REFERENCES

1. Carpenter, I., Locksley, H. D. and Scheinmann, F. (1969) *Phytochemistry* **8**, 2013.
2. Krahn, M. M. (1968) Ph.D. Thesis, University of Washington. Univ. Microfilms (Ann Arbor, Mich.) Order No. 68-12698.
3. Yates, P. and Stout, G. H. (1958) *J. Am. Chem. Soc.* **80**, 1691.
4. Markham, K. R. (1965) *Tetrahedron* **21**, 3687; Yates, P. (1967) *Structure Determination*. Benjamin, New York.
5. Barraclough, D., Locksley, H. D., Gottlieb, O. R., Magalhaes, M. T. and Scheinmann, F. (1970) *J. Chem. Soc. B* 603.
6. No other data except part of the MS of rubraxanthone and the PMR spectrum of dimethylrubraxanthone in CCl_4 are reported in [2].

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PRELIMINARY INVESTIGATION OF *CROTON CALIFORNICUS* VAR. *TENUIS* AND *UVARIA KIRKII*: A XANTHONE AND A BENZYLDIHYDROCHALCONE

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Key Word Index—*Croton californicus* var. *tenuis*; Euphorbiaceae; *Uvaria kirkii*; Annonaceae; xanthone; 1,2,3,4,6,7-hexamethoxyxanthone; benzyldihydrochalcone; uvaretin; 1-[2,4-dihydroxy-3(2-hydroxybenzyl)-6-methoxyphenyl]-3-phenyl-1-propanone.

Whole plants of *Croton californicus* Muell.—Arg. var. *tenuis* (Wats.) Ferg. (Euphorbiaceae) were collected in California in November, 1974. *Uvaria kirkii* Hook. f. (Annonaceae) roots were collected in Tanzania in January, 1975. Identification of both plants was confirmed by Dr. Robert E. Perdue, Chief, Medicinal Plant Resources Laboratory, U.S.D.A., Beltsville, MD. Reference specimens are maintained by the U.S.D.A.

Previous work on *Croton californicus*, pharmacological activity [1]; *Uvaria kirkii*, none. *C. californicus* var. *tenius* (whole plants) was extracted exhaustively with petrol (bp 30–60°). The petrol extract was then fractionated. *U. kirkii* (defatted roots) was extracted exhaustively with EtOH. The EtOH extract was partitioned between $CHCl_3$ and H_2O, and the $CHCl_3$ phase further fractionated.

In the case of both plants the additional fractionation consisted of column chromatography (Si gel) followed by preparative-TLC (Si gel G, PF 254). This led to the isolation of 1,2,3,4,6,7-hexamethoxyxanthone [2] from both *C. californicus* var. *tenuis* and *U. kirkii*. In addition, *U. kirkii* yielded the benzyldihydrochalcone uvaretin [3] {1-[2,4-dihydroxy-3-(2-hydroxybenzyl)-6-methoxyphenyl]-3-phenyl-1-propanone}. Identification of these two compounds was accomplished by spectral (IR, PMR) analysis, mp, and comparison with authentic specimens (undepressed mmp, identical TLC R_f values and IR spectra).

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REFERENCES

1. Hardinge, M. G., Courville, D. A., Hardinge, M., Fujikawa, B. and Harvey, R. (1964) *Cancer Res.* **24**, 1.
2. Dreyer, D. L. (1969) *Tetrahedron* **25**, 4415.
3. Cole, J. R., Torrance, S. J., Wiedhopf, R. M., Arora, S. K. and Bates, R. B. (1976) *J. Org. Chem.* **41**, 1852.

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