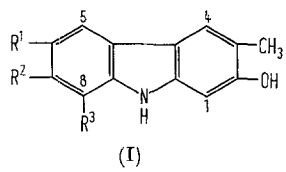
Terpenoid Alkaloids from *Murraya koenigii* Spreng. VII[1] Synthesis of DL-*O*-Methylmahanine and related Carbazoles[2]

Recent work on the phenolic fraction of the leaves of *Murraya koenigii* Spreng. led to the isolation of a new terpenoid carbazole alkaloid which was named Mahanine and characterized as 9-hydroxymahanimbine[3] (IIa) on the basis of spectroscopic studies. We now confirm this structure by the synthesis of its *O*-methyl ether (IIb). 2,7-Dihydroxy-3-methylcarbazole (Ia), mp 285° prepared essentially by our earlier method[4], on condensation with citral in pyridine for 5 h did not furnish the desired product

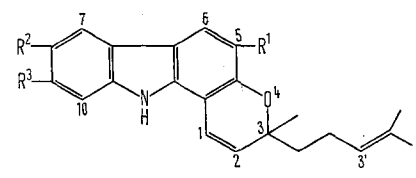


(I)

a; $R^1 = R^3 = H$; $R^2 = OH$
b; $R^1 = R^3 = H$; $R^2 = OCH_3$
c; $R^2 = R^3 = H$; $R^1 = OH$
d; $R^1 = R^2 = H$; $R^3 = OH$

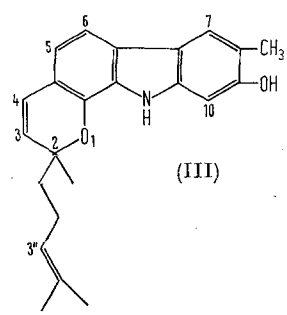
Similarly, condensation of 2,6-dihydroxy-3-methylcarbazole[1] (Ic) with citral in the presence of pyridine gave DL-8-hydroxymahanimbine (IId) (30%), mp 205°; methyl ether (IIe), mp 126°.

2,8-Dihydroxy-3-methylcarbazole (Id), mp 272° on heating with citral furnished a complex mixture from which the major compound was identified as DL-III (26%), mp 135°. The minor product could be characterized as DL-IV (15%)[5,6].

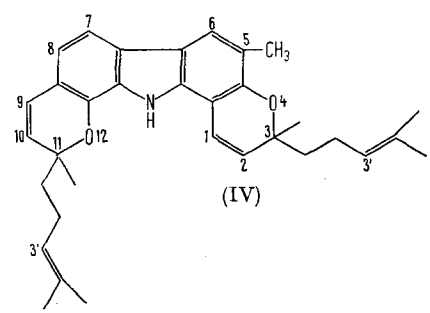


(II)

a; $R^1 = CH_3$; $R^2 = H$; $R^3 = OH$
b; $R^1 = CH_3$; $R^2 = H$; $R^3 = OCH_3$
c; $R^1 = H$; $R^2 = CH_3$; $R^3 = OH$
d; $R^1 = CH_3$; $R^2 = OH$; $R^3 = H$
e; $R^1 = CH_3$; $R^2 = OCH_3$; $R^3 = H$



(III)



(IV)

IIa; instead the isomeric compound DL-9-hydroxymahanimbicine (IIc) (yield 16%), mp 160° was obtained. Selective methylation of Ia with diazomethane in ether afforded predominantly 2-hydroxy-7-methoxy-3-methylcarbazole (Ib), mp 240° which on heating with citral under normal conditions yielded DL-*O*-methylmahanine (IIb) (15%), mp 180°. The identity was confirmed by comparison (mp, mmp, TLC, UV- and IR-data) with an authentic sample prepared by methylation of mahanine (IIa) with methyl iodide.

Zusammenfassung. Die Synthese von DL-*O*-Methylmahanine wird beschrieben und damit die Struktur (IIa) für Mahanine bewiesen.

F. ANWER, R. S. KAPIL and S. P. POPLI

Central Drug Research Institute, Lucknow (India), 17 May 1971.

[1] Part VI. S. P. KUREEL, R. S. KAPIL and S. P. POPLI, Chemy Ind. 1262 (1970).
[2] Communication No. 1640 from the Central Drug Research Institute, Lucknow.
[3] N. S. NARASIMHAN, M. V. PRADKAR and S. L. KELKAR, Indian J. Chem. *8*, 473 (1970).
[4] S. P. KUREEL, R. S. KAPIL and S. P. POPLI, Chem. Commun. *1969*, 1120.
[5] All new compounds were characterized by full spectroscopic studies.
[6] We are grateful to Dr. N. S. NARASIMHAN, Poona, for supply of a sample of mahanine.