

WELCOME

On behalf of the Organizing Committee, it is my great pleasure to welcome you to the 49th International Symposium on Essential Oils (ISEO2018).

Over the years, this prestigious annual symposium has developed into a unique meeting arena between leading experts, academic and industry scientists involved in the essential-oil research and representatives of the essential-oil industry from all around the world. The 49th ISEO will feature plenary lectures and presentations of cutting-edge science of essential oils from a diverse group of scientists in the fields of natural product isolation, organic synthesis, chemometrics, chemical biology, biosynthesis, pharmacology and analytical methodology development. Recent advances and future trends in the application of essential oils and their constituents in the fragrance industry, pharmacy, cosmetology, food production and agriculture will be highlighted, as well. The meeting will provide opportunities for in-depth scientific discussions and sharing unpublished results in both formal and informal settings.

Although ISEO symposia have a tradition of nearly half a century, it will take place in Serbia for the first time. Niš is the third largest city in Serbia, situated on the river of Nišava and represents a cultural, economic, administrative, business and university center of southeastern Serbia. For centuries, an important geographical and strategic position of the town has determined its destiny, so this region was inhabited by the Romans, Goths, Illyrians, Celts, Ottomans, Slavs, etc. Alongside rich cultural and historical heritage, southeastern Serbia has a unique natural beauty with two stunning gorges surrounded by picturesque Suva planina mountain characterized by exceptional biological diversity.

Many geographers, travelers, and historians considered the city of Niš as a gateway between the East and West, and we will set this as our main goal—to unify scientists from universities, research centers and industry from all over the world and to join different cultures and knowledge together.

ISEO2018 abstracts are published in the Special Issue of *Facta Universitatis: Series Physics, Chemistry and Technology*, a scientific journal published by the University of Niš since 1986. The outstanding contributions presented at the ISEO2018 Symposium (plenary lectures, oral and poster presentations) will enjoy the opportunity of having their full work published in the *Food & Chemical Toxicology* Special Issue dedicated solely to the “Toxicity of essential oils and their constituents”.

I wish all of the ISEO2018 participants a highly successful and enjoyable symposium and many unforgettable memories of your stay in Niš, Serbia. Thank you for joining us at this meeting!

Dr Niko Radulović

The President of the ISEO2018 Organizing Committee

ISEO2018 Organizing Committee**President**

Niko Radulović

Members

Polina Blagojević
Marija Genčić
Ana Miltojević
Marko Mladenović
Dragan Zlatković
Miljana Đorđević
Milena Živković
Sonja Filipović
Milica Todorovska
Nikola Stojanović
Milica Nikolić
Milan Nešić
Milica Stevanović
Milena Krstić
Irena Novaković
Vidak Raičević
Vladimir Ranđelović
Zorica Stojanović-Radić
Emilija Pecev-Marinković
Milan Stojković

Students

Jelena Aksić
Marina Blagojević
Marijana Ilić
Tijana Jovanović
Lazar Kulašević
Miloš Nikolić
Ognjen Stanković
Boban Veličković
Sunčica Veljković

ISEO Permanent Scientific Committee

Yoshinori Asakawa (Tokushima, Japan)
Nicolas Baldovini (Nice, France)
Hüsnü Can Baser (Eskisehir, Turkey)
Carlo Bicchi (Turin, Italy)
Humberto Bizzo (Rio de Janeiro, Brazil)
Gerhard Buchbauer (Vienna, Austria)
Alain Chaintreau (Geneva, Switzerland)
Fatih Demirci (Eskisehir, Turkey)
Jan Demyttenaere (Brussels, Belgium)
Ana Cristina Figueiredo (Lisbon, Portugal)
Chlodwig Franz (Vienna, Austria)
Györgyi Horváth (Pécs, Hungary)
Jan Karlsen (Oslo, Norway)
Karl-Heinz Kubeczka (Margetshoechheim, Germany)
Stanislaw Lochynski (Wrocław, Poland)
Agnieszka Ludwiczuk (Lublin, Poland)
Luigi Mondello (Messina, Italy)
Johannes Novak (Vienna, Austria)
Niko Radulović (Niš, Serbia)
Patrizia Rubiolo (Turin, Italy)
Alvaro Viljoen (Pretoria, South Africa)
Sandy van Vuuren (Johannesburg, South Africa)
Éva Zámboriné-Németh (Budapest, Hungary)

