

PP72. Essential oils from the Herba and fruits of *Peucedanum luxurians* and their antituberculosis activity

Jarosław Widelski^{1*}, Joanna Golus², Rafał Sawicki², Grażyna Ginalska²,
Tomasz Mroczek¹, Krystyna Skalicka-Woźniak¹

Keywords: *Peucedanum luxurians*, *Mycobacterium tuberculosis*, H37Ra

The Apiaceae family has been accompanying people for thousands of years, being present in the kitchen, as well as in the pharmacy. Plants belonging to this family are well known as sources of coumarins and essential oils.

Essential oils from the Herba, as well as fruits, of *Peucedanum luxurians* Tamamsch. (an endemic umbelliferous plant taxon from Armenia) were obtained by hydrodistillation in a Deryng apparatus for the first time. The GC-MS analyses showed the presence of *trans*- β -farnesene (16%) and germacrene D (13%) as the most abundant components of the essential oils.

One of the most valuable properties of essential oils is their antimicrobial activity. It is a very desirable feature, especially in the case of some bacteria, which cause huge health problems. A good example is *Mycobacterium tuberculosis*, one of the leading causes of human morbidity and mortality.

The activity of essential oils from different parts of *P. luxurians* was tested for antituberculosis activity. Minimal Inhibitory Concentrations (MIC) values for the essential oils were determined by a 96-well microplate method with alamarBlue (Invitrogen). The inoculum of the reference strain of *Mycobacterium tuberculosis* H37Ra in Middlebrook 7H9 broth (Difco) was 5×10^5 cfu/mL per well, according to CLSI standards. Serial twofold dilutions of essential oils ranged from 8 to 256 μ g/mL. As the internal control of the method, serial twofold dilutions of four first-line antibiotics dedicated to tuberculosis treatment: isoniazid (INH), rifampicin (RMP), ethambutol (EMB), and streptomycin (SM) were used [1,2].

References:

- [1] Palomino, J.C. et al., 2002. Antimicrob. Agents Ch. 46, 2720–2722.
[2] Wayne, P.A., 2011. Susceptibility Testing of Mycobacteria, Nocardiae, and Other Aerobic Actinomycetes; Approved Standard-Second Edition. CLSI document M24-A2, Clinical and Laboratory Standards Institute, USA.

Acknowledgments: The work was financed from the grant No. 4/POLTUR-1/2016. The authors would like to express their gratitude to the Director of the Botanical Gardens, Adam Mickiewicz University in Poznań and the specialists from this garden, as well as the Director and specialists from the Botanical Gardens of UMCS, Lublin, for the plant material.

¹Department of Pharmacognosy with Medicinal Plant Laboratory, Medical University in Lublin, Chodźki 1, Poland; ²Department of Biochemistry and Biotechnology, Faculty of Pharmacy, Medical University of Lublin, 1 Chodźki Street, 20-093 Lublin, Poland.

*Corresponding author: jwidelski@pharmacognosy.org