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BOOK OF ABSTRACTS

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The 80th anniversary of Turrill's PLANT LIFE OF THE BALKAN PENINSULA

CHEMICAL COMPOSITION OF THE ESSENTIAL OILS OF THREE ORIGINS OF *RHODIOLA ROSEA* L.

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Rhodiola rosea (Crassulaceae), or rose root is a perennial herbaceous plant, distributed in the Northern Hemisphere. The pharmacological studies showed that *Rhodiola rosea* exhibited different biological activities – antioxidant, antidepressant, anti-stress, anticancer, anti-inflammatory drug, etc.

The aim of the present study was to compare the chemical composition of essential oils from roots of three samples of *Rhodiola rosea* originated from Bulgaria (sample 1), China (sample 2) and India (sample 3). The obtained results exhibited considerable differences in chemical compounds. Thus, the main volatile component in the Bulgaria and Chinese *R. rosea* is geraniol, followed by myrthenol in sample 1 or octanol in sample 2. Phenylethylalcohol is a principal constituent in the Indian oil. Myrthenol and octanol are in significant amount, too. Aliphatic hydrocarbons, characteristic for the latter sample practically absent in 1. It is notable that cinnamyl alcohol which present in big concentration in Bulgarian was not detected in the other two samples.

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COMPOSITION AND ANTIMICROBIAL ACTIVITY OF ESSENTIAL OIL FROM THE UNDERGROUND PARTS OF *LASERPITIUM ZERNYI* HAYEK (APIACEAE)

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Laserpitium zernyi Hayek is Scardo-Pindic endemic plant distributed in the mountain regions of C. Balkans. It was treated earlier as a subspecies, *L. siler* L. subsp. *zernyi* (Hayek) Tutin [1,2]. Root of *L. siler* is traditionally used as tonic, diuretic, emenagogue, in gynecology and externally for toothache treatments [3].

Composition and antimicrobial activity of essential oil from the underground parts (roots and rhizomes) of *L. zernyi* were investigated. Air-dried and powdered plant material was hydrodistilled using n-hexane as a collecting solvent. Pale blue oil yielded 1.21% (w/w).

The essential oil was analyzed by GC/FID and GC/MS. Forty-three compounds were identified (94.3% of total oil). Oil was characterised by similar content of monoterpenes and sesquiterpenes (52.9% and 41.4%, respectively). The main constituents were α-pinene (31.6%) and α-bisabolol (30.9%).

The antimicrobial activity was tested using the microdillution method [4] against Gram(+) bacteria *Staphylococcus aureus* ATCC 25923, *S. epidermidis* ATCC 12228, *Micrococcus luteus* ATCC 9341, *Enterococcus faecalis* ATCC 29212, Gram(–) bacteria *Pseudomonas aeruginosa* ATCC 27853, *Klebsiella pneumoniae* NCIMB 9111, *Escherichia coli* ATCC 25922, and two strains of yeast *Candida albicans* (ATCC 10259 and 24433).

Laserpitium zernyi oil showed significant anti-bacterial activity against *Staphylococcus epidermidis* (MIC 31.83 μg/ml), *S. aureus* and *Micrococcus luteus* (MICs 63.67 μg/ml). For all other tested microorganisms MIC values were higher than 100.00 μg/ml.

The studied essential oil isolated from the underground parts of *L. zernyi* had a remarkably different composition than the previously tested oils from flower and herb of this plant, and also showed a much higher antimicrobial activity [5].

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