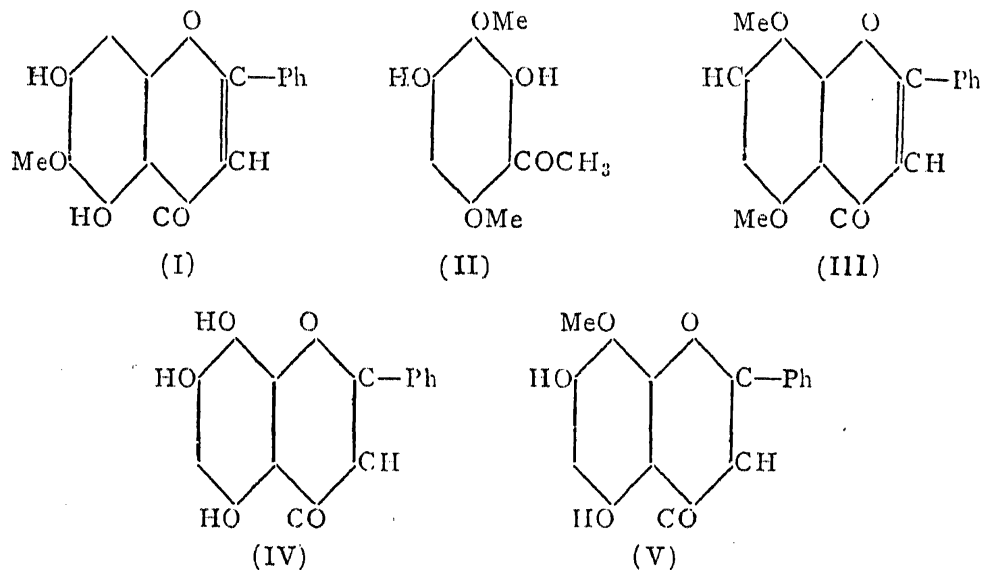


### Synthesis of Wogonin.

THE authors have previously investigated the constitution of Oroxylin-A, a yellow colouring matter isolated from the root bark of *Oroxylum indicum* Vent., and arrived at 5:7-dihydroxy-6-methoxy flavone (I) structure as the most probable formula for Oroxylin-A.<sup>1</sup>

In attempts to synthesise (I) (*cf.* Wessely and Moser),<sup>2</sup> the authors condensed 2:4-dihydroxy-3:6-dimethoxyacetophenone<sup>3</sup> (II) with sodium benzoate and benzoic anhydride, obtaining 7-hydroxy-5:8-dimethoxyflavone (III). Demethylation of (III) with hot hydriodic acid led anomalously to 5:6:7-trihydroxyflavone (baicalein). Demethylation with anhydrous aluminium chloride (1.5 mols) afforded a trihydroxyflavone, m.p. 251–52°, which must be a dimorphic form of the known 5:7:8-trihydroxyflavone<sup>4</sup> (IV) for which the melting point recorded in literature is 227–28°.



Partial demethylation was achieved by the action of anhydrous aluminium chloride (0.75 mol) under milder conditions (*cf.* Gulati and Venkatraman),<sup>5</sup> and gave a dihydroxymethoxyflavone with melting point 200–201°, which is concluded to be Wogonin (5:7-dihydroxy-8-methoxyflavone) (V).

Wogonin which has not been previously synthesised, was first isolated by Takahashi<sup>6</sup> from the root of *Scutellaria baicalensis* Georgi. Its constitution was investigated by Shibata, Iwata and Nakamura,<sup>7</sup> and subsequently more completely by S. Hattori,<sup>4</sup> who assigned to it the formula of 5:7-dihydroxy-8-methoxyflavone. The melting point and properties including colour reactions, solubility, etc., of our synthetic product agree in

all respects with those recorded for Wogonin in literature.

The experimental work described in this note was carried out in the Pharmacological Laboratories of the Seth G. S. Medical College, Parel, Bombay.

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- <sup>1</sup> *J.C.S.*, 1936, 591.
- <sup>2</sup> *Monatsch.*, 1930, 56, 97.
- <sup>3</sup> Baker, Nodzu and Robinson, *J.C.S.*, 1929, 74.
- <sup>4</sup> Hattori, *Acta Phytochim.*, 1930, 5, 99.
- <sup>5</sup> *J.C.S.*, 1936, 267.
- <sup>6</sup> *Chem. Zentr.*, 1889, 2, 100.
- <sup>7</sup> *Acta Phytochim.*, 1923, 1, 105.

### Synthesis of $\beta\beta'$ -dicarboxy Suberic Acid.

IN a previous communication by one of us<sup>1</sup> it was shown that bicyclo-(2:2:2)-octanedione dicarboxylic ester (I) gave on treatment with 10 per cent. alcoholic potash a compound which appeared from combustion analysis and equivalent determination to be  $\beta\beta'$ -dicarboxy suberic acid. As this acid is not known in literature, it was considered desirable to synthesise a compound of this structure and then prove its identity with the acid obtained from (I) by alkali treatment.

Ethyl  $\beta\beta\beta'\beta'$ -tetracarboxy suberate (II) has been obtained (i) by the action of ethylene bromide upon carbethoxy succinate