

**CROSSOSTYLIS IN THE SOLOMON ISLANDS
AND THE NEW HEBRIDES (RHIZOPHORACEAE)**

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Through the efforts of Dr T. C. Whitmore and Mr G. F. C. Dennis large collections of trees from the Solomons have been accumulated in the past six years. Among them are some interesting collections of the genus *Crossostylis*, a truly oceanic-Pacific genus, ranging from the Tuamotos westwards as far as and including the Solomon Is. and New Caledonia. A map of its distribution has been given in 'Pacific Plant Areas' vol. 1, map 23. Whitmore in his 'Guide to the Forests of the British Solomon Islands' 1966, p. 174, listed only *C. cominsii* Hemsl. from the Santa Cruz group.

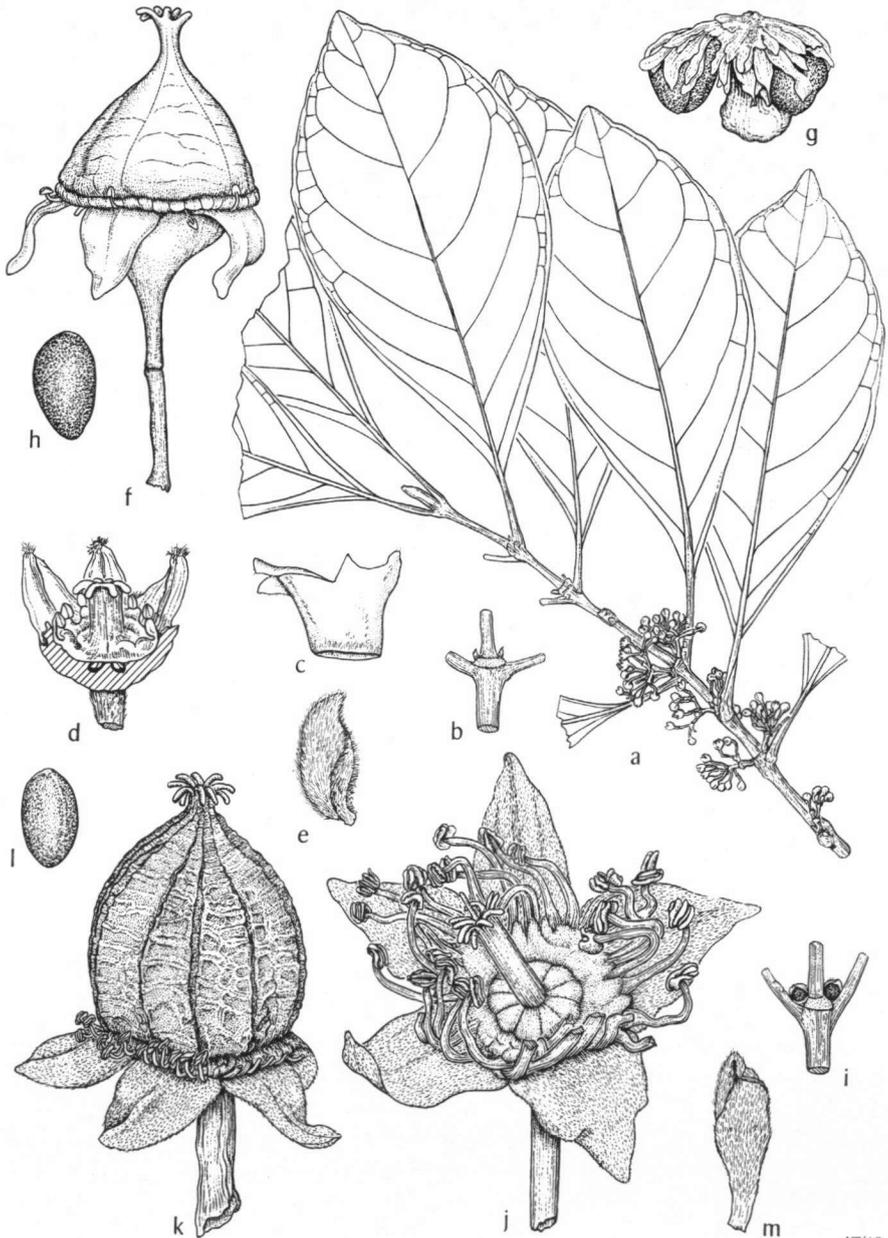
There appears, however, to be a second, undescribed species from the Solomons proper.

