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FLAVONOIDS OF SOME SPECIES OF *Euphorbia*

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We have previously reported the isolation from the herb *Euphorbia kaleniczenkii* of five substances of flavonoid nature, while quercetin and hyperoside proved to be common to the 15 species of *Euphorbia* investigated in parallel [1]. Continuing the chemical study of *Euphorbia seguieriana* Neck., *E. virgultosa* Klok., and *E. semivillosa* Prokh., we have isolated and identified from *E. seguieriana* the aglycone myricetin and its glycoside isomyricitrin, while kaempferol and gallic, caffeic, chlorogenic, and neochlorogenic acids proved to be common to the three above-mentioned *Euphorbia* species [2].

For further separation of the total polyphenolic complexes of these plants, concentrated ethanolic extracts were treated with various organic solvents, after which we used chromatography on polyamide with elution by water at various temperatures. As a result of the investigation, three flavonoid compounds, one hydroxybenzoic acid derivative, one coumarin, and gypsogenic acid have been isolated.

The substances were identified on the basis of chromatographic analysis, melting points, chemical transformations (alkaline cleavage, acid and enzymatic hydrolyses), IR and UV spectroscopy with ionizing and complex-forming reagents [3, 4], and comparison with authentic samples.

Substance (I), $C_{21}H_{20}O_{11}$, mp 174-176°C, isolated from *E. virgultosa* was identified as kaempferol 3-O-β-D-glucopyranoside (astragalin).

Substance (II), $C_{21}H_{20}O_{12}$, mp 229-231°C, isolated from *E. seguieriana* and *E. semivillosa* was identified as quercetin 3-O-β-D-glucopyranoside (isoquercitrin) [5].

Substance (III), $C_{27}H_{30}O_{16}$, mp 188-190°C, isolated from *E. seguieriana* and *E. semivillosa*, giving no intermediate monoglycoside on stepwise hydrolysis under the usual conditions, was characterized as rutin [6].

Substance (IV), $C_8H_8O_5$, mp 156-157°C, isolated from the three species of *Euphorbia* investigated was identified as methyl gallate.

Substance (V), $C_{10}H_8O_4$, with mp 203-205°C, consisted of 7-hydroxy-6-methoxycoumarin (scopoletin), and substance (VI) can be assigned, on the basis of qualitative reactions and transformation products, to the triterpene glycosides forming derivatives of gypsogenic acid.

This is the first time that substances (V) and (VI) have been detected in and isolated from *E. seguieriana*.

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