

FLAVONOIDS OF SOME SPECIES OF VETCH

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Coumarin derivatives have been isolated previously from the herb *Vicia sativa* L., family *Fabaceae* [1].

Continuing a study of the phenolic complex of common vetch, from an ethyl acetate fraction by column chromatography on polyamide we have isolated six flavonoids.

Substance (I) — $C_{21}H_{20}O_{12}$, quercetin 3-O-β-D-glucofuranoside (isoquercitrin), mp 234-236°C, $[\alpha]_D^{20}$ -68.2° (s 0.1; methanol), λ_{max} 360, 257 nm.

Substance (II) — $C_{27}H_{30}O_{16}$, quercetin 3-O-β-D-glucoside 7-O-α-L-rhamnoside (anthoside, mp 224-226°C, $[\alpha]_D^{20}$ -117° (s 0.5; ethanol), λ_{max} 360, 255 nm.

Substance (III) — $C_{27}H_{30}O_{16}$, quercetin 3-O-(6-O-β-rhamnopyranosyl-β-D-galactofuranoside) (bioquercetin), mp 194-196°C. $[\alpha]_D^{20}$ -26° (s 0.1; DMF), λ_{max} 367, 262 nm [2].

Substance (IV) — $C_{27}H_{30}O_{16}$, quercetin 3-O-(6-O-α-L-rhamnopyranosyl-β-D-glucopyranoside) (rutin), mp 186-189°C, $[\alpha]_D^{20}$ -32° (s 0.3; methanol), λ_{max} 360, 259 nm.

Substance (V) — $C_{21}H_{20}O_{10}$, apigenin 7-O-β-D-glucoside (cosmosiin), mp 224-227°C, $[\alpha]_D^{20}$ -50° (s 1.0; ethanol-formamide), λ_{max} 333, 268 nm.

Substance (VI) — $C_{21}H_{20}O_{11}$, luteolin 7-O-β-D-glucopyranoside (cynaroside), mp 256-258°C, $[\alpha]_D^{20}$ -52° (s 0.1; methanol), λ_{max} 350, 255 nm.

The structures of the substances isolated were established from the results of UV, IR, and PMR spectroscopy and a study of the products of acid, enzymatic, and alkaline hydrolysis and a comparison of physicochemical properties with those of authentic samples.

A comparative chromatographic study of 13 species of vetch growing in the Ukraine and collected in the fruit-bearing period has been made. The qualitative compositions of the aglycons of aqueous ethanolic extracts were analyzed after the acid hydrolysis of the epigeal parts of the plants (Table 1).

TABLE 1

Species	Amount		Aglycons			
	phenolic compounds	flavonoids	quercetin	kaempferol	apigenin	disosmetin
<i>Vicia monanthos</i> L.	10	6	+	+	-	+
<i>Vicia hirsuta</i> (L.) S.F. Gray	9	6	±	+	+	-
<i>Vicia tetrasperma</i> Schreb	15	4	+	+	-	-
<i>Vicia dumetorum</i> L.	21	6	+	-	+	+
<i>Vicia pisiformis</i> L.	18	6	+	±	+	+
<i>Vicia silvatica</i> L.	10	5	+	+	-	-
<i>Vicia tenuifolia</i> Roth.	14	8	±	±	+	+
<i>Vicia cracca</i> L.	19	9	+	+	+	+
<i>Vicia villosa</i> Roth	19	5	+	±	-	+
<i>Vicia picta</i> Fisch. et Mey.	14	5	+	-	-	-
<i>Vicia sativa</i> L.	28	12	+	+	+	±
<i>Vicia angustifolia</i> Reichard	18	7	±	+	+	-
<i>Vicia peregrina</i> L.	8	4	±	+	+	+

Note: (+) — detected; (-) — not detected; (±) — traces.

LITERATURE CITED

1. A. M. Kovaleva and V. N. Kovalev, *Khim. Prir. Soedin.*, 207 (1986).
2. N. P. Maksyutina, *Khim. Prir. Soedin.*, 230 (1967).

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