On the basis of the results obtained, the flavone glycoside isolated from the leaves of *Digitalis ciliata* Trautv. has been characterized as 3',4',5,7-tetrahydroxyflavone 7-O-β-D-glucopyranoside, or cynaroside [5, 7].

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SESQUITERPENE LACTONES OF *Saussurea elegans*

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To isolate the sesquiterpene lactones from the epigeal part of *Saussurea elegans* Ldb. collected in July at Chon-Kemin (Kirghizia), we first used chloroform. The extract was chromatographed on a column of alumina, giving two chlorine-containing sesquiterpene lactones.

In order to convince ourselves of the native nature of the substances isolated, extraction was repeated with the exclusion of all chlorine-containing agents. As solvent we used ethanol (in a ratio of 1:5). The concentrated extract was treated with 60% ethanol, the precipitate that deposited was filtered off, and the filtrate was shaken with ether, and the ethereal solution was evaporated. The residual mixture of lactones (resin) was chromatographed on a column (250 × 5 cm) of type KSK silica gel. The eluent was a mixture of benzene and ether. This gave the same two chlorine-containing lactones as on the fractional extraction of the plant with chloroform.

In the small number of chlorine-containing lactones described in the literature [1, 2] we found no compounds similar to ours and they are apparently new. One of them we have called elegin.

Elegin (I) has the composition $C_{19}H_{23}O_6Cl$, mp 158-159°C (hexane—acetone), $[\alpha]_D^{25}$ +82.5° (c 2.125; ethanol), R_f 0.51 [TLC, fixed layer of silica gel, hexane—acetone (7:3) here and below], dissolves readily in acetone, dioxane, and methanol and sparingly in benzene, and is insoluble in water. Its IR spectrum showed absorption bands in the following regions (cm^{-1}): 3380 (OH group), 1745 (γ-lactone), 1715 (C=O), 1660, 1635 (C=C bond), and 745 (C—Cl).

Analysis of the NMR spectrum showed the presence of one methyl group on a double bond, two hydroxyls, and two exomethylene groups.

The action of acetyl chloride on (I) formed diacetylelegin (II), with the composition $C_{23}H_{27}O_8Cl$, mp 194-195°C (from ethanol), the IR spectrum of which lacked absorption bands of OH groups, while its NMR spectrum showed the signals of two acetyl groups. The second lactone had mp 176-178°C (hexane—acetone) and R_f 0.22 in the system given above.

The study of the lactones isolated is continuing.

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ESTERS OF THE ROOTS OF *Ferula pallida*

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Studying the roots of *Ferula pallida* Eug. Kor. growing in the semidesert (the mountains of Alym-Tau, 70 km north west of Tashkent), we directed our attention to the fact that their composition differs from that of plants growing in the subalpine zone (environs of the village of Zarkent). By repeated chromatography we isolated eight esters from a methanolic extract. Four of them [$C_{23}H_{32}O_5$, mp 129-130°C (I); $C_{22}H_{30}O_4$, mp 121-122°C (II); $C_{23}H_{32}O_5$, mp 93-95°C (III); and $C_{22}H_{30}O_3$ (oil) (IV)] were identified by their IR and NMR spectra as the previously known ferutin [1], ferutinin [1], teferin [2] and teferidin [3], respectively. Nevertheless, among them new substances giving a red coloration with vanillin/sulfuric acid were present in predominating amount. They had the following characteristics: $C_{26}H_{34}O_7$, mp 109-110°C, M^+ 446, $[\alpha]_D^{25}$ +272.7° (c 1.1; methanol), R_f 0.2 [TLC on Silufol, hexane-ethyl acetate (2:1) system], red coloration (V); $C_{20}H_{34}O_4$, mp 133-135°C (from methanol) $[\alpha]_D^{25}$ +48.1° (c 0.84; methanol), R_f 0.25, dark green coloration (VI); $C_{25}H_{38}O_7$, mp 109-110°C, $[\alpha]_D^{25}$ +51.5° (c 0.97; methanol), R_f 0.1, green coloration (VII); and $C_{20}H_{34}O_4$, mp 120-121°C, $[\alpha]_D^{25}$ −21.4° (c 1.07; methanol), R_f 0.40, orange coloration (VIII). These substances are new, and we have called them taulin, tauferin, taufedin, and taufenin, respectively.

They were hydrolyzed by the action of caustic soda. Their IR spectra showed absorption bands of the carbonyl of the ester of an α,β-unsaturated acid in the 1700-cm^{-1} region. The UV spectra of (VI) and (VIII) had maxima at 216 nm (double bond conjugated with a carbonyl group) and those of (V) and (VII) at 362 nm (2,4,5-trimethoxybenzoic acid chromophore).

The NMR spectra of taulin had singlets at 3.41 ppm (2 H) and 3.78-3.66 ppm (3 H and 6 H, respectively) due to the 3,4,5-trimethoxybenzoic acid residue, a broadened singlet at 6.03 ppm and a multiplet at 6.25 ppm (olefinic protons), singlets at 1.75 and 1.50 ppm of 3 H each (methyls on double bonds, a doublet at 1.00 ppm, J = 7 Hz (6 H, methyls of an isopropyl grouping), and a broadened singlet at 5.80 ppm (hemiacyl proton). When (V) was saponified with caustic soda, the above-mentioned trimethoxybenzoic acid and an alcohol with the composition $C_{15}H_{24}O_3$ were formed. With this composition and with two double bonds, the alcohol must have a bicyclic, most probably, guaiane structure. Tauferin is also an ester of the acid mentioned, with an alcohol $C_{15}H_{28}O_3$. Its NMR spectrum contains, in addition to the signals from the acid, a broadened doublet at 5.16 ppm, J = 10 Hz (hemiacyl proton), singlets at 1.36 and 1.21 ppm (3 H each, tertiary hemihydroxyl methyl groups), and doublets at 0.82 and 0.94 ppm, J = 7 Hz (3 H each, methyls of an isopropyl grouping). It contains no double bonds and, consequently, has a bicyclic structure (apparently also a guaiane structure).

According to their spectra (NMR, mass, IR) characteristics, tauferin and taufenin are esters of angelic acid and of saturated sesquiterpene alcohols with the composition $C_{15}H_{28}O_3$. The NMR spectrum of tauferin shows the following signals: singlets at 1.98 and 1.85 ppm (1.5 and 4.5 H) and multiplet at 6.05 ppm (methyls and olefinic proton of angelic acid), quartet at 5.0 ppm, J_1 = 10 Hz, J_2 = 3 Hz (hemiacyl protons), singlets at 1.20 and 1.15 ppm (3 H each, tertiary methyl groups), and doublets at 0.94 and 0.84 ppm, J = 5 Hz (3 H each,

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