in the C-5 and C-7 positions of flavonoid (II). By a comparison of its UV and PMR spectra and physicochemical constants with those of luteolin 3'-O-β-D- and 4'-O-β-D-glucopyranosides [2] it was established that flavonoid (II) was luteolin 4'-O-β-D-glucopyranoside.

Flavonoids (III), $C_{21}H_{20}O_{12}$, mp 229-232°C, $\lambda_{max}^{ethanol}$ 257, 267*, 361 nm and (IV), $C_{27}H_{30}O_{16}$, mp 188-191, $\lambda_{max}^{ethanol}$ 259, 267*, 362 nm were identified on the basis of a study of UV and PMR spectra, acid hydrolysis, and direct comparison with authentic samples as isoquercitrin (quercetin 3-O-β-D-glucopyranoside) and rutin (quercetin 3-O-rutinoside), respectively [3].

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FLAVONOIDS OF Lagonychium farctum

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Lagonychium farctum (Banks et Soland.) Bobr. (family Mimosaceae) is a perennial tinctorial and tanning plant. Various organs of this plant are used in folk medicine for dysentery and as a hemostatic [1]. Rutin has previously been isolated from L. farctum and the presence of tanning substances, catechins, and other compounds has been established [1].

We have studied the phenolic compounds of the buds of L. farctum gathered in the Kashkadar'ya province, UzSSR. The chloroform-deresinified raw material was treated with 80% ethanol. The dry residue from an alcoholic extract was passed through a column of silica gel with elution by chloroform and chloroform—ethanol. As a result we isolated five phenolic compounds.

Substance (I) with the composition $C_{15}H_{10}O_7$, mp 311-314°C, $\lambda_{max}^{ethanol}$ 256, 268* (inflection) 375 nm, was identified as quercetin [2].

Substance (II), $C_{27}H_{30}O_{16}$, mp 187-189°C, $[\alpha]_D$ −33.1° (c 0.2, methanol), $\lambda_{max}^{ethanol}$ 258, 264*, 360 nm, was a glycoside, and on acid hydrolysis was split to form quercetin, D-glucose, and L-rhamnose. On the basis of a study of its UV, IR, and PMR spectra and comparison with an authentic sample, the compound was identified as rutin [1, 2].

Substance (III), $C_{21}H_{20}O_{11}$, mp 225-228°C, $\lambda_{max}^{ethanol}$ 272, 305*, 340 nm, was also a glycoside and, as a result of acid hydrolysis, yielded an aglycon, identified as apigenin (4',5,7-trihydroxyflavone), and D-glucose. It was established by UV spectroscopy with diagnostic reagents that the carbohydrate residue was attached to the hydroxyl in the C7 position of the aglycon. The value of the SSCC of the signal of the anomeric proton (J = 7.5 Hz) in the PMR spectrum indicated the β configuration of the anomeric center of the D-glucose residue. Consequently, the substance was apigenin 7-O-β-D-glucopyranoside (cosmosiin) [2].

Substance (IV), $C_{21}H_{20}O_{13}$, mp 279-281°C, $\lambda_{max}^{ethanol}$ 261, 308, 367 nm, was assigned on the basis of its UV and PMR spectra to the myricetin derivatives. The PMR spectrum of substance (IV) exhibited the signals of the protons H-6 (6.42 ppm, d, 2 Hz), H-8 (6.50 ppm, d, 2 Hz), H-2', 6' (7.96 ppm, s), and H-1" (5.93 ppm, $W_{1/2}$ = 6 Hz) and of the protons of a carbohydrate moiety (3.50-4.32 ppm). The acid hydrolysis of substance (IV) in an atmosphere

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of nitrogen gave myricetin with mp > 350°C, M^+ 318, $\lambda_{max}^{ethanol}$ 255, 274*, 300*, 372 nm, and D-glucose. The position of attachment of the carbohydrate residue to the hydroxyl at C-3 of the aglycon was established on the basis of UV spectroscopy with diagnostic additives and the ^{13}C NMR spectrum. The ^{13}C NMR spectrum exhibited the signals of carbon atoms at 156.2 (C-2 and C-9), 133.4 (C-3), 177.3 (C-4), 161.1 (C-5), 98.6 (C-6), 164.0 (C-7), 93.4 (C-8), 103.9 (C-10), 120.0 (C-1'), 108.5 (C-2' and C-6'), 145.3 (C-3' and C-5'), 136.5 (C-4'), 100.9 (C-1"), 73.9 (C-2"), 76.5 (C-3"), 69.8 (C-4"), 77.3 (C-5"), and 60.9 (C-6"). The assignment of the signals was made by comparing the spectrum of flavonoid (IV) with those of myricetin and myricetin 3-O-galactoside [3]. This showed that substance (IV) was myricetin 3-O-β-D-glucopyranoside [4].

Substance (V), $C_7H_6O_5$, mp 247-248°C, $\lambda_{max}^{ethanol}$ 218, 275 nm was identified as gallic acid (UV, IR, and PMR spectra and comparison with an authentic sample).

This was the first time that compounds (I), (III), (IV), and (V) have been isolated from Lagonychium farctum.

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IDENTIFICATION OF THE CAROTENOIDS OF THE LEAVES OF Camellia sasanqua

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A promising industrial source of raw material in the Adzhar ASSR for the production of eugenol is sasanqua camellia (Camellia sasanqua Thunb.), family Theaceae.

For a more detailed characterization of the crop, we have investigated the carotenoid complex of the green mass of sasanqua camellia. The comminuted green mass was extracted with a mixture of petroleum ether and ethanol, the extract obtained was saponified, and the products were washed free from alcohol and were dried with anhydrous sodium sulfate. The extract so obtained was investigated by the method of [1].

On the basis of the characteristics of the absorption maxima of the carotenoids in various solvents, the arrangement of the zones on chromatograms and their colors, color reactions, the chromatography of some markers available for mixed samples, and the facts given in a handbook [2], the carotenoids of the individual zones were identified and determined quantitatively as percentages of the total carotenoids of the green mass: violaxanthin – 41.02; α-carotene I – 24.85; neo-β-carotene – 7.10; α-carotene – 3.72; auroxanthin – 2.08; sintaxanthin – 1.34; lutein epoxide – 1.18; β-cryptoxanthin – 1.07.

Thus, 82.36% of the total carotenoids present in sasanqua camellia in an amount of 20.15 mg per 100 g of absolutely dry green mass have been identified, and 17.64% of the carotenoids remain unidentified.

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