

PUBLICATIONS

FLAVONOID COMPOSITION OF *Inula britannica* L. AND *Inula helenium* L. EXTRACTS DETERMINED BY HPLC

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Flavonoids constitute one of the most widespread groups of plant phenolic compounds and are largely responsible for the biological activity of medicinal plants [1]. Species of the genus *Inula* L. contain a diverse range of flavones and flavonols exhibiting antioxidant, anti-inflammatory, antimicrobial, and cytotoxic activities, making them valuable both as chemotaxonomic markers and as constituents for the standardization of herbal raw materials [2].

The aim of the present study was to investigate the qualitative and quantitative composition of individual flavonoids in extracts of *Inula britannica* and *Inula helenium* collected from the flora of Uzbekistan using high-performance liquid chromatography (HPLC).

The analysis was performed on an Agilent 1100 liquid chromatograph equipped with a Zorbax Eclipse Plus C18 column (3.0 × 100 mm, 5 μm). Gradient elution with an acetonitrile–water mobile phase was employed, and chromatograms were recorded at 350 nm. Identification and quantification of flavonoids were carried out based on retention times and calibration curves constructed using authentic reference standards.

The ethanolic extract of the aerial parts of *Inula britannica* was characterized by the highest quercetin content (0.72%) and also contained axillarin (0.02%), dinatin (0.01%), apigenin (0.005%), and artemetin (0.003%). The chloroform fraction of the ethanolic leaf extract of *Inula helenium* contained quercetin (0.08%), apigenin (0.04%), and dinatin (0.02%). In the ethanolic root extract of *Inula helenium*, casticin (0.03%), quercetin (0.01%), a mixture of cirsimaritin and eupatilin (0.01%), axillarin (0.006%), and dinatin (0.008%) were identified.

The obtained results demonstrate significant differences in flavonoid accumulation between the investigated species and among different plant organs. The ethanolic extract of the aerial parts of *Inula britannica* proved to be the richest source of flavonoids, owing to its high quercetin content, indicating a considerable antioxidant potential. The identified methoxylated flavones, including axillarin, dinatin, artemetin, casticin, cirsimaritin, and eupatilin, may serve as promising chemotaxonomic markers of the genus *Inula* L. and are of particular interest for the standardization of herbal raw materials and the development of phytopharmaceuticals with pronounced biological activity.

References:

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