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ALKALOIDS OF *Pedicularis macrochila*

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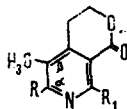
UDC 547.944/945

From the epigeal part of *P. macrochila* collected in the gorge of the *R. Dzhetyagus* on June 8, 1972, we have obtained 0.18% of total alkaloids, from which we have isolated plantagonine [1], noractinidine [2], and a base $C_{11}H_{13}NO_3$ with mp 380-382°C, R_f 0.91 [in the butyl acetate-chloroform (9:1) system]. The latter proved to be identical with gentiananine [3].

The IR spectrum of the base [λ_{max} 219, 265 nm ($\log \epsilon$ 3.69, 3.76)] is characteristic for pyridine alkaloids. In the IR spectrum of gentiananine there are absorption bands for the lactone of a carbonyl group at 1735 cm^{-1} and for an aromatic ring at 1600 cm^{-1} . On the basis of its UV and IR spectra, gentiananine has the skeleton of gentianine [4]. The NMR spectrum of gentiananine (CCl_4 , δ scale) has signals at 3.38 ppm (3H, singlet, methoxy group) and 2.25 and 1.78 ppm (3H and 3H, singlets, C-methyl groups), and in the weak-field region (6.0-10.0 ppm) there are no signals of protons. Consequently, in the base all the aromatic protons have been replaced.

In the NMR spectra of pyridine alkaloids substituents present in the α position are revealed in weaker fields than those in the β position. On this basis it may be concluded that one of the C-methyl groups in gentiananine is present in the α position and the other in the β position.

Thus, structures (I) and (II) are possible for gentiananine. On the basis of the biogenesis of the gentian alkaloids [5], (I) is the more probable.



- i. R = CH₃; R₁ = OCH₃
 ii. R = OCH₃; R₁ = CH₃

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