

1. **CELTIS**, Linn.

(*Solenostigma*, Endl.)

ULMACEAE

Flowers polygamous, in axillary or lateral cymes. Perianth in both sexes of 4 or 5 segments imbricate in the bud. Stamens in the male and hermaphrodite flowers as many as perianth-segments, not exceeding the perianth, but slightly incurved in the bud. Disk hairy, with a rudimentary pistil in the males. Ovary in the female and hermaphrodite flowers inserted on a hairy disk. Style-branches (or distinct styles) 2, equal, linear oblong or dilated, recurved and papillose on the upper or inner surface, truncate or 2-lobed in the Australian species. Ovule pendulous or laterally attached near the top. Drupe ovoid or globose. Embryo curved, the cotyledons broad, conduplicate or rarely flat, incumbent on or embracing the ascending radicle.—Trees or shrubs. Leaves alternate, more or less 3-nerved, entire in the Australian species, dentate in some others. Stipules small and deciduous.

The genus is dispersed over the temperate and subtropical regions of both the New and the Old World, with a few tropical species, chiefly in mountainous districts. Both the Australian species extend to the Indian Archipelago.

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| Leaves broad, strongly 3-nerved, scarcely acuminate. Cotyledons flat or nearly so | 1. <i>C. philippinensis</i> . |
| Leaves ovate-lanceolate, the lateral nerves scarcely prominent. Cotyledons conduplicate | 2. <i>C. paniculata</i> . |

1. **C. philippinensis**, Blanco, *Fl. Filip.* 197. A tall shrub or stunted tree, or according to some collectors a fine tree, quite glabrous or with a minute pubescence on the young shoots. Leaves on petioles of 1 to 4 lines, ovate or broadly elliptical, shortly acuminate, entire, rounded and sometimes rather oblique at the base, varying from $1\frac{1}{2}$ to 3 in. in the more rigid broader leaved specimens, to 3 to 5 in. in luxuriant ones, coriaceous, green on both sides, very prominently and strongly 3-nerved, with very fine reticulations. Cymes loose, $\frac{1}{2}$ to $\frac{3}{4}$ in. diameter, those with all male flowers more crowded than the polygamous ones. Perianths pedicellate, the segments broad, $\frac{3}{4}$ to nearly 1 line long. Stigmatic branches of the style (or styles) broadly cuneate truncate or 2-lobed, sometimes broader than long, sometimes much longer than broad and often the two of the same flower dissimilar. Drupe ovoid, 3 or 4 lines long, the endocarp bony. Embryo curved lengthwise but the cotyledons transversely flat in the seeds examined, not conduplicate as in *C. paniculata*.—Planch. in *Ann. Sc. Nat. ser. 3*, x. 306; *C. strychnoides*, Planch. l.c.

N. Australia. Clermont, Vansittart, and Careening bays, N.W. Coast, *A. Cunningham*; Victoria river, *F. Mueller*; King's Sound, *Hughan*; islands of the Gulf of Carpentaria and opposite mainland, *R. Brown*, and others; Port Essington, *A. Cunningham*.

Queensland. Sunday island, *A. Cunningham*; Port Denison, *Fitzalan*, *Dallachy*.

The species extends over the Archipelago to South China. The smaller more rigid-leaved specimens upon which the *C. strychnoides* was founded appear to have grown in open dry situations. Cunningham's larger-leaved specimens are stated by him to have been from moist shady situations. Cuming's Philippine island specimens have still larger, less coriaceous leaves. The Hongkong plant I have referred to the same species appears to have smaller fruits, but perhaps not yet full grown.

2. TREMA, Lour.

(Sponia, Commers.)

WUMACAR

Flowers polygamous, in small axillary cymes. Male perianth of 5, rarely 4 segments, induplicate-valvate in the bud. Stamens as many as perianth-segments, erect in the bud; filaments very short. Ovary rudimentary or more or less developed. Female perianth-segments nearly flat and slightly imbricate when entirely without stamens, more or less concave and induplicate in the hermaphrodite flowers. Style deeply divided to the base into 2 linear rather thick branches (or styles), hirsute along the inner stigmatic surface, and not exceeding the length of the ovary. Ovule pendulous, laterally attached near the top. Fruit a very small drupe, usually crowned by the persistent involute styles, with a slightly succulent exocarp, and a bony endocarp often pitted outside. Seed pendulous, with a thin testa and fleshy albumen. Embryo linear, curved, with a superior radicle.—Trees or tall shrubs. Leaves alternate, more or less distichous and often oblique, denticulate, 3-nerved and penniveined, the principal primary veins starting usually from both sides of the midrib and from the outer side only of the lateral veins. Flowers and fruits small, the cymes or even the whole specimens often unisexual.

