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ABSTRACT BOOK



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Comparative quantitative chemical analysis of *Rhodiola rosea* L. roots

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Background: *Rhodiola rosea* L. (Crassulaceae), commonly known as golden root or Arctic root, is a widely studied medicinal plant traditionally valued for its adaptogenic, antifatigue, antioxidant, and neuroprotective properties [1]. The key bioactive marker compounds in *R. rosea* are salidroside and the phenylpropanoid glycosides collectively known as rosavins (including rosavin, rosarin, and rosin) [2].

Aim: Determine quantitative composition of wild and cultivated *Rhodiola* roots.

Methods: Samples were collected in the natural habitat (Maramureş Mountains, Romania) (sample-1) and cultivated in Botanical Garden, Vytautas Magnus University, Kaunas (sample-2). Analysis was conducted using ReproSil-Pur Basic C18 (150x4.6 mm, particle size 3 µm) column and mobile phases of water, acetonitrile and methanol, using gradient elution for 30 min. Detection was performed applying PDA detector at wavelength of 205 nm.

Results. HPLC analysis showed good separation of peaks, which in terms of RT and UV spectra were consistent with standards. Both roseroot individuals showed a very high deviation in their chemical content at each sampling time. Salidroside content was 0.33 % and 1.15 %, while the rosavins content was 0.16 % and 1.23 %. The content of rosavins and salidroside in sample-1 was lower, while the rosavin in sample-2 was significantly higher.

Conclusions. The analysis showed significant differences in bioactive compounds (rosarin, rosavin, rosin and salidroside) content between wild and botanical garden golden roots. Given the variability of the chemical composition of plant materials depending on environmental factors, it is always important to assess the content of bioactive components.

References:

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2. Wang, S., Feng, Y., Zheng, L., He, P., Tan, J., Cai, J., ... & Ye, X. (2023). Rosavin: Research Advances in Extraction and Synthesis, Pharmacological Activities and Therapeutic Effects on Diseases of the Characteristic Active Ingredients of *Rhodiola rosea* L. *Molecules*, 28(21), 7412.