ISEO2018 ORGANIZERS

**Serbian Society for Phytochemistry and
Phytomedicine**



Organic synthesis and analysis group



University of Niš



**Faculty of Sciences and Mathematics,
University of Niš**



**The Republic of Serbia
Ministry of Education, Science and
Technological Development**

SUPPORTING ORGANIZATIONS



The City of Niš



International Federation of Essential Oils and Aroma Trades

SPONSORS & EXHIBITORS

Golden Sponsors



Sankhubaba International

Mumbai, India

E-mail: sugandhim@sugandhim.com



ARXFARM d.o.o.

Šentjernej, Slovenia

E-mail: info@arxfarm.com

Bronze Sponsors



Siempreviva

Niš, Serbia

E-mail: siemprevivaoils@gmail.com



KEFO d.o.o.

Zemun, Serbia

E-mail: info@kefo.rs

YOUNG SCIENTISTS FELLOWSHIP

Thanks to the generous support of the International Federation of Essential Oils & Aroma Trade (IFEAT), the ISEO2018 Organizing Committee offered Registration Fellowships to 20 selected young scientists who submitted a presentation in ISEO2018. The Registration Fellowships award consists of the registration fee reimbursement and the awardees will also receive a certificate.

As a result of this generosity, the supported young scientists are now able to contribute to the development of the essential oils and natural volatiles research field. There is also an excellent possibility to bring together the next generation of scientists and experts from around the world enabling them to share experiences and to develop new ideas.

After an intense evaluation and selection procedure, the Organizing Committee of ISEO2018 has accepted twenty contributions. Among them, nine were chosen for oral presentations and the remaining twelve were accepted for poster presentations.

The International Federation of Essential Oils & Aroma Trade (IFEAT) and the ISEO2018 Organizing Committee supported the registration fees of the following young scientists:

Verica Aleksić Sabo	<i>University of Novi Sad, Serbia</i>
Carmen M. S. Ambrosio	<i>São Paulo University, Brazil</i>
Ina Aneva	<i>Bulgarian Academy of Sciences, Bulgaria</i>
Leidy J. A. Ferro	<i>University of Pécs, Hungary</i>
Eleni Fitsiou	<i>Democritus University of Thrace, Greece</i>
Jovana Ickovski	<i>University of Niš, Serbia</i>
Ewa Maciejczyk	<i>University of Technology, Poland</i>
Marko Mladenović	<i>University of Niš, Serbia</i>
Ivana Nemeš	<i>University of Novi Sad, Serbia</i>
Huong Thi Nguyen	<i>Szent István University, Hungary</i>
Milica Pejčić	<i>University of Niš, Serbia</i>
Asit Ray	<i>Siksha O Anusandhan University, India</i>
Elwira Sieniawska	<i>Medical University of Lublin, Poland</i>
Filomena Silva	<i>University of Zaragoza, Spain</i>
Milica Stevanović	<i>University of Niš, Serbia</i>
Musa Türkmen	<i>Mustafa Kemal University, Turkey</i>
Ayaka Uehara	<i>Université Côte d'Azur, France</i>
Margita Utczás	<i>University of Physical Education, Hungary</i>
Dragan Zlatković	<i>University of Niš, Serbia</i>
Milena Živković	<i>University of Niš, Serbia</i>

GENERAL INFORMATION

Symposium venue

- 1) University rectorate building–Banovina (*plenary and invited lectures, and oral presentations*)
Univerzitetski trg 2, 18000 Niš, Serbia
tel: +381 18 257 970 and +381 18 257956
www.ni.ac.rs
- 2) showroom Oficirski dom (*poster sessions*)
Orlovića Pavla 28a, 18000 Niš, Serbia
- 3) New City Hotel (*symposium lunches*)
Vožda Karadžića 12, 18000 Niš, Serbia
tel: +381 18 504 800
www.newcityhotelnis.com



Website

You will find the latest details about the Symposium on the website at <http://iseo2018.com/>.

