IRIDOID GLYCOSIDES FROM *Cephalaria kotschyi* ROOTS

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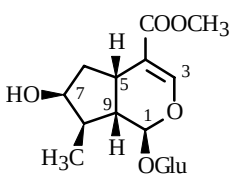
We investigated roots of *Cephalaria kotschyi* Boiss. and Hoh. (Dipsacaceae) collected in September 2005 in Lerik Region in southern Azerbaijan [1]. Raw material was extracted three times with methanol (80%) by refluxing for 1 h. Solvent was distilled off. The solid (22 g) was diluted with water. The aqueous solution of the extract was extracted three times with butanol. The butanol extract (2 g) was purified by ordinary liquid chromatography over an RP18 column with a gradient of H_2O:MeOH (70-30 v/v → 0-100 v/v) as the mobile phase. This produced 24 fractions Rp_1F_1-Rp_1F_{24}. Then fraction Rp_1F_{12} was purified by column chromatography over silica gel with elution by CH_2Cl_2:MeOH:H_2O (40:10:1). This isolated **1** (5.4 mg). Fractionation of the butanol extract in a layer of polyamide using MeOH:H_2O (10% → 95% MeOH) gave six pure fractions $Po1RM10_{2-4}$-Po1RM95. Then fraction $Po1RM10_{2-4}$ was purified over silica gel using CH_2Cl_2:MeOH:H_2O (40:12:2) to isolate **1** (18 mg) and **2** (20 mg). The chemical structures of the isolated compounds were determined by NMR. The NMR spectra of CD_3OD solutions of the compounds were recorded on a Bruker DRX Avance 200 MHz spectrometer (^1H 200 MHz, ^{13}C 50 MHz) (Table 1).

Comparison of the resulting spectra with those reported in the literature identified the isolated compounds as loganin (**1**) and gentiopicrin (**2**) [2-4].

The investigation isolated iridoids for the first time from *C. kotschyi* roots. Previously described monoterpene alkaloids [5, 6] were considered artefacts formed by the chemical transformation of iridoids by the ammonia solution used for the extraction.



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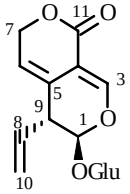

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TABLE 1. PMR and ^{13}C NMR Spectra of **1** and **2**

C atom	**1**, δ, ppm		**2**, δ, ppm	
	^{13}C	^{1}H	^{13}C	^{1}H
1	96.70	5.41 d	98.58	5.63 d
3	150.90	7.43 s	150.69	-
4	113.17	-	104.92	7.42 m
5	29.83	1.07 d	126.94	-
6a	40.32	2.07 –2.19 m	117.26	-
6b	40.32	3.08 q	-	5.61 m
7	74.36	3.3 m	70.96	5.00 m
8	40.07	-	134.92	5.77 ddd
9	44.99	1.69 - 2.00 m	46.54	5.20 md
10	12.00	-	118.63	5.15 md
11	170.14	4.8 d	166.46	-
12	51.83	2.07 - 2.25 m	-	-
1′	98.65	3.44 - 3.56 m	100.20	4.83 d
2′	72.69	3.24 - 3.56 m	74.52	3.10 dd
3′	75.69	4.15 t	77.93	3.34 m
4′	69.61	3.92 dd	71.50	3.17 m
5′	76.35	3.44 - 3.56 m	78.34	3.32 m
6′a	60.71	3.72 dd	62.72	3.89 dd
6′b	60.71	3.74 s	-	3.64 dd

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