scutellarein (5,6,7,4′-tetrahydroxyflavone), identified by spectral and chromatographic comparison with authentic material (mol. formula by mass spectrum 286·0480, $C_{15}H_{10}O_6$ requires 286·0477). Partial acid hydrolysis (N HCl, 100°, 5 min) gave scutellarein 7-glucoside. R_f data (see Table) confirm that the compound is a diglycoside and is, therefore, formulated as scutellarein 7-rhamnosylglucoside, a new glycoside of scutellarein.

This is the first report of 6-hydroxyflavones in the Acanthaceae, but such compounds are now well known in neighbouring Tubiflorae families such as the Scrophulariaceae (cf. Harborne and Williams).[1] This scutellarein glycoside has also been provisionally identified in *Andrographis echioides* (Acanthaceae) a plant from which an 8-methoxylated flavone wightin has previously been isolated.[2]

TABLE. R_fS OF SCUTELLAREIN GLYCOSIDES

	R_f (X100) in			
Glycosides	BAW	H_2O	15% HOAc	PhOH
7-Glucoside	35	01	13	64
7-Glucuronide*	29	05	16	21
7-Rhamnosylglucoside	30	10	37	67

* R_fs of flavone glucuronides in aqueous solvents appear to be very temperature-sensitive and much higher values, relative to the 7-glucosides, have often been recorded; these were measured at *ca.* 15°.

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[1] J. B. HARBORNE and C. A. WILLIAMS, *Phytochem.* **10**, 367 (1971).
[2] T. R. GOVINDACHARI, P. C. PARTHASARTHY, B. R. PAI and P. S. SUBRAMANIAN, *Tetrahedron* **21**, 2633 (1965).

Phytochemistry, 1971, Vol. 10, pp. 2823 to 2824. Pergamon Press. Printed in England.

ANONACEAE

ISOLATION OF CUMINAL FROM *XYLOPIA AETHIOPICA**

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RECENT studies of the dried fruits of *Xylopia aethiopica* A. Rich led to the isolation of a new diterpene acid, xylopic acid,[1] and five other kaurane diterpenes.[2] There was a high yield (2·1 %) of fragrant essential oil.

Xylopia aethiopica essential oil obtained by direct steam distillation of the dried and crushed fruits gave a strong positive reaction for aldehydes with Tollen's reagent. 107 g of

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* Part V in the series "Studies on West African Medicinal Plant". For Part IV see D. E. U. EKONG and A. U. OGAN, *J. Chem. Soc.* C, 311 (1968).

[1] D. E. U. EKONG and A. U. OGAN, *J. Chem. Soc.* C, 311 (1968).
[2] D. E. U. EKONG, E. O. OLAGBEMI and F. A. ODUTOLA, *Phytochem.* **8**, 1053 (1969).

the oil was separated into aldehydic (3·3 g) and non-aldehydic (103·5 g) fractions by treatment with $NaHSO_3$. The aldehydic fraction was an amber-coloured, limpid oil, ν_{max} (liquid film) 1707 cm^{-1} (aromatic aldehyde). Attempts to identify this component by the preparation of dimethone or 2,4-dinitrophenylhydrazone derivatives gave products with unsatisfactory melting points. Therefore it was characterized through its oxidation with moist Ag_2O to an acid which crystallized from aqueous ethanol as white flakes m.p. 115°, $[\alpha]_D^{20}$ 0° ± 0·7° (c 2·4 in MeOH); UV absorption max. in methanol 240 and 270 nm (ϵ 10,480 and 530 respectively). (Found: C, 73·1; H, 7·5. Calc. for $C_{10}H_{12}O_2$:C, 73·1; H, 7·4%.) These data correspond to those reported in the literature[3] for cumic acid (i.e. *p*-isopropylbenzoic acid). The aromatic aldehyde was therefore cuminal (i.e. *p*-isopropylbenzaldehyde).

[3] R. G. COOKE and A. K. MACBETH, *J. Chem. Soc.* 1408 (1938); N. N. CROUNSE, *J. Am. Chem. Soc.* **71**, 1263 (1949).

Phytochemistry, 1971, Vol. 10, pp. 2824 to 2825. Pergamon Press. Printed in England.

COMPOSITAE

PATULETIN-3-*O*-β-GLUCOSID IN *FLAVERIA* ARTEN

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Zusammenfassung—Patuletin-3-*O*-β-glucosid wurde zum dritten Mal in der Natur in zwei *Flaveria* Arten gefunden.

Abstract—The isolation of patuletin-3-*O*-β-glucoside from two *Flaveria* species is the third report of its occurrence in Nature.

Pflanzen. Flaveria linearis Lag. und *F. trinervia* (Spreng) C. Mohr. Beide gesammelt von G. Avery in den Florida Keys (1963).

Isolierung und Identifizierung der Verbindung. Die oberirdischen Teile der Pflanze wurden zuerst mit $CHCl_3$ und dann mit Methanol extrahiert. Nach Abtrennung des Chlorophylls durch Digerieren der methanolischen Extrakte mit heißem Wasser und Ausschütteln mit $CHCl_3$, Gewinnung eines Flavongemisches durch Extraktion der wäßrigen Lösung mit Äther und EtOAc. Chromatographie des aus EtOAc erhaltenen Mischkristallisates an Zellulosesäulen mit 15% iger Essigsäure. Aus den Fraktionen 9 bis 22 (30 ml) erhält man das Hauptglykosid durch Eindampfen und Umkristallisation aus MeOH, MeOH–Wasser (8:2) und MeOH–EtOAc.

Patuletin-3-glucosid. Schmp. 240–242°, Lit. Schmp.[1] 237–238°; $[\alpha]_D^{22}$ −56,2 (c = 1,236

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[1] M. B. THOMAS und T. J. MABRY, *Phytochem.* **7**, 787 (1968).