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## A NEW SPECIES OF *GYMNANTHERA* (PERIPLOCACEAE) IN AUSTRALIA

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### Abstract

A new species of the genus *Gymnanthera* (Periplocaceae) is described from Central Australia.

*Gymnanthera* R. Br. is a small genus in the Periplocaceae, with about five species in the Australian – South-East Asian region. It is characterised by the following combination of features: usually twining or climbing shrubs (*G. pedunculata* is described as being twining or suberect), with rather glossy leaves; corolla salverform, with a long tube, aestivation contorted; corona with five ovate lobes, usually with a minutely bifid apex; no teeth alternating with stamen filaments. The species are generally described as glabrous, but minute hairs can be found on leaf petioles and on young inflorescences in *G. nitida* at least.

*Gymnanthera* was described by Robert Brown in his Prodrum (1810a). He simultaneously published a description of the genus, but without reference to any included species, in his paper on Asclepiadeae (1810b). *G. nitida* R. Br. is the type species and until now the only known species from Australia (it also occurs in Malesia and South-East Asia). It is also the only described species of Periplocaceae (or Asclepiadaceae subfamily Periplocoideae if the separate family is not recognised) native to Australia. Four other species have been described from the Malesian region: *G. insularum* King & Gamble, *G. hypoleuca* (Miq.) Boerl., *G. paludosa* (Bl.) K. Schum. and *G. pedunculata* (Miq.) Villar. The last three species were originally described in the genus *Dicerolepis*, established by Blume (1850) with just *D. paludosa* Bl. Bentham (Bentham & Hooker, 1876) synonymised *Dicerolepis* with *Gymnanthera*. Costantin (1912) described *G. nitida* var. *cochinchinensis* Pierre ex Costantin. The status of the Malesian species is uncertain and requires further study. They are not dealt with in this paper.

The only species previously known from Australia, *G. nitida*, is a slender liane, found near water courses from the Kimberley region of Western Australia to the tropical east coast of Queensland and associated islands. Recently, collections of a new shrubby species of the family Periplocaceae have been made from the northern part of Central Australia. The species generally has the characters of *Gymnanthera* (the notable exception being habit), and is here described to enable its inclusion in the second edition of the 'Flora of Central Australia'.

### *Gymnanthera fruticosa* K.L. Wilson, sp. nov.

Ex affinitate *G. nitidae* sed habitu erecto-fruticosi, foliis gracilioribus, corollae lobis tubum subaequantibus, differt.

*Type*: NORTHERN TERRITORY: Blackwater area, 15 km SSW. Papunya, 23° 20'S, 131° 48'E, P.K. Latz 7623, 3.iv.1978. *Holotype*: NSW. *Isotypes*: NT (also AD, BRI, CANB, CBG, MEL, PERTH, not seen).

Erect, multistemmed, glabrous shrub, 1-2 m high; stems slender, woody and rigid, softer at apices. *Leaves* opposite, simple; petiole 5-8 mm long, canaliculate near apex to nearly terete near base; lamina narrow-elliptic, entire, 5-7 cm long, 12-19 mm wide, chartaceous (only dried

