

**A NEW FAMILY OF DICOTYLEDONS:  
DAVIDSONIACEAE**

by

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In January 1949 Professor H. J. Lam, director of the Rijksherbarium, Leyden, on his way to the 7th Pacific Science Congress in New Zealand, spending some time in Fiji, was shown by Mr B. E. V. Parham, Department of Agriculture, Suva, Viti Levu, Fiji Islands, a slender tree, cultivated in the Agricultural Experimental Garden Naduruloulou. The tree was unidentified and of unknown origin. Some flowering material was collected and at our request Mr Parham was good enough to send some ripe fruits in liquid for an investigation I was entrusted with.

Additional material was studied from the herbaria at Brisbane, Kew, Leiden, Melbourne and Paris. It is my pleasant duty to tender my best thanks to the directors of these institutes for the loan of this valuable material, among which the type.

It appeared that the plant collected by Lam represents *Davidsonia pruriens* F. v. Muell., known from N.E. Australia only. On checking the literature it was found that the genus in question has some time been inserted in the *Saxifragaceae* and in the *Cunoniaceae*. Engler (in Engler-Prantl, Nat. Pfl. fam., 2nd ed., no 18a, 1930, 261—262) adds it to the latter family under the heading "Auszuschliessende Gattung".

The reasons for this were that *Davidsonia* should differ from all *Cunoniaceae* by the not-opposite or not-whorled leaves, the exalbuminous seeds and some minor characters such as the non-exsert stamens and the stiff hairs.

Our material enabled us to reveal an additional differential character thusfar unknown, viz. the epitropous ovules. As far as we could check the ovules are always apotropous in *Cunoniaceae*.

On the other hand it differs from the *Saxifragaceae* likewise by the exalbuminous seeds as well as by the larger stipules, the few ovules and few (2) large seeds and minor characters such as the not-swollen placentae and the drupaceous fruits.

This is why it was thought that enough evidence is available to definitely take *Davidsonia* both from the *Cunoniaceae* and from the *Saxifragaceae* and raise it to the rank of a (monotypic) family.

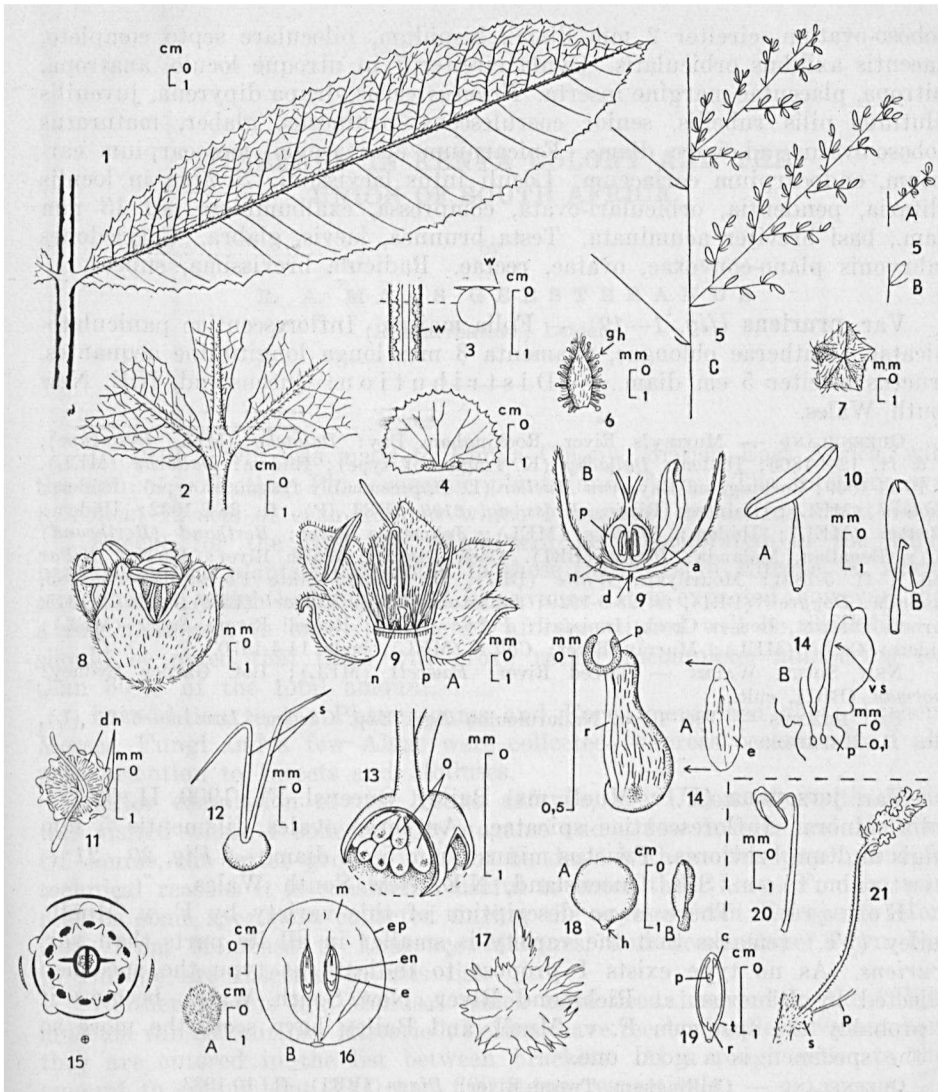
**Davidsoniaceae**, nov. fam. — A Cunoniaceis foliis alternis, seminibus exalbuminosis, ovulis epitropis, staminibus haud exsertis, pilis rigidis, a Saxifragaceis seminibus exalbuminosis, ovulis et seminibus paucis (seminibus 2), fructibus drupaceis, stipulis magnis, placentis haud inflatis differt. — A single genus, *Davidsonia* F. v. Muell., thusfar with one species with two varieties in N.E. Australia.

