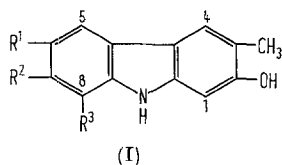


Terpenoid Alkaloids from *Murraya koenigii* Spreng. VII¹ Synthesis of DL-O-Methylmahanine and related Carbazoles²

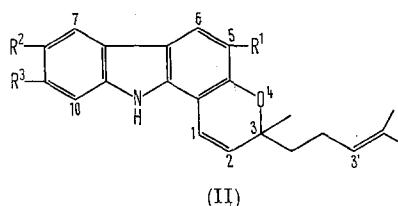
Recent work on the phenolic fraction of the leaves of *Murraya koenigii* Spreng. led to the isolation of a new terpenoid carbazole alkaloid which was named Mahanine and characterized as 9-hydroxymahanimbine³ (IIa) on the basis of spectroscopic studies. We now confirm this structure by the synthesis of its *O*-methyl ether (IIb). 2,7-Dihydroxy-3-methylcarbazole (Ia), mp 285° prepared essentially by our earlier method⁴, on condensation with citral in pyridine for 5 h did not furnish the desired product

Similarly, condensation of 2,6-dihydroxy-3-methylcarbazole¹ (Ic) with citral in the presence of pyridine gave DL-8-hydroxymahanimbine (IIc) (30%), mp 205°; methyl ether (IIe), mp 126°.

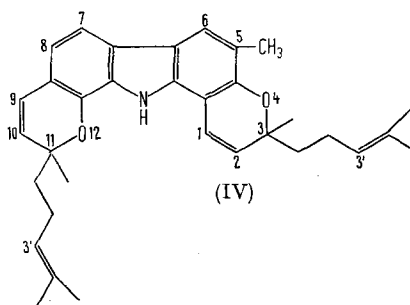
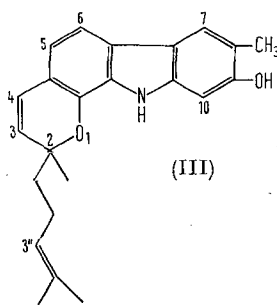
2,8-Dihydroxy-3-methylcarbazole (Id), mp 272° on heating with citral furnished a complex mixture from which the major compound was identified as DL-III (26%), mp 135°. The minor product could be characterized as DL-IV (15%)^{5,6}.



- a; R¹ = R³ = H; R² = OH
 b; R¹ = R³ = H; R² = OCH₃
 c; R² = R³ = H; R¹ = OH
 d; R¹ = R² = H; R³ = OH



- a; R¹ = CH₃; R² = H; R³ = OH
 b; R¹ = CH₃; R² = H; R³ = OCH₃
 c; R¹ = H; R² = CH₃; R³ = OH
 d; R¹ = CH₃; R² = OH; R³ = H
 e; R¹ = CH₃; R² = OCH₃; R³ = H



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.

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Lucknow (India), 17 May 1971.

¹ Part VI. S. P. KUREEL, R. S. KAPIL and S. P. POPLI, *Chem. 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.