

ALKALOIDS OF THE CORMS OF *Colchicum*

kesselringii

Kh. Turdikulov, M. K. Yusupov,
and A. S. Sadykov

UDC 547.944.6

The dynamics of the content of alkaloids in the corms of *Colchicum kesselringii* Rgl. has been reported previously [1]. Continuing a study of the phenolic part of the neutral-phenolic fraction of the alkaloids, by chromatography in a thin layer of alumina we have established the presence in it of four substances: 3-desmethyl- β -lumicolchicine (R_f 0.79), 2-desmethylcolchicine (R_f 0.36), and compounds with R_f 0.40 and 0.31 [chloroform-methanol (24:1) system; revealing agent iodine vapor].

To isolate the unidentified compounds, 7.2 g of the mixture of phenolic alkaloids was chromatographed on a column of 140 g of alumina. The substances were eluted in the following sequence: 3-desmethyl- β -lumicolchicine (0.04 g) [eluant ether-chloroform (1:1)] [2], the alkaloid with R_f 0.40 (0.32 g) [ether-chloroform (1:2 and 1:4)], 2-desmethylcolchicine (4.03 g) [ether-chloroform (1:4), chloroform] [2, 3], and the alkaloid with R_f 0.31 (0.02 g) (chloroform).

The alkaloid with R_f 0.40 consisted of white crystals with the composition $C_{21}H_{23}O_6N$, mp 198-200° C (from ethyl acetate), $[\alpha]_D^{20} + 337^\circ$ (c 0.45; chloroform), mol. wt. 385 (mass spectrometrically); UV spectrum: 226, 264 and 344 nm (in methanol).

On the basis of its UV spectrum, the sign of the specific rotation (+) and color reaction [4], the alkaloid with R_f 0.40 can be assigned to the β -lumi derivatives of the tropolone alkaloids. In its physicochemical constants, it resembles the alkaloid S_2 isolated by Canonica et al. [5] from the corms of the Indian plant *Gloriosa superba* L. The structure of the latter was established by partial synthesis from 2-desmethylcolchicine and is 2-desmethyl- β -lumicolchicine. In view of the absence of an authentic sample of the alkaloid S_2 , for identification we recorded the IR, NMR, and mass spectra of the alkaloid with R_f 0.40. The results obtained agree with those given in the literature [6, 7] and the alkaloid does actually correspond to the structure 2-desmethyl- β -lumicolchicine.

The O-acetyl derivative of the alkaloid with R_f 0.40 has mp 222-224° C (from ethyl acetate and ether), $[\alpha]_D^{20} + 352^\circ$ (c 1.00; chloroform), O-methyl derivative with mp 183-185° C (from ethyl acetate), identical with β -lumicolchicine [2].

This is the first time that alkaloids have been isolated from the corms of *C. kesselringii*.

LITERATURE CITED

1. M. K. Yusupov and A. S. Sadykov, *Rast. Res.*, **5**, 104 (1970).
2. F. Santavy, *Alkaloids of Plants of the Genus Colchicum and Their Derivatives* [in Czech], Prague (1958).
3. M. K. Yusupov and A. S. Sadykov, *Dokl. Akad. Nauk UzSSR*, No. 3, 25 (1967).
4. A. S. Sadykov and M. K. Yusupov, *Uzb. Khim. Zh.*, No. 2, 38 (1960).
5. L. Canonica, B. Danieli, P. Manitto, G. Russo, and E. Bombardelli, *Chem. Ind. (Milan)*, **49**, 1304 (1967).
6. I. M. Wilson, M. Ohashi, H. Budzikiewicz, F. Santavy, and C. Djerassi, *Tetrahedron*, **19**, 2225 (1963).
7. V. Delaroff and P. Rathle, *Bull. Soc. Chim. Fr.*, 1621 (1965).

V. I. Lenin Tashkent State University. Translated from *Khimiya Prirodnikh Soedinenii*, No. 4, p. 541, July-August, 1971. Original article submitted March 25, 1971.

© 1973 Consultants Bureau, a division of Plenum Publishing Corporation, 227 West 17th Street, New York, N. Y. 10011. All rights reserved. This article cannot be reproduced for any purpose whatsoever without permission of the publisher. A copy of this article is available from the publisher for \$15.00.