Sincere thanks are due to the Curator of the Arnold Arboretum, Cambridge, Mass., U.S.A. for the loan of the type of *A. banksiana* Guillaumin and a sheet of *C. cominsii* Hemsl.

I. *Crossostylis dimera* Ding Hou, *sp. nov.* — Fig. 1 a—h.

Arbor 15—25 m alta. Stipulae lanceolatae, $\frac{2}{3}$ —1 $\frac{1}{4}$ cm longae. Folia chartacea, obovata vel anguste obovata, raro elliptica, 8—13 cm longa, 4—7 cm lata, leviter crenulata, basi cuneata, apice acuta, nervis 6- vel 7-paribus, petiolo 1 $\frac{1}{2}$ —2 cm longo. Inflorescentiae cymosae, 1 $\frac{1}{2}$ —2 cm longae, pedunculis 0—6 mm longis, pedicellis c. 1 $\frac{1}{2}$ mm longis, bracteolis collum aemulantibus caducis. Calycis lobi (5—)6, triangulares, c. 2 mm longi. Petala (5—)6, elliptica, c. 2 $\frac{1}{2}$ mm longa, 1 $\frac{1}{4}$ mm lata, carinata, utrinque puberula. Discus cupuliformis. Stamina (10—)12, $\frac{2}{3}$ —1 $\frac{1}{4}$ mm longa. Ovarium 6-loculare, stylo c. 2 mm longo, stigmatibus 6. Capsula conoidea, 5—5 $\frac{3}{4}$ mm longa, 4—5 mm lata. Semina ellipsoidea, c. 2 mm longa.

Tree, 15—25 m. Young branchlets slightly flat. Stipules lanceolate, $\frac{2}{3}$ —1 $\frac{1}{4}$ cm long. Buds 1 or 2 in a leaf-axil, small, gradually narrowed towards the apex, hairy outside or sometimes only hairy at the apex. *Leaves* chartaceous, obovate to narrow-obovate, rarely elliptic, 8—13 by 4—7 cm, slightly crenulate; base cuneate; apex acute; nerves 6 or 7 pairs; petiole 1 $\frac{1}{2}$ —2 cm. *Inflorescences* cymose, 1 $\frac{1}{2}$ —2 cm long; peduncles 0—6 mm, sparsely hairy; bracts triangular, 1—2 $\frac{1}{2}$ mm long, sparsely hairy outside; pedicels c. 1 $\frac{1}{2}$ mm, articulated, sparsely hairy; bracteoles caducous, sometimes remaining on the pedicel and collar-like. *Flowers* yellowish green. *Calyx lobes* (5—)6, triangular, c. 2 mm long, sparsely puberulous outside, with a fascicle of hairs at the apical end. *Petals* (5—)6, elliptic, c. 2 $\frac{1}{2}$ by 1 $\frac{1}{4}$ mm, keeled, densely puberulous on both surfaces, narrowed towards both ends. *Disk* cupular. *Stamens* (10—)12, twice the number of petals, $\frac{2}{3}$ —1 $\frac{1}{4}$ mm long, attached to the outer margin of the disk, (5—)6 of them opposite the petals and each almost touching the tip of the reflexed stigma, the other (5—)6 opposite the calyx lobes, usually inflexed in the bud. *Ovary* 6-celled; style cylindric, c. 2 mm; stigmas 6, slender, reflexed. *Capsules* conical, 6-gonous, truncate at the base, gradually narrowed to the apex, 5—5 $\frac{3}{4}$ by 4—5 mm, with distinct, transversal, lenticel-like clefts. *Seeds* dark brown, ellipsoid, c. 2 mm long, fine areolate.



J.T.68.

Fig. 1. *Crossostylis dimera* Ding Hou—*a.* Habit, $\times \frac{1}{2}$; *b.* part of a branchlet showing pointed buds, $\times 1$; *c.* bracteole(s), $\times 10$; *d.* flower, longitudinal section, with petals removed, $\times 5$; *e.* petal, $\times 10$; *f.* fruit, $\times 5$; *g.* fruit with pericarp removed showing columella, seeds, and dried pulp, $\times 5$; *h.* seed, $\times 5$. — *C. cominsii* Hemsl. — *i.* Part of a branchlet showing globose buds, $\times 1$; *j.* flower, $\times 5$; *k.* fruit, $\times 5$; *l.* seed, $\times 5$; *m.* petal, $\times 5$ (*a—e.* Whitmore BSIP 2370, *f—h.* Kajewski 2631; *i—j* & *m.* Whitmore BSIP 1793; *k* & *l.* Piatto BSIP 7040).

