Malleostemon J.W.Green

ALA (https://bie.ala.org.au/species/https://id.biodiversity.org.au/taxon/apni/51290198) NSL [legitimate] (https://biodiversity.org.au/nsl/services/apni-format/display/58757)

Options

— Green, J.W. (11 October 1983), Malleostemon, a new genus of Myrtaceae (subfamily Leptospermoideae, tribe Chamelaucieae) from south-western Australia. *Nuytsia* 4(3): 296

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Nomenclature

Council of Heads of Australasian Herbaria (2010), *Australian Plant Census* ()

Etymology

From the Latin *malleus* (hammer) and the Greek *stemon* (thread or stamen), referring to the hammer-like stamens.

Description

Shrubs ranging from almost prostrate to c. 3 m high, glabrous. Leaves opposite, decussate. Peduncles 1–6-flowered. Flowers small, often densely grouped, actinomorphic. Hypanthium tending to be elongate, with 5 antisepalous ribs or angles, sometimes also with antipetalous ribs. Sepals 5, much shorter than the petals, not prominently horned but the dorsal ridge rarely with a slight subterminal point, persistent in fruit. Petals 5, widely spreading in flower, white or pale to medium pink; antipetalous colleters minute or absent. Staminodes rare or absent. Stamens inflexed in bud, 3–13, much shorter than the petals, geniculate at the base of the fused connective gland and so hammer-like in shape. Filaments ± terete. Anthers introrse, dehiscent by 2 pores or very short slits that diverge basally, commonly with dark maroon thecae; connective gland protruding at base of thecae, longer than or ± as long as the thecae. Ovary inferior, 1-locular (rarely 2-locular in a few flowers); placenta(s) shortly stalked or ± sessile, located towards top of ovary; ovules 3–10 per loculus. Style base often somewhat inset, usually slightly to very eccentric in fruit; stigma capitate, scarcely enlarged (0.05–0.1 mm diam.) in most species. Fruits inferior, indehiscent, usually 1-seeded, very thin-walled and fragile to moderately thick-walled. Seeds ± obovoid or broadly so in most species, transversely reniform to globular in a few species, 0.6–2 mm long; testa thin, membranous, pale brown or appearing darker if there is adherent tanniferous tissue.

Diagnostic Features

Distinguished by the following combination of characters: sepals not horned or prominently pointed; stamens 3–13, geniculate, ± terete; anthers dehiscent by 2 terminal pores or very short slits; connective gland protruding at base of thecae; ovary 1-locular; ovules 3–10.

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Chromosome Numbers

Chromosome numbers are known for four species (see Rye 2016: 104), one diploid (*n* = 11) and the other three tetraploid (*n* = 22).

Distribution

A Western Australian genus of at least 15 species, extending from near Minilya River (north of Carnarvon) southeast to Coolgardie, with a concentration of species in the northern sandplains of the South West Botanical Province.

Ecology

The genus flowers mainly during late winter and spring (i.e. August–November). Its small flowers are usually massed and attract varied insects to readily accessible nectar. Wind-dispersal of the small, light, indehiscent fruits is (in some species) assisted by widely spreading, persistent sepals.

Nomenclature and Typification

Malleostemon J.W.Green, *Nuytsia* 4(3): 296 (1983). Type: *Malleostemon roseus* (E.Pritz.) J.W.Green.

Taxonomic Notes

Malleostemon appears from molecular evidence to be closely related to *Anticoryne* Turcz, *Babingtonia* Lindl. and *Scholtzia* Schauer (Rye *et al.* 2020). It is unusual in having some species with antipetalous stamens, some with antisepalous stamens, and others with stamens in both locations. Unilocular anthers have been recorded in the type species *M. roseus* (Green 1983: 307, figs 74–80) but all or most other species have bilocular anthers.

Key to species

1. Stamens 4–13, with 1 opposite each sepal or in antisepalous groups 2

1: Stamens 3–10, all ± antipetalous or with 5 antipetalous and the others antisepalous 6

2. Hypanthium with a broad, truncate base. Stamens (5–) 7–13, with 1–4 opposite each sepal. Seed broader than long, transversely reniform. (Mullewa–E of Burma Road Nature Reserve) ..... *M. nephroideus*

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2: Hypanthium tapering at base. Stamens 4–7, in most species consistently 5, with 1 opposite each sepal, never consistently 7. Seed (where known) longer than broad, commonly obovoid or broadly so 3

3. Leaves densely clustered; adaxial surface with widely separated margins. Bracteoles 1.4–1.8 mm long, persistent. (Kojarena–Arrino area) ..... *M. decipiens*

3: Leaves not clustered; adaxial surface with margins pinched in to form a line-like furrow along the middle. Bracteoles 0.4–1.3 (–1.8) mm long, shed in bud or flower 4

4. Longest leaves with an apical point (0.5–) 0.7–1.2 mm long. (Eurardy Bush Heritage Reserve–Raeside Soak–Coolgardie–E of Hyden) ..... *M. tuberculatus*

4: Longest leaves not pointed or with a point up to 0.2 mm long 5

5. Hypanthium 1.8–2.2 mm long, 1.5–2 mm diam. Stamens 4–7, with 0–2 opposite each sepal, rarely consistently with 1 opposite each sepal, the largest with a filament 0.5–0.6 mm long. Petals 1.5–2.2 mm long. (E of Binnu–N of Morawa–Kirkalocka Station area) ..... *M.* sp. Yalgoo Road

5: Hypanthium 1–1.3 mm long, 0.8–1 mm diam. Stamens 5, with 1 opposite each sepal, the largest with a filament 0.2–0.3 mm long. Petals 1.2–1.5 mm long. (Kalbarri National Park) ..... *M. pustulatus*

