

CAROTENOIDS OF THE FRUIT OF THE SUBTROPICAL PERSIMMON,
VARIETY KHACHIA

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The aim of the present investigation was to characterize qualitatively and quantitatively the carotenoid complex of the fruit of the Khachia variety of persimmon, which is of industrial importance in the Republics of Transcaucasia and Central Asia.

The finely ground fruit mass was dewatered with sodium sulfate and ethanol. The pigments were extracted with petroleum ether until the extracts ceased to become colored. The resulting solution of carotenoids was washed with 5% sodium hydroxide solution. The carotenoid extract, after it had been washed free from alkali and dried with anhydrous sodium sulfate, was separated first with the aid of column chromatography and then by thin-layer chromatography. The individual carotenoids that had been isolated and purified were investigated on an SF-4A spectrophotometer.

The carotenoids were identified from their absorption curves in the visible and ultraviolet regions of the spectrum, from their colors and positions on chromatograms, and with the aid of the chromatography of mixtures of the zones isolated and known carotenoids. The amounts of the carotenoids isolated as percentages of the total are given below:

Cryptoxanthin	29.4
Zeoxanthin	29.2
α -Carotene	21.1
β -Carotene	11.1
Lycopene	2.8
Xanthophyll	1.8
Three unidentified carotenoids	4.6

Of the carotenoids identified in the persimmon fruit, β -carotene, cryptoxanthin, and α -carotene possess biological activity.

The total amount of carotenoids in the persimmon fruit calculated to 100 g of dry matter ranged from 16 to 20.4 mg according to the year of harvesting and the growth region. The amount of carotenoids, calculated to the biological activity of β -carotene, corresponds from 6.3 to 8.0 mg per 100 g of dry matter. As compared with other types of fruit, the biological activity of the subtropical persimmon may be considered extremely high. It must also be considered that all carotenoids, including the biologically active ones, fulfill an important role in the metabolism in plant cells. They impart to the fruit the proper commercial form and may find use as dyes for food products.

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