



The Balkan Botanical Congress is an international meeting that has been held nearly every three years, since 1997. It brings together botanists from around the world who perform research on plants in the widest sense, as well as scientists who are engaged in the plant sciences and their applications. We were honored to host such an extraordinary scientific event this year in Serbia.

The 7th Balkan Botanical Congress – 7BBC 2018 took place in Novi Sad from September 10th to 14th 2018. The Congress was organized by the University of Novi Sad, Faculty of Sciences, Department of Biology and Ecology and the “Andreas Wolny” Botanical Society, along with the great help of 7 co-organizers and more than 30 supporters and sponsors. It truly was not possible to happen without exceptional help of our co-organizer - the Institute for Nature Conservation of Vojvodina Province who made this congress not only possible, but totally awesome.

7BBC 2018 placed a special emphasis on plants of the Balkan Peninsula and covered various research fields. The Congress was organized into ten sessions: Plant Anatomy and Physiology, Plant Taxonomy and Systematics, Plant Molecular Biology and Genetics, Floristics, Vegetation and Phytogeography, Conservation Botany and Plant Invasions, Phytochemistry and Plant Resources, Agronomy and Forestry, Botanical Collections and History, Ethnobotany and Cryptogam Biology. These topics were elaborated through five plenary lectures given by eminent scientists, as well as in the form of introductory lectures, oral and poster presentations. With an overall number of 387 abstracts presented on the very latest of botanical science, we shared knowledge, expertise and novel ideas. We welcomed nearly 400 scientists to Novi Sad, and we believe that we succeeded in our joint endeavor to make new networks and new connections among botanists. We hope that we contributed to advancements in the wide and beautiful field of botany, ranging from fundamental botanical research to applied botany.

It is our great pleasure to publish this Abstract Book in Botanica Serbica, in the same year that this international journal, a renamed continuation of the Bulletin of the Institute of Botany and Botanical Garden Belgrade, celebrates its 90 year jubilee. On behalf of the Scientific and Organizing committee of 7BBC 2018 we would like to express our gratitude to all contributors, colleagues and sponsors for taking part in the 7th Balkan Botanical Congress, as well as for their efforts and contributions to its successful realization.

Goran Anačkov and Lana Zorić,
Co-presidents of the Scientific Committee of the 7 BBC
and guest editors of Botanica Serbica 42 (supplement 1).

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Sessions:

The 7th Balkan Botanical Congress consists of plenary lectures, introductory lectures of each session, as well as oral and poster presentations on the following topics:

Sessions 1. Plant Anatomy and Physiology

Sessions 2. Plant Taxonomy and Systematics

Sessions 3. Plant Molecular Biology and Genetics

Sessions 4. Floristics, Vegetation and Phytogeography

Sessions 5. Conservation Botany and Plant Invasion

Sessions 6. Phytochemistry and Plant Resources

Sessions 7. Agronomy and Forestry

Sessions 8. Botanical Collections and History

Sessions 9. Ethnobotany

Sessions 10. Cryptogam Biology

tion of *A. orontius* essential oil. Essential oil, almost odourless, was isolated by hydrodistillation, in low yield (0.08%). Coupled gas chromatography–mass spectrometry (GC–MS) technique was used to characterize its volatile profile. Fifty seven components were identified comprising 84.3% of total oil, and thirty five of these compounds were in very low content, marked as trace compounds. The main constituents were alkanes (39.2%) with pentacosane (12.0%) and hexacosane (11.4%) as the major components. Oxygenated sesquiterpenes caryophyllene oxide (7.7%) and spathulenol (5.8%) were found as additional significant constituents of the essential oil. To the best of our knowledge, this is the first study reporting chemical composition of essential oil of *A. orontius* from BiH.

KEYWORDS: *Acinos orontius*, chemical composition, essential oil, GC-MS

Poster presentation 14 06 37

VOLATILE CONSTITUENTS OF *MELALEUCA ALTERNIFOLIA* ESSENTIAL OIL

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Tea tree is the common name for *Melaleuca alternifolia*, a tree of the family Myrtaceae, native to the subtropical coastal regions of New South Wales and Queensland, Australia. Essential oil of this plant has been used for almost 100 years in Australia but is now available worldwide. Tea tree oil has antiseptic and anti-inflammatory activity and is used in skin and oral hygiene products. Commercial available essential oil of *Melaleuca alternifolia*, as well as headspace of the oil were analyzed via GC-MS. Both samples were characterized with high percentage of oxygenated monoterpenes, i.e. 48.2% and 40.5% respectively. The principal constituents in the essential oil were terpinene-4-ol (38.0%) and γ -terpinene (15.9%), while the main components of its headspace were terpinene-4-ol (31.7%) and *p*-cymene (26.1%). In addition, the headspace analysis of a cosmetic product, skin cream, with tea tree oil as one of the components, was performed. In comparison to headspace of the oil, significant differences in content and composition were recorded. Predominate compounds were oxygenated monoterpenes 47.1%, but the main constituent was 2-phenoxyethanol (34.5%) which is used as a preservative in cosmetic products and also as a stabilizer in perfumes and soaps.

