

PO-36

doi: 10.14232/tnpr.2019.po36

Chemical characterization of common ragweed (*Ambrosia artemisiifolia* L.) root

Elek Ferencz^{1,2}, Norbert Kúsz¹, Judit Hohmann¹, Martin Vollár¹, Ágnes Molnár¹, Eszter Laczkó-Zöld², Zoltán Péter Zomborszki¹, Boglárka Csupor-Löffler^{1,*}

¹ Department of Pharmacognosy, University of Szeged, Szeged, Hungary.

² Department of Pharmacognosy, University of Medicine and Pharmacy, Târgu Mureș, Romania.

*E-mail: csupor.boglarka@pharmacognosy.hu

Common ragweed (*Ambrosia artemisiifolia* L.), a North-American native species, is present as an invasive plant in Europe. Because of its purported allelopathic effect and since it does not have any natural pests on our continent, it spreads very quickly, and this is triggered by the change of the climate. It is one of the hundred worst invasive aliens, therefore the European Food Safety Authority promotes its eradication.

The aim of our work was to characterize the chemical profile of common ragweed in order to identify metabolites with potential medicinal use. In earlier studies we detected *in vitro* antitumor effects of ragweed extracts. The extract of the herb was effective on human breast adenocarcinoma cells (MCF-7, IC₅₀: 10.2 µg/ml) and human skin epidermoid carcinoma cells (A431, IC₅₀: 11.1 µg/ml) while the extract of the root showed activity on human skin epidermoid carcinoma cells (A431, IC₅₀: 8.5 µg/ml) [1].

Based on these results, we carried out chromatographic separation of the root extract by using different chromatography methods. From the non-polar fractions of the methanolic root extract we isolated five substances, a thiophene, a lignin, a triterpene sterol and a fatty acid. The structures of the isolated compounds were determined with 1D and 2D NMR spectroscopy. The pharmacological effects were tested on human cancer cell lines (using MTT-assay) and on human pathogen bacteria strains (using disc diffusion assay).

References

[1] Réthy B et al. *Phytother Res.* 2007; 21: 1200-1208.