VARIATION IN CAROTENOIDS OF LEAVES OF SATSUMA ORANGE ACCORDING TO THE STOCK

G. M. Fishman, D. M. Chikovani, and A. N. Tatarishvili UDC 678.567:631.574:634.322

The influence of the stock of a satsuma orange tree on the carotenoid content of the fruit has been shown previously [1]. It appeared of interest to determine the influence of the stock on the carotenoid content of the leaves.

Leaves of collection trees in the Batumi botanical garden of satsuma orange with the stocks C. iunos, trifoliate orange, and Wilson were investigated. The carotenoids were isolated from the raw material and their total amount was determined by the usual method]2]. The total amount of carotenoids in the leaves of the satsuma orange on the stocks C. iunos, trifoliate orange, and Wilson, on the crude weight, were 19.5, 8.5, and 7.4 mg/%, and calculated on the dry weight 35.3, 16.2, and 13.5 mg/%, respectively. The leaves of the satsuma orange on the stock C. iunos were distinguished by a higher carotenoid content than the other two varieties.

The total carotenoids were separated by column chromatography and thin-layer chromatography into individual substances, which were identified by a method similar to that described in [3]. Components present in an amount of not less than 0.4% of the total weight of the carotenoids were identified. The qualitative and quantitative compositions of the carotenoid complexes are given below (% on the total):

Component	C. iunos	Trifoliate	Wilson
Lutein epoxide	82.0	13.6	14.2
Hydroxy-α-carotene	7.8	1.3	3.5
Lutein	0.6	—	—
Violaxanthin	0.6	75.2	79.7
Neoxanthin	—	0.4	1.0
Unidentified	8.8	9.2	1.4

There were no differences in the sets of components in the leaves of the satsuma trees of all three variants of the stock, but the amounts of the individual components in the carotenoid complex of the leaves of a tree with the stock C. iunos differed sharply from those of leaves with the stocks trifoliate and Wilson.

LITERATURE CITED

1. G. M. Fishman, Fruit and Vegetable Growing [in Russian], Moscow (1985), p. 48.
2. B. G. Savinov, S. E. Kudritskaya. and L. M. Zagorodskaya, in: Proceeding of the IVth All-Union Seminar on the Biology of Active (Medicinal) Substances of Fruits and Berries [in Russian], Michurinsk (1972), p. 107.
3. S. E. Kudritskaya, G. M. Fishman, L. M. Zagorodskaya, and D. M. Chikovani, Khim. Prir. Soedin., 573 (1985).

All-Union Scientific-Research and Experimental-Planning Institute for the Preserving and Processing of Subtropical Fruits, Batumi Batumi Botanical Garden, Georgian SSR Academy of Sciences. Translated from Khimiya Prirodnykh Soedinenii, No. 3, p. 459, May-June, 1988. Original article submitted September 18, 1987; revision submitted January 25, 1988.

0009-3130/88/2403-0395 $12.50