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COMPONENTS OF *Ptarmica bisserata*

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We have previously reported the isolation of scopoletin and scopolin from the epigeal part of *Ptarmica bisserata* (Bieb) DC, family Asteraceae, growing in the Northern Caucasus [1]. Having continued the study of the chemical composition of *Ptarmica bisserata*, we have isolated another three substances.

The air-dry raw material was extracted with hexane and then with chloroform. The hexane fraction yielded substance (I), composition $C_{32}H_{64}O_2$, white crystals with mp 96° (methanol), M^+ 480, of acidic character, reacting with alkali. The IR spectrum of (I) has absorption bands characteristic for saturated acyclic organic monobasic acids of normal structure. It was characterized as dotriacontanoic (lacceroic) acid [2].

From the chloroform fraction by column crystallography on silica gel in the hexane–ethyl acetate system we isolated substances (II) and (III). Substance (II), having the composition $C_{20}H_{18}O_4$, formed white acicular crystals with mp 125°C (hexane–ethyl acetate), $[\alpha]_D^{22}$ +56° (c 0.8; chloroform), M^+ 354, readily soluble in acetone, chloroform, and ethyl acetate, insoluble in water, not fluorescing in UV light and giving a brown coloration with H_2SO_4.

The nature of the IR and PMR spectra permit the substance isolated to be assigned to the lignan compounds [3, 4].

In the IR spectrum (cm^{-1}): ν_{max}^{KBr} 1610, 1510 (aromatic ring), 1450, 1370, 1255, 1200, 1150, 1100, 965, 945, 930 (methylenedioxy group).

The PMR spectrum ($CDCl_3$) contains the signals of protons at the following values of δ, ppm: 6.71 (6 H, doublet, benzene ring), 5.82 (4 H, broadened singlet, methylenedioxy group), 4.62 (2 H, doublet) 4.15 (2 H, multiplet), 3.83 (1 H, doublet), 3.72 (1 H doublet), 2.95 (2 H, multiplet). These results and also the melting point and specific rotation of substance (II) coincided with these of the lignan (+)-sesamin, isolated previously from pyrethrum flowers (family Asteraceae) [5].

Substance (III) with the composition $C_{11}H_{10}O_4$, of coumarin nature, formed white crystals with mp 144–146°C, M^+ 260.

UV spectrum, nm: $\lambda_{max}^{C_2H_5OH}$ 229, 295, 343.

IR spectrum, cm^{-1}: ν_{max}^{KBr} (C=O), 1610, 1550, 1510 (aromatic ring).

On the basis of its physical constants and UV and IR spectra, substance (III) was identified as scoparone (the 6,7-dimethyl ether of esculetin) [6].

This is the first time that any of these substances has been isolated from *Ptarmica bisserata*.

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