BRIEF COMMUNICATIONS

THE HYDROXYCINNAMIC ACIDS OF Galium fagetorum AND G. Pseudomollugo

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We have studied the epigeal parts of G. fagetorum Klok. and G. pseudomollugo Klok. for their content of hydroxycinnamic acids. By two-dimensional chromatography on paper [system 1) 2% acetic acid, 2) BAW (4 : 1 : 2)] of 70% ethanolic extracts we have isolated in the individual state seven hydroxycinnamic acids from G. fagetorum and six from G. pseudomollugo. The substances provisionally denoted by the numbers 1-6 are common to both species. Compound 7 was found only in G. fagetorum.

Substances 1-5 have the same color reactions in UV light (Table 1). The products of alkaline hydrolysis (0.1 N KOH, 30 min in an atmosphere of nitrogen) are caffeic and D-quinic acids. On chromatography in comparison with an authentic sample, substances 1-3 proved to be identical with isochlorogenic acid, which is a mixture of 3,5-, 3,4-, and 4,5-dicaffeoylquinic acids [1]. Compounds 4 and 5 were shown by two-dimensional chromatography with authentic samples to be 3-caffeoylquinic (chlorogenic) and 5-caffeoylquinic (neochlorogenic) acids, respectively. The amount of the latter two acids in G. pseudomollugo is considerably greater than in G. fagetorum.

The products of the alkaline cleavage of compounds 6 and 7 are p-coumaric and D-quinic acids. A comparison of the properties of substances 6 and 7 and the p-coumaroylquinic acid described in the literature give grounds for assuming that substance 6 is 3-p-coumaroylquinic acid and substance 7 is 5-p-coumaroylquinic acid [2, 3].

TABLE 1

No.	Acid	R_f in system		UV spectra		Fluorescence in UV light	
		1	2	60% ethanol	+KOH	in the air	in NH_3 vapor
1	Isochlorogenic a	0,16	0,69	245, (300)*, 330	265 370	Blue	Bluish green
2	Isochlorogenic b	0,18	0,70	240, (300)*, 330	268 370		
3	Isochlorogenic c	0,26	0,66	240, (300)*, 330	267 370		
4	Chlorogenic	0,56	0,64	245, (298)*, 326	265 370		
5	Neochlorogenic	0,62	0,60	245, (298)*, 325	265 370		
6	3-p-Coumaroylquinic	0,58	0,69	240, 312	360	None	Dark blue
7	5-p-Coumaroylquinic	0,64	0,66	235, 314	355		

*Shoulder.

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