Extractives from the Seed of *Khaya anthotheca* (Welw.) C.DC.

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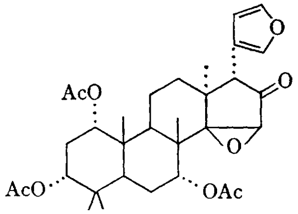
WE have examined samples of the timber of *Khaya anthotheca* and the synonymous *Khaya wildemanii* Ghesq. from East, West, and Central Africa,[1] supplied by the various national forestry departments, by the Forest Products Research Laboratory, Princes Risborough, and by the Musée Royale de l'Afrique Centrale, Tervuren.

Most samples have contained anthothecol,[2] not so far found in any other species, although two, from Kasai and Angola, do not. We are at present attempting to discover if these two have been misidentified, or if they represent a distinct chemical variety of *K. anthotheca.*

In continuation of our programme of examination of the seed of *Khaya* species, we now report on the seed of *K. anthotheca,* collected by the Uganda Forestry Department in Siba C.F.R., Uganda. Unfortunately, it has not so far proved possible to obtain timber and seed samples from the same tree.

Light petroleum extraction of the minced seeds has given a fatty oil and a friable resin, which was chromatographed on alumina to give three main solid components. One of these was khivorin, another 3-deacetylkhivorin,[3] the third is a new compound, m.p. 215—217°, $[\alpha]_D = -57°$, which we name khayanthone. It has the formula $C_{32}H_{42}O_9$ and contains three acetate groups but no lactone ring. The n.m.r. spectrum is very similar to that of khivorin except that the farthest downfield of the five methyl groups was shifted from δ 1·27 to δ 1·13, that the H-17 signal at δ 5·58 was missing, that there was a new broad singlet at δ 3·89, and that one of the furan protons was shifted from δ 7·38 to δ 7·55. On this basis we assign khayanthone a structure with a cyclopentane ring C as in anthothecol; with α-acetoxy-groups at positions 1, 3, and 7, and an epoxide at 14,15β as in khivorin.[3] The final bivalent oxygen function we place as a ketone at C-16, where it accounts for the observed singlet at δ 3·40 due to H-15, as in khivorin, and the broader singlet at δ 3·89 which we ascribe to H-17. No other position of the ketone would account for these observed singlets. Khayanthone therefore has the structure (I); which is that of the 7-acetate of grandifolione, a compound recently described by Conolly, Handa, McCrindle, and Overton.[4] Grandifolione is claimed to be an extractive of *Khaya grandifoliola,* but as *Khaya* timbers are difficult to distinguish, in the absence of a herbarium specimen it remains possible that it may have been from another species.



(I)

The infrared spectrum in the carbonyl region is not sufficiently well resolved to show the cyclopentanone band; but the structure is confirmed by chromous chloride reduction, which gives an unsaturated ketone having λ_{max} 237 mμ (ϵ 9·7 × 10^3), in which H-15 has moved downfield, and appears as a sharp singlet at δ 5·85.

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[1] Unpublished work.

[2] C. W. L. Bevan, A. H. Rees, and D. A. H. Taylor, *J. Chem. Soc.*, 1963, 983.

[3] E. K. Adesogan, J. W. Powell, and D. A. H. Taylor, *J. Chem. Soc.* (*C*), 1967, 554.

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