6. Leaves peltate, lacking a scarious margin. Mature style 1.3–2.2 mm long (including hidden base), inserted in a distinctly raised area at centre of ovary summit. (near Hamelin Pool–Billeranga Hills–Coolgardie) ..... *M. peltiger*

6: Leaves not peltate, often with a narrow, scarious or thin-textured margin. Mature style 0.4–1.6 mm long, not in a raised area, somewhat to very eccentric in fruit 7

7. Bracteoles with broad, deeply denticulate-laciniate margins (rarely ± entire in *M. microphyllus*). Stamens 3–5, all ± antipetalous. Mature style 0.4–0.8 mm long 8

7: Bracteoles with entire or denticulate margins. Stamens 5–10, with up to half of them antisepalous. Mature style (where known) 0.7–1.6 mm long 10

8. Hypanthium 1.7–2 mm long, well exposed. (Toolonga Nature Reserve–Nerren Nerren Station area) ..... *M. nerrenensis*

8: Hypanthium 1–1.5 mm long, largely hidden by bracts 9

9. Largest leaves with a blade 0.9–1.5 mm long. Sepals strongly incurved in flower and fruit. (Zuytdorp Nature Reserve–Murchison House Station) ..... *M. microphyllus*

9: Largest leaves with a blade 1.5–4 mm long. Sepals erect to widely spreading in flower and fruit. (Murchison House Station–Nerren Nerren Station–Watheroo) ..... *M. hursthousei*

10. Hypanthium 5-angled (pentagonal in cross-section) 11

10: Hypanthium terete, sometimes with 5 main protruding ribs 12

11. Leaves obovate or broadly obovate in outline, somewhat keeled; adaxial surface concave or broadly hollowed. Scurfy ovary wall not becoming free from hypanthium to enclose the seeds and chaff (near Toolonga Nature Reserve–near Mullewa) ..... *M. pentagonus*

11: Leaves oblong to obovate in outline, not keeled; adaxial surface flat or shallowly concave. Scurfy ovary wall separating from hypanthium to enclose the seeds and chaff in a free globular structure. (near Hamelin Pool–Yorkrakine–Coolgardie) ..... *M. roseus*

12. Peduncles ± absent. Sepals widely spreading in fruit 13

12: Peduncles 1–4 mm long. Sepals erect in fruit 14

13. Bracteoles 1.2–2 mm long. Ovules 6–9, never uniformly 6 (near Minilya River–Kennedy Ra.–Talisker Station) ..... *M. minilyaensis*

13: Bracteoles 2.5–3.5 mm long. Ovules 4–6. (Toolonga Nature Reserve–Mullewa) ..... *M. uniflorus*

14. Bracteoles shed in bud or flower, 1.2–1.8 mm long. Pedicels 0.5–1 mm long. Petals white. (Useless Loop–Coburn Station) ..... *M. pedunculatus*

14: Bracteoles persistent, 1.5–2.3 mm long. Pedicels 0–0.5 mm long. Petals pink. (Kalbarri National Park–near Binnu) ..... *M. costatus*

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Illustrations

F.L.E. Diels & E.G. Pritzel, *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 35: 414, fig. 49A–E (1904), https://www.biodiversitylibrary.org/page/126885 (https://www.biodiversitylibrary.org/page/126885); J.W. Green, *Nuytsia* 4(3): 298, figs 1–15, https://www.biodiversitylibrary.org/page/53186717 (https://www.biodiversitylibrary.org/page/53186717); 300, figs 16–30, https://www.biodiversitylibrary.org/page/53186719 (https://www.biodiversitylibrary.org/page/53186719); 302, figs 31–44, https://www.biodiversitylibrary.org/page/53186721 (https://www.biodiversitylibrary.org/page/53186721); 304, figs 45–58, https://www.biodiversitylibrary.org/page/53186723 (https://www.biodiversitylibrary.org/page/53186723); 306–7, figs 59–80, https://www.biodiversitylibrary.org/page/53186725 (https://www.biodiversitylibrary.org/page/53186725); 310, figs 81–91, https://www.biodiversitylibrary.org/page/53186729 (https://www.biodiversitylibrary.org/page/53186729) (1983); B.L. Rye & M.E. Trudgen, *Nuytsia* 13(2): 348, fig. 1B (2000), https://www.biodiversitylibrary.org/page/53393514 (https://www.biodiversitylibrary.org/page/53393514).

Excluded or Uncertain Names

A species currently known as *Malleostemon* sp. Adelong (G.J. Keighery 11825) is not considered to belong to the genus but cannot be readily placed in any other named genus. *Malleostemon* sp. Officer Basin (D. Pearson 350) will be formally described as a species of *Hysterobaeckea* (Nied.) Rye. Three

other phrase-named entities, *M.* sp. Moonyoonooka (R.J. Cranfield 2947), *M.* sp. Woodacurrie Rd (S. Patrick 3364) and *M.* sp. Woolgorong Station (M. Officer 100), are typical of the genus *Malleostemon* but additional material is required to resolve their taxonomic status. *Malleostemon* sp. Yalgoo Road (Morawa Tree Committee 329) is in the process of being formally described and is included in the key to species.

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Taxonomy

- Kingdom: Plantae ()
- Phylum: Charophyta
- Class: Equisetopsida
- Subclass: Magnoliidae

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- Superorder: Rosanae ()
- Order: Myrtales ()
- Family: Myrtaceae (/opus/foa/profile/Myrtaceae) ()
- Genus: Malleostemon (/opus/foa/profile/Malleostemon) ()

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