The genus is widely spread over the tropical and subtropical regions of the New and the Old World. Numerous species have been published, but the greater number of them differ only in the indumentum which is often very variable in the same species, and their number will have to be very much reduced. F. Mueller regards the three following, which I have admitted amongst the Australian forms, as varieties of one species. If that be the case, the whole would have to be reduced to the *T. orientalis*. One of the three appears to me to agree so nearly with some Asiatic varieties of that species as to be inseparable except as a variety. Another also cannot be distinguished from a common Asiatic form; the third is generally admitted to be endemic in Australia, but it is very difficult to point out any definite character by which it differs from two or three Archipelago and Indian species. In the delineation of these presumed species I regret much not having been able to wait for the publication of the 17th vol. of the Prodrum containing Planchon's revision of the genus (under Commerson's name of *Sponia*). Dr. Planchon has, however, kindly transmitted to me copies of those articles which relate to the species I have here admitted. It appears that the materials he had at his disposal were very scanty as to Australian stations, and although he has much reduced the species he had originally proposed, he has still felt himself obliged to admit many upon very slight and vague distinctions. The genus appears indeed to be almost as susceptible of extension or reduction as the European *Rubi*.

It is with much regret also that I have found myself obliged to depart from the Prodrum in the nomenclature of the genus, but I cannot but agree with Blume that Loureiro's character is quite as definite as the original one given to Commerson's

Sponia at a later date. There is indeed as much reason for adopting Loureiro's name in this case as in those of *Mallotus*, *Dichroa*, *Centipeda*, &c., now so generally admitted.

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| Leaves green and scabrous on both sides, sprinkled with scattered hairs or nearly glabrous | 1. <i>T. aspera</i> . |
| Leaves green and glabrous above, and smooth or scabrous, white or hoary tomentose underneath | 2. <i>T. orientalis</i> . |
| Leaves softly pubescent above, densely velvety-pubescent or hirsute underneath | 3. <i>T. amboinensis</i> . |

3. **T. amboinensis**, *Blume Mus. Bot.* ii. 61. A fine tree of 40 ft., the branches densely pubescent or villous. Leaves shortly petiolate, ovate or ovate-lanceolate, acuminate with long points, more equally rounded or cordate at the base than in *T. aspera*, 2 to 4 in. long, rather thick, softly pubescent above, densely velvety-pubescent or villous underneath. Cymes compact, the bracts usually more acuminate than in *T. aspera*.—*Sponia amboinensis*, Planch. in DC. Prod. xvii. ined.; *S. velutina*, Planch. in Ann. Sc. Nat. ser. 3, x. 327; *Trema velutina*, Blume Mus. Bot. ii. 62.

N. Australia. North coast, *A. Brown*.
Queensland. Rockingham bay, *Dallachy*.

The species is widely spread over East India and the Archipelago, extending northward to South China. It is on the authority of Planchon that I refer this very common Archipelago species to the original *Celtis amboinensis*, Willd. He believes also that this may be the typical *Trema cannabina*, Lour.

1. **T. aspera**, Blume, *Mus. Bot.* ii. 58. A slender tree of 15 to 25 ft. or a shrub of 8 to 10 ft., the branches more or less pubescent with short rigid appressed or scarcely spreading hairs. Leaves shortly petiolate, obliquely ovate ovate-oblong or ovate-lanceolate, acuminate, regularly serrate-crenate, rounded or slightly cordate at the base, 3-nerved and obliquely penniveined, membranous, sometimes rather rigid, green on both sides or pale underneath, scabrous, usually more or less hirsute on the principal veins underneath and often sprinkled on both sides with short scattered hairs. Flowers small, in short cymes sessile or shortly pedunculate in the axils, sometimes all males but more frequently a few or several female or hermaphrodite ones in the same cymes. Male perianth scarcely 1 line diameter when open and the female smaller. Styles varying from half the length to the length of the ovary. Drupes ovoid, scarcely compressed, obtuse or rather acute, varying from under $1\frac{1}{2}$ lines to nearly 2 lines in length.—*Celtis aspera*, Brongn. in Duperr. Voy. Coq. 213, t. 48; *Sponia aspera*, Planch. in Ann Sc. Nat. ser. 3, x. 318.

N. Australia. Victoria river, *F. Mueller*, with small very strongly veined leaves and compact cymes.

Queensland. Brisbane river, Moreton Bay, *W. Hill*, *F. Mueller*, and others, and thence to Rockhampton, Rockingham and Wide bays, and Burdekin river, *F. Mueller*, *Bidwill*, *Thozet*, and others; Northumberland islands, *R. Brown*; sent by *Maidland* as a poison plant from Rockhampton.

N. S. Wales. Port Jackson to the Blue Mountains, *R. Brown*, *Woolfs*, and others; northward to Hastings and Macleay rivers, *Beckler*; New England, *C. Stuart*; southward to Illawarra, *A. Cunningham*, *Harvey*, and others, and Twofold Bay, *F. Mueller*; Sydney Woods, London Exhibition 1862, *M'Arthur*, n. 75.—Some of the Macleay river specimens have the small compact cymes and small leaves of those from Victoria river.

Var. viridis. Leaves larger and less hairy, but no other difference. *Sponia viridis*, Planch. in Ann. Sc. Nat. ser. 3, x. 319; *Trema viridis*, Blume *Mus. Bot.* ii. 58.—Port Essington, *Armstrong*; Port Darwin, *Schultz*, n. 1, 8, 183, 788; Rockingham Bay, *Dallachy*. This variety is referred by Planchon (*DC. Prod.* xvii. ined.) to the widely-spread *T. virgata*, Blume (*Celtis virgata*, Roxb., *Sponia virgata*, Planch.), from which it is certainly not easily distinguished. Brongniart's name has, however, the right of priority. The *S. timorensis*, Dcne. from Timor, belongs to the same group as a variety or closely allied species.