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**FROM PLANTS TO  
PHARMACY SHELF**

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Sts. Constantine  
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BOOK OF  
ABSTRACTS



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## CHEMICAL COMPOSITION OF ESSENTIAL OILS FROM FRUITS OF *PEUCEDANUM LONGIFOLIUM* AND *P. AEGOPODIOIDES* (APIACEAE)

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Composition of essential oils from ripe dried fruits of *Peucedanum longifolium* Waldst. & Kit. (PL) and *P. aegopodioides* (Boiss.) Vandas (PA) was investigated for the first time. Both taxa are distributed on the Balkan Peninsula, Asia Minor and Transcaucasia, and some authors include the last species in a separate genus, *Rhizomatophora* Pimenov [1]. Plant material was collected in Serbia, PL on Vis hill in Sićevo Gorge, PA in vicinity of Pirot, near village Basara. Oils were obtained by hydrodistillation in Clevenger-type apparatus; yields 0.91% (PL) and 0.02% (PA), w/w. GC-FID-MS analysis revealed presence of 46 components in PL oil and 48 in PA oil, accounting for 98.0% and 90.0% of total oils. PL oil was dominated by monoterpene hydrocarbons (74.4%), mainly  $\alpha$ -phellandrene (26.2%),  $\beta$ -phellandrene + limonene (21.0%) and myrcene (9.5%), followed by sesquiterpene hydrocarbons (17.9%), mainly germacrene B (9.5%). On the other hand, most abundant in PA oil were non-terpenic aliphatic hydrocarbons (46.1%), mainly *n*-undecane (16.5%) and *n*-nonane (11.3%). However, this oil also contained significant amounts of both non-oxygenated and oxygenated sesquiterpenes (11.4% and 13.6%), with (*E*)-sesquilavandulol being most prominent (10.0%). Previously, composition of essential oils from some other plant parts of PL was investigated. For example, essential oil from fresh leaves and young stems of this plant was dominated by sesquiterpene  $\beta$ -elemene (24.7%) and monoterpene (*E*)- $\beta$ -ocimene (11.7%) [2], which were present in small amounts in dried fruit oil investigated in current study (0.5% and 0.6%).

**Acknowledgements:** Ministry of Science, Technological Development and Innovation, Republic of Serbia (Grant No. 200161).

### References:

- [1] POWO (2023) Plants of the world online – The Royal Botanic Gardens, Kew. (<https://powo.science.kew.org/>; accessed: January 15<sup>th</sup> 2023).  
[2] Jovanović OP, Zlatković BK, Jovanović SČ, Petrović G, Stojanović GS (2015) Composition of *Peucedanum longifolium* Waldst. & Kit. essential oil and volatiles obtained by headspace. *Journal of Essential Oil Research* 27: 182-185.

## FATTY ACIDS, PHYTOSTEROLS, FURANOCOUMARINS AND POLYPHENOLS OF *PRANGOS TRIFIDA* S.L. (APIACEAE) ROOTS AND FRUITS

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Composition of dichloromethane and methanol extracts from roots and fruits of *Prangos trifida* (Mill.) Herrnst. & Heyn s.l. (collected in Sićevo Gorge, Serbia in 2020) was investigated. Extracts were obtained by bimaceration, firstly with dichloromethane, then with methanol; solvents were removed under reduced pressure. GC-FID-MS analysis, conducted after saponification and methylation of samples, showed that palmitic, oleic and linoleic (14.2-51.8%) were dominant fatty acids in root dichloromethane extract, and oleic, linoleic and petroselinic in oily supernatant of fruit dichloromethane extract (10.2-49.9%); in both samples 16 fatty acids were identified. Dominant phytosterols, investigated by GC-FID-MS after unsaponifiable fractions silanization, were  $\beta$ -sitosterol (48.2 and 25.1%) and stigmaterol (14.9 and 12.8%). LC-DAD-MS analysis of dichloromethane and methanol extracts revealed presence of 7-11 furanocoumarins, including oxypeucedanin and imperatorin (up to 105.9 and 49.2 mg/g in fruit dichloromethane extract crystalline precipitate), followed by smaller amounts of oxypeucedanin hydrate, isoimperatorin, heraclenol, heraclenin and/or xanthotoxin. All extracts were rich in one 2',3'-dihydrofuranocoumarin derivative. Previously, such derivative, prantschimgin, as well as imperatorin and isoimperatorin were isolated from this plant and their *in vitro* anti-inflammatory activity was demonstrated [1]. In current investigation, in root methanol extract, chlorogenic (31.6 mg/g), two dicaffeoylquinic (12.8 and 48.1 mg/g), and smaller amounts of one caffeoylquinic and one feruloylquinic acids were also determined. Furthermore, low quantities of chlorogenic and one dicaffeoylquinic acid and two quercetin-type flavonoids were detected in fruit methanol extract, and one methylfluteolin-type flavonoid in both methanol extracts.

**Acknowledgements:** Ministry of Science, Technological Development and Innovation, Republic of Serbia (Grant No. 200161).

### References:

- [1] Abad MJ, et al. (2001) Effects of furocoumarins from *Cachrys trifida* on some macrophage functions. *Pharmacy and Pharmacology* 53: 1163-1168.