



The correct author citation for taxa in *Strumaria* and changes to subgenera in *Strumaria* and *Hessea* (Amaryllidaceae: Amaryllideae), with a synopsis of the actinomorphic-flowered genera of subtribe Strumariinae

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Dates

Submitted: 25 August 2020

Accepted: 17 August 2021

Published: 10 September 2021

How to cite this article:

Snijman, D.A. & Manning, J.C., 2021, 'The correct author citation for taxa in *Strumaria* and changes to subgenera in *Strumaria* and *Hessea* (Amaryllidaceae: Amaryllidaceae), with a synopsis of the actinomorphic-flowered genera of subtribe Strumariinae', *Bothalia* 51(2), a9. <http://dx.doi.org/10.38201/btha.abc.v51.i2.9>

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Aspects of the nomenclature and classification of the subtribe Strumariinae are corrected and emended as follows: *Hessea* subgenus *Myophila* (Snijman) Snijman and *Strumaria* subgenus *Carpolyza* (Salisb.) Snijman are described, and *Strumaria* section *Gemmaria* (Salisb.) Snijman is validated; the correct author citations for several names in *Strumaria* that were invalidly published by Jacquin are established; and a complete infrageneric synopsis for the actinomorphic-flowered taxa of subtribe Strumariinae is provided.

Keywords: Africa; classification; Jacquin; new taxa; nomenclature; taxonomy; Willdenow.

Introduction

The predominantly African tribe Amaryllideae (Amaryllidaceae) includes four subtribes, of which Strumariinae Traub ex D.Müll.-Doblies & U.Müll.-Doblies (Müller-Doblies & Müller-Doblies 1985) are endemic to southern Africa (Meerow & Snijman 2001). The complexity of relationships among the actinomorphic-flowered genera of Strumariinae is reflected in the differing taxonomic treatments of *Carpolyza* Salisb., *Hessea* Herb., *Namaquanula* D.Müll.-Doblies & U.Müll.-Doblies and *Strumaria* Jacq. ex Willd. sensu lat. by Müller-Doblies and Müller-Doblies (1985) and Snijman (1994), based largely on these authors' interpretation of the group's floral morphology. Arising from the more recent molecular phylogenetic studies of Weichhardt-Kulesa et al. (2000) and Meerow and Snijman (2001, 2006), further taxonomic changes were implemented in the group. The monotypic *Carpolyza* was subsumed under *Strumaria* (Meerow & Snijman 2001) and the genus *Namaquanula* was reinstated from its former rank as a subgenus in *Hessea* (Snijman 2005).

These changes necessitated a revision of the subgeneric classification of *Hessea* and *Strumaria* and the necessary adjustments are completed here. We recognise a new subgenus to accommodate *Carpolyza spiralis* (L'Hérit.) Salisb. within *Strumaria* and we validate the new section *Gemmaria* (Salisb.) Snijman within subgenus *Gemmaria* of *Strumaria*. We also formalise the change in rank of section *Myophila* Snijman to subgenus within *Hessea*. Further, we provide a synopsis of the current infrageneric classification for the actinomorphic-flowered Strumariinae, incorporating the taxonomic changes made since 1985 by Duncan and Voigt (2020), Weichhardt-Kulesa et al. (2000), Meerow and Snijman

(2001), Müller-Doblies and Müller-Doblies (1992), and Snijman (1999, 2005).

We also correct the author citations of some species in *Strumaria*. The name *Strumaria* was first published by Jacquin (1795) in his *Icones plantarum rariorum* for five species of Amaryllideae from southern Africa's winter-rainfall region. Although the individual species were described, no separate generic description or diagnosis was included, either then or later in his *Collectaneorum supplementum* (Jacquin 1797). This lack of a diagnosis for his new genus, which included more than a single species at the time, renders the generic name invalid (Turland et al., 2018: Art. 38.1, 38.5), and this in turn renders the names of the five species published by Jacquin under that genus also invalid (Turland et al., 2018: Art. 35.1). These names were all validated by Willdenow (1799) in the *Species plantarum*, fortunately without any change in their priority.

Nomenclature

Corrections to author names

Accepted names are in **bold** and synonyms in *italics*.

