

PHENOLIC COMPOUNDS FROM *Potentilla anserina*

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Silverweed (*Potentilla anserina* L.) is one of the most common species of the genus *Potentilla* in the flora of Ukraine. Decoctions, tinctures, and infusions of this plant exhibit antibacterial, thromboplastic, antifibrinolytic, and other types of activity. The aerial part of the plant contains phenolcarboxylic and hydroxycinnamic acids, flavonoids (1.8%), coumarins, catechins, leucocyanidins, anthocyanins, and tanning agents, in the aerial part up to 10.64%; in the subterranean part, up to 25% [1]. The component composition of essential oils from the aerial and subterranean parts and the antimicrobial activity of the EtOH extract were previously established. The quantitative contents of chlorophylls, flavonoids, and carotinoids in the extract were determined [2–5].

TLC of *P. anserina* herb collected before flowering contained 14 phenolic compounds [6].

In continuation of this research, we studied phenolic compounds from the subterranean and aerial parts of the plant. We studied herb collected before flowering and rhizomes with roots collected in Kharkov in June 2009. Chromatography and identification of the phenolic compounds were carried out as before [7]. As a result, ellagic acid (**1**), myricetin-3-*O*-glucoside (**2**), rutin (**3**), quercetin-3-*O*-glucoside (**4**), and quercetin-3-*O*-arabinoside (**5**) were identified in the aerial part of silverweed.

Four ellagic acid derivatives (EAD, **6–9**) were observed for the first time in the subterranean parts of silverweed. These were identified by retention times and characteristics of their UV spectra. UV spectra of **6–9** differed from that of ellagic acid by hypsochromic shifts of long-wavelength band maxima. The maximum for ellagic acid was observed at 369 nm; EAD **6**, 356; EAD **7**, 362; EAD **8**, 356; and EAD **9**, 359. Furthermore, additional maxima at 340–345 nm were noted in UV spectra of EADs **1** and **3**. Considering the shorter retention times for these compounds than for ellagic acid and their UV spectral characteristics, it was assumed that they were glucosylated derivatives (ellagotannins). The acid hydrolysis products of the MeOH extract of rhizomes included glucose according to chromatography and ellagic acid according to HPLC (Table 1).

Myricetin-3-*O*-glucoside (0.16%) and rutin (0.10%) dominated the aerial part; ellagic acid (0.01%), the subterranean part.

TABLE 1. Phenolic Compounds from *Potentilla anserina*

Compound	Content, mg per 100 g raw matl.	Retention time, min	λ_{\max} , nm
Aerial part			
1	5.9	20.38	369, 254
2	160.4	19.02	353, 262
3	102.7	19.51	355, 259
4	37.5	20.16	355, 258
5	46.0	20.80	356, 256
Subterrean part			
6	1.6	17.90	356, 252
7	7.9	19.39	362, 254
8	0.9	19.68	356, 253
9	1.2	19.94	359, 255
1	11.1	20.36	369, 254

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