

Grandifoliolin, a New Limonoid from *Khaya grandifoliola* C. DC.

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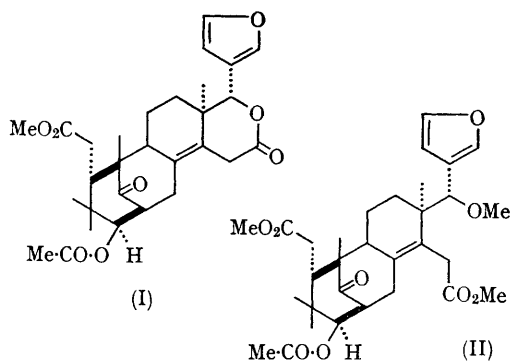
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FROM a sample (F.H.I. No. 4278) of the timber of *Khaya grandifoliola* collected in Aponmu forest reserve, we obtained khivorin;¹ from another sample (F.H.I. No. 54740) from Balogun village near Ibadan, we obtained a mixture of mexicanolide and methyl angolensate.^{2,3} We have subsequently examined six more specimens, and find them similar to the second of these samples. In view of this discrepancy the herbarium specimen of F.H.I. 4278 has been re-examined. It is now considered to be of doubtful authenticity, and may be *Khaya ivorensis*, which would agree with the chemical evidence. The sample has been referred to Kew for a further opinion.

Recently Conolly, Handa, McCrindle, and Overton⁴ have described the examination of timber said to be *Khaya grandifoliola*, of unspecified origin, and the isolation of the interesting 16-keto-compound, grandifolione, together with methyl angolensate, 7-deacetylkhivorin, methyl 6-hydroxyangolensate, and 7-oxo-7-deacetoxykhivorin.

We now report the investigation of the seed of *Khaya grandifoliola*. Seed from a single tree at Balogun village near Ibadan (Herbarium specimens are retained as D.A.H.T. 157 and will be deposited in the Forest Herbarium at Oxford) was extracted with light petroleum and gave, in unusually high yield (ca. 1%), a crystalline solid, m.p. 169—170°, $[\alpha]_D -165^\circ$, which we name grandifoliolin. The

n.m.r. spectrum suggested that grandifoliolin was the acetate (I) of the 3 β -alcohol corresponding to the ketone, mexicanolide. This was confirmed by treatment with methanolic hydrochloric acid, which gave the acetate (II), m.p. 195—198°, hydrolysed by alkali to the equilibrium mixture of the previously known α - and β -alcohols.³ This acetate (I) has been obtained by Conolly, McCrindle, and Overton by partial synthesis from mexicanolide,⁵ but has not been described before as a natural product, although we have isolated the corresponding isobutyrate, khayasin, from the timber of *Khaya senegalensis*.³



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¹ C. W. L. Bevan, J. W. Powell, and D. A. H. Taylor, *J. Chem. Soc.*, 1963, 980.

² C. W. L. Bevan, D. E. U. Ekong, and D. A. H. Taylor, *Nature*, 1965, 1323.

³ E. K. Adesogan, C. W. L. Bevan, J. W. Powell, and D. A. H. Taylor, *J. Chem. Soc. (C)*, 1966, 2127.

⁴ J. D. Conolly, K. L. Handa, R. McCrindle, and K. H. Overton, *Chem. Comm.*, 1966, 867.

⁵ J. D. Conolly, R. McCrindle, and K. H. Overton, *Chem. Comm.*, 1965, 162.