Department of Biology and Ecology,
Faculty of Sciences and Mathematics, University of Niš
Institute for Nature Conservation of Serbia

13th Symposium on the Flora of Southeastern Serbia and Neighboring Regions

Stara planina Mt. 20 to 23 June 2019

13. Simpozijum o flori jugoistočne Srbije i susednih regiona

Stara planina 20. do 23. jun 2019.

ABSTRACTS
APSTRAKTI

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Abstracts

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compound class, representing 86.4% of the total essential oil. The bulk of the oil was comprised of two oxygenated sesquiterpenoids–*epi*-α-cadinol (23.3%) and presilphiperfolane-7,8-diol (46.4%). No plant species other than *P. vulgaris* are characterized by the presence of presilphiperfolane-7,8-diol. This fact may be of chemotaxonomic/biosynthetic significance.

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Cytotoxic and antimicrobial activity of selected *Hieracium* L. extracts and isolated sesquiterpene lactones

Milutinović, V.[1], Matić, I.[2], Grozdanić-Stanisavljević, N.[2], Stanojković, T.[2], Soković, M.[3], Ćirić, A.[3], Niketić, M.[4], Petrović, S.[1]

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Cytotoxic and antimicrobial activities were investigated for MeOH extracts of flowering aerial parts of *Hieracium calophyllum* R. Uechtr. (CAL), *H. coloriscapum* Rohlena & Zahn (COL), *H. pseudoschenkii* (Rohlena & Zahn) Niketić (PSE), *H. valdepilosum* Vill. s.l. (VAL) and *H. glabratum* Willd. (GLA), their two isolated sesquiterpene lactones 8-epiixerisamine A and crepiside E, as well as for CH_2Cl_2 extract of flowering aerial parts of *H. scheppigianum* Freyn (SCH). Crepiside E (IC_{50} = 46.00 μg/mL), COL (IC_{50} = 152.28 μg/mL) and SCH (IC_{50} = 148.12 μg/mL) showed the highest cytotoxic activity against HeLa cells in MTT test. The cytotoxic activity against LS174, A549, as well as against normal MRC-5 cells was significantly weaker. In microdilution test, crepiside E and 8-epiixerisamine A exhibited noteworthy antifungal effect against *Aspergillus ochraceus*, *Penicillium funiculosum*, *Candida albicans* and *C. krusei* (MIC = 0.15 - 0.4 mg/mL, MFC = 0.3 - 0.8 mg/mL). Among the extracts, the best antibacterial activity was shown by SCH and CAL against *Pseudomonas aeruginosa* (MIC = 1.68 and 2.52 mg/mL, MBC = 3.36 and

5.04 mg/mL), and the highest antifungal activity by SCH and VAL against *C. albicans* (MIC = 2.48 and 2.52 mg/mL, MFC = 4.96 and 5.04 mg/mL).

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Chemical composition and chemometric analysis of essential oils from four different *Citrus* species fruit

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Fruits from *Citrus* species are used for centuries not only as food but also in perfume and beverage industry, in aromatherapy and as medication. Essential oils are one of the main ingredients of *Citrus* species fruits. Different citrus species have essential oils with different composition. Our goal was to investigate chemical composition of essential oils obtained from four different citrus species fruits. Essential oils were obtained by the steam distillation of peal (flavedo) of sweet orange (*Citrus sinensis*), mandarin (*Citrus reticulata*), lemon (*Citrus limon*) and lime (*Citrus aurantifolia*). Essential oils were analyzed by gas chromatography-mass spectrometry. There were 31 different compounds in all four essential oils. Two compounds, α-pinene and D-limonene, both monoterpenes were identified in all four essential oils and D-limonene was the most represented compound in all four analyzed essential oils in range between 47.5% in lime and 89.9% in sweet orange. Chemometric analysis included principal component analysis and hierarchical cluster analyses. Principal component analysis showed that there are three principal components which together explain 99.9% of variance. Hierarchical data analysis showed that there are two clusters in total. Parts of one cluster were lemon and lime essential oils and parts of the other one were sweet orange and mandarin essential oils. In conclusion, investigated essential oils differ and could be separated in two groups, although they originate from the same *Citrus* genus. Dominant component in all four essential oils is D-limonene.

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