INTERNATIONAL MEETING ON MEDICINAL AND BIO(IN)ORGANIC CHEMISTRY

Program & Book of Abstracts

August 26-31 • 2017 • Vrnjačka Banja • Serbia
Welcome to MedChemWorld

Dear Participants

On behalf of SupraMedChem@Balkans.Net, an initiative supported by The Swiss National Science Foundation (SCOPES 2013-2016 Programme), it is our privilege and a great pleasure to welcome you in Vrnjačka Banja at the International Meeting on Medicinal and Bio(in)organic Chemistry. Our idea is to show the promising applications of medicinal and bio(in)organic chemistry and to stimulate scientific exchange and interactions between participants in an informal atmosphere.

We wish you a pleasant stay in Vrnjačka Banja.

Katharina M. Fromm (University of Fribourg)
Miloš I. Djuran (University of Kragujevac)
Liudmil Antonov (Bulgarian Academy of Sciences)

Local organizing committee
(University of Kragujevac)
Miloš I. Djuran
Snežana Rajković
Biljana Đ. Glišić
# PROGRAM

## Saturday, 26th August

Arrival of participants. The rooms in the Hotel “Merkur” will be available after 12 h.

18:30-20:00 **Welcome dinner**

## Sunday, 27th August

07:30-09:00 **Breakfast**

09:00-09:15 Miloš Džuran

Welcome greetings and introductory remarks

09:15-10:00 Bernd Giese

Mineral respiration in bacteria: on the biosynthesis of silver nanoparticles

10:05-10:50 Aurélien Crochet

Nano-bio-silver

10:55-11:25 **Coffee break**

11:30-12:15 Sandra Vojnović

Metal complexes as a base for new antifungal drugs

12:20-13:05 Aleksandar Pavić

Fishing for the novel effective and safe bioactive metal complexes

13:10-15:00 **Lunch**

15:15-16:00 Dušan Sladić

DNA as a target: metal complexes and natural products

16:30-19:00 **Vrnjačka Banja guided tour**

19:00-20:00 **Dinner**

## Monday, 28th August

07:30-09:00 **Breakfast**

9:00-09:45 Radomir Saičić

Organic synthesis, natural products and medicinal chemistry: three mutually stimulating realms
<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Topic</th>
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<tbody>
<tr>
<td>09:50-10:35</td>
<td>Bogdan Šolaja</td>
<td>Interesting turns in antimalarial research</td>
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<td>10:40-11:10</td>
<td><strong>Coffee break</strong></td>
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<td>11:15-12:00</td>
<td>Velimir Popsavin</td>
<td>Medicinal chemistry of naturally occurring styryl lactones and analogues</td>
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<tr>
<td>12:05-12:50</td>
<td>Nenad Kostić</td>
<td>Good chemists' opportunities and pitfalls: compounds and reactions as models and potential drugs</td>
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<td>13:00-15:00</td>
<td><strong>Lunch</strong></td>
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<td>16:00-16:45</td>
<td>Jovana Jovanović</td>
<td>Vinyl enones – excellent precursors for synthesis of pyrazolopyrazolones</td>
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<td>16:50-17:35</td>
<td>Silvia Hristova</td>
<td>Molecular rotors based on tautomeric processes</td>
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<td>17:40-18:25</td>
<td>Izabela Genova</td>
<td>Activated carbon from various organic residues and its application for clean energy production</td>
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<tr>
<td>18:30-20:00</td>
<td><strong>Dinner</strong></td>
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**Tuesday, 29th August**

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<tr>
<th>Time</th>
<th>Speaker</th>
<th>Topic</th>
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<tr>
<td>07:30-09:00</td>
<td><strong>Breakfast</strong></td>
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<tr>
<td>09:30-18:00</td>
<td><strong>Excursion: Visit to two Serbian Orthodox Monasteries “Žiča” and “Studenica”</strong></td>
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<tr>
<td>18:30-20:00</td>
<td><strong>Dinner</strong></td>
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**Wednesday, 30th August**

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<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Topic</th>
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<tr>
<td>07:30-09:00</td>
<td><strong>Breakfast</strong></td>
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<tr>
<td>09:00-09:45</td>
<td>Aurélien Crochet</td>
<td>Polymorphism, what is it and how to identify it</td>
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<tr>
<td>09:50-10:05</td>
<td>Aleksandra Minić</td>
<td>Synthesis and electrochemical properties of a series of ureas containing ferrocenoyl group</td>
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<tr>
<td>10:10-10:25</td>
<td>Anka Pejović</td>
<td>Synthesis, spectral and electrochemical characterization of 2-ferrocenyl-4-methoxyquinolines, 1-allyl-2-ferrocenyl-</td>
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</table>
2,3-dihydroquinolin-4(1H)-ones and 1-allyl-2-ferrocenylquinolin-4(1H)-ones

10:30-10:45 Vesna Milovanović  Green synthesis, structure and antioxidative activity of the highly functionalized tetrahydropyridines

10:50-11:05 Katarina Jakovljević  Synthesis and biological activity of 1,3,4-thiadiazoles derived from phenolic acid

10:50-11:05 Coffee break

11:05-11:15 Atanas Kurutos  Combined studies towards the aggregation of trimethine cyanine dyes