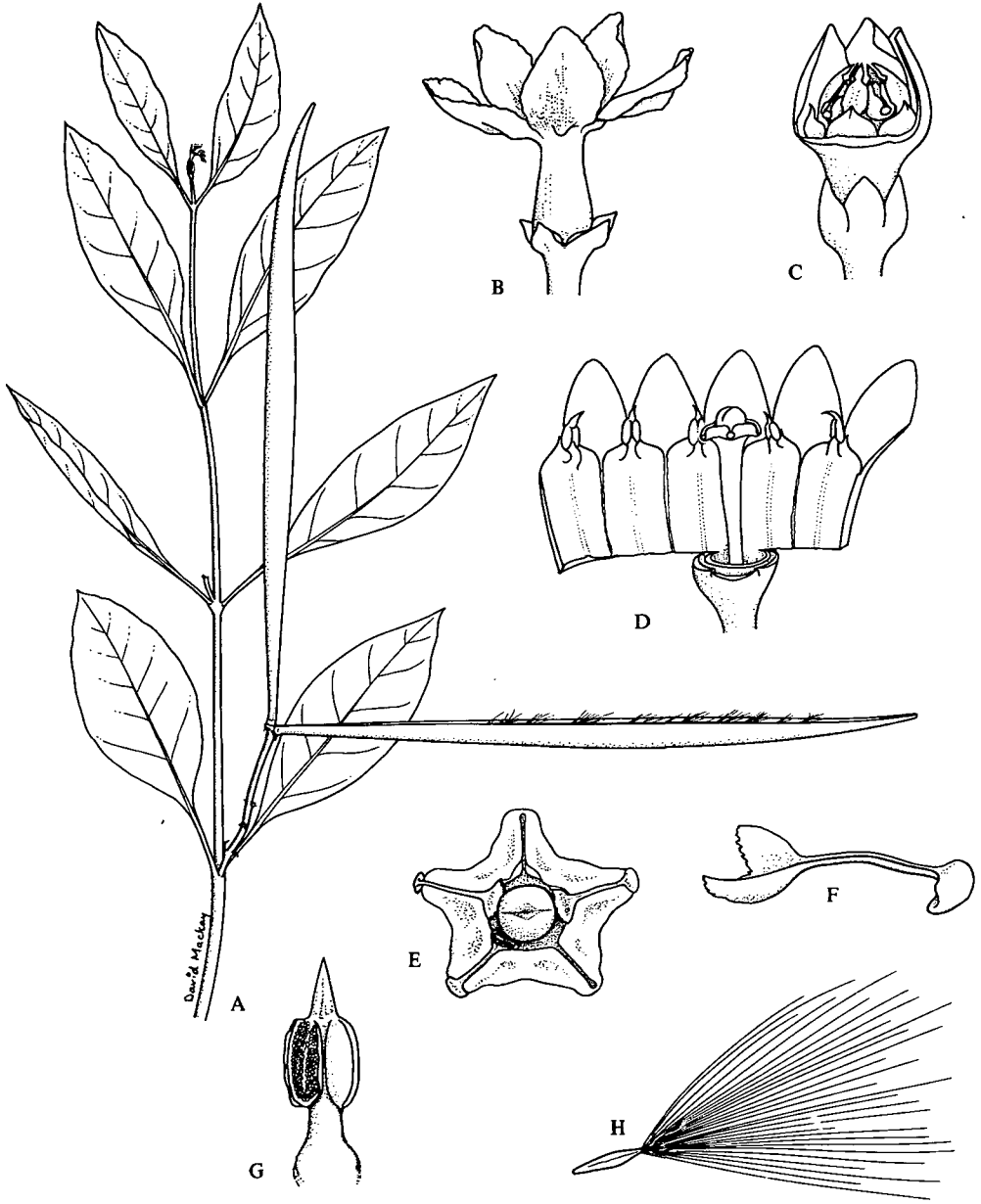


Fig. 1. *Gymnanthera fruticosa* K.L. Wilson. A, habit  $\times 1$ . B, flower  $\times 5$ . C, bud with corolla lobes removed to show corona lobes, anthers and style-head  $\times 5$ . D, flower opened out to show corona lobes, anthers and style-head  $\times 5$ . E, style-head from above, showing translators lying in three of the five stigmatic grooves  $\times 20$ . F, translator  $\times 40$ . G, anther  $\times 20$ . H, seed with coma  $\times 1.5$ . (A, H from *Latz* 7623, B-G from *Latz* 9414).

material seen),  $\pm$  concolorous, glossy on upper surface, with brochidodromous venation; base attenuate; apex acute to short-acuminate. *Inflorescences* small slender cymes in leaf axils; peduncles becoming woody as fruits develop; pedicels of varying lengths (to 10 mm long) depending on age of flowers. *Calyx* lobes 5, broad-triangular, imbricate, 1-1.5 mm long; glands 5, small, inside calyx between lobes, transverse-triangular or deeply divided. *Corolla* more or less salverform (lobes not spreading very widely), greenish-white; tube 4-6 mm long, about as long as lobes; lobes contorted in bud, triangular, somewhat incurved, 4-5 mm long. *Corona* fleshy, arising at throat of corolla behind stamens, of 5 transverse-triangular segments with a minutely bifid apex. *Stamens* 5, inserted at throat of corolla, overarching central gynoeceal column and expanded style-head; filaments free, broad, flat, dilated at base; anthers 2-celled with 2 loose, elongate pollen masses per cell; connective produced as a long terminal appendage. *Translators* (pollen carriers) consisting of caudicle and corpuscle (viscidium); caudicle slender, slightly concave, expanded at adaxial end (to which pollen masses become attached), translucent, lying in groove in lobe of expanded style-head; corpuscle cup-shaped, creamy-white, attached to abaxial end of caudicle and extending beyond lobe at right angles to caudicle, protruding between anther filaments. *Style-head* expanded, creamy-white, central region hemispherical with central groove, and with large ruff-like stigmatic outgrowth immediately beneath; outgrowth 5-lobed, much thickened, with a groove extending the length of each lobe with the caudicle of a translator lying in it and the corpuscle extending just beyond the rounded end of the lobe. *Follicles* long, slender, narrow-fusiform, 8-10 cm long, c. 5 mm diam. at broadest point, the pair on each peduncle held erect and parallel to each other at first, spreading to an angle of c. 45° at maturity. *Seeds* numerous, narrow-elliptic, flattened, ridged along middle of one flat face for c.  $\frac{3}{4}$ - $\frac{7}{8}$  length, surfaces finely and irregularly wrinkled or reticulate, pale brown, c. 7 mm long, c. 2 mm wide; coma white, c. 2 cm long, readily deciduous. Figs. 1, 2.

