

## Reduction of *Corynanthera* to the synonymy of *Micromyrtus* (Myrtaceae: Chamelaucieae: Micromyrtinae)

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### SHORT COMMUNICATION

During the late 1970s, the curator of the Western Australian Herbarium John Green began a taxonomic study of Myrtaceae subtribe Thryptomeninae Benth. *sensu* Bentham (1867). He took a particular interest in anther morphology (see Green 1980), which led him to recognise two new genera, *Corynanthera* J.W.Green (Green 1979) and *Malleostemon* J.W.Green (Green 1983), the former genus comprising the single species *C. flava* J.W.Green.

While *Corynanthera* has a bizarre anther morphology that distinguishes it from all other members of the Myrtaceae, other aspects of its morphology tie it very closely to *Micromyrtus* Benth. Green (1979: 373) was certainly aware of this as he stated: ‘The ovary of *Corynanthera* closely resembles that of a group of species of *Micromyrtus* having 10 stamens and two ovules, suggesting a very close relationship’. A molecular study (Wilson *et al.* 2004) seemed to support this since *Corynanthera* was placed with the single Western Australian species sampled, *Micromyrtus elobata* (F.Muell.) Benth., which has ten stamens and two ovules, whereas three eastern Australian species with more numerous ovules formed a separate clade.

Green abandoned his studies of *Micromyrtus* in the late 1980s and no further publications appeared until additional eastern Australian species of *Micromyrtus* species were described by Hunter *et al.* (1996) and Bean (1997). Interest in *Corynanthera* was renewed when work on Western Australian species of *Micromyrtus* led to two publications (Rye 2002, 2006) in which the morphology of *Corynanthera* was compared with *Micromyrtus*, uncovering some additional unique characters in *Corynanthera* (see *Notes* below). In the second paper (Rye 2006), it was noted that the first attempt to obtain nuclear DNA sequences for *Corynanthera* had failed.

The most recently published molecular study (Rye *et al.* 2020: 202) resulted in the naming of the new subtribe Micromyrtinae Rye & Peter G. Wilson, comprising *Corynanthera* and *Micromyrtus* but noted that ‘*Corynanthera* is probably nested within the much larger genus *Micromyrtus*: a paper dealing with phylogenetic relationships within *Micromyrtus* is planned’. Although the planned phylogenetics paper is still far from completion, the relevant analyses (P.G. Wilson & M.M. Heslewood, unpublished obs.) indicate that *Corynanthera* is strongly sister to both subspecies of *Micromyrtus elobata* and this

clade stands apart from all other species sampled, both eastern and western. Inclusion of *M. elobata* within *Corynanthera* is not feasible on morphological grounds as that would negate all the characters that currently separate *Corynanthera* from *Micromyrtus*. Retaining *Corynanthera* by the recognition of *M. elobata* as a new monotypic genus would also be difficult to justify on morphological grounds.

Re-examination of the morphology of *Corynanthera* and *Micromyrtus* during the preparation of flora treatments for them suggests that *C. flava* is most similar to *M. rogeri* J.W.Green ex Rye, a species that has not been sampled for DNA. It would certainly be of interest, in the future, to investigate a possible close relationship between *M. rogeri* and *Corynanthera*. Meanwhile we have decided to precede a paper on phylogenetic relationships with this paper, reducing *Corynanthera* to a synonym of *Micromyrtus*; this will expedite the preparation of full flora treatments of *Micromyrtus* species for the electronic *Flora of Australia* project. The new combination necessitates an updated description of *Micromyrtus* to accommodate several characters that were previously excluded from the genus.

**Micromyrtus** Benth., in G. Bentham & J.D. Hooker, *Gen. Pl.* 1: 700 (1865); *Thryptomene* sect. *Micromyrtus* (Benth.) F.Muell., *Fragm.* 8: 13 (1873). *Type: Micromyrtus drummondii* Benth. *nom. superfl.* = *Micromyrtus obovata* (Turcz.) J.W.Green; lecto, *fide* B.L. Rye, *Nuytsia* 15: 102 (2002).

*Corynanthera* J.W.Green, *Nuytsia* 2(6): 368 (1979). *Type: Corynanthera flava* J.W.Green = *Micromyrtus flava* (J.W.Green) Rye & Peter G. Wilson.