Registration

The registration desk will be located in the entrance of the University rectorate building (Banovina) or Oficirski dom showroom according to the following schedule:

Thursday, September 13	16.00–19.00	<i>Oficirski dom showroom</i>
Friday, September 14	08.00–17.00	<i>University rectorate building</i>
Saturday, September 15	08.00–17.00	<i>University rectorate building</i>
Sunday, September 16	08.00–12.30	<i>University rectorate building</i>

Symposium Language

The official language of the symposium is English. There will be no simultaneous translation.

Badges

All participants and accompanying persons will receive a personal badge upon registration. Delegates are kindly requested to wear their name badge when attending the meetings or social events.

Exhibition

In accordance with the conventions of the symposium, parallel to the scientific sessions a professional exhibition is to be organized in the University rectorate building and the Oficirski dom showroom. The exhibition will be open during the whole scientific programme.

Meals

Lunches on Friday, Saturday and Sunday are included in the registration fee. Lunches will be served in the New City Hotel between 13.00-14.30 on Friday, between 12.50-14.15 on Saturday, and between 13.30-14.45 on Sunday.

Liability and Insurance

The participants are advised to arrange their own insurance for health, travel, and property. The organizers cannot accept liability for any personal accidents, loss of belongings or damage to private property of participants and accompanying persons that may occur during the symposium.

Plenary and Invited Lectures and Oral Presentations

The length of plenary lectures and oral presentations are limited to 45 and 20 min. Invited speakers have 30 min for their presentations. The organizers advise leaving 5 (plenary and invited) or 3 (oral) min for questions and discussion. The organizers kindly ask a strict adherence to the agreed time, as the session chairs will be asked to rigorously maintain the time schedule. PowerPoint or PDF presentations are accepted on USB sticks. Version MS PowerPoint 2003-2010 is recommended. Laptops and projectors will be available for the presenters. The presentation has to be copied to the laptop/computer a day ahead or in the coffee break before the beginning of the session.

Poster Presentations

Posters will be exhibited according to their designated numbers in the book of abstract. Odd (PP1, PP3, PP5, etc.) and even (PP2, PP4, PP6, etc.) numbered posters will be displayed on Friday and Saturday, respectively. The recommended size for the poster is about the standing A0 standard (ca. 84 × 119 cm). The organizers will provide all equipment and tools (pins, adhesive tape, and scissors) to mount your poster to the board at the conference venue. Poster presenters are kindly requested to remove their posters after each poster session. The authors should stand by their posters and be available to discuss their research during the poster session.

Best Poster Award

Three poster presentations will be recognized for excellence at ISEO2018. Selection, by an Awards committee, will be based on subject matter, quality of presentation and research, oral delivery, and visual impact. The winners of the Best Poster Award will be announced during the Closing Ceremony of the 49th ISEO Symposium. The monetary prize for the first, second, and third place will be 200, 150, and 100 €, respectively. All winning authors will also receive award certificates.

SOCIAL PROGRAMMES

Welcome Reception

The Welcome reception will be served on September 13th (from 19.00 to 21.00) at the historical building showroom Oficirski dom located in the historical heart of the city of Niš. Music will be provided by a local group of performers. The Welcome reception is included in the registration fee.

Gala Dinner

Gala dinner will be held on September 15th (from 19.30 to 24.00) at a century-old wine cellar Malča, located about 15 km from Niš, where you will discover local winemaking tradition and cuisine. Music will be provided by a local band. Bus transportation is provided and gathering will be at 19.00 in front of the University rectorate building. The symposium dinner is not included in the registration fees but should be booked during the online registration.

Half-day Excursion

A half-day excursion will be organized on September 16th and it will consist of visits to the sights of the city of Niš accompanied by a certified guide. Bus transportation is provided and gathering will be at 15.00 in front of the University rectorate building. The excursion is included in registration fee, but advanced application (during registration) is required.

