

The alkaloids skimmianine, evoxine, perfamine, flindersine, and haplamine and the lignan eudesmin have been isolated previously [1] from the epigeal part of *Haplophyllum perforatum* collected in the budding and incipient flowering period in the Baisun region of Surkhandar'-inskaya province.

In the present communication we give the results of an investigation of the epigeal part of the plant *H. perforatum* from the same growth site but at a different period of its development — the end of flowering.

A methanolic extract of the epigeal part of the plant (5.5 kg) was separated into basic (19 g of ether-soluble and 17 g of chloroform-soluble) and neutral (160 g) fractions. By chromatographing the ethereal fraction eudesmin (0.009% on the weight of the dry raw material), skimmianine (0.017%), base I with mp 125–126°C (0.001%), base II with mp 86–87°C (0.005%), flindersine (<0.001%), and haplamine (0.008%) were obtained; the chloroform fraction yielded evoxine (0.036%); and the neutral fraction eudesmin (0.02%), perfamine (0.036%), and haplamine (0.07%).

The eudesmin, skimmianine, flindersine, haplamine, evoxine, and perfamine were identified by direct comparison with authentic samples.

Base (I), mol. wt. 329 (mass-spectrometrically) contained no active hydrogen atom according to its IR spectrum and its PMR spectrum taken in deuterochloroform with the addition of deuteromethanol. The PMR spectrum of (I) (CDCl_3 , δ scale) contained the signals of aromatic protons at 7.93 and 7.17 ppm (doublets, 1 H, each $J = 9$ Hz, ortho protons), 7.53 and 6.97 ppm (doublets, 1 H each, $J = 3$ Hz, protons of a furan ring), 4.36 and 4.09 (singlets, 3 H each, the protons of two methoxy groups), and the signals of the protons of a $\text{O}-\text{CH}_2-\text{CH}-\overset{\text{O}}{\underset{|}{\text{C}}}(\text{CH}_3)_2$ side chain at 4.30 ppm (2 H), 3.19 ppm (triplet, 1 H, $J = 5$ Hz), and 1.35 and 1.32 ppm (singlets, 3 H each). These facts are close to those published for anhydroevoxine [2], which has now been isolated from the plant *Haplophyllum perforatum* for the first time.

Base (II) was identified as methylevoxine by comparing its NMR spectrum [3] and melting point [4] with those of an authentic sample.

A comparative study of the facts given with the results of an investigation of the epigeal part collected in an earlier vegetation period showed that as the plant develops there is a considerable decrease in the amount of eudesmin, haplamine, flindersine, perfamine, and skimmianine, on the one hand, and an increase in the amount of evoxine and the formation of compounds closely related to it, methylevoxine and anhydroevoxine, on the other hand. In investigations published previously [4, 5] on the dynamics of the accumulation of alkaloids in *H. perforatum* from other growth sites, the opposite pattern was observed: The level of evoxine and its analogs decreased considerably as the plant grew, and that of skimmianine increased.

LITERATURE CITED

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