A STUDY OF THE ALKALOIDS OF Rhinopetalum stenantherum

K. Samikov, R. Shakirov,
and S. Yu. Yunusov

UDC 547.944/945

The plant Rhinopetalum stenantherum Rgl. (family Liliaceae) has not been studied chemically. We have investigated the epigeal and hypogeal parts of this plant collected in 1973, in the Tashkent oblast, in the period of mass flowering (Table 1). A mixture of bases was extracted from the plant with chloroform. The combined alkaloids (1.41 g) from the epigeal part of Rh. stenantherum (collected on March 28 in Kaplanbek) were dissolved in chloroform and chromatographed on a column of alumina (activity grade II) with elution by chloroform and by chloroform–ethanol (50:1). The chloroform eluate was passed through a column of silica gel and eluted with benzene and with benzene–ethanol (25:1) and (9:1). The benzene eluate yielded base (II) with mp 209-211°C (acetone), the benzene–ethanol (25:1) eluate a base with 174-176°C (acetone), and the benzene–ethanol (9:1) eluate a base with 187-190°C [methanol–acetone (1:5)].

Alkaloid (I) $C_{27}H_{43}NO$ forms a hydrochloride with mp 333°C (decomp.); in ethanolic solution with digitonin it gives a sparingly soluble digitonide which shows the presence of a 3β-OH group in it [1], and it belongs to the typical steroid alkaloids. IR spectrum, cm^{-1}: 3250 (OH), 2960-2830 (CH_3-CH_2-), 3035, 1665, (CH=C). In the mass spectrum of (I) there are peaks of ions with m/e 97, 98, 111, 150 (100%), 204, 382, (M−15), 397 M^+, which are similar to those in the mass spectrum of solanidine [2]. In fact, a mixture of the alkaloid (I) with an authentic sample of solanidine [3] showed no depression of the melting point, and their IR spectra were also identical.

Thus, solanidine has been isolated from Rh. stenantherum for the first time. The study of the other two alkaloids is continuing.

TABLE 1

Collection site	Date of collection	Plant organs	Total alkaloids, %
Kaplanbek	28.III	Epigeal part	0,08
		Hypogeal part	0,5
Chimgan	2.IV	Epigeal part	0,11
		Hypogeal part	0,57
Sukok	10.IV	Epigeal part	0,08

LITERATURE CITED

1. G. Adam, K. Schreiber, I. Tomko, and A. Vassova, Tetrahedron, 23, 167 (1967).
2. H. Budzikiewicz, Tetrahedron, 20, 2267 (1964).
3. V. Prelog and S. Szpilfogel, Helv. Chim. Acta, 27, 390 (1944).

Institute of the Chemistry of Plant Substances, Academy of Sciences of the Uzbek SSSR. Translated from Khimiya Prirodnykh Soedinenii, No. 4, p. 537, July-August, 1974. Original article submitted February 19, 1974.