

of the results of the investigations performed, ursolic acid [4] and meso-inositol [5] were identified.

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#### FLAVONES AND ROSMARINIC ACID OF *Thymus zheguliensis*

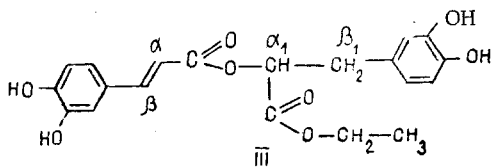
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We have investigated the epigeal part of *Thymus zheguliensis* Klok et Schost. (endemic to the Zhugulev mountains). The air-dry mass of this plant gathered in August, 1980, in the environs of the village of Shiryaevo, Kuibyshev province, was extracted with aqueous ethanol, and the aqueous extracts were evaporated in vacuum to a dry residue which was chromatographed repeatedly on polyamide and silica gel. In this way, three substances of polyphenolic nature (I-III) were isolated. To establish the structures of the substances isolated we used the results of UV and PMR spectroscopy, and also a direct comparison with authentic samples on the basis of chromatographic mobilities and other physicochemical constants [compounds (I) and (II)].

Compound (I) was apigenin (yield 0.01%), forming light yellow crystals with the composition  $C_{15}H_{10}O_5$ , mp 341-344°C (decomp.); triacetate with mp 180-182°C.

Compound (II) was luteolin (yield 0.02%), forming yellow crystals with the composition  $C_{15}H_{10}O_6$ , mp 329-331°C (decomp.); tetraacetate with mp 228-230°C. Compound (III) (yield 0.2%) was a light yellow syrupy substance with the composition  $C_{20}H_{20}O_8$ , giving a tetraacetate in the form of a colorless syrupy substance. PMR spectrum in deuterioacetone, ppm: 7.62 (d, 16 Hz, 1H $_{\alpha}$ ), 6.60-7.22 (m, 6H-Ar), 6.34 (d, 16 Hz, 1H $_{\beta}$ ), 5.24 (t, 6 Hz, 1H $_{\alpha_1}$ ), 4.20 (q, 2H, -CH $_2$ CH $_3$ ), 3.07 (d, 6 Hz, 2H $_{\beta_1}$ ), 1.28 (t, 6 Hz, CH $_3$ CH $_2$ -). PMR spectrum of the tetraacetate of (III) in deuteriochloroform, ppm: 7.68 (d, 16 Hz, 1H $_{\alpha}$ ), 7.32 (m, 6H-Ar), 6.44 (d, 16 Hz, 1H $_{\beta}$ ), 5.35 (t, 6 Hz, 1H $_{\alpha_1}$ ), 4.22 (q, 2H, -CH $_2$ CH $_3$ ), 3.24 (d, 6 Hz, 2H $_{\beta_1}$ ), 2.34 (s, 6H, two aromatic CH $_3$ CO groups), 2.32 (s, 6H, two aromatic CH $_3$ CO groups), 1.24 (t, 6 Hz, CH $_3$ CH $_2$ -).



A comparison of the PMR spectra of compound (III) and its tetraacetate showed that compound (III) was rosmarinic acid esterified with ethanol. In our view, compound (III) was an artefact arising on the prolonged storage of the purified ethanolic extract. This was confirmed by the fact that there was no compound (III) present in acetone extracts and in freshly prepared (by steeping and under the conditions of a boiling extractant) aqueous ethanolic extracts, while, under these conditions rosmarinic acid was detected in both extracts (TLC).

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This is the first time that compounds (I-III) have been isolated from Thymus zheguliensis. It must be mentioned that rosmarinic acid and compound (I) and (II) are characteristic chemotaxonomic features of the genus Thymus [1-4].

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