

## A new species of *Syzygium* (Myrtaceae) from the Arnhem Land Plateau, Northern Territory, Australia

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### ABSTRACT

A new species of *Syzygium*, *S. arenitense* sp. nov., is described from the Northern Territory of Australia. The new species is compared with the superficially similar, rheophytic race of *S. eucalyptoides* (F. Muell.) B. Hyland. Identification keys are provided for the species of *Syzygium* occurring naturally in the Northern Territory.

KEYWORDS: Myrtaceae, *Syzygium*, *S. arenitense*, *S. eucalyptoides*, rheophyte, new species, Northern Territory, Australia.

### INTRODUCTION

The Australian species of *Syzygium* Gaertner were revised by Hyland who recognised 52 species of the genus in the region (Hyland 1983). Most of the species occur in the rainforests of north-eastern Queensland but several occur in the woodlands and gallery forests of the monsoonal region in northern Australia with one, *S. nervosum* DC., occurring there in spring forests. During work on an account of the genus for *Flora of Australia* (Craven and Matarczyk in press), several anomalous collections were noted from the western edge of the extensive sandstone plateau of Arnhem Land, Northern Territory. These collections appeared to be related to the rheophytic race of *S. eucalyptoides* (F. Muell.) B. Hyland, *S. eucalyptoides* subsp. *eucalyptoides*, and were set aside for further study as they differed from this taxon in certain details.

The anomalous collections were mostly in vegetative condition only and it was not until an adequate collection was made on my behalf by Kym Brennan, then of Jabiru, that the taxonomic status of the entity (for convenience referred to as the “sandstone entity” below) could be properly assessed.

In dried specimens, *S. eucalyptoides* subsp. *eucalyptoides* leaves are concolorous, greyish and the veins are not particularly distinct, whereas in the sandstone entity the leaves are discolorous, brownish, and the veins are very distinct (Fig. 1). The hypanthium of *S. eucalyptoides* subsp. *eucalyptoides* is most often funnel-shaped (usually narrowly so), or may be narrowly stipitate-campanulate or goblet-shaped. In the sandstone entity the hypanthium is usually goblet-shaped, to obconic or stipitate-obconic. Other floral differences noted are as follows: *S. eucalyptoides* subsp. *eucalyptoides*: petals clawed, anthers 0.9–1.0 mm long and style 7–16 mm long; sandstone entity:

petals not clawed, anthers 0.5–0.7 mm long, style 4–6 mm long. The ripe fruit of *S. eucalyptoides* subsp. *eucalyptoides* has been noted by collectors as being red, pink, cream and pink, or cream while the sandstone entity has been noted to have white fruit at maturity. The leaf differences, in particular, are considered by me to be taxonomically significant. Indeed the leaf morphology is unique among the Northern Territory species of the genus. Undoubtedly, recognition of the sandstone entity as a distinct species is warranted and the novel description of the species is effected below.

The herbarium codes are as given in *Index Herbariorum* (Holmgren *et al.* 1990+) and the author abbreviations follow Brummitt and Powell (1992).

### SYSTEMATICS

#### *Syzygium arenitense* Craven, sp. nov.

(Fig. 1 Aa, Ab)

A *S. eucalyptoides* (F. Muell.) B. Hyland subsp. *eucalyptoides* foliis discoloribus, brunneolis, venis distinctis differt.

**TYPUS:** Australia, Northern Territory, Twin Falls, about 0.5 km below falls, 26 October 1997, Brennan 3532 (holotype: CANB; isotypes: A, BO, DNA, L, MEL).

**Other specimens examined.** (selection only, 13 collections seen). AUSTRALIA. Northern Territory: upper East Alligator River, 29 October 1987, Russell-Smith and Lucas 3861 (DNA); upper East Alligator River, 7 September 1991, Russell-Smith and Brock 8506 (DNA, QRS); tributary of Deaf Adder Creek, 29 May 1980, Craven 6092 (CANB); Mt. Gilruth, Deaf Adder Gorge, 22 February 1977, Dunlop 4428 (CANB, DNA, QRS); 10 km N of Jim Jim Falls, 29 May 1980, Craven 6078 (CANB); top of Jim Jim Falls, 30 January 1981, Dunlop



5662, 5684 (DNA); Mann River at Gamarrgawan Outstation, c. 100 km S of Maningrida, *Brennan 3551* (DNA *n.v.*).