SOLOMON ISLANDS. Bougainville Island: Kupei Gold Field, rain forest, alt. 1000 m, 18 April 1930, S. F. Kajewski 1741 (L). — Santa Ysabel Island: between Tiratona & Nusa Villages, primary forest, alt. c. 500 m, on limestone, 24 October 1963, T. C. Whitmore BSIP 2370 (typus, L). — Guadalcanal Island: S. F. Kajewski 2631 (L).

The specimen *Kajewski 1741* was distributed with a MS name of C.T. White indicating it as a new species. This appears not to have been published. I have not adopted this as the type as the duplicate specimen is inadequate, consisting of a sterile branchlet with a few detached young flower buds only. The accepted type is composed of very complete material with flowers and fruits.

I have not taken up White's MS name, but preferred to choose *dimera* as its epithet, alluding to the characteristic stamens which are twice as many as the calyx lobes or petals.

It is furthermore characterized by the six-merous flowerd (except the number of stamens), the elliptic petals densely puberulous on both surfaces, and small, axillary buds gradually narrowed towards the apex.

In the number of stamens, *C. dimera* is closely allied to *C. parksii* (Gillespie) A. C. Smith (Bull. Bish. Mus. 141, 1936, p. 105) from Fiji. However, the stamens are twice the number of calyx-lobes or petals in the former while they are three times as many as the calyx-lobes or petals in the latter. Furthermore, *C. parksii* can be distinguished from the present species by the fulvous-pubescent leaves, 4-merous flowers (except the number of stamens), and sparsely tawny-hirsute, smooth fruits (cf. Gillespie in Bull. Bish. Mus. 91, 1932, p. 21, fig. 24, as *Haplopetalon parksii*).

In the present species, the caducous bracteoles sometimes remain on the pedicels like a collar. In *C. parksii*, on one specimen, A. C. Smith 4882 (L), I observed two young flowering buds each with a remaining bracteole just like a calyptra. Whenever possible, one should check this character.

2. *Crossostylis cominsii* Hemsl. J. Linn. Soc. Bot. 30 (1894) 212, t. 10. — Fig. 1 i—m.

SANTA CRUZ GROUP. Vanikoro Island: a medium sized tree, up to 20 m high, common, alt. 50 m, fruits dirty yellow cream, full of milky sap, 24 October 1928, S. F. Kajewski 524 (A); secondary forest, alt. c. 15 m, slender tree, 6 m tall, flowers yellow-green, in bud, 17 April 1963, T. C. Whitmore BSIP 1745 (L); by side of Ambi River, inland from mangrove, treelet, 3 m tall, 26 April 1963, T. C. Whitmore BSIP 1793 (L); March 1965, W. Piai to BSIP 7040 (L).

I have not examined the type specimen of *C. cominsii*, R. B. Comins 279, from the Santa Cruz Group. However, by the very well prepared plate one can recognize it representing a distinct species. It is characterized by the more or less globose axillary buds, inflorescences umbelliform, calyx-lobes and petals being 5 respectively, stamens c. 30, ovary 9- or 10-celled, and fruits with transversal, lenticel-like clefts.

In *C. cominsii*, the shape and the transversal, lenticel-like clefts of the fruits are similar to those of *C. dimera*. However, the former has (24—)30(—31) (not 10—12) stamens, and the fruit is (9—)10 (not 6)-celled.

Sterile specimens of the present species are difficult to distinguish from those of *C. dimera*. However, from the several collections available, one may notice that in *C. cominsii* the stipules are $2\frac{1}{4}$ —3 cm long and the axillary buds more or less globose, while in *C. dimera* the stipules are $\frac{2}{3}$ — $1\frac{1}{4}$ cm long and the axillary buds are lanceolate and pointed.

3. **Crossostylis banksiana** Guillaumin, J. Arn. Arb. 12 (1931) 252; Ann. Mus. Col. Marseille 55/56 (1948) 38.

BANKS GROUP. Vanua Lava: rain forest, common, 700 m alt., tree up to 15 m, petals white, 10 July 1928. S. F. Kajewski 459 (type, A).

According to Guillaumin, this closely allied species differs from *C. cominsii* by having puberulous (not glabrous) petals, 20 (not 30) stamens, and 8 (not 10)-celled ovary. The three flowering buds of the type specimen examined have each 20 stamens, but the number of cells of the ovary varies from 7 to 9. Unfortunately, the fruit is not known. Further fertile collections are needed in order to ascertain its status.