*Shrubs* almost prostrate to very tall, with slender branches. *Leaves* opposite, decussate, concolorous or paler adaxially; apical point absent or up to 0.3 mm long. *Peduncles* 1-flowered. *Pedicels* absent in almost all species. *Flowers* small, actinomorphic or zygomorphic. *Hypanthium* obconic or narrowly obconic to strongly dorsiventrally compressed, 4–10-ribbed or 5-angled. *Sepals* (when present) 5 or 6, extremely short to about as long as the petals, persistent in fruit. *Petals* 5 or 6, widely spreading in flower, orbicular or obovate, white to medium pink or yellow; antipetalous colleters absent or minute. *Staminodes* rare or absent. *Stamens* inflexed in bud, free, 5–10 or 12, with 1 opposite each petal and, in many species, also with 1 opposite each sepal, much shorter than the petals, the antisepalous ones (when present) often distinctly shorter and inserted lower than the antipetalous ones. *Filaments* filiform or (in two species) flattened. *Anthers* (in most species) longitudinally dehiscent, with slits greatly to slightly divergent at summit, dehiscent by a central pore in *M. flava*; connective gland free, large and in one species stalked, often accompanied by 2 much smaller oil glands. *Ovary* inferior, 1-locular; placenta sessile, located towards top of ovary; ovules 1–10, somewhat pendulous. *Style* central and terminal; stigma minute. *Fruits* indehiscent, 1(2)-seeded, sometimes with persistent petals or bracteoles. *Seeds* often truncate-obovoid or dorsiventrally compressed, 0.9–2.5 mm long; testa membranous.

*Diagnostic characters.* Distinguished by the following combination of characters: stamens inflexed in bud, free, 5–10 or 12, with 1 opposite each petal and, in most species, also with 1 opposite each sepal, the antisepalous stamens (when present) shorter and often inserted lower than the antipetalous stamens; anthers longitudinally dehiscent, with slits widely divergent at summit or subparallel, or (in one species) dehiscent by a central pore, the connective gland free; ovary 1-locular, with the ovules somewhat pendulous from a placenta located towards the top of the ovary; style terminal (not inset); fruits indehiscent.

*Distribution and habitat.* A genus with 50 species currently recognised, widely distributed across mainland Australia, with a high concentration of species in the south-west of Western Australia and a smaller concentration in eastern Queensland and New South Wales.

*Notes.* The type species of *Corynanthera*, now known as *Micromyrtus flava* (J.W.Green) Rye & Peter G.Wilson, is a very distinctive species (Figure 1). It is unique in the following characters:

1. Anther morphology. This remains the most remarkable characteristic of *M. flava* since it is unique within the whole Myrtaceae. *Micromyrtus flava* has a long-stalked connective gland that protrudes beyond the apex of the anther and its thecae are fused into a structure that is dehiscent by a single pore (see Green 1979, 1980).

2. Hypanthium ribbing and dimorphic sepals (see Rye 2006: 120, Figure 1A–C). There is a great diversity of longitudinal ribbing on the hypanthium in *Micromyrtus* and the unique kind in *M. flava* (Rye 2002, 2006) is not any more remarkable than the kinds found in other members of the genus.

