

## Total Synthesis of ( $\pm$ )-Tubotaiwine (Dihydrocondylocarpine)

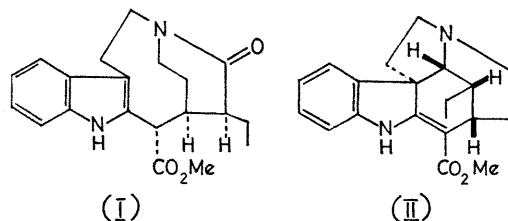
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**Summary** We report a total synthesis of the indole alkaloid ( $\pm$ )-tubotaiwine in eleven stages from tryptamine, using an intermediate involved in the synthesis of geissoschizoline.

amide function followed by transannular cyclisation followed by disproportionation. As would be expected, the yield is low.

THE synthesis of the tetracyclic ester-amide (I) is described in the preceding communication.<sup>1</sup> Treatment of this compound with phosphorus oxychloride in boiling benzene followed by addition of base has led to the isolation (by preparative layer chromatography) of ( $\pm$ )-tubotaiwine<sup>2</sup> (II) which was identified by direct comparison with an authentic (optically active) sample kindly supplied by Prof. H. Schmid. This is an unusual reaction in that the ester-amide (I) and the alkaloid (II) are at different oxidation levels. We believe that it involves formation of an intermediate Vilsmeier type of phosphoryl derivative at the



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<sup>1</sup> B. A. Dadson and J. Harley-Mason, preceding communication.

<sup>2</sup> W. G. Kump, M. B. Patel, J. M. Rowson, and H. Schmid, *Helv. Chim. Acta*, 1964, **47**, 1497.