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THE ESSENTIAL OIL OF *HERACLEUM SPHONDYLIUM* L. (APIACEAE) FROM SERBIA

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Keywords: *Heracleum sphondylium*, essential oil, n-octyl acetate, cis-3-octen-1-yl acetate, n-octyl hexanoate

The essential oil of the species *Heracleum sphondylium* was isolated by hydrodistillation from shoots, inflorescence and fruits. The content of the oil was largest in fruits (1%), while only traces of essential oil were recorded in inflorescence and shoots. Chemical composition of these oils was determined by correlation of results obtained by GC/FID and GC/MS of isolated samples. Identification of essential oil constituents was accomplished by GC/MS on HP-5MS capillary column, comparing MS of peaks from samples with those from selected MS libraries (Wiley 275, NIST/NBS, Adams), using different search engines (PBM, NIST), and comparing experimentally determined values for appropriate retention data (AMDIS) with those from the literature. The most abundant constituent of fruit oil was n-octyl acetate 49.5% (3.5% in shoots; 5.0% in inflorescence). The content of cis-3-octen-1-yl acetate was determined to be 6.9% in fruits, but below 1% in the oils from other plant parts. Fruit oil also contained 7.1% of n-octyl hexanoate. The major constituents of the oil isolated from inflorescence were myrcene (12.4%), n-octyl hexanoate (10.8%) and cis- β -ocimene (7.0%). α -pinene (16.6%) and cis- β -ocimene (10.6%) were present in high concentration in the oil from shoots. Fruit oil, according to the content in samples of tested plant material and its composition, clearly differed from oils isolated from other parts of *Heracleum sphondylium*.

CHEMICAL COMPOSITION AND ANTIOXIDANT ACTIVITY OF ESSENTIAL OILS OF *THYMUS GLABRESCENS* WILLD., LAMIACEAE FROM BANAT

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Keywords: *Thymus glabrescens*, essential oils, GC, antioxidant activity, thymol

Chemical composition and antioxidant activity of essential oils of six *Thymus glabrescens* Willd., *Lamiaceae* populations from south and middle Banat (NE Serbia) were investigated in order to determinate the variability among populations from different habitats and correlation to its morphology. Essential oils were obtained by hydrodistillation of dried aerial parts of plants collected in blossoming stage (June 2004), with yields covering a range between 0.1 and 0.8 ml/100 g of plant material. Chemical analysis of essential oil samples was performed by GC-FID and GC-MSD. Investigated essential oils differed significantly to each other by the quantity of thymol, as its concentration covered a span between 0.65 and 55.12 % (w/w). In one sample, instead of thymol and/or carvacrol, high concentrations of geranial and neral were detected. Antioxidant activity of investigated oils has been estimated by the assay for DPPH free radical scavenging ability and compared to the same feature of BHT. The results of DPPH assay showed that investigated essential oils expressed moderate antioxidant activity, with IC₅₀ 120-250 μ g/ml, attributable to presence and concentration of thymol exclusively, as verified by dot-blot TLC analysis.