

new species of the genus *Voacanga*, *Voacanga dregei* E. M. We wish to report the isolation of a new alkaloid, dregamine, from the bark of this tree².

Dregamine is a representative of 2-acyl indole alkaloids³; it was isolated⁴ by chromatography of alkaloids obtained by benzene-chloroform mixture (3:1) gave the crude base which crystallized from methanol in long prisms; m.p. 106–109°C, resolidified, then m.p. 186–205°C (dec.); $[\alpha]_D^{25} = -93.1^\circ\text{C}$ (CHCl_3 , $C = 1$).

Calculated for $\text{C}_{21}\text{H}_{28}\text{O}_3\text{N}_2$: C 70.76; H 7.92; N 7.86. Found: C 70.57; H 7.47; N 7.42. The hydrochloride was prepared in the conventional manner and recrystallized from methanol-ether, m.p. 249–250°C (dec.). Calculated for $\text{C}_{21}\text{H}_{28}\text{O}_3\text{N}_2 \cdot \text{HCl}$: C 64.19; H 7.74; N 7.13; Cl 9.02; OCH_3 (1) 7.90; (N)- CH_3 (1) 3.83. Found: C 64.49; H 7.62; N 7.00; Cl 8.98; OCH_3 8.12; (N)- CH_3 3.84.

The ultraviolet spectrum of dregamine is characterized by the following bands: $\lambda_{\text{max}}^{\text{EtOH}}$ 239 $\mu\mu$, $a_M = 15,200$; 316 $\mu\mu$, $a_M = 18,600$ and very similar to that of 1-keto-1,2,3,4-tetrahydrocarbazole³. In addition to the 2-acyl indole moiety (major band at 6.05 μ)¹, the infrared spectrum indicated the presence of a carbomethoxyl moiety with absorption at 5.78 μ and 8.03 μ ⁵.

Other botanically related genera are currently under investigation in these laboratories.

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Lilly Research Laboratories, Indianapolis (Indiana), July 6, 1959.

Zusammenfassung

Dregamine, ein neues Alkaloid aus der Apocynaceae *Voacanga dregei* E. M. wurde isoliert und charakterisiert. Diese Verbindung stellt einen neuen Vertreter der Klasse der 2-Acyl-indole dar.

² After the completion of this work, SCHULER, VERBEEK, and WARREN, J. chem. Soc. 1958, 4776, have reported the isolation of the known alkaloids vobtusine and voacangine from the bark of *Voacanga dregei* collected in the South Coast, Natal, S. Africa. We were unable to find these alkaloids in our plant material.

³ M. GORMAN, N. NEUSS, and N. J. CONE, Amer. chem. Soc. nat. Meeting, San Francisco, Calif., April 1958. The spectral data reported for voacafrine and voacafricine [K. V. RAO, J. org. Chem. 23, 1455 (1958)] are also indicative of the presence of a 2-acyl indole moiety in these two alkaloids from *Voacanga africana*.

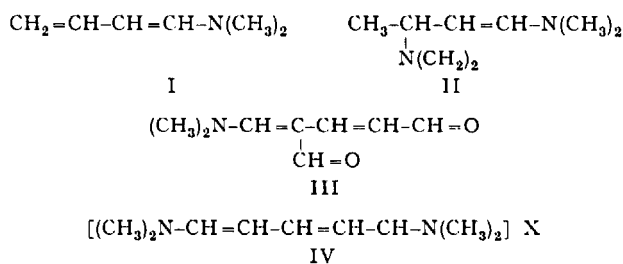
⁴ Small amounts of this alkaloid were also isolated from *Ervatamia coronaria*³.

⁵ Subsequent to the preparation of this manuscript, RENNER has described the isolation of vobasine and voacryptine from *V. africana*. The former alkaloid appears to be another representative of 2-acyl indoles³ [U. RENNER, Exper. 15, 185 (1959)].

A Simple Synthesis of Nicotinic Aldehyde

Practically all known routes leading to nicotinic aldehyde involve the reduction of various nicotinic acid derivatives. We have now found a simple and advantageous method for the synthesis of this valuable compound based on crotonaldehyde.

Recently we have shown^{1,2} that the Vilsmeier-Haack reaction may be extended to the aliphatic series, in particular to carbonyl compounds. By this reaction, we have prepared a large number of β -dicarbonyl derivatives, such as the β -dialdehydes, β -chlorovinylaldehydes and some novel types of polyformyl derivatives. Most of these compounds had previously been difficult of access.



We have now applied the reagent prepared from dimethylformamide and phosgene to compounds I and II, which are readily available from crotonaldehyde in a single step^{3,4}. This reaction led to the trialdehyde derivative III in about 60% yield. This derivative is even more simply obtained by formylation of the well known quaternary salt IV which is also believed to be an intermediate in the formylation of I and II. The trialdehyde derivative III very readily passes into nicotinic aldehyde in excellent yield, e.g. merely on heating with aqueous NH_4Cl .

Nicotinaldehyde is thus available from crotonaldehyde in a simple three-step process in about 40% overall yield.

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Zusammenfassung

Nikotinaldehyd wurde durch ein dreistufiges Verfahren aus Krotonaldehyd in einer Gesamtausbeute von 40% erhalten.

¹ Z. ARNOLD and F. ŠORM, Coll. Czechoslov. chem. Comm. 23, 452 (1958). - Z. ARNOLD and J. ŽEMLIČKA, Coll. Czechoslov. chem. Comm. 24, 786, 2378, 2385 (1959); 24, in press.

² Z. ARNOLD and J. ŽEMLIČKA, Proc. chem. Soc. 1958, 227.

³ C. MANNICH, K. HANDKE, and K. ROTH, Chem. Ber. 69, 2112 (1936).

⁴ W. LANGENBECK and L. WESCHKY, DRP 715544, Chem. Zbl. 1942, 2821.

Demonstration of Poliomyelitis Virus in Homogenates and Ureadesoxycholate Lysates of Cells Exhibiting or Lacking Cytopathogenicity

A method for dissolution of tissue cultures (TC) with Ureadesoxycholate (UDC) was described previously¹. Ap-

¹ E. Kovács, Naturwissenschaften 45, 339 (1958); Arch. Biochem. Biophys. 76, 546 (1958).