseudoacacia honey"*<br>**CS OP 01 – Branislav Kokić**<br>Innovation Centre of Faculty of Chemistry Ltd., Belgrade, Serbia<br>*"Teaching chirality on dynamic systems"*<br>**CB OP 01 – Ana Matošević**<br>Institute for Medical Research and Occupational Health, Zagreb, Croatia)<br>*"Design, synthesis and biological evaluation of carbamates as cholinesterases inhibitors in the treatment of Alzheimer`s disease"*<br>**EA OP 01 – Marija Kuč**<br>University of Novi Sad, Faculty of Sciences, Novi Sad, Serbia<br>*"Photodegradation of organic UV filters in water using UV/chlorine and UV/$H_2O_2$"*<br>**EA OP 01 – Sara Pepić**<br>University of Novi Sad, Faculty of Sciences, Novi Sad, Serbia<br>*"Physico-chemical and structural characterization of the pharmacologically active ionic liquid tetracainium-ibuprofenate"* |

| | |
|---|---|
| 17:10 | *Poster session 2* (**EVEN POSTER NUMBERS**) *and Coffee break* |
| | *Closing ceremony* |
| 18:00 | • **Best Oral Presentation Award**<br>• **Best Poster Presentation Award** |
| 18:15 | *End of the Conference* |

**POSTER NUMBER** is the last part of the contrubition code, e.g. XY PP 15.

**VENUE**:

- Lectures and oral presentations will be taken place at the "Mihajlo Pupin" amphitheater on the ground floor at the Department of Matematics and Informatics and the Department of Physics, Faculty of Science, University of Novi Sad (address: Trg Dositeja Obradovića 4, Novi Sad).
- The Poster sessions will take place in the hallway in front of the "Mihajlo Pupin" amphitheater.

**PPP OP 01**

# From waste streams to biotherapeutics: making a connection using bacteria

Jelena O. Lazic, Jasmina B. Nikodinovic-Runic
*University of Belgrade - Institute of Molecular Genetics and Genetic Engineering, Belgrade, Serbia*

Microorganisms, our planet's original inhabitants discovered with the invention of the first microscope in the 17$^{th}$ century, have consistently facilitated our daily life. However, our modern life generates enormous amounts of wastes, such as plastic, food, and chemicals from the pharmaceutical industry. Bacterial natural products hold an important position in this industry, as drug leads in synthetic chemistry and biology, essential for the discovery of effective agents against a variety of human diseases. If the existing waste is used as a nutrient source for microbial production of valuable biomolecules, that concept is called "waste to value" or "upcycling".

This concept was explored using bacterial biopigment prodigiosin (PG, Fig. 1) as part of the BioECOLogics project. This proof of concept demonstrates how the bacteria *Serratia marcescens* ATCC 27117 can use a waste stream from the food industry as a carbon source to grow and produce its bioactive secondary metabolite PG. The unique structure of this molecule was changed through green chemical [1] and biopolymer formulation [2] approaches, as well as metal complexation. Finally, these sustainable biotherapeutics were validated *in vitro* (antimicrobial, anticancer) and *in vivo* (nematode *Caenorhabditis elegans* and zebrafish *Danio rerio*).

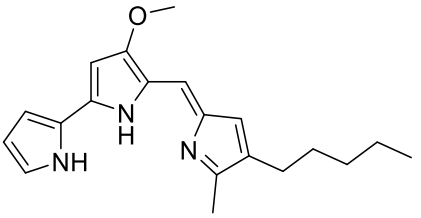


*Figure 1. Structure of bacterial biopigment prodigiosin (PG).*

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2. M. Ponjavic, I. Malagurski, J. Lazic, S. Jeremic, V. Pavlovic, N. Prlainovic, V. Maksimovic, V. Cosovic, L.I. Atanase, F. Freitas, M. Matos, J. Nikodinovic-Runic, *Int. J. Mol. Sci*. **2023**, *24* (3), 1906.

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