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PHARMACY: ISSUES, CHALLENGES AND EXPECTATIONS**

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Comparative study of the quantitative and qualitative composition of different *Galium* species from Poland and Ukraine flora

Yelyzaveta Oleksiuk ^{1*}, Agnieszka Bazyłko ², Sebastian Granica ², Oleh Koshovyi ¹,
Tetiana Ilina¹, Alla Kovaleva ¹

¹ National University of Pharmacy, Kharkiv, Ukraine

² Medical University of Warsaw, Warsaw, Poland

*Corresponding author's e-mail: oleksiukelizaveta@gmail.ru

Introduction: The species of genus Bedstraw (*Galium* L.) (*Rubiaceae* Juss.) have been traditionally used for its antitumor, diuretic, choleric, anti-inflammatory, antimicrobial, sedative and hemostatic effects in the folk medicine [1]. Aerial parts of Cleavers (*G. aparine* L.) is included in the British Herbal Pharmacopoeia and in several homeopathic remedies; “Tazalok TM” remedy based on Lady’s bedstraw (*G. verum* L.) tincture is used in the treatment of menstrual disorders, Lady’s bedstraw (*G. verum* L.) shows antioxidant activity. The chemical composition of raw materials can be different considering the place of their growth [2].

Materials and methods: The objects of study were *Galium* species herbs harvested in a beech forest near the village Huta Różaniecka of the Subcarpathian Voivodeship (Poland) and in the Kharkiv forest park (Ukraine) in the full-flowering phase (May-June 2019). The raw materials were extracted with 50 % methanol in an ultrasonic bath. Compounds were studied by ultra HPLC - tandem mass spectrometry using a Dionex Ultimate 3000RS system (Dionex, Germany) connected to an Amazon SL spectrometer. Separation was performed on a Kinetex XB-C18 column (Phenomenex, United States). Compounds were identified based on UV and MS spectra.

Results: Iridoids were identified in all studied samples: a high content of asperuloside in *G. verum*, monotropein, 10-desacetylasperulosidic, asperulosidic and geniposidic acids; hydroxycinnamic acids: 3-O-caffeoylquinic acid (neochlorogenic acid), 4-O-caffeoylquinic acid (cryptochlorogenic acid) and 5-O-caffeoylquinic acid (chlorogenic acid) as the dominant component in *G. aparine*; flavonoids: a high content of quercetin-3-O-rhamnoglucoside (rutin) and quercetin-3-O-rhamnoglucoside-7-O-glucoside. *G. verum* contain quercetin-O-dihexoside, quercetin-3-O-glucoside, quercetin malonylhexaside isomer and diosmethin 7-O-rutinoside (diosmin) in small quantities; 3,4-O-dicaffeoylquinic acid was identified in the *G. aparine* herb; in the *G. verum* herb - diosmetin trihexoside, diosmetin dihexoside and quercetin p-coumaroylhexaside.

Conclusions: The results of the study create the preconditions for obtaining extracts from Bedstraw species and studying their pharmacological activity.

References

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