PHENOLIC ACIDS OF THE GENUS *Onobrychis adans*

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The phenolic acid compositions of 37 species of sainfoin collected in the flowering period on the territory of the Northern Caucasus and Central Asis have been studied by two-dimensional chromatography on paper in the solvent systems 1) 2% acetic acid and 2) butan-1-ol—acetic acid—water (4:1:5).

On analyzing the chromatographic results on the phenolic acid composition of the sainfoins, attenation was attracted by the fact that *Onobrychis tanaitica* Sprengel is distinguished from the others by the number and size of the spots on the chromatograms, and therefore it was subjected to a more profound chemical study.

The comminuted raw material of the epigeal part of the plant was exhaustively extracted with 70% ethanol in the water bath. The combined extracts were concentrated in vacuum, diluted with water, and treated successively with chloroform and ethyl acetate. The ethyl acetate extract was dried over anhydrous sodium sulfate, filtered, and concentrated, and the residue was chromatographed on a column of polyamide sorbent. Elution was performed with hexane and with hexane—ethyl acetate in ratios of 9:1, 8:1, 7:1, and so on down to 3:1, followed by recrystallization from aqueous or aqueous ethanolic solutions. Three substances (I-III) were isolated and identified.

Substance (I) — $C_9H_8O_4$, mp 196-198°C, R_f 0.29 (system 1) and 0.82 (system 2). UV spectrum, $\lambda_{max}^{C_2H_5OH}$, nm: 325, 300, 240. Alkaline fusion with potassium hydroxide gave protocatechuic acid with R_f 0.81 (system 2). The diacetyl derivative of substance (I) had mp 198-199°C.

Substance (II) — $C_{16}H_{18}O_9$, mp 201-204°C, R_f 0.62 (system 1), 0.63 (system 2). UV spectrum, $\lambda_{max}^{C_2H_5OH}$, nm: 329, 300, 240; $[\alpha]_D^{20}$ −32.3° (c 1.00; methanol). The pentaacetyl derivative of substance (II) had mp 186-187°C; alkaline fusion gave protocatechuic acid, and acid hydrolysis yielded quinic and caffeic acids. The failure to form a lactone indicated the attachment of the caffeic acid to the quinic acid in position 3.

Substance (III) — $C_7H_6O_3$, mp 210-213°C, R_f 0.60 (system 1) and 0.91 (system 2). UV spectrum, $\lambda_{max}^{C_2H_5OH}$, nm: 255. The presence in the IR spectrum of absorption bands at 860, 840, and 775 cm^{-1} showed para-substitution in a benzene ring [1].

The results of a comparison of the physicochemical constants, UV and IR spectra, and mixed melting points with authentic samples showed that the substances were, respectively, caffeic (I), chlorogenic (II), and p-hydroxybenzoic (III) acids [2].

LITERATURE CITED

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