SCIENTIFIC PROGRAMME

13th September 2018, Thursday		
16.00-19.00	Registration	<i>University rectorate building</i>
19.00-21.00	Welcome reception	<i>Oficirski dom showroom</i>
14th September 2018, Friday		
08.00-09.30	Registration	<i>University rectorate building</i>
09.30-10.10	Opening Ceremony	<i>University rectorate building</i>
Session I	Chairs: Agnieszka Ludwiczuk (Lublin, Poland)	
10.10-12.25	Niko Radulović (Niš, Serbia)	
10.10-10.55	PL1	Nicolas Baldovini (Nice, France) <i>“Applying organic synthesis in the analysis of essential oils”</i>
10.55-11.15	Coffee break	
11.15-11.45	IS1	Yoshinori Asakawa (Tokushima, Japan) <i>“Highly efficient production of functional substances from synthetic compounds and secondary metabolites by mammal and microbial biotransformation”</i>
11.45-12.05	OP1	Petras Rimantas Venskutonis (Kaunas, Lithuania) <i>“Essential oils from 11 Cannabis sativa cultivars isolated by different methods and toxicological evaluation of their components”</i>
12.05-12.25	OP2	Margita Utczás (Budapest, Hungary) <i>“Novel analytical tool for a univocal flavor and fragrance identification: Gas chromatography coupled with condensed-phase FTIR and TOF mass spectrometry”</i>
13.00-14.30	Lunch <i>New City Hotel</i>	
Session II	Chairs: Yoshinori Asakawa (Tokushima, Japan)	
14.30-16.35	Nicolas Baldovini (Nice, France)	
14.30-15.15	PL2	Daniel Strub (Wrocław, Poland) and Stanislaw Lochynski (Wrocław, Poland) <i>“Stereochemistry of volatiles—the status and perspectives”</i>
15.15-15.35	OP3	Györgyi Horváth (Pécs, Hungary) <i>“Applicability of cinnamon bark essential oil in respiratory tract diseases—from in vitro to in vivo experiments”</i>
15.35-15.55	OP4	Huong Thi Nguyen (Budapest, Hungary) <i>“Changes in the volatile compounds of two wormwood (Artemisia absinthium L.) accessions under controlled weather conditions”</i>
15.55-16.15	OP5	Ewa Maciejczyk (Łódź, Poland) <i>“Juniper berry (Juniperus communis L.) supercritical extract, essential oil and absolute comparison”</i>
16.15-16.35	SP1	Presentation of the sponsor: Neža Rangus (ARXFARM d.o.o., Slovenia) <i>Helichrysum oil from the Balkan peninsula</i>
17.00-18.30	Poster Session I and	Odd numbers (like PP1, PP3, PP5, etc.)
	Coffee Break	<i>Oficirski dom showroom</i>
19.00-	ISEO Permanent Scientific Committee meeting	

