Tetrahedron Letters No.11, pp. 25-26, 1960. Pergamon Press Ltd. Printed in Great Britain.

THE STRUCTURE OF ECHITAMINE
(ADDENDUM)

(Mrs.) D. Chakravarti, R. N. Chakravarti, (Miss) R. Ghose
School of Tropical Medicine, Calcutta
and
Sir Robert Robinson

(Received 23 April 1960)

A recent letter[1] mentioned work on the chemistry of echitamine undertaken by the three first-named authors since 1955 [thesis (R. Ghose) Calcutta, 1957] and the postulated relationship with pseudo-akuammigine, also dating from before 1957. Our views on the structural aspect were largely in agreement with Conroy *et al*[2] and differed from those expressed by Govindachari[3], Birch[4] and (Mrs.) A. Chatterjee[5] with their respective collaborators. In particular we rejected formulae [3,4,5] containing $Me\ddot{N}(a) \cdot \dot{C}(OH)$ in favour of one containing $Me\ddot{N}(b) \cdot CH(OH)$ and we also considered that the pseudo-strychnine-like structure[2] should be replaced by one based on the N(b) methylajmaline model.

Further consideration of the evidence presented by Conroy *et al* and by Chatterjee *et al* (*loci cit*), the significance of which we had not fully appreciated, suggests that the MeN(b) · CHOH group may not be in

---

[1] The present authors, *Tetrahedron Letters* No. 10, 10 (1960).

[2] H. Conroy, R. Bernasconi, P. R. Brook, R. Ikan, R. Kurtz and K. W. Robinson, *Tetrahedron Letters* No. 6, 1 (1960).

[3] T. R. Govindachari and S. Rajappa, *Proc. Chem. Soc.* 134 (1959)

[4] A. J. Birch, H. F. Hodson and G. F. Smith, *Proc. Chem. Soc.* 224 (1959)

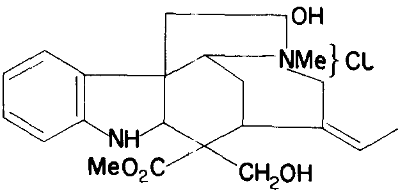
[5] A. Chatterjee, S. Ghosal and S. G. Majumdar, *Chemistry and Industry* 265 (1960).

the same position as in methylajmaline salts but in the alternative position with the original tryptamine side-chain in the form
$-CH_2 \cdot CH(OH) \cdot \ddot{N}Me \} Cl$ (echitamine chloride).

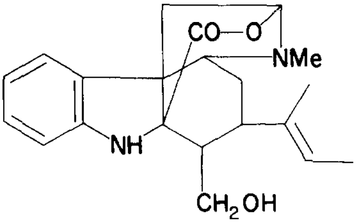
The superiority of this modification follows from the observation of Conroy et al that catalytic reduction of echitamine chloride affords the crystalline base echitinolide, $C_{21}H_{26}O_3N_2$, containing 2 Me(C) groups. This lactone is the result of hydrogenolysis of an allylic group and as the three oxygens are retained, the original salt cannot contain $Me\ddot{N}(b) \cdot CH(OH) \cdot \dot{C} = CHMe$. Therefore the - CH(OH) must be on the other side of N(b) in the group $\cdot CH_2 \cdot CH(OH) \cdot NMe \cdot CH_2 \cdot \dot{C} :CHMe$.

This small but important modification also accommodates the finding of Chatterjee et al.[5] that the oxidation of echitamine with periodic acid affords indole-3-acetaldehyde.

The structure which we now propose for echitamine chloride is (I) and echitinolide would be a lactone with a 7-membered bridge (II).



I



II