*Davidsonia* F. v. Muell., Fragm. Phytogr. Austr. VI, 1867, 4, pl. 46 — Diagnosis like that of the single species.

*Davidsonia pruriens* F. v. Muell., l. c. — Baillon, Hist. d. Pl., 1872, III, 380 and 453 — Bailey, The Queensland Flora, 1900, II, 537—538 — Bailey, Compreh. Catal. Queensl. Pl., 1909, 169 — Engler-Prantl, Nat. Pfl. fam., 2nd ed., no 18a, 1930, 261—262. — Descriptio emendata et aucta.

*Arbor* gracilis, ad 10 m altus, cortice cinereo, ligno badio, capite satis laxo, pilos urenti-irritantes ferens. *Folia* alterna, impari-pinnata, stipulata, ad 1 m longa. Stipulae sessiles, subreniformes, palminerves, irregulariter acute dentato-serratae, ad 2 cm latae. Petiolus ad 6 dm longus, teres, alatus, alis acute dentato-serratis, partibus interjugalibus ad 1 dm longis. Foliola plerumque 13, sessilia sive brevissime petiolulata, praeter impar basi valde decurrens basi obtusa sive paululum decurrentia, inferiora magnitudine decrescentia, ovato-oblonga, superiora ad 4 dm longa, ovato-lanceolata, ad 1 dm lata, omnia coriacea, acuminata, irregulariter acute dentato-serrata, penninervia, reticulari-venosa, supra et subtus praecipue in nervis urenti-hirsuta simul cum petiolo, stipulis ramulisque. Costa media foliorum subtus valde, supra vix prominens, nervi secundarii subtus prominentes, utrinque ad 20 angulo  $\pm 60^\circ$  de costa adscendentes, paulo curvati vel subrecti, margines versus haud distincte arcuatim conjuncti, nervi tertiarii subtus conspicui, inter secundarios plerumque transversii. *Inflorescentiae* aut paniculatae, panícula magna laxa, longe pedunculata, simul glomerato-spicatae spicis paucifloris, aut spicatae, spica densa medioeriter pedunculata, axibus foliorum superiorum, interdum paulo supra axillas insertae, dense urenti-hirsutae. Bractae amplexicaules, bracteolae sessiles, utraeque ad 5 mm longae, ovatae, acuminatae, margine pilos capitatos ferentes. *Flos* incompletus, hermaphroditus, actinomorpha, hypogynus, aestivatione valvata. *Perigonium* crassum, gamophyllum, paululum ultra medium fissum, circiter 5 mm longum, rubellum, extus hirsutum, intus villosum, laciniis 5 deltoideis. *Discus* perangustus, ciliatus, subquingularis, 10 squamis nectariferis praeditus. *Stamina* 10, in disco inter squamas nectariferas inserta. Filamenta libera, glabra, 3 sive 5 mm longa, superne adunca, basi plus minusve tumida. Antherae oblongae sive ovales, thecis biloculatis, versatiles, longitudinaliter introrsum dehiscentes, filamenta longitudine aequantes sive multum breviores. *Granula pollinica*<sup>1)</sup> 3-colporidata colpibus tenuimarginatis, suboblata, circiter  $9.7 \times 12 \mu$ . Extinus perspicue reticulatus, satis tenuis. Sexinum crassitudine nexinum aequare vel superare verisimile. *Pistillum* syncarpum, e duabus carpellis compositum. Styli 2, liberi, inferne hirsuti, superne glabri, curvati, circiter 5 mm longi. Ovarium

<sup>1)</sup> I am indebted to Dr G. Erdtman, Bromma, Sweden, for providing these data.



