Flora of Tasmania online

83 GYROSTEMONACEAE [1]

Marco F Duretto [2]

Dioecious or monoecious shrubs or undershrubs or annuals (not in Tas.) or trees (not in Tas.); glabrous or papillose (not in Tas.). Leaves alternate, sessile or petiolate; stipules very small or absent; lamina simple, entire. Inflorescence axillary or terminal (not in Tas.), racemose or paniculate (not in Tas.) or flowers solitary; bracteolate. Flowers small, unisexual. Calyx broadly cupular, persistent. Corolla absent. Male flowers: stamens 6 to many in one or several concentric whorls on a flat disc-like receptacle; anthers sessile or almost so, 2-locular, opening by longitudinal slits. Female flowers: carpels superior, 1 to many; ovaries joined around a central column which is often dilated at the top into a flat disc; ovules solitary in each carpel, attached to the inner angle [campylotropous]; styles free or nearly so. Fruits dry or succulent (not in Tas.), usually dehiscent, carpels often falling before shedding seed. Seeds with prominent membranous basal aril; embryo curved around central perisperm.

An Australian family of 4 genera and 17 species with 3 genera and 11 species restricted to south-western Western Australia. Most species are found in arid and semiarid or dryer areas though some (not in Tas.) are found on rainforest boundaries. Most species are short lived and germinate readily after fire. Gyrostemonaceae are placed in the Brassicales near Resedaceae (Eurasia, Africa, N America; Rodman *et al.* 1994; George 2003; Ronse de Craene & Haston 2006).

Key references: George (1982, 2003).

External resources: accepted names with synonymy & distribution in Australia (APC); author & publication abbreviations (IPNI); mapping (AVH, NVA); nomenclature (APNI, IPNI).

1 GYROSTEMON

Gyrostemon Desf., *Mem. Mus. Hist. Nat.* 6: 16 (1820).

Synonymy: *Cyclotheca* Moq., *Prodr. (Candolle)* 13(2): 5, 37 (1849). *Didymotheca* Hook.f., *Hooker's J. Bot. Kew Gard. Misc.* 6: 278 (1847).

Dioecious shrubs or small trees (not in Tas.). Leaves erect or spreading, sessile or nearly so, linear-terete, sometimes obovate or lanceolate. Flowers axillary, solitary or racemose (not in Tas.); calyx shallowly (not in Tas.) or deeply lobed. Female flowers: 1–33 carpels; ovary globular; stigmas up to 4 mm long, often petaloid. Fruit spherical; carpels ovoid or obovoid, dry, sometimes succulent, each with 2 fine keels, dehiscing along outer margin. Seed attached at base or centre of column, rugose or smooth.

A southern Australian genus of 12 species with one extending to Tasmania.

Didymotheca was distinguished from *Gyrostemon* by the small number of carpels: *Didymotheca* having 1 or 2 carpels and *Gyrostemon* having 5 to many carpels. George (1982) included *Didymotheca* under *Gyrostemon* as this distinguishing character broke down with the description of new taxa in the later. There is now an almost complete range of carpel number (1–33) in the genus. *Gyrostemon sessilis* A.S.George of Western Australia has 2–5 carpels.

1 This work can be cited as: Duretto MF (2009). Gyrostemonaceae, **version 2019:1**. In MF de Salas (Ed.) *Flora of Tasmania Online*. 3 pp. (Tasmanian Herbarium, Tasmanian Museum and Art Gallery: Hobart). **https://flora.tmag.tas.gov.au/treatments/gyrostemonaceae/**

2 Tasmanian Herbarium, Tasmanian Museum & Art Gallery, PO Box 5058, UTAS LPO, Sandy Bay, TAS 7005, Australia.

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1 Gyrostemon thesioides (Hook.f.) A.S.George, *Fl. Australia* 8: 392 (1982)

Didymotheca thesioides Hook.f., *Hooker's J. Bot. Kew Gard. Misc.* 6: 279 (1847).

Illustrations: Morley & Toelken (Eds), *Flowering Plants in Australia* 70, fig. 36k (1983), as *D. thesioides;* Harden, *Fl. New South Wales* 1, rev'd edn: 489 (2000).

A small shrub or undershrub, 30–80 cm tall; stem hard and woody at least at base, with many erect branches, these simple or sparingly branched, slender, angled. Leaves linear to narrow lanceolate, to 7 cm long, to 0.6 cm wide, slightly fleshy, glabrous or minutely scabrous, midrib distinct; the lower leaves narrowed into a short petiole; the upper leaves sessile and smaller. Flowers very small, solitary in axils of upper leaves; bracteoles 2, minute. Calyx 0.75–1 mm long, deeply and unevenly 4-lobed. Male flowers: usually turned to one side and nodding; stamens 7–10, in a single whorl radiating from the margin of the flat disc-like receptacle; anthers c. 1.5–2.0 mm long, almost sessile. Female flowers: carpels 2, orbicular, flattened and joined along inner edges to a short central column; stigmas 2, broad lanceolate, diverging from apex of the column, arching over the ovaries and often persistent. Fruit dry, c. 2 mm long, c. 4 mm wide, emarginate, dehiscent, the valves scarcely separating from the central axis but opening along the outer edges. Seeds reniform, c. 2 mm long, reddish-brown; testa radially wrinkled; aril bilobed, white, enclosing lower ¼ of seed. Flowering & fruiting all year.

Tas. (FUR, TNM, TSE); also WA, SA, NSW. Localised in the Launceston area, on the East Coast between Orford and Seamore, and on the Kent and Furneaux Groups. Found growing in dry woodland of, for example, *Allocasuarina* or *Callitris*, or in heath and shrubberies often in rocky north facing areas. A fire-opportunistic species.

REFERENCES

ALA (Atlas of Living Australia) http://www.ala.org.au/

APC (Australian Plant Census) https://biodiversity.org.au/nsl/services/apc

APNI (Australian Plant Name Index) https://biodiversity.org.au/nsl/services/apni

AVH (Australia's Virtual Herbarium) (Council of Heads of Australasian Herbaria) http://avh.chah.org.au/

George AS (1982) Gyrostemonaceae. *Flora of Australia* **8** 362–379, 382, 392–393.

George AS (1982) Gyrostemonaceae. In K Kubitzki, C Bayer (Eds) *The Families and Genera of Vascular Plants: V Flowering Plants – Dicotyledons – Malvales, Capparales and non-betalain Caryophyllales.* pp. 213–217. (Springer-Verlag: Berlin)

IPNI (International Plant Name Index) http://www.ipni.org or http://www.us.ipni.org

NVA (Natural Values Atlas) (Department of Primary Industries and Water: Hobart) https://www.naturalvaluesatlas.tas.gov.au/

Rodman JE, Karol KG, Price RA, Conti E, Systema JD (1994) Nucleotide sequences of *rbc*L confirm the capparalean affinity of the Australian Gyrostemonaceae. *Systematic Botany* **7** 57–69.

Ronse de Craene LP, Haston E (2006) The systematic relationships of glycosinolate-producing plants and related families: a cladistic investigation on morphological and molecular characters. *Botanical Journal of the Linnean Society* **151** 453–494.

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