UDC 547.972

β-SITOSTEROL AND ITS GLUCOSIDE FROM THE ROOTS OF POLYGONUM CORIARIUM

T. K. Chumbalov and V. B. Omurkamzinova

Khimiya Prirodnykh Soedinenii, Vol. 3, No. 5, p. 350, 1967

The comminuted roots of Polygonum coriarium Grig. collected in the autumn, 1966, at the Talgar Peak, Alma-Ata Region, were successively extracted with benzene and ether. After the evaporation of the benzene extract, an oily product remained with a yield of 1.3% (of the weight of the absolutely dry roots). By chromatographing it on alumina with subsequent elution with methanol, β-sitosterol with mp 136°–137° C (from ethanol) was obtained. The acetate had mp 122°–124° C, $[\alpha]_D^{20}$ −40° C (c 0.23; chloroform), $[\alpha]_D^{20}$ −39° C (c 0.23, chloroform). Yield 0.11% of the weight of the roots.

When the ethereal extract of the roots was evaporated to small bulk, with subsequent storage at −5° C, β-sitosterol monoglucoside was obtained with mp 294°–296° C (from ethanol). The acetate of the glucoside had mp 169°–170° C, $[\alpha]_D^{20}$ −32.3° C (c 0.30; pyridine). Yield 0.004%.

The substances were identified by elemental analysis, IR spectra, and the products of acid hydrolysis.

β-Sitosterol and its monoglucoside have been isolated previously from the seeds of jute and the roots of Delphinium dehudatum [1, 2].

REFERENCES

1. A. Wadood Qureshi and A. M. Ahsan, Pakistan, J. Sci and Ind. Res., 8, no. 4, 173–715, 1965.

2. M. Quadrat-i-Khude, A. Khalique, and D. C. Das, Pakistan J. Sci. and Res., 6, no. 3, 161–163, 169–173, 1963.

2 February 1967

Kirov Kazakh State University

UDC 547.944/945

AN INVESTIGATION OF THE ALKALOIDS OF SENECIO FRANCHETI, TRACHELANTHUS HISSORICUS, AND T. KOROLKOVII

S. T. Akramov, F. Kiyamitdinova, and S. Yu. Yunusov

Khimiya Prirodnykh Soedinenii, Vol. 3, No. 5, p. 351, 1967

S. francheti C. Winkl. The raw material was collected in the flowering stage (15 June 1966) at Sary-Dashte, TadzhSSR. Four hundred grams of the epigeal part of the plant was extracted with isopropanol acidified with acetic acid. This gave 1.23 g of ether alkaloids and 3.2 g of chloroform alkaloids (1.1% of the weight of the dry raw material).

By treatment with acetone, the chloroform fraction of the combined alkaloids (3.2 g) yielded 1.74 g of the N-oxide of sarracine [1]. The combined ether alkaloids (1.23 g) were separated by the polybuffer method. At pH 7 and 8, the fraction deposited 70 mg of crystals with mp 124°–125° C (from ether) giving a depression of the melting point with the N-oxide of sarracine and with heliotrine. The properties of this base distinguished it from known alkaloids, and we have therefore called it franchetine.

T. hissoricus Lipsky. The sample was obtained on the R. Obi-Khengau, TadzhSSR (8 June 1966) in the fruit-bearing stage. Two hundred grams of the leaves was exhaustively extracted with methanol. After suitable working up, 6.1 g of chloroform alkaloids and 9.31 g of reduced alkaloids (7.73% of the weight of the dry plant) were obtained.

Collection site (Tashkent Region)	Day, month, year	Plant organ	Total alkaloids, % of the weight of the raw material	Crystals, % of the total
Sidzhak	30.III 1963	Epigeal part	18	81
Khumsan	8.IV 1962		16.06	90
Malyi Chimgan	16.IV 1963		11.93	74
Chatkal Range	31.V 1961	Roots	3.68	53
		Epigeal part	6.02	70

From the combined chloroform alkaloids (6.7 g) were isolated 5.14 g of the N-oxide of viridiflorine [2] and 0.2 g of trachelanthine [3], and from the reduced alkaloids (9.37 g) was obrained 4.8 g of viridiflorine [4] and 2.24 g of trachelanthamine [3]. The presence of the same bases was detected in the mother liquor by paper chromatography.

T. korolkovii (Lipsky) B. Fedtsch. The plant was first studied by Men'shikov and Borodin [3]. They obtained 0.4–2.5% of combined alkaloids, from which they isolated trachelanthamine and trachelanthine.

We have also studied T. korolkovii. In its early vegetation period, we isolated the same alkaloids but in larger amount [5] (Table).

REFERENCES

1. A. V. Danilova, et al., ZhOKh, 23, 1417, 1953.
2. S. T. Akramov, F. Kiyamitdinova, and S. Yu. Yunusov, DAN UzSSR, no. 6, 35, 1961.
3. G. P. Men'shikov and G. M. Borodin, ZhOKh, 11, 209, 1941.
4. G. P. Men'shikov, ZhOKh, 16, 1311, 1946.
5. S. Yu. Yunusov, Izvestiya AN UzSSR, no. 4, 11, 1948.

5 April 1967

Institute of the Chemistry of Plant Substances, AN UzSSR

UDC 547.944/945

ALKALOIDS OF LEONTICE ALBERTII

D. Kamalitdinov, S. Iskandarov, and S. Yu. Yunusov

Khimiya Prirodnykh Soedinenii, Vol. 3, No. 5, p. 352, 1967

From the epigeal part of L. albertii Rgl., collected in the flowering stage in Fergana Region, chloroform extracted 1.75% of combined bases. From the latter were isolated thaspine [1], N-methylcytisine [2], and a crystalline base with mp 108°–109° C (from petroleum ether), $[\alpha]_D$ + 59.3° C (c 1.30; ethanol), $C_{15}H_{24}N_2O$, mol. wt. 248 (mass spectrometry).

The base is monoacidic and ditertiary and forms a monomethiodide with mp 249° C (from a mixture of ethanol and acetone). The IR spectrum of the alkaloid has absorption bands due to the presence of a trans-linked quinolizidine (2800–2700 cm^{-1}) and the carbonyl of a six-membered lactam (1655 cm^{-1}) [3].

Reduction of the base with lithium aluminum hydride in absolute ether gave a deoxybase with mp 60°–61° C, $[\alpha]_D$ +41° C (c 0.219; ethanol), forming a crystalline hydrochloride, hydriodide, and methiodide. All the physicochemical properties of this deoxybase, with the exception of the sign of rotation, agreed with those of sophoridine [4].