

(sh), 1377, 1350 s, 1315 v.s, 1260 s, 1237 s, 1205 v.s, 1175 v.s, 1143 m, 1107 v.s, (sh), 1095 v.s, 1082 s (sh), 1052 s, 1016 m, 1003 m (sh), 999 m, 942 v.s, 897 v.s, 873 w, 843 m, 830 w, 814 w, 801 m, 728 m, 714 m (in paraffin oil).

^{13}C NMR spectrum, δ , (DMSO): C-2 147.0 s^a, C-3 136.6 s, C-4 176.2 s, C-5 160.9 s, C-6 98.6 d, C-7 164.2 s, C-8 93.7 d, C-9 156.4 s, C-10 103.3 s, C-1' 125.4 s, C-2' 115.4 d, C-3' 146.6 s^a, C-4' 146.1 s^a, C-5' 116.1 d, C-6' 119.8 d, C-1'' 101.6 d, C-2'' 73.5 d, C-3'' 76.2 d^a, C-4'' 70.0 d, C-5'' 77.4 d^a, C-6'' 61.4 t (^a - assignment made ambiguously).

The features of the ^{13}C NMR spectrum that we obtained of the glycoside isolated and literature figures for spiraeoside from plants of the genus *Allium* [7] are very close. The values of the signals of the carbon atoms of quercetin 3'-glucoside - C-2 146.3, C-3 136.2, C-1' 122.1, C-2' 116.7, C-3' 145.0, C-4' 149.1, C-5' 116.1, C-6' 123.3 - calculated in the light of the glycosylation effect with the use of corrections [7] found in a comparison of the chemical shifts of the signals of the carbon atoms of luteolin and luteolin 3'-glucoside differ substantially from the values of the signals of the carbon atoms of the glycoside that we had isolated. The chemical shifts of the signals of the carbohydrate moiety of the glycoside were close to those for methyl O- β -D-glucopyranoside [8]. On the basis of the ^{13}C NMR spectrum, the main flavonoid glycoside from the leaves of European meadowsweet has been identified as quercetin 4'-O- β -D-glucopyranoside, spiraeoside [2].

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FLAVONOIDS OF THE SEEDS OF *Genista aetnensis*

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Studying the seeds of *Genista aetnensis* DC (Aetna woadwaxen), family Fabaceae, growing in the village of the Kara-Kala, Turkmen SSR, by paper chromatography we have detected not less than 10 substances of flavonoid nature. Information on the presence of flavonoids in the epigeal part of Aetna woadwaxen is given in [1, 2].

In the present communication we give the results of an investigation of an ethanolic extract from the seeds of this plant. The concentrated methanolic extract was chromatographed on a column of silica gel L using as eluent benzene containing from 0 to 50% of ethyl acetate. Four substances were isolated which were identified from their physicochemical properties, IR, UV, and PMR spectra [3], and the products of alkaline fusion as known flavonoids: kaempferol 4'-methyl ether, isorhamnetin, and tamarixetin.

This is the first time that these compounds have been isolated from the seeds of Aetna woadwaxen.

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COMPONENTS OF THE RESIN OF THE ROOTS OF *Ferula kirialovii*

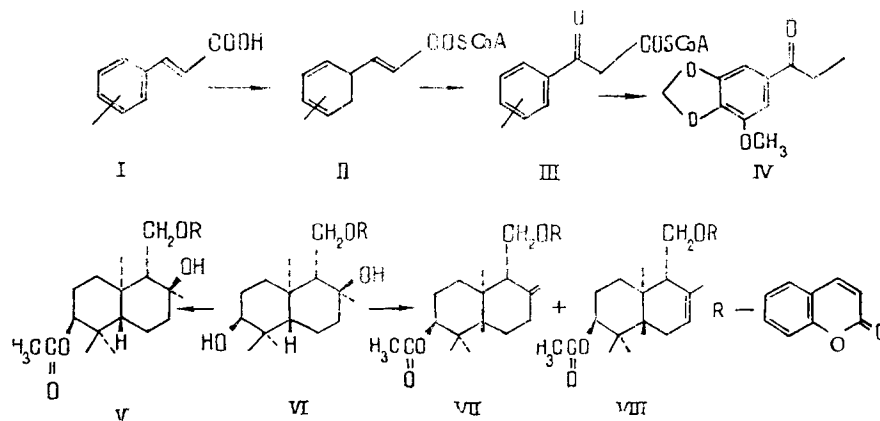
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UDC 633.82/88

Colorless crystalline nodules have been isolated by the chromatography of the acid fraction of an acetone extract of the roots of *Ferula kirialovii* M. Pimen. (*Ferula pseudooreoselinum* auct.), collected by L. V. Kuz'mina, (Uzbek SSR, Chatkal range, Mt. Bolshio Chimgan), on a column of silica gel L 40/100 with elution by chloroform and then with a mixture of chloroform and ethanol. When they were recrystallized from hot water, acicular crystals of umbelliferone with mp 233-234°C were obtained [1].

From an acetone extract of the roots of *Ferula kirialovii* collected by M. G. Pimenov (Northern slopes of the Ugam range, R. Sairamsu, Kazakhstan SSR), by chromatography on a column of neutral alumina (activity grade II), with elution by petroleum ether and mixtures of petroleum ether containing gradually increasing proportions of benzene, oily fractions were isolated in which, on standing, colorless tabular crystals were formed. After being washed with cold diethyl ether, the substance was recrystallized from a mixture of diethyl ether and petroleum ether. This gave acicular crystals with mp 88°C of crocatone (latifolone) [2-5].

Previously, crocatone (latifolone) had been isolated only from the roots of some species of the family Apiaceae [2-8], including the roots of some representative of the genus *Ferula* [9-13]. Biogenetically, crocatone (IV) can probably be regarded as the product of the reduction of the carboxy group in the form of the CoA thioester of the corresponding benzoylactic acid (III), which is the product of the β -oxidation [14] of the CoA thioester (II) of a substituted cinnamic acid (I).



Then, by chromatographing an extract with benzene, fractions that crystallized on standing were obtained. After recrystallization from benzene, colorless acicular crystals of β -sitosterol with mp 136-137°C were obtained. We have also obtained β -sitosterol from the roots of *Ferula kirialovii* collected by L. P. Markova (Uzbek SSR, Valley of the R. Ugam).

On subsequent elution of the column with a mixture of benzene and chloroform and then with pure chloroform, resinous fractions which crystallized in the form of small prisms were obtained. After washing with diethyl ether, a substance was obtained with mp 175-176°C, which was samarkandin [15].

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