### *Habitat*

In sandy or gravelly creek beds in the north of the Central Australian region, Northern Territory.

### *Specimens examined*

NORTHERN TERRITORY: Central North: 15 km SW. of Barrow Creek Roadhouse, 21° 35'S, 133° 47' E, *P.K. Latz 9567*, 8.vi.1983 (NT, NSW); 12 km S. Barrow Creek on Stuart Highway, 21° 35'S, 133° 47'E, *G. Leach & R. Smith 712*, 19.viii.1985 (NSW ex NT); Lander River, 'Pine Hill' Station, 22° 16'S, 132° 53'E, *B.G. Thomson 436*, 27.v.1983 (NT); 'Pine Hill' Station, 22° 19'S, 132° 53'E, *P.K. Latz 6702*, 3.xii.1976 (NT); 15 km SSW. of 'Utopia' Homestead, 22° 22'S, 134° 29'E, *P.K. Latz 9414*, 2.xii.1982 (NT, NSW).

The species differs from other species of *Gymnanthera* in being an erect shrub rather than a liane or twining shrub (hence its epithet). *G. pedunculata*, from Flores and Mindanao, is described by Miquel (1857) as being 'frutex volubilis vel substrictus'. From Miquel's description and from the only specimen I have seen of that species (*Merrill 11981*), it is more twining than erect in habit, and differs further from *G. fruticosa* in its leaves (shorter, discolorous, relatively broader especially towards the rather obtuse apex) and its smaller flowers. It is described as occurring in thickets behind mangroves, which is a very different habitat from the ephemeral watercourses of Central Australia. *G. fruticosa* differs from the only other Australian species, *G. nitida*, in having more slender leaves (narrow-elliptic with length:width c. 1:3, rather than elliptic with ratio ranging from 1:2 to 2:3), and a corolla tube about as long as the lobes (c.  $1\frac{1}{3}$ -2 times as long in *G. nitida*).

The terminology I have used to describe the specialised floral parts is based on that in Airy Shaw (1973), Newton (1984) and Schill & Jaekel (1978).



Fig. 2. Holotype of *Gymnanthera fruticosa* K.L. Wilson.

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### References

- Airy Shaw, H.K. (1973). 'Dictionary of the flowering plants and ferns', edn 8. (Cambridge Univ. Press: Cambridge).
- Bentham, G., & J.D. Hooker (1876). 'Genera Plantarum' vol. 2 part 2. (Lovell Reeve/Williams & Norgate: London).
- Blume, C.L. (1850). 'Museum Botanicum Lugduno—Batavum' Vol. 1 no. 10.
- Brown, R. (1810a). 'Prodromus Florae Novae Hollandiae'. (J. Johnson: London).
- Brown, R. (1810b). On the Asclepiadeae. Preprint 1810 of paper published 1811 in *Mem. Werner Soc.* 1: 12-78.
- Costantin, J. (1912). Asclépiadacées. Pp. 1-154 in H. Lecomte, 'Flore Générale de l' Indo-Chine' vol. 4, part 1. (Masson et Cie: Paris).
- Miquel, F.A.W. (1857). 'Flora van Nederlandsch Indië' vol. 2. (van der Post: Amsterdam).
- Newton, L.E. (1984). Terminology of structures associated with pollinia of the Asclepiadaceae. *Taxon* 33: 619-621.
- Schill, R., & U. Jaekel (1978). Beitrag zur Kenntnis der Asclepiadaceen-Pollinarien. *Akad. Wiss. Lit. Mainz Trop. Subtrop. Pflanzenwelt* 22: 53-122.