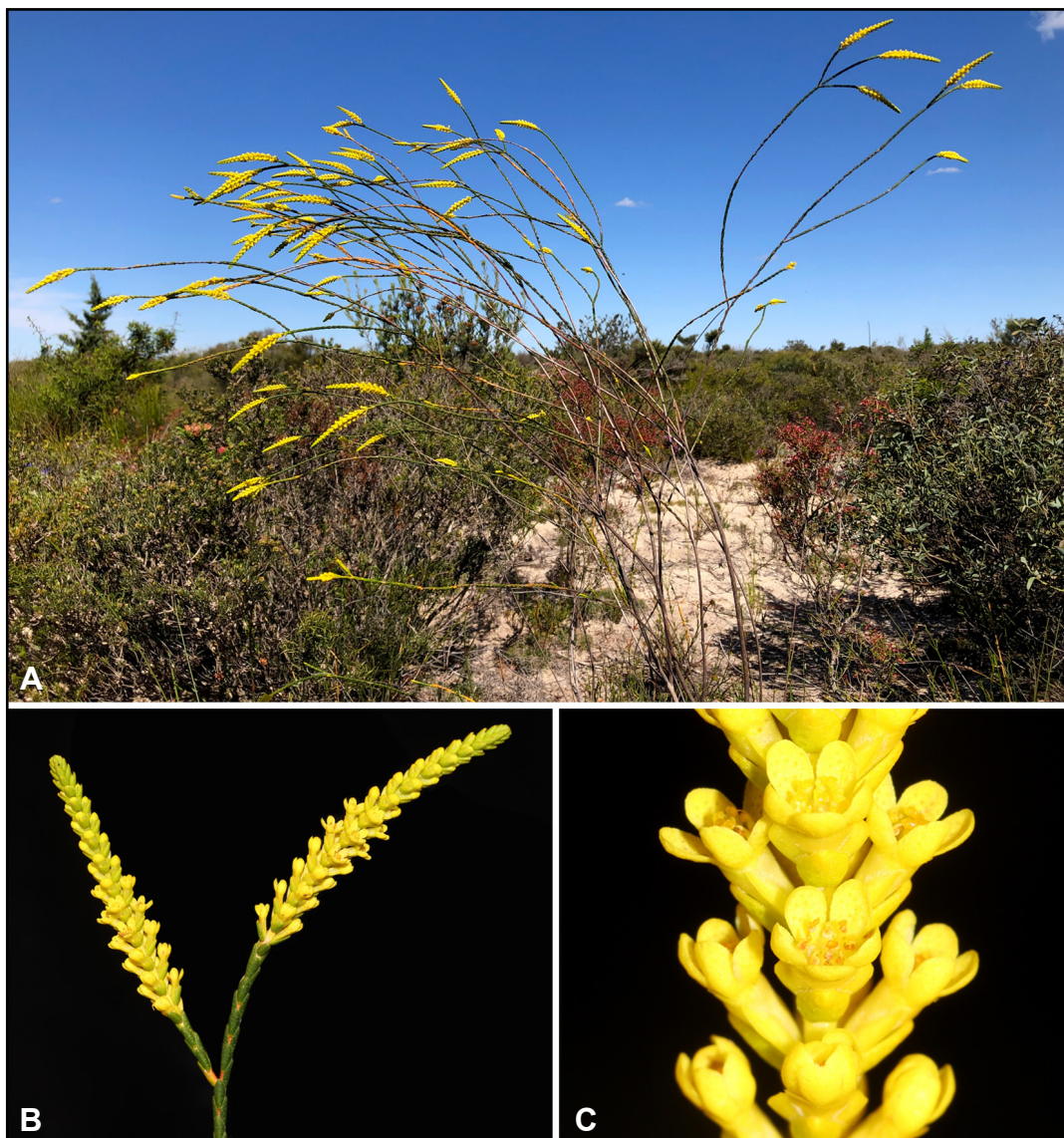


Figure 1. *Micromyrtus flava*. A – habit; B – inflorescences; C – flowers. Photographs by J.A. Wege from *C.J. Ely 2* & J.A. Wege (PERTH).

More significant is the increased zygomorphy of the flowers in *M. flava* resulting from having the sepals differing on the two surfaces of the greatly compressed hypanthium, with two broad sepals on the abaxial surface and three narrower sepals on the adaxial surface.

3. Diaspore morphology (see Rye 2006: 120, Figure 1A–C). While *M. rogeri* and several other *Micromyrtus* species have a markedly compressed fruit, only *M. flava* has the peduncle fused laterally to the bracteoles and distally to the base of the hypanthium. The bracteoles act as wings on each side of the diaspore, increasing the diaspore's ability to remain airborne when shed from the plant.

These new characters are incorporated in the generic description above.

***Micromyrtus flava*** (J.W.Green) Rye & Peter G.Wilson, *comb. nov.*

*Corynanthera flava* J.W.Green, *Nuytsia* 2(6): 371–372 (1979). *Type*: 34.6 km west of Winchester, Western Australia, 6 December 1978, *J.W. Green* 4918 (*holo*: PERTH 01079166; *iso*: AD 98043406, CANB 292493, *K n.v.*, PERTH 01079182).

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