

ALKALOIDS OF *Corydalis vaginans*

N. N. Margvelashvili, O. E. Lasskaya,
A. T. Kir'yanova, and O. N. Tolkachev

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We have studied the composition of the alkaloids of *Corydalis vaginans* Royle, family Papaveraceae (habitat the Himalayas), introduced into the Botanical Garden of VILR [All-Union Scientific-Research Institute of Medicinal Plants]. We obtained the total alkaloids (1.4%) from the herbage by the dichloroethane method.

From the sulfate fraction we isolated a purified inactive base with the composition $C_{20}H_{13}NO_4 \cdot H_2O$, mp 266–267°C (ether), giving no depression of the melting point in admixture with sanguinarine [1]. From the strongly basic fraction we obtained a substance with the composition $C_{20}H_{13}NO_6$, mp 204–205°C (ethanol) which was identified by comparison with an authentic sample as protopine [2].

By crystallizing the combined alkaloids from ethanol we isolated a base with the composition $C_{20}H_{19}NO_6$, mp 204°C, $[\alpha]_D^{20} +36^\circ$ (c 1.8; chloroform) [3]. UV spectrum: λ_{max} (ethanol) 205, 240, 250 nm ($\log \epsilon$ 4.81, 3.94, 3.91). The NMR spectrum (paraffin oil) showed absorption bands at 3450 and 3530 cm^{-1} (OH). NMR spectrum, δ , ppm: 5.98 and 6.56 (s, 2 H, C_1-H , C_4-H); 4.8 and 5.72 (s, 2 H, $H-C_9-OH$, $H-C_{14}-OH$); 6.85 (s, 1 H, C_5-H); 2.52 (s, 3 H, $N-CH_3$); 5.66 and 5.94 (s, 4 H, $2CH_2O_2$). Mass spectrum: M^+ 369, and strong peaks of ions with m/e 190, 192, and 206. When the base was acetylated with acetic anhydride in chloroform, a diacetyl derivative was obtained with the composition $C_{24}H_{23}NO_8$, mp 179°C. Its IR spectrum had an absorption band at 1710 cm^{-1} (CH_3COO^-). NMR spectrum, δ , ppm: 2.04 and 2.26 (s, 6 H, $2CH_3COO^-$); 1.81 (s, 3 H, $N-CH_3$); and 5.76 and 5.93 (q, 4 H, $2CH_2O_2$). The information given shows that the spirobenzyl-isoquinoline alkaloid isolated is d-ochrobirine [4].

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