IRIDOIDS OF Stachys betonicaflora

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UDC 615.032

Iridoids ahve been detected in some betony (Stachys) species. We have studied the epigeal parts of Stachys betonicaflora Rupr. (Lamiaceae), gathered in the village of Chimgan, Tashkent province, for the presence of iridoids.

The qualitative composition of the iridoids was analyzed by paper chromatography (PC, type FN-3 paper) and by thin-layer chromatography (TLC, Silufol). The chromatograms were run in the following solvent systems: 1) 15% acetic acid; 2) n-butanol–ethanol–acetic acid–water (4:1:5); and 3) chloroform–methanol–water (70:23:4). The iridoids were revealed on the chromatograms by spraying with the Stahl and the Trim-Hill reagents [3] followed by heating at 110-115°C for 3-5 min.

The air-dry comminuted herbage (500 g) of the plant under investigation was mixed with 50 g of calcium carbonate and was exhaustively extracted with 50% ethanol at 60°C. The extracts were evaporated to a volume of 200 ml and were treated with petroleum ether. The purified aqueous solution was filtered successfully through columns of polyamide and alumina. The columns were eluted with water until the reactions for iridoids were negative. The eluates were evaporated to a viscous mass, and this was dissolved in a small amount of ethanol. Acetone was added to this solution, the resulting precipitate was filtered off, and the mother liquor was evaporated to small volume and was cooled. The total iridoids that deposited were filtered off and dried.

In this material, two substances of iridoid nature were detected by TLC (system 3), with R_f 0.25 and 0.52. The total material (5 g) was chromatographed on a column containing type KSK silica gel, with elution by system 3. This led to the isolation of 40 mg of a substance with mp 152-153°C (from methanol), $[\alpha]_D^{20}$ −131.9±2° (c 0.30, methanol), which was identified as 8-acetylharpagide on the basis of IR, mass, and PMR spectra, and also by a direct TLC comparison with an authentic specimen [1, 2].

Continued elution of the column with the same system gave 1.02 g of an amorphous compound with $[\alpha]_D^{20}$ −153±2° (c 0.4, methanol). This compound was identified as harpagide by its IR, PMR, and mass spectras, and by a TLC comparison with an authentic specimen [1, 2].

LITERATURE CITED

1. N. F. Komissarenko, A. I. Derkach, I. P. Sheremet, and D. A. Pakaln, Khim. Prir. Soedin., 109 (1976).
2. N. F. Komissarenko, A. I. Derkach, I. P. Sheremet, and D. A. Pakaln, Khim. Prir. Soedin., 99 (1979).
3. E. Stahl, Thin Layer Chromatography, 1st English edition, Springer/Academic Press, New York (1965).

Tashkent Pharmaceutical Institute. Translated from Khimiya Prirodnykh Soedinenii, No. 5, pp. 586-587, September-October, 1992. Original article submitted December 2, 1991.

 0009-3130/92/2805-0514$12.50