(III), which has been isolated previously from *C. jacea*. Both these species of *Centaurea* belong to the subgenus *Jacea.*

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ESTERS OF *Ferula ceratophylla*

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The isolation of angrendiol from *Ferula ceratophylla* Regel et Schmalh. has been reported previously [1]. In a methanolic extract of the roots of *F. ceratophylla* collected in the mountains of Karatau, Kazakh SSR, in the fruit-bearing period, we found no angrendiol but detected two substances with Rf 0.35 and 0.5 giving a crimson coloration when chromatograms were treated with a 1% solution of vanillin in sulfuric acid (Silufol; chloroform system).

By chromatography on type KSK silica gel with elution by hexane–benzene (5 : 1) of a phenolic fraction obtained from a methanolic extract of the roots by a known method [2] we isolated both substances, which proved to be new esters and we have called them ferocin and ferocinin.

Ferocin (I), $C_{22}H_{28}O_3$, mp 127-128°C [hexane–ether (5 : 1)], M^+ 340, $[\alpha]_D^{20}$ −200° (c 1.0; benzene); ferocinin (II) $C_{23}H_{30}O_3$, mp 107-108° M^+ 370, $[\alpha]_D^{20}$ −197° (c 1.0; benzene). Both compounds are readily soluble in benzene and chloroform, moderately soluble in ether and methanol, sparingly soluble in hexane, and insoluble in water.

The UV spectrum of (I) showed a maximum at 253 nm (log ε 4.43) and that of (II) showed maxima at 252 nm (log ε 4.31) and 295 nm (log ε 3.94), which are characteristic for p-hydroxybenzoyl and p-hydroxy-m-methoxybenzoyl chromophores, respectively. In the presence of alkali, the short-wave maxima under went bathochromic shifts by 51 and 64 nm, respectively, which shows that these substances belong to the phenol group. This was confirmed by the fact that (I) and (II) dissolve in alkalis and on acidification separate out in unchanged form, and also by the brown coloration that they give with $FeCl_3$.

The IR spectra of ferocin and ferocinin show the absorption bands of the carbonyl of an ester of an aromatic acid (1680 and 1705 cm^{-1}, respectively), and also those of an aromatic nucleus and of hydroxy groups.

On severe alkaline hydrolysis with a 15% methanolic solution of KOH, both compounds yielded the same terpenoid alcohol with the composition $C_{15}H_{24}O$, mp 82-83°C (hexane), M^+ 220, which we have called fecerol, and ferocin gave p-hydroxybenzoic acid and ferocinin gave vanillic acid.

The NMR spectrum of fecerol showed the signals of the protons of an exomethylene group (quadruplet, 4.75 ppm, $J_1 = 7.5$ Hz, $J_2 = 2.5$ Hz, 2H) an olefinic proton in a $-CH{=}\overset{|}{C}-$grouping (triplet, 5.17 ppm, J = 6 Hz, 1H), of trans protons in a $-CH{=}CH-$grouping (doublets at 5.74 and 5.32 ppm, 1H each, J = 15 Hz), and of a hemihydroxylic proton (multiplet, 3.48 ppm, 1H).

On the basis of its composition and NMR spectrum, it may be assumed that fecerol is a secondary alcohol containing three double bonds and having a monocyclic structure.

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A CHEMICAL STUDY OF THE BEANS OF Albizzia julibrissin

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By treating glumes of the beans of *Albizzia julibrissin* Durazz. (silk-tree albizzia) with 70% ethanol we have obtained an extract containing, according to chromatography in a thin layer of silica gel in various solvent systems, a single substance of saponin nature. It was purified by extracting the aqueous solution with butanol and reprecipitation of the butanol extract from methanol with a 10-fold amount of diethyl ether. The saponin was also obtained with the aid of the cholesterol complex [1]. In both cases, a chromatographically homogeneous substance was isolated with mp 183-184°C, $[\alpha]_D^{20}$ −58.1°, which we have called albizide.

Acid hydrolysis of the saponin (1 N H_2SO_4, 100°C, 4 h) formed an aglycone the chromatographic mobility on silica gel in the chloroform−ethyl acetate (5 : 1) system and the constants of which coincided with those of echinocystic acid. Their acetates were also identical. In the hydrolyzate after neutralization, glucose, xylose, arabinose, fucose, and rhamnose (2 : 1 : 2 : 1 : 1) were identified by paper and gas−liquid chromatography.

The presence of an acyloside component was confirmed by the saponification of albizide with an alcoholic solution of caustic soda (100°C, 4 h). This gave a prosapogenin consisting of glucose, xylose, arabinose, and fucose. Rhamnose was found in the oligosaccharide.

The glycoside that we have isolated does not coincide with any of the known saponins of the family Leguminosae, and, in particular, of the genus *Albizzia* [2-7].

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