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BOOK OF ABSTRACTS

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

genes to crops or (2) enhancement of natural toxins production through tissue or cell culture. The establishment of hairy root cultures of *C. murale* could be highly beneficial for these purposes. Hairy roots cultures of *C. murale* were established by inoculating the different explants of two and six weeks old *in vitro* grown seedlings with *Agrobacterium rhizogenes* strain A4M70GUS. The root explants, not commonly used for *A. rhizogenes* transformation, were found to be the best target explants with the transformation efficiency ranging from 6.5 to 11.1%. Transformation efficiency was significantly increased by addition of acetosyringone (11.1% vs. 6.5%). The variations in growth and morphology observed among hairy-root clones were found to be in correlations with the presence of the rol and ags genes confirmed by PCR analyses. The results presented here represent, to the best of our knowledge, the first report ever on successful transformation of *Chenopodium murale* L. mediated by *A. rhizogenes*.

08 Sept. 14:30-18:00, POSTER HALL Poster 8_PPR_P_15.

CHEMICAL COMPOSITION AND ANTIMICROBIAL ACTIVITY OF VOLATILE FRACTION OF *ANTHRISCUS NEMOROSA* (BIEB.) SPRENGEL (UMBELLIFERAE)

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Anthriscus nemorosa (Bieb.) Sprengel (Umbelliferae) is a nitrophile perennial with a long, stout root. This plant occurs in the temperate area of Eurasia [1], from Italy on the West to Japan on the East. The species is a member of *A. sylvestris* (L.) Hoffm. complex [2]. In Serbia, it usually inhabits the shady herbaceous layer in thermophilous forests and underbrush vegetation at the lower altitudes. It prefers moderately wet, steep, stony and eroded slopes. From methanol extract of the roots of *A. nemorosa* two lignan lactones (savinin and nemerosin) were isolated [3].

We investigated composition and antimicrobial activity of essential oil from the roots of this plant. Plant material was collected in Sićevačka gorge (E. Serbia), in July 2007. The essential oil was isolated by hydrodistillation and analyzed by GC and GC-MS. The roots yielded 0.2% w/w of light yellow oil with aromatic smell. The main constituents of the oil were: n-nonane (12.1%), n-hexadecanol (6.9%), δ-cadinene (6.4%), β-pinene (6.0%) and germacrene D (5.4%). The essential oil from roots of *A. nemorosa* differed from the root oil of the closely related species *A. sylvestris* (L.) Hoffm. which was dominated by β-phellandrene (45.4%), Z-β-ocimene (16.9%), and α-pinene (4.6%) [4].

The microbial growth inhibitory properties of isolated essential oil were determined using the broth microdilution method [5] against Gram-positive bacteria *Staphylococcus epidermidis* (ATCC 12228), *Bacillus subtilis* (ATCC 6633), Gram-negative bacteria *Escherichia coli* (ATCC 25922) and a yeast *Candida albicans* (ATCC 10259 and ATCC 24433). The best inhibitory effect was detected against *B. subtilis* (MIC 6.25 μl/ml) and *C. albicans* (ATCC 10259) (MIC 50 μl/ml).

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CHEMICAL COMPOSITION OF *ACHILLEA CLUSIANA* ESSENTIAL OIL

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