15th September 2018, Saturday

Session III	Chairs:	Luigi Mondello (Messina, Italy)
09.00-10.55		Stanislaw Lochynski (Wrocław, Poland)
09.00-09.45	PL3	Agnieszka Ludwiczuk (Lublin, Poland) <i>“Bryophyte volatiles: chemical diversity, chemotaxonomic significance and biological activity”</i>
09.45-10.15	IS2	Gordana Stojanović (Niš, Serbia) <i>“Static headspace GC-MS analysis versus GC-MS analysis of essential oils”</i>
10.15-10.35	OP6	Isiaka A. Ogunwande (Lagos, Nigeria) <i>“Chemical constituents, antiinflammatory and antinociceptive activities of essential oils from Cordia millenii, Bougainvillea glabra and Phyllanthus muellerianus”</i>
10.35-10.55	OP7	Guy Kamatou (Pretoria, South Africa) <i>“An overview of the biological activities and essential-oil composition of three South African Salvia species”</i>
10.55-11.15	Coffee break	
Session IV	Chairs:	Humberto Bizzo (Rio de Janeiro, Brazil)
11.15-12.50		Johannes Novak (Vienna, Austria)
11.05-11.50	PL4	Luigi Mondello (Messina, Italy) <i>“Linear retention index approach applied to liquid chromatography coupled to PDA and QqQ MS detectors for reliable characterization of oxygen heterocyclic compounds in essential oils and finished cosmetic products”</i>
11.50-12.10	OP8	Carmen M.S. Ambrosio (São Paulo, Brazil) <i>“Chemical composition, antibacterial and antioxidant activity of a citrus essential oil and its fractions”</i>
12.10-12.30	OP9	Ayaka Uehara (Nice, France) <i>“Characterization of the odorant constituents of Helichrysum italicum essential oil”</i>
12.30-12.50	OP10	Filomena Silva (Zaragoza, Spain) <i>“Cyclodextrin nanosponges as a new encapsulating agent for essential oils and their effectiveness against foodborne pathogens”</i>
12.50-14.15	Lunch <i>New City Hotel</i>	
Session V	Chairs:	Jan Karlsen (Oslo, Norway)
14.15-16.20		Hüsnü Can Başer (Eskisehir, Turkey)
14.15-15.00	PL5	Michael Keusgen (Marburg, Germany) <i>“Volatile compounds of the genus Allium L.”</i>
15.00-15.20	SP2	Presentation of the sponsor: Nikunj Harlalka (Sankhubaba International, India) <i>“Community-based production and organic certification of aromatic & medicinal crops in India”</i>
15.20-16.20	WS	Workshop: Dragan Zlatković (Niš, Serbia) <i>“GC-MS made easy: AMDIS in the analysis of complex mixtures of volatiles”</i>

16.30-18.00	Poster Session II and Coffee Break	Even numbers (like PP2, PP4, PP6, etc.) <i>Oficirski dom showroom</i>
19.00-24.00	Gala Dinner	<i>Wine cellar Malča</i>
16th September 2018, Sunday		
Session VI	Chairs: Éva Németh-Zámoriné (Budapest, Hungary)	
9.00-10.35	Fatih Demirci (Eskisehir, Turkey)	
09.00-09.45	PL6	Ioanna Chinou (Athens, Greece) <i>“The regulatory framework for the quality and safe use of essential oils as herbal medicinal products. Selected examples from our Balkan “neighborhood”</i>
09.45-10.15	IS3	Neda Mimica-Dukić (Novi Sad, Serbia) <i>“Therapeutic efficiency of essential oils against Helicobacter pylori infection”</i>
10.15-10.35	OP11	Milica Pejčić (Niš, Serbia) <i>“Inhibitory effects of Ocimum basilicum and Salvia officinalis essential oils on virulence factors of Pseudomonas aeruginosa clinical isolates”</i>
10.35-11.00	Coffee break	
Session VII	Chairs: Patrizia Rubiolo (Turin, Italy)	
11.00-13.30	Györgyi Horváth (Pécs, Hungary)	
11.00-11.45	PL7	Fabio Boylan (Dublin, Ireland) <i>“Pharmacologically active derivatives of anthranilic acid occurring naturally in essential oils”</i>
11.45-12.05	OP12	Nikola Stojanović (Niš, Serbia) <i>“Evidences for lemon-balm essential oil suppression of anxiety-related behavior in animal and in vitro models”</i>
12.05-12.20	OP13	Leidy J. A. Ferro (Pécs, Hungary) <i>“Cytotoxicity and the effect on the inflammation response of thyme oil and thymol: evaluation in human macrophage cells”</i>
12.20-12.40	OP14	Jacek Lyczko (Wrocław, Poland) <i>“The Jerusalem Balsam—a case study of a 150-year-old sample”</i>
12.40-13.00	OP15	Elwira Sieniawska (Lublin, Poland) <i>“Microemulsions of essential oils – an improvement of solubility or something more?”</i>
13.00-13.30	Closing Ceremony	
13.30-14.45	Lunch	<i>New City Hotel</i>
15.00-19.00	Half-day Excursion	