**Description.** Tree or shrub to 12 m tall. Bark pale grey or greyish white, smooth. Branchlets glabrous, compressed or terete, rounded or angled, 0.5–1.5 mm in diameter; branchlet bark dull, slightly striate, cracked or smooth, not glandular-verrucose, flaking in relatively large pieces. Bud scales present. Leaves glabrous. Lamina discolorous, brownish, 3.6–8.2 cm long, 0.7–2.5 cm wide, 2.3–9.1 times as long as wide, narrowly elliptic, narrowly obovate, obovate or elliptic; base attenuate or narrowly cuneate; apex rounded, truncate, acute or emarginate (sometimes shortly acuminate); margin flat, entire or subentire; primary venation distinct with 11–22 veins on each side of the mid-rib, in the median part of the lamina at a divergence angle of 30–45 degrees and 1–5 mm apart; marginal vein absent; intramarginal vein present, 0.4–1.4 mm from leaf margin; secondary intramarginal vein present or absent; oil dots visible with  $\times 10$  hand lens in transmitted light (rarely visible to the unaided eye), equally visible on both surfaces or more visible on the abaxial surface, small, sparse or moderately dense. Petiole 2.5–10 mm long, 0.4–0.9 mm wide. Inflorescence among the leaves, terminal, two to many-flowered, paniculate or racemose. Flowers white, with both calyx and petals, not calyptrate. Hypanthium dull, stipitate or not; goblet-shaped, obconic or stipitate-obconic; 4–7 mm long, 3.8–5.0 mm wide; stipe

1.5–2.2 mm long; 2.0–5.6 times as long as the sepals. Sepals 4, the inner pair larger than the outer (0.9–1.5 versus 1.5–2.2 mm long respectively). Petals five to eight (when five or six, all petals are fully developed; when seven or eight petals are present, one or two may not be fully developed), not coherent, not clawed, circular, subcircular or semielliptic, 3–5 mm long, 3.5–5.2 mm wide, visibly gland-dotted (30–100 or more per petal); margin lacerate (often very distinctly so). Staminal disc ascending slightly. Outermost stamens 7–8 mm long; filaments free, inflexed in bud; anther sacs parallel, elliptic or ovate, dehiscing by longitudinal slits, the anthers 0.5–0.7 mm long, 0.3–0.5 mm wide, the connective glands small, solitary. Style 4–6 mm long, the stigma punctiform. Ovary with axile-median placentation, the placenta obovoid or oblong-ellipsoid in plane shape, either divergently or appressedly lobed; ovules 8–15 per locule, ascending, arranged irregularly. Mature fruit white, spherical or ellipsoid, 19–20 mm long, 17–20 mm wide, with the calyx rim not appreciably expanding in fruit; seed uniembryonic; embryo with the cotyledons readily separable and interlocking funicular tissue not present.

**Distribution and ecology.** *Syzygium arenitense* has been recorded as occurring in the East Alligator River (south-east of Oenpelli), Jim Jim Falls area, and the Mann River area, Northern Territory. It commonly is a rheophyte in the beds of the seasonal streams on the western edge of the sandstone plateau of Arnhem Land and this is the only habitat in which the author has observed the species. Herbarium label data indicate that it might also occur away from stream lines in low woodlands and fringing forest but these data may refer to the landscape in a locally general sense and be nonspecific with respect to *S. arenitense*.

Flowering materials have been collected in September and October, and fruits have been collected in January.

**Remarks.** *Syzygium eucalyptoides* subsp. *eucalyptoides* is commonly found as a rheophyte along stream lines in the lowland country in northern Australia but can also occur along stream lines on the sandstone plateau of Arnhem Land in sympatry with *S. arenitense* (Brennan, pers. comm.). *Syzygium arenitense* and *S. eucalyptoides* subsp. *eucalyptoides* can readily be distinguished on the foliar differences given in the Introduction.

It may be that the rheophytic habit is an obligate feature of the species. Certainly the species can be added to van Steenis' (1981) world census of rheophytes.

**Etymology.** The specific epithet is derived from the geological name for sandstone, arenite, and refers to the colloquial name used for the sandstone plateau country of northern Australia, i.e. "the sandstone".

