CAROTENOIDS OF THE LIPID COMPLEX OF *Gnaphalium uliginosum*

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We have studied the composition of the carotenoids of the lipid complex of the fern *Gnaphalium uliginosum* L. (low cudweed), family Asteraceae, collected in the environs of the village of Mysy, Perm' province.

The lipids were isolated by circulation extraction with ethanol in a Soxhlet apparatus until the raw material was exhausted [1]. After the elimination of the extractant, a viscous dark green mass was obtained with a yield of 3.49%.

The residue was saponified with a 5% ethanolic solution of caustic potash, the unsaponifiable part was extracted with n-hexane, the extract was washed with water, and dried, and the solvent was distilled off in vacuum at 40-50°C until the volume of extract was 3-4 ml.

The total carotenoids in the hexane extract were separated by TLC in a fixed layer of silica gel (Silufol plates). The petroleum ether—acetone (94:6), chloroform—acetone (9:1), and hexane—ether (8:2) systems were used as eluents. The best separation was achieved with the n-hexane—ether (8:2) system.

The presence of not less than six carotenoids was established.

Their separation and preparative isolation were carried out with the aid of TLC on Silufol plates in the n-hexane-ether (8:2) system.

The carotenoid zones were eluted with n-hexane and the additionally purified eluates were chromatographed in the presence of markers (synthetic β-carotene and lycopene) and then the absorption maxima in the visible region of the spectrum (360-500 nm) were determined. In the lipid complex of the herb *G. uliginosum* we detected γ-, β-, and α-carotenes R_f 0.56, 0.63, 0.82); λ_{max} (in hexane) 420, 450, 475 nm; λ_{max} (in hexane), 422, 447, 474 nm. λ_{max} (in hexane), 405, 439, 465, 495 nm, respectively.

It was established that the lipids also contained the carotenoid lycopene (R_f 0.27; λ_{max} 474, 506 nm). In addition to this there were two unidentified red pigments with R_f 0.13, 0.15; λ_{max} (in hexane), 420, 447, 474 nm, and λ_{max} (in hexane), 415, 440 nm, respectively.

LITERATURE CITED

1. A. I. Ermakov, V. V. Arasimovich et al., Methods for the Biochemical Investigation of Plants [in Russian], Moscow—Leningrad (1962), p. 520.

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