Strumaria Jacq. ex Willd., *Species plantarum* 2: 31 (1799). Lectotype: *Strumaria truncata* Jacq. ex Willd., designated by Phillips, *Genera of South African Flowering Plants*, ed. 2: 201 (1951).

Strumaria angustifolia Jacq. ex Willd., *Species plantarum* 2: 32 (1799). [*Strumaria angustifolia* Jacq.: 13 (1795), Jacq.: 48 (1797), invalid name, without generic description]. Type: illustration in Jacq.: t. 359 (1795).

Note: This taxon is considered to be conspecific with **S. truncata** Jacq. ex Willd. (Snijman 1994).

Strumaria filifolia Jacq. ex Willd., *Species plantarum* 2: 32 (1799), nom. illeg. superfl. pro *Leucojum strumosum* Sol. ex Aiton (1789). [*Strumaria filifolia* Jacq.: 14 (1795), invalid name, without generic description]. Type: as for *Leucojum strumosum* Sol. ex Aiton.

Note: Although Snijman (1994) considered this to be a legitimate name and typified it against the illustration in *Icones plantarum rariorum* 2: t. 361 (Jacquin, 1795), Jacquin (1795) clearly stated that he was coining it as a preferred replacement name for *Leucojum strumosum* ["melius quam *Leucojum strumosum*"] with a direct reference to Aiton (1789), and it is therefore correctly treated as an illegitimate superfluous name for that taxon, with the same type. It is considered to be conspecific with **S. tenella** (L.f.) Snijman (Snijman 1994).

Strumaria linguifolia Jacq. ex Willd., *Species plantarum* 2: 31 (1799). [*Strumaria linguifolia* [as '*linguaeifolia*']

Jacq.: 13 (1795), Jacq.: 45 (1797), invalid name, without generic description]. Type: illustration in Jacq.: t. 356 (1795).

Note: This taxon is considered to be conspecific with **S. truncata** Jacq. ex Willd. (Snijman 1994).

Strumaria rubella Jacq. ex Willd., *Species plantarum* 2: 31 (1799). [*Strumaria rubella* Jacq.: 13 (1795); Jacq.: 46 (1797), invalid name, without generic description]. Type: illustration in Jacq.: t. 358 (1795).

Note: This taxon is considered to be conspecific with **S. truncata** Jacq. ex Willd. (Snijman 1994).

Strumaria truncata Jacq. ex Willd., *Species plantarum* 2: 31 (1799). [*Strumaria truncata* Jacq.: 13 (1795), Jacq.: 47 (1797), invalid name, without generic description]. Type: illustration in Jacq.: t. 357 (1795).

Strumaria undulata Jacq. ex Willd., *Species plantarum* 2: 32 (1799). [*Strumaria undulata* Jacq.: 14 (1795), Jacq.: 50 (1797), invalid name, without generic description]. Type: illustration in Jacq.: t. 360 (1795).

Note: The identity of this taxon is uncertain (Snijman 1994).

New subgenera and sections

Strumaria Jacq. ex Willd., *Species plantarum* 2: 31 (1799).

Subgenus **Carpolyza** (Salisb.) Snijman, stat. nov. *Carpolyza* Salisb., *Paradisus Londinensis* 1: 63 (1807). Type: *Carpolyza spiralis* (L'Hérit.) Salisb. = *Strumaria spiralis* (L'Hérit.) Aiton

Section **Gemmaria** (Salisb.) Snijman, sect. nov. [*Strumaria* subg. *Gemmaria* sect. *Gemmaria*, invalid name without author, Snijman: 106 (1994)]. *Gemmaria* Salisb., *The Genera of Plants*: 127 (1866). Type: as for *Gemmaria* Salisb.

Hessea Herb., *Amaryllidaceae*: 289 (1837).

Subgenus **Myophila** (Snijman) Snijman, stat. nov. *Hessea* subgenus *Namaquanula* section *Myophila* Snijman in *Contributions from the Bolus Herbarium* 16: 76 (1994). Type: *Hessea mathewsii* W.F.Barker

Synopsis of infrageneric taxa in *Strumaria*, *Hessea* and *Namaquanula*

Strumaria Jacq. ex Willd., *Species plantarum* 2: 31 (1799). Lectotype: *Strumaria truncata* Jacq. ex Willd., designated by Phillips, *Genera of South African Flowering Plants*, ed. 2: 201 (1951).

