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49th International Symposium on Essential Oils (ISEO2018)

Book of Abstracts



UNIVERSITY OF NIŠ

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 The meeting will provide opportunities for in-depth scientific discussions and sharing unpublished results in both formal and informal settings.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

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PP40. The analyses of commercial tea tree oils

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Keywords: *Melaleuca alternifolia*, essential oil, terpinen-4-ol

Tea tree oil, the essential oil derived mainly from the Australian native plant *Melaleuca alternifolia* L. (Myrtaceae) is widely used as the active ingredient in many topical formulations for its antimicrobial activity, acting against viruses, bacteria, and fungi. Clinical studies have shown that this essential oil is very effective in various skin conditions, including acne, but also as an antiseptic in dentistry [1,2]. Since tea tree oil is commonly used, the aim of this study was to investigate the composition and quality of the three bestselling commercial tea tree oils in the Republic of Serbia, using GC and GC-MS analyses. All three oils had an almost identical composition. Among 42 quantified volatile substances, the most abundant in all samples were the oxygenated monoterpenes (46%), monoterpene hydrocarbons (45%), sesquiterpene hydrocarbons (6%), and oxygenated sesquiterpenes (1.5%). The major constituents are terpinen-4-ol (39.2%), γ -terpinene (17.6%), α -terpinene (7.4%), *p*-cymene (6.4%), limonene (4.3%), 1,8-cineol (3.7%), terpinolene (3.5%), α -pinene (3.2%), α -terpineol (2.8%), aromadendrene (0.9%), and sabinene (0.2%). The contents of all major components were within the range required by Ph. Eur. 9.0. In addition, all samples were tested for their quality based on measuring specific physical-chemical parameters (relative density, refractive index, and optical rotation) using suitable methods according to Ph. Eur. 9.0. Thus, it can be concluded that the tested samples of tea tree oil available on our market are of adequate pharmacopoeial quality.

References:

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