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FLAVONOIDS OF *Melilotus officinalis*

M. G. Sutiashvili and M. D. Alaniya

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The flavonoid composition of *Melilotus officinalis* (L.) Desr. (Fabaceae) growing in Georgia is studied.

Air-dried leaves and flowers (2 kg) were extracted with 80° ethanol. The alcohol was distilled. The aqueous extract was purified with $CHCl_3$. The flavonoids (7 g) were obtained by fractionation of the aqueous layer on a polyamide column. Two pure flavonoids, **1** and **2**, were isolated by known methods from this fraction.

Compound **1**: mp 187-189°C, $[\alpha]_D^{20}$ = -83.5° (*c* 0.1, ethanol-DMF, 99:1), MM 740 (spectrometrically). Acid produces 33% kaempferol, *D*-glactose, *L*-rhamnose. Alkali solution (0.5%) gives kaempferol-3-robinobioside with mp 221-222°C, $[\alpha]_D^{20}$ = -17.3° (*c* 0.345, ethanol water, 1:1) and *L*-rhamnose. The β-glycosidases produce robinobiose and kaempferol-7-rhamnoside with mp 227-229°C, $[\alpha]_D^{20}$ = -128° (*c* 0.1, absolute ethanol) [2].

Compound **2**: mp 200-205°C; MM 870 (spectrometrically); λ_{max}, EtOH, nm: 352, 270; + sodium acetate, 356, 275; + aluminum chloride 360, 272; + aluminum chloride/HCl, 360, 256; + sodium acetate/boric acid, 358, 272; + sodium ethoxide, 430, 278. Acid hydrolysis forms 26% kaempferol. The carbohydrate portion contains *D*-galactose, *D*-glucose, *L*-arabinose, and *L*-rhamnose.

The physicochemical properties, IR and UV spectra, chromatographic behavior, and lack of melting-point depression when mixed with authentic samples identify **1** as robinin [1-3] and **2** as kaempferol-3-O-[galacto-ξ-gluco-ξ-arabo-ξ-rhamnoside], which have been isolated previously from *Astragalus falcatus* Lam., *A. galegiformis* L., and *A. glycyphyllus* DC. [4, 5].

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I. G. Kutateladze Institute of Pharmaceutical Chemistry, Academy of Sciences of Georgia, 380059, Tbilisi, P.O. Box 71. Translated from Khimiya Prirodnykh Soedinenii, No. 5, pp. 673-674, September-October, 1999. Original article submitted May 10, 1999.

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