It can be seen from a comparison of the TGA and DTGA curves that the beginning of the melting of the GA coincides with a rapid loss in weight of the sample due to two processes taking place with the evolution of gaseous products. The maximum of the first of these corresponds to the melting point of the GA and from a quantitative estimate (26%) is a consequence of its decarboxylation (23.4% of CO_2) with the formation of pyrogallol (below, PG). The somewhat greater fall in the weight of the sample is due to the partial sublimation of the PG.

The following process takes place with a weight loss of about 30%. Its maximum (310°C) corresponds to the boiling point of PG, which takes place, as is well known, with decomposition, which also leads to a loss in weight. Apparently, under these conditions polycyclic systems are formed through the high-temperature condensation of the polyphenol ring with the evolution of water (approximately 3 moles or 28.7%). On heating above 330°C, the loss in weight slows down, which is probably connected with a process of further polycyclization going as far as graphitization.

Thus, it has been established that when GA monohydrate is heated, there is an elimination of water of crystallization in the interval from 80 to 122°C. At 258-260°C, the GA melts, which is accompanied by a process of decarboxylation with the formation of PG. The latter boils at 310°C with decomposition. In this process, apparently, polycyclic compounds are formed with the liberation of three molecules of water of reaction.

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CAROTENOIDS OF THE FRUIT OF *Sorbus aucuparia*

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In the territory of the USSR 36 species of the genus *Sorbus* grow [1] and their fruit is a good source of carotenoids having great value in medicine and the food industry. The most widely distributed species is *Sorbus aucuparia* L. (European mountain ash). The total amount of carotenoids in the fruit reaches 18 mg % [2]. It has been established previously that they include α- and β-carotenes [3, 4], and it has recently been shown that the carotenoid composition is: β-carotene, cryptoxanthin, and β-carotene monoepoxide [5]. Thus, the information on the qualitative composition of the carotenoids is contradictory. This has induced us to make a detailed study of the qualitative composition of the carotenoids of the fruit of the European mountain ash.

Specimens of the fruit were collected in the environs of Ryazan over two years (1976-1977). The carotenoid composition was determined in the air-dry fruit since it is just in this state that they are sent for processing with the aim of obtaining vitamin preparations. A sample (~3 g) was ground in a porcelain mortar with Al_2O_3 until a homogeneous powder had been obtained, the mixture was poured onto a 2-cm layer of alumina in a glass tube (0.7 × 25 cm), and the carotenoids were exhaustively extracted with petroleum ether.

The mixture of carotenoids was separated by thin-layer chromatography on a layer of silica gel (LS 5/40 mesh) fixed with gypsum in the hexane—diethyl ether (17:3) system. They were chromatographed in the presence of "markers" — carrot carotenoids, consisting of a combination of α- and β-carotenes. The chromatograms showed the presence of five orange zones with R_f 0.82, 0.63, 0.45, 0.10, and 0.00. The last zone migrated in the hexane—diethyl ether (1:1) system and we have convinced ouselves that it forms a single carotenoid with R_f 0.05. The carotenoid zones were scraped off and eluted with chloroform. The carotenoids were identified from the absorption maxima in an SF-4A spectrophotometer in hexane.

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On the basis of the results of a comparison of the R_f values of the carotenoid zones obtained and of "markers" and also of the absorption maxima in the UV region, we identified the following carotenoids in the fruit of the mountain ash: α-carotene (λ_{max} 475, 445, 420 nm), neo-β-carotene (λ_{max} 481, 450 nm), β-carotene (λ_{max} 485, 451, 425 nm) prolycopene (λ_{max} 443.5, 470 nm), and ζ-carotene (λ_{max} 425, 400, 378 nm). In addition to this we analyzed the crude fruit: no changes in carotenoid composition were detected.

The total amount of carotenoids was determined by an electrophotocolorimetric method. Their amount was 16.3 mg % calculated on the absolutely dry weight.

We determined the quantitative amounts of the individual carotenoids by the chromato-electrophotocolorimetric method. This showed that the carotenoid fraction contained 6.2 mg % of α-carotene, 3.3 mg % of neo-β-carotene, 3.8 mg % of β-carotene, 1.4 mg % of prolycopene, and 1.6 mg % of ζ-carotene calculated on the absolutely dry weight.

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COMPOSITION OF THE ESSENTIAL OIL OF *Myrtus communis*

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Myrtus communis L. (true myrtle) grows well and is cultivated in the dry subtropics of the Apsheron peninsula. Myrtle leaves contain an essential oil which possesses a peculiar aroma and a high antibacterial activity [1, 2]. The essential oil of the myrtle cultivated on the Apsheron peninsula has not previously been studied.

From fresh myrtle leaves (yield 0.35%) by steam distillation we obtained an oil having the following physicochemical constants: D_{20}^{20} 0.8962; n_D^{20} 1.4650; acid No. 1.4; ester No. 52.1; ester No. after acetylation 128.2.

From preliminary results obtained with the aid of analytical gas–liquid chromatography we established that it consists mainly of monoterpene hydrocarbons. In view of this, the essential oil (17.5 g) was separated by fractional distillation in vacuum at a residual pressure of 5 mm Hg, and a low-boiling fraction with bp 45-65°C was taken off in an amount of 12.7 g (72.6%). Then the fraction was separated on a Pye-105 gas–liquid chromatograph with the aid of 10% of polypropylene glycol adipate and the components were identified by comparing the retention times of known substances and by adding them to the mixture. The main substances (limonene and linalone) were isolated individually and were also determined from their IR spectra.

Thus, in the low-boiling fraction of the essential oil, in addition to monoterpenes found previously (α-pinene, cineole) [3] we determined the following components (% calculated on the whole oil): α-pinene (14.5); camphene (0.5); β-pinene (0.3); Δ^3-carene (traces); limonene (23.4); cineole (11.6); p-cymene (1.8); and the aliphatic alcohol linalool (20.2).

This is the first time that high contents of limonene and linalool have been found in this plant.

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