KEYWORDS: *Melaleuca alternifolia*, essential oil, headspace, GC-MS

Poster presentation 15 06 54

VARIATION OF IMORTELLE (*HELICHRYSUM ITALICUM* (ROTH) G. DON) ESSENTIAL OIL COMPOSITION DEPENDING ON METHOD OF PROCESSING AND TIME OF HARVEST

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Immortelle (*Helichrysum italicum* /Roth/ G. Don) is a perennial subshrub that belongs to Asteraceae family, widespread in the Mediterranean. It is used in cosmetic and pharmaceutical preparations due to its medicinal properties. In recent years immortelle has become the most economically valuable medicinal plant in Croatia. It is both wild harvested and grown commercially. In order to obtain essential oil with desirable composition, which meets commercial demands, it is necessary to investigate the optimal method of processing immortelle as well as the optimal harvesting time. We conducted a preliminary study on a small number of samples to determine the differences in chemical composition of essential oils obtained from fresh and dried biomass. The investigations were carried out on four natural populations of immortelle from Croatia. The essential oil was obtained by hydrodistillation, and its content and composition was analysed by gas chromatography and mass spectrometry GC-MS. The results showed differences in essential oil content and composition between the fresh and dried biomass. To determine the influence of the harvest time on the essential oil composition, immortelle essential oil was analysed by GC-MS in the plants shortly before flowering and in the stage of full blossom. The results showed that the stage of harvest plays important role in variation of essential oil composition in immortelle.

KEYWORDS: *Helichrysum italicum*, essential oil composition, harvesting time, fresh and dry biomass, GC-MS

Poster presentation 16 06 55

VARIABILITY OF ESSENTIAL OIL OF DIFFERENT POPULATIONS OF *TEUCRIUM MONTANUM* L. (LAMIACEAE) FROM BALKAN PENINSULA

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Teucrium montanum L. is widely distributed in the Balkan Peninsula, extending from the sea coast to altitudes of over 2100 m a. s. l. with the highest number of occurrences in the zone between 500 and 1000 m. The aim of the study was to investigate the chemical composition of essential oil of aerial parts of *T. montanum* from 14 different populations from Balkan Peninsula, ten from Serbia (SR-Trešnjica canyon, SR-Brdjanska gorge, SR-Goč, SR-Gornjak gorge, SR-Grza canyon, SR-Jelašnica, SR-Kopaonik, SR-Maglič, SR-Rtanj, SR-Sičevačka gorge), two from Greece (GR-Olimp, GR-Ossa) and two from Albania (AL-Deja, AL-Skadar). The essential oils were obtained by hydrodistillation and qualitative and quantitative analysis was performed by GC-FID and GC-MS. The aerial parts of *T. montanum* contained only small amounts of oil (traces-0.7%), predominantly composed by sesquiterpene compounds (58.0-99.0%). One population from Albania (Deja), two from Greece (Olimp, Ossa) and two from Serbia (Sičevačka gorge, Trešnjica canyon) contained more than 90% of sesquiterpenes. The composition of essential oils was quite variable and the main compounds in almost all oils were germacrene D (trace-45.5%), sabinene (trace-23.1%), α -pinene (trace-20.7%), limonene (trace-20.4%), (*E*)-caryophyllene (2.9-14.5%), γ -cadinene (trace-13.8%) and δ -cadinene (trace-12.0%). The cluster analysis revealed the separation of investigated essential oils to five clusters. The first cluster (AL-Skadar, SR-Brdjanska gorge, SR-Gornjak gorge, SR-Grza canyon, SR-Goč) is characterized by high germacrene D content (17.6-45.5%), the second (SR-Maglič, SR-Kopaonik, SR-Sičevačka gorge) by high sesquiterpene alcohol shyobunol content (14.6-55.2%), the third (AL-Deja, SR-Jelašnica) by high α -bisabolol content (31.2%-43.7%) and shyobunol (3.2%) in population AL-Deja, the fourth (SR-Rtanj) by high *cis*-sesquisabinene hydrate content (42.4%) and the fifth (GR-Olimp, GR-Ossa, SR-Trešnjica canyon) by high germacrene D-4-ol (5.96%-61.9%), and β -eudesmol (14.9%) and *epi*- α -cadinol (10.2%) content in GR-Olimp population. Such a high variability needs more research to define relationships among populations.

KEYWORDS: *Teucrium montanum*, aerial parts, essential oil, GC-FID, GC-MS, variability

Poster presentation 17 06 10

SOLUBLE SUGAR COMPOSITION OF ACHENES IN ENDEMIC *TRIPLEUROSPERMUM CALLOSUM* AND *T. MONTICOLUM* (ASTERACEAE) FROM TURKEY AND IT'S ECOLOGICAL IMPLICATIONS

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Soluble sugars play an important role in desiccation tolerance in the seeds of various species as well as representing potential food sources for organisms. This study performs the evaluation of soluble sugar (glucose, fructose, sucrose and maltose) composition in achenes of two endemic *Tripleurospermum* (Asteraceae) species (*T. callosum* and *T. monticolum*) from Turkey using a high performance liquid chromatography (HPLC) system equipped with a refractive index detector (IR). The presence of glucose, fructose, maltose and sucrose in the samples were identified using the Chemstation software and authentic external sugar standards. The composition of the soluble sugars of these species growing on the steppes in Turkey is presented here for the first time. Among the soluble sugars identified in both species, the sucrose content is higher than that of other soluble sugars, while the maltose content is lower than other soluble sugars. The ecological significance of the soluble sugars of the achenes in these species is also discussed.

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KEYWORDS: *Tripleurospermum*, endemic, soluble sugar, HPLC, Turkey