tical with 8-O-acetylajugol (ajugoside) [3].

Ajugol and ajugoside have been detected not only in Stachys inflata and S. iberica but also in S. atherocalyx C. Koch., S. iavandulifolia, S. balansae, Ajuga genevica, and Lanum maculatum.

LITERATURE CITED

1. N. F. Komissarenko, A. I. Derkach, I. P. Sheremet, and D. A. Pakali, Khim. Prir. Soedin., 109 (1976).
2. E. Stahl, Thin-layer Chromatography, Allen and Unwin, London/Springer, New York (1969).
3. M. Guiso, R. Marini-Bettolo, and A. Agostini, Gazz. Ital., 104, 25 (1976).

CAROTENOIDS OF THE FRUIT OF SOME VARIETIES OF Hippophae rhamnoides

N. V. Sergeeva, D. K. Shapiro, V. A. Bandyukova, L. V. Anikhimovskaya, and T. I. Narizhnaya

UDC 581.19 + 634.743

We have studied the composition of the carotenoids of the fruit of common sea buckthorn of the varieties Vitaminnaya, Novost' Altaya and Shcherbinki-1 collected in 1977 on experimental plots of the Central Botanical Garden of the Academy of Sciences of the Belorussian SSR.

By thin-layer chromatography on alumina (activity grade II; solvent systems n-hexane–diethyl ether (7.0 : 3.0) (1) and the same solvents in a ratio of (7.5 : 2.5) (2)) have established the presence of no less than seven carotenoids in n-hexane extracts. Separation and preparative isolation were also performed by thin-layer chromatography on alumina in the same solvent systems. The zones were eluted with n-hexane or 96% ethanol and were purified by rechromatography with the selection of the best solvent system for each substance. For example, for the separation of zones 3 and 4 and of zones 4 and 5 (reckoning from the start) the most suitable solvent system was n-hexane–diethyl ether (7.5 : 2.5) and for zone 1 it was hexane–ethanol (95.0 : 5.0).

Then the purified eluates were chromatographed in the presence of markers obtained from carrots, pot marigold flowers, and tomatoes; and their absorption maxima in the UV region were determined. In all three varieties we showed the presence of α-, β-, and γ-carotenes (R_f 0.67, 0.78, and 0.50 in system 1, respectively; λ_{max} 448, 477; 452, 481; and 405, 430, 460, 498 nm, respectively). The varieties were distinguished only by the relative amounts of the components. In addition to the carotenes, all the varieties contained lycopene (R_f 0.44; λ_{max} 446, 470, 502 nm), poly-cis-lycopene-3 (R_f 0.40; λ_{max} 442, 448 nm), and zeaxanthin (λ_{max} 428, 443, 474, 490). In the fruit of the variety Shcherbinki-1, in addition to this there were two unidentified rare pigments, while the others each contained one unidentified substance.

The quantitative determination of the pigments in the fruit was performed by the method of D. I. Sapozhnikov [1]. The total amount of carotenoids in the variety Vitaminnaya was (according to the results for three years) 13.08 mg, including 5.76 mg of β-carotene, in variety Novost' Altaya 20.79 and 5.72 mg, respectively, and in the variety Shcherbinki-1 18.80 and 6.14 mg, respectively (per 100 g weight of fresh fruit).

LITERATURE CITED

1. V. F. Gavrilenko, M. E. Ladygina, and L. M. Khandobina, Great Handbook on Plant Physiology [in Russian], Moscow (1975).

Pyatigorsk Pharmaceutical Institute. Central Botanical Garden, Academy of Sciences of the Belorussian SSR, Minsk.

Translated from Khimiya Prirodnykh Soedinenii, No. 1, pp. 100-101, January-February, 1979. Original article submitted October 18, 1978.

0009-3130/79/1501-0087$07.50