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TYLOPHORINICINE, A PHENANTHROINDOLIZIDINE ALKALOID FROM *TYLOPHORA ASTHMATICA* AND *PERGULARIA PALLIDA*

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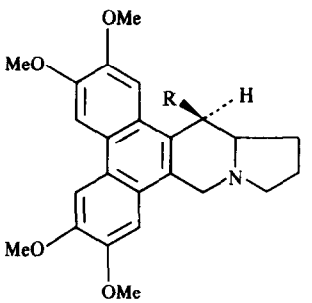
Key Word Index—*Tylophora asthmatica*; *Pergularia pallida*; Asclepiadaceae; tylophorinicine; phenanthroindolizidine.

Abstract—Tylophorinicine, a minor alkaloid isolated from the roots of *Tylophora asthmatica* and *Pergularia pallida*, has been characterized as 14-hydroxytylophorine from physical and chemical evidence.

The isolation of five phenanthroindolizidine alkaloids from *Pergularia pallida* [1] has been reported by us earlier, wherein one minor base with MW 409, now named tylophorinicine, could not be characterized due to paucity of material. This alkaloid has now been isolated from the roots of the above plants in 0.0005% yield.

Sodium borohydride reduction of tylophorinicine yielded tylophorine (**2**) and this, together with the spectral evidence, suggested that tylophorinicine itself has structure **1**. If one assumes there is an analogy with the accompanying trimethoxy-14-hydroxy bases [1–3] then the stereochemistry for tylophorinicine can be written as shown in structure **1**.



R
1 OH
2 H

EXPERIMENTAL

All mps are uncorr.

Plant material. The plants were grown at the experimental field station, Trombay.

Isolation of tylophorinicine. The base was isolated from the roots of the plants as previously described [1]. Tylophorinicine, mp 210–212° (decomp.), $[\alpha]_D^{25}$ −9.4° (*c* 0.04; $CHCl_3$); λ_{max}^{MeOH} nm (log ε): 258 (4.4), 287 (4.2), 302 (3.6), 339 (3.1), 335 (2.9); IR ν_{max}^{KBr} cm^{-1}: 3480, 1614, 1535, 1516, 1250. MS *m/z*: 409 ($[M]^+$, $C_{24}H_{27}NO_5$), 340 (100), 325, 311, 310, 309, 297, 282, 254, 239, 211, 196, 168, 204.5, 70.

Reduction of tylophorinicine (**1**) *with* $NaBH_4$. Compound **1** (12 mg) was reduced with $NaBH_4$ following the procedure of Govindachari *et al.* [4]. After crystallization the product was found to be identical with tylophorine (**2**) (TLC, co-TLC, mp, mmp, IR, MS).

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