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AKIRANINE — A NEW ALKALOID FROM *Aconitum kirinense*

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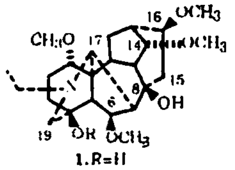
Continuing the separation of the total alkaloids of the epigeal part of *Aconitum kirinense* Nakai [1-4], we have isolated two bases. One of them, with the composition $C_{22}H_{33}NO_6$, mp 102-104°C, was identified from its IR, mass, and PMR spectra, and by a direct comparison with an authentic specimen, as excelsine [5].

The other base was new and has been called akiranine (**1**). Compound (**1**) is an amorphous base with the composition $C_{24}H_{39}NO_6$. The IR spectrum of (**1**) had absorption bands of hydroxy groups (3500-3530 cm^{-1}) and of ether bonds (1110 cm^{-1}). In its mass spectrum there were the peak of the molecular ion (M^+ 437 (7%)) and peaks of the $M^+ - 15$ (30%) and $M^+ - 31$ (100%) ions, showing that akiranine was an alkaloid with the lycoctonine skeleton and had a methoxy group at C-1. The composition of the alkaloid and also the closeness of its spectral characteristics to those of the alkaloid akiran (**2**) isolated from this plant previously [4] confirmed this conclusion. According to PMR, the base contained an N-ethyl and four methoxy groups. Table 1 compares the chemical shifts, multiplicities, and spin–spin coupling constants of the signals of akiranine (**1**) and akiran (**2**).



1. R=H
2. R=Ac

As can be seen from Table 1, in the PMR spectrum of akiranine there were one-proton signals, one in the form of a doublet at 3.97 ppm (J = 7.5 Hz) and a second in the form of a triplet at 4.97 ppm (J = 5 Hz), witnessing the presence of a β-oriented methoxy group at C-6 and an α-oriented methoxy group at C-14. On taking biogenetic relationships into consideration — in particular, the isolation of both (**1**) and (**2**) from this plant — and comparing their functional compositions and the facts given in Table 1, it was possible to conclude that akiranine is the amino alcohol of akiran and does not contain the acetoxy group at C-4. In actual fact, the alkaline hydrolysis of akiran (**2**) gave an amino alcohol identical with akiranine (**1**).

TABLE 1. Detail of the PMR Spectra of Akiranine (1) and Akiran (2) (100 MHz, HMDS)

Compound	Chemical shift, δ, ppm; SSCC, J, Hz				
	$N\text{-}CH_2\text{-}\underline{CH_3}$	$OCOCH_3$	OCH_3	H-6α	H-14β
1	1.00. 3H. t; J=7	-	3.16. 3.25. 3.34. 3.34. each 3H. s	3.92. d. J=7.5	3.49, t, J=5
2	0.98 3H. t, J=7	1.93. 3H. s	3.17. 3.25. 3.33. 3.33. each 3H, s	3.97. d. J=7.5	3.47, t, J=5

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