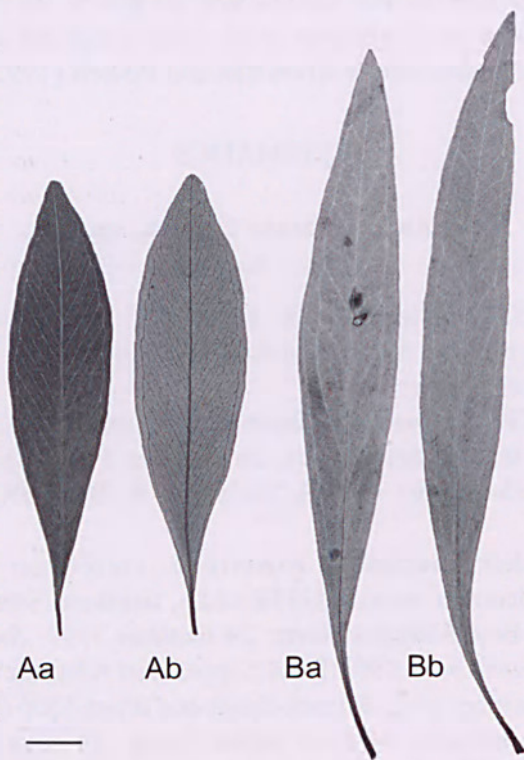


Fig. 1. Leaves of *Syzygium* species. *S. arenitense*: Aa, adaxial surface; Ab, abaxial surface. *S. eucalyptoides* subsp. *eucalyptoides*: Ba, adaxial surface; Bb, abaxial surface. A from *Brennan 3532* (CANB), B from *Dunlop 3099* (CANB). Scale bar = 1 cm.



### Keys to the Northern Territory species of *Syzygium*

The following keys are based upon those given in Dunlop *et al.* (1995).

#### Key based on fruit characters.

- 1a. Fruit white ..... 2
- 1b. Fruit variously coloured, not pure white ..... 5
- 2a. Fruit c. 25 mm long ..... *S. forte*
- 2b. Fruit <25 mm long ..... 3
- 3a. Fruit surface smooth, unwrinkled, the pericarp with numerous peg-like intrusions into the seed ....  
..... *S. armstrongii*
- 3b. Fruit surface wrinkled, the pericarp without peg-like intrusions into the seed ..... 4
- 4a. Sepals with one pair larger than the other; seeds 15 mm in diameter ..... *S. arenitense*
- 4b. Sepals uniform in size or nearly so; seeds 7-8 mm in diameter ..... *S. minutuliflorum*
- 5a. Fruit >30 mm long ..... *S. suborbiculare*
- 5b. Fruit <30 mm long ..... 6
- 6a. Fruit purple to black or white with a purple blush ..... 7
- 6b. Fruit red, bright pink or white with a red blush ..... 8
- 7a. Sepals persisting on fruit ..... *S. angophoroides*
- 7b. Sepals not persisting on fruit ..... *S. nervosum*
- 8a. Fruit bright pink with narrow triangular sepals ..... *S. fibrosum*
- 8b. Fruit red or white with a red blush ..... *S. eucalyptoides*

#### Key based on flower characters.

- 1a. Young branchlets 4-angled; sepals 5 ..... *S. angophoroides*
- 1b. Young branchlets + terete; sepals 4 ..... 2
- 2a. Buds >27 mm long; sepals >6.5 mm long ..... *S. suborbiculare*
- 2b. Buds <20 mm long; sepals <6.5 mm long or calyx calyptrate ..... 3
- 3a. Calyx calyptrate ..... *S. nervosum*
- 3b. Calyx not calyptrate ..... 4
- 4a. Stamens c. 15 mm long; sepals narrowly triangular ..... *S. fibrosum*
- 4b. Stamens <15 mm long; sepals not triangular, usually semicircular (if triangular then very depressedly so) ..... 5
- 5a. Buds >9 mm long; sepals >2 mm long ..... *S. eucalyptoides*
- 5b. Buds <9 mm long; sepals generally <2 mm long ..... 6
- 6a. Petals coherent (falling as a cap at anthesis) ..... 7
- 6b. Petals distinct and not coherent ..... 8
- 7a. Sepals 1-3 mm long; stamens 7-14 mm long ..... *S. forte*
- 7b. Sepals 0.2-0.4 mm long; stamens 1-4 mm long ..... *S. minutuliflorum*
- 8a. Petals 5-8, not clawed; sepals transversely semielliptic to transversely semicircular .... *S. arenitense*
- 8b. Petals 4, clawed; sepals very depressedly-triangular ..... *S. armstrongii*

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