*Davidsonia pruriens* F. v. Muell. — var. *pruriens* — 1. leaflet — 2. base of the three apical leaflets (lower side) — 3. petiole (w. wing) — 4. stipule — 5. diagram of inflorescence, A. spikelet, B. spikelet of A simplified (as in C) — 6. bract (gh. glandular hair) — 7. flowerbud — 8. flower — 9. flower, A. opened, B. longitudinal section (a. anther, p. pistil, n. nectary, d. disc) — 10. stamen, A. lateral view, B. dorsal view — 11. pistil from above (d. disc, n. nectaries) — 12. pistil stripped of hairs (s. styles) — 13. pistil opened (o. ovules) — 14A. and B. ovule (vs. vascular strand, p. placenta, r. raphe, e. young embryo from ovule) — 15. floral diagram — 16. fruit, A. young, B. mature in longitudinal section (m. mesocarp, ep. epicarp, en. endocarp, e. embryo) — 17. pyrene (endocarp) — 18. seed, A. frontal, B. lateral view (h. hilum) — 19. seed, longitudinal section (r. radicle, t. testa, p. plumule, c. cotyledons) — Figs 1—19 after *H. J. Lam no. 6921*. — var. *jerseyana* (F. v. Muell.) Bailey — 20. stamen — 21. inflorescence (p. petiole, s. stipule) — Figs. 20—21 after the specimen collected by *Büerlen* in Oct. 1892.

globoso-ovatum, circiter 2 mm diam., hispidum, biloculare septo completo, placentis axilibus orbiculatis. Ovula circiter 7 in utroque loculo, anatropa, epitropa, placentae margine inserta. *Fructus* verus, drupa dipyrena, juvenilis velutinus pilis rubellis, senior coerulescens, pruinosis, glaber, maturatus globoso-ovatus, ad 5 cm diam.. Epicarpium chartaceum, mesocarpium carnosum, endocarpium coriaceum. Loculi intus laevissimi. *Semina* in loculis solitaria, pendentia, orbiculari-ovata, compressa, exalbuminosa, ad 13 mm diam., basi breviter acuminata. Testa brunnea, laevis, glabra. Cotyledones embryonis plano-convexae, ovatae, rectae. Radicula brevissima, supera.

Var. *pruriens* (fig. 1—19) — Folia maiora. Inflorescentiae paniculato-spicatae. Antherae oblongae, filamenta 3 mm longa longitudine aequantes. Fructus circiter 5 cm diam.. — Distribution: Queensland, N.E. New South Wales.

QUEENSLAND — Murray's River, Rockingham Bay: *Dallachy* (MEL, lecto-type), fl. & fr. 12-8-1866; Ibidem: *Dallachy* (K, fragm. of type); Ibidem: *Dallachy* (MEL), fl. 10-11-1869; Rockingham Bay: *von Mueller* (L, P, presumably fragm. of type); Ibidem: *Lennard* (MEL); Daintree River: *Brass* no. 2190 (BRI, P), fl. 28-2-1932; Ibidem: *Fitzalan* (MEL); Ibidem: *Pentzke* (MEL); Johnstone River: *Berthand* (*Bertheand*) (K); Glenallan, Malanda: *Hayes* (BRI). Cook District, Walsh River: *Barolay Millar* (BRI), fl. 5-1891; Mourilyan: *White* (BRI), fl. 2-1923; State Forest Reserve 185, Danbulla: *Doggrell* (BRI), fr. 28-9-1929; Johnstone River: *Michael* (BRI), buds 10-1915. Burnett District, Berner Creek, Innisfail: *Petrie* (BRI); Russell River: *Sayer* (MEL); Ibidem: *Coll.?* (MEL); Murray River: *Coll.?* (MEL), buds 14-4-1870.

NEW SOUTH WALES — Tweed River: *Fawcett* (MEL); Bot. Garden Sydney: *Boorman* (BRI), cult..

FIJI ISLANDS — Viti Levu, Naduruloulou Agr. Exp. Garden: *Lam* no. 6921 (L), cult., fl. 25-1-1949.

Var. *jerseyana* (F. v. Muell. ms) Bailey, Queensl. Fl., 1900, II, 538 — Folia minora. Inflorescentiae spicatae. Antherae ovals, filamentis 5 mm longis multum breviores. Fructus minus quam 5 cm diam.. — Fig. 20—21 — Distribution: S.E. Queensland, N.E. New South Wales.

Remarks: There is no description of this variety by F. v. Muell. Bailey (l. c.) remarks that the variety is smaller in all its parts than var. *pruriens*. As no type exists I propose to indicate as type the specimen collected by Bäuerlen at Richmond River, New South Wales, because it is probably the specimen F. v. Muell. and Bailey have seen, the more so as the specimen is a good one.

QUEENSLAND — Chillingham, Tweed River: *Dixon* (BRI), fl. 10-1933.

NEW SOUTH WALES — Brunswick River: *White* (MEL), fl. & fr. 11-1885; Richmond River: *Bäuerlen* (BRI), fl. 10-1892 (*lectotype* of var.).

#### Variety dubious:

QUEENSLAND — Endeavour River: *Persieh* (MEL); Johnstone River: *Berthand* (*Bertheand*) (MEL), 2 specimens; Ibidem: *Bancroft* no. 154 (BRI).

NEW SOUTH WALES — Nimbin: *King* (BRI), fr. 2-3-1936; State †, Gribble: *Bellurdia* (†) (MEL).