

*4,5-Dimethoxycanthin-6-one and 2,6-Dimethoxy-  
p-benzoquinone from Picrasma ailanthoides  
Planchon*

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(Received May 23, 1961)

We report the isolation of 4,5-dimethoxycanthin-6-one, a new derivative of canthine (6H-indolo[3,2,1-de][1,5]-naphthyridine), and 2,6-dimethoxy-*p*-benzoquinone from wood of *Picrasma ailanthoides* Planchon.

Methanolic extract of the wood was diluted with water, the precipitated tarry matter filtered off, the filtrate extracted with benzene, and the benzene removed. The resulting residue, chromatographed on alumina in benzene and repeatedly crystallized from methanol, gave a

compound crystallizing in pale yellow needles (ca. 0.01% based on the dried material), m. p. 147.3~147.5°C, with a formula  $C_{14}H_6N_2O \cdot (OCH_3)_2$  (Found: C, 68.59; H, 4.41; N, 10.05;  $OCH_3$ , 22.38; Mol. wt. (Rast), 301. Calcd. for: C, 68.56; H, 4.32; N, 10.00;  $OCH_3$ , 22.14%; Mol. wt., 280). It was insoluble in aqueous sodium hydroxide and gave a bright-yellow solution with concentrated sulfuric acid. A methanolic solution showed a violet fluorescence, and, on addition of mineral acid, this turned into an intensely green one. The ultraviolet absorption spectrum in ethanol had characteristic peaks at 225 ( $\log \epsilon = 4.38$ ), 247 (4.33), 267 (4.09), 290 (4.05), 299 (4.04), 340 (3.98), 355 (4.15) and 370  $m\mu$  (4.08),  $\log \epsilon$  being given in parentheses. The infrared spectrum measured in Nujol indicated the presence of an amide group ( $1658\text{ cm}^{-1}$ ) and a 1,2-disubstituted benzene ring, but the absence of a nitrogen-hydrogen bond. Oxidation of this substance with potassium permanganate in acetone at 20°C gave a non-acidic compound, m. p. 164~165°C (Found: C, 69.13; H, 4.67; N, 12.29. Calcd. for  $C_{13}H_{10}N_2O_2$ : C, 69.01; H, 4.46; N, 12.38%) which was readily identified with methyl  $\beta$ -carboline-1-carboxylate by mixed melting point determination with an authentic specimen and comparison of the infrared spectra. These findings establish the structure of the new compound as 4,5-dimethoxycanthin-6-one.

Hot aqueous extract of the wood was treated with lead acetate followed by activated charcoal, the charcoal extracted with chloroform and the chloroform removed. The residue was dissolved in hot aqueous methanol and the solution, on cooling, deposited 2,6-dimethoxy-*p*-benzoquinone (0.005%). It seems of interest that this compound is also found in *Simaruba amara*, *Khaya senegalensis*, *Picrasma crenata*<sup>1)</sup> and *Adonis vernalis*<sup>2)</sup>.

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2) W. Karrer, *Helv. Chim. Acta*, 13, 1424 (1930).