The main pigments of peach skin are anthocyanins. (+)-Catechin and traces of (−)-epicatechin gallate were detected in the ethyl acetate extracts of all the varieties by paper chromatography with a marker and an authentic sample. These compounds were separated by passage through a column of silica gel (type ASK). In this way we obtained (+)-catechin [9], which we have isolated previously from the fruit, stem bark and root bark [3, 4].

The methanolic extract yielded chlorogenic acid [9].

Glucose was detected by the paper chromatography of the methanolic extracts from all the varieties in various systems with an authentic sample [4].

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THE POLYPHENOLS OF SOME SPECIES OF THE GENUS *Atraphaxis*

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A detailed investigation of the chemical composition of the leaves of two species of *Atraphaxis, A. frutescens* (L.) and *A. pyrifolia* Bge., has shown that they contain no common substance of flavonoid nature: the flavonoids of the former are represented by catechins, kaempferol glucosides, quercetin, and myricetin and of the latter by rhamnosides of the herbacetin and gossypetin series [1-4]. Consequently, we have studied a third species of the same subgenus, *A. muschketovii* Krassn., which is regarded as the initial prototype of the whole genus *Atraphaxis* L. From the leaves of *A. muschketovii* growing in the same zone of the Trans-Ili Ala-Tau as the first two species and cultivated in the Main Botanical Garden of the Academy of Sciences of the Kazahk SSR, using methods of selective extraction and chromatography on silica gel, polyamide, and Sephadex LH-20, we have isolated and have identified on the basis of a comparison of their physicochemical constants with those of authentic samples: kaempferol 3-O-glucosides (yield 0.05% calculated on the absolutely dry raw material), quercetin (0.66%), myricetin (0.31%), rutin (traces), gallic acid (0.06%), 4,5-dihydroxy-3-methoxybenzoic acid (0.06%), and β-glucogallin (0.17%). In addition to these, a substance (8) was isolated with mp 211-213°C, $[\alpha]_D^{22}$ −46° (CH_3OH) λ_{max} 282 nm (log ε 4.03), R*f* 0.70 [BAW (4:1:5.1)], 0.80 (15% HAc). Yield 2.7%. On acid hyrolysis, substance (8) formed D-glucose and an aglycone with mp 157-158°C, λ_{max} 284 (log ε 4.52); on the addition of alkali, λ_{max} 292 nm (log ε 4.38). The acylation of substance (8) with acetic anhydride in pyridine gave an acetate with mp 124-126°C, the PMR spectrum of which ($CDCl_3$) showed the monoglucoside nature of the substance: the protons of glucose residue were recorded in the δ 4.30-5.34-ppm region and its four acetyl groups in the δ 2.10-2.15-ppm region. At δ 2.24, 2.38, and 3.82 were observed three three-proton singlets, and in the weak-field region two one-proton doublets corresponding to two aromatic protons. The PMR spectrum of the trimethylsilyl ether of the aglycone of substance (8) contains the signals of two aromatic protons, of a methoxy group (δ 3.82 ppm), and the signal of three protons in the form of a singlet at δ 2.10 ppm. The IR spectra of substance (8) and its aglycone lack an absorption band characterizing an ester grouping, and therefore this signal was assigned to the protons of a methyl group attached to

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an aromatic nucleus. In the PMR spectrum of the acetate, one of the singlets at δ 2.24 and 2.38 ppm corresponded to it. The second singlet was due to an acetyl group. The empirical formula of the aglycone, $C_8H_{10}O_3$, was calculated on the basis of a molecular-weight determination and the results of elementary analysis. The structure of 2-methoxy-6-methylhydroquinone β-D-glucopyranoside is proposed for substance (8). We have found no information on such a substance in the literature. We have previously isolated the substances mentioned above, apart from substance (8), from the leaves of *A. frutescens* in fairly similar quantitative ratios [1, 2]. Substance (8) was detected in trace amounts. Thus, in its chemical composition *A. muschketovii* corresponds to *A. frutescens* and not to *A. pyrifolia* as reported previously [5]. The species studied previously was probably a hybrid.

By two-dimensional paper chromatography using qualitative reactions in comparison with the species studied we made a qualitative evalation of ten species of *Atraphaxis*, samples of which were kindly provided by the Institute of Botany and the Main Botanical Garden of the Academy of Sciences of the Kazakh SSR: *A. pungens* (M. B.) Jaub. et Sp., *A. virgata, A. laetevirens* (Ldb) Jaub. et Sp., *A. spinosa, A. replicata, A. compacta, A. karataviensis, A. caucasica, A. seravschanica, A. teretifolia.* According to their chemical compositions, they can be divided into two groups: the first includes *A. pungens* and *A. laetevirens*, the flavonoid complex of which is identical with the complex of the leaves of *A. pyrifolia*, and the second includes the other species mentioned above, the flavonoid complexes of which are similar to the complex on the leaves of *A. muschketovii* and *A. frutescens.* The differences in the quantitative ratios were slight.

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THE STRUCTURE OF FEXERIN

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Continuing a study of the esters of plants of the genus *Ferula*, from the roots of *F. xeromorpha* Eug. Kor. collected in the Chimkent oblast of KazSSR, by column chromatography on KSK silica gel with elution by hexane—ether (9:1), we have isolated three esters (I-III).

Substance (I), composition $C_{20}H_{32}O_3$ (M^+ 320), R_f 0.26 [hexane—ether (3:2) system], n_D^{20} 1.5095, $[\alpha]_D$ −24° (c 1.0; chloroform) had a neutral character and was rapidly soluble in organic solvents and insoluble in water.

The IR spectrum of (I) had bands at (cm^{-1}) 3300-3600 (hydroxy group), 1240, 1710 (ester group), and 1660 (double bond), and the mass spectrum had the peaks of ions with m/e 320 (M^+), 237 $(M - 83)^+$, 220 $(M - 100)^+$, 205 $(M - 100 - 15)^+$, 202 $(M - 100 - 18)^+$, which are characteristic for esters of sesquiterpene alcohols with aliphatic acids. The substance proved to be a new one and we have called it fexerin.

When fexerin was subjected to alkaline hydrolysis by being heated with a 5% aqueous methanolic solution of caustic potash, from the neutral part of the hydrolyzate we isolated a sesquiterpene alcohol with the composition $C_{15}H_{26}O_2$ (IV), mp 135-136°C (from ether), which, from its IR and PMR spectra and a direct mixed melting point, was identified as juniferol [1].

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