11:05-11:15 Vera Deneva  A concept for stimulated proton transfer in 1-(phenyldiazenyl)naphthalen-2-ols

11:20-11:30 Radostina Ivanova  Sustainable environmental protection for human health via utilization of effective catalysts application

11:20-11:35 Jelena Katanić  Biochemical insights on *Filipendula hexapetala* Gilib. (Rosaceae): a promising source of bioactive compounds with anti-inflammatory properties

11:30-11:45 Ivalina Trendafilova  Mesoporous silica/polymer composites as carriers in delivery systems for biological active molecules

11:30-11:45 Lunch

12:00-12:15 Vera Deneva  Carbon monoxide and its controlled release: development, detection and therapeutic application of carbon monoxide-releasing molecules (CORMs)

12:00-12:15 Fabio Zobi  Organometallic cobalamin anticancer derivatives for targeted prodrug delivery via transcobalamin-mediated uptake

12:20-12:35 Jérémie Rossier  Gold(III) complexes as effective angiogenesis inhibitors

12:30-12:45 Nada Savić  Model peptide studies of Ag⁺ binding sites from the silver resistance protein SiIE
17:20-17:35  Nelly Hérault  
Influence of the crystallinity of TiO$_2$ and the silver content on the antimicrobial properties of Ag-TiO$_2$ nanocapsules materials

17:40-17:55  Dušan Ćoćić  
Kinetic studies and determination of products of interactions between pyrazine-bridged dinuclear Pt(II) complexes and some biologically important molecules by HPLC and DFT calculation

18:00-18:10  Miloš Djuran  
Closing remarks and announcement of the next event

20:00-23:00  Gala dinner in the restaurant “Kruna” with the Serbian traditional food, music and dances

*Thursday, 31st August*

07:30-09:00  Breakfast
Oral presentations
**BIOCHEMICAL INSIGHTS ON FILIPENDULA HEXAPETALA GILIB. (ROSACEAE): A PROMISING SOURCE OF BIOACTIVE COMPOUNDS WITH ANTI-INFLAMMATORY PROPERTIES**

Jelena Katanic,\(^a\) Eva-Maria Pferschy-Wenzig,\(^b\) Vladimir Mihailovic,\(^a\) Tatjana Boroja,\(^a\) San-Po Pan,\(^b\) Stefanie Nikles,\(^b\) Nadine Kreitschner,\(^b\) Gvozden Rosic,\(^c\) Jovana Joksimovic,\(^c\) Dragica Selakovic,\(^c\) Rudolf Bauer\(^b\)

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Inflammation is a complex process of the organism response to infection, irritation, or injury, characterized by pain, loss of function, swelling, redness, and heat [1]. *Filipendula hexapetala* Gilib. (dropwort, Rosaceae, syn. *F. vulgaris* Moench) is a medicinal plant used in traditional medicine to treat infections, fever, common cold, and in the treatment of rheumatic pain and gout [2].

The present study aimed to characterize the phytochemical profile of methanolic extracts of the aerial parts (FA) and roots (FR) of *F. hexapetala*, using LC-DAD-HRMS analysis. Also, based on traditional usage of *F. hexapetala*, the *in vitro* and *in vivo* anti-inflammatory activity of both extracts was evaluated, along with their potential cytotoxicity. The results of LC-DAD-HRMS analysis of *F. hexapetala* extracts showed that tested samples contain a variety of phenolic compounds, principally flavonoids, hydrolysable tannins, procyanidins and phenolic acid derivatives, one of which is gaultherin. *F. hexapetala* extracts did not exert any cytotoxicity at the highest tested concentration of 50 µg/mL. Aerial part extract (at 50 µg/mL) showed significant *in vitro* inhibitory activity of cyclooxygenase-1 and -2 (COX-1 and COX-2) with over 50% of inhibition. The root extract exerted significant inhibition of COX-2 activity (52.5 ± 2.7%). Both extracts had no influence on the COX-2 gene expression.

In *in vivo* analysis of anti-inflammatory activity of *F. hexapetala* extracts using the hot plate test, the extracts, applied orally at two concentrations (100 and 200 mg/kg, b.w.), led to the increase of latency time in comparison with the control group (\(p < 0.05\)). The extracts, especially FA, at the same concentrations, were able to significantly reduce the mean maximal swelling of rat paw in the carrageenan-induced acute inflammation test. Presented results of *in vitro* and *in vivo* anti-inflammatory activity of *F. hexapetala* extracts provide support of the traditional use of this plant in the treatment of different inflammatory conditions and encourage further studies for their potential use as phytopharmaceuticals. Additional studies are also indispensable to explore the mechanism of anti-inflammatory action and metabolic pathways of the main phenolic constituents detected in the extracts.

**Acknowledgement**

This research was supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia (Grant No. III 43004), the Scholarship Foundation of the Republic of Austria and the Austrian Agency for International Cooperation in Education and Research (OeAD), grants ICM-2014-07003 and ICM-2015-01460.

**References**

SupraMedChem@Balkans.Net

**SCOPES Institutional Partnership**

University of Fribourg

University of Kragujevac

Bulgarian Academy of Sciences