Subgenus **Strumaria**

Bulb tunics parchment-like, whitish. *Cataphyll* present, sometimes exerted. *Foliage leaves* (2)3 or

4(6), erect, spreading laterally in a fan, lorate, glabrous, rarely sticky. *Scape* persisting beyond seed release. *Flowers* funnel-shaped, rarely hypocrateriform or campanulate, pedicels more-or-less as long as perianth, tepals free, filaments usually connate into a tube with outer whorl adnate to style, anthers dorsifixed, style 3-angled or -winged towards base, rarely uniformly swollen. *Chromosome base number* $x = 10$.

8 spp.: *S. barbarae* Oberm. [as '*barbariae*' Oberm.], *S. bidentata* Schinz, *S. hardyana* D.Müll.-Doblies & U.Müll.-Doblies, *S. luteoloba* Snijman, *S. phonolithica* Dinter, *S. prolifera* Snijman, *S. speciosa* Snijman, *S. truncata* Jacq. ex Willd.

Subgenus **Carpolyza** (*Salisb.*) Snijman [validated above]. *Carpolyza* Salisb.: 63 (1807). Type: *Carpolyza spiralis* (L'Hérit.) Salisb.

Bulb tunics thinly fibrous, whitish. *Cataphyll* absent. *Foliage leaves* 4 to 6, spreading, filiform, glabrous. *Scape* \pm spirally twisted proximally, persisting beyond seed release. *Flowers* funnel-shaped, pedicels shorter to much longer than perianth, tepals connate into a short tube basally, filaments decurrent on perianth tube with inner whorl shortly adnate to style, anthers subcentrifixed, style somewhat 3-angled. *Chromosome base number* $x = 10$.

1 sp.: *S. spiralis* (L'Hérit.) Aiton

Subgenus **Tedingea** (*D.Müll.-Doblies & U.Müll.-Doblies*) Snijman in Contributions from the Bolus Herbarium 16: 86 (1994). *Tedingea* D.Müll.-Doblies & U.Müll.-Doblies: 45 (1985). Type: *S. tenella* (L.f.) Snijman

Bulb tunics softly fibrous, whitish. *Cataphyll* present or absent. *Foliage leaves* 2 to 6, spreading, filiform, glabrous. *Scape* often proximally flexed or spirally twisted, usually persisting during seed release. *Flowers* stellate, rarely somewhat campanulate, pedicels much exceeding perianth length, tepals free, filaments separate, both whorls adnate to swollen style base, anthers dorsifixed. *Chromosome base number* $x = 10$.

2 spp.: *S. pygmaea* Snijman, *S. tenella* (L.f.) Snijman subsp. *tenella*, *S. tenella* subsp. *orientalis* Snijman

Subgenus **Gemmaria** (*Salisb.*) Snijman in Contributions from the Bolus Herbarium 16: 105 (1994). *Gemmaria* Salisb.: 127 (1866). Type: *Gemmaria gemmata* (Ker Gawl.) Salisb. ex D.Müll.-Doblies & U.Müll.-Doblies = *S. gemmata* Ker-Gawl.

Bulb tunics parchment-like, whitish or yellowish. *Cataphyll* present or rarely absent. *Foliage leaves* 2(3), spreading to prostrate, lorate to elliptic, plane, more-or-less pubescent or pustulate, at least in juveniles. *Scape* mostly detaching basally at seed set. *Flowers* stellate to funnel-shaped, pedicels shorter or longer than perianth, tepals free, filaments separate,

both whorls adnate to swollen style base, anthers subcentrifixed. *Chromosome base number* $x = 10$.

Note: The phylogenetic study of Meerow and Snijman (2001), using nrDNA ITS sequences and morphology, shows weak support for the currently recognised sections of subgenus *Gemmaria*. The results, however, are based on less than a third of the species of the subgenus. Accordingly, until a more complete analysis of the clade becomes available, we retain the sections recognised in Snijman (1994).

Section **Gemmaria** (*Salisb.*) Snijman [validated above].

Gemmaria Salisb.: 127 (1866). Type: as for subgenus.

Bulb tunics whitish or yellowish. *Cataphyll* present. *Foliage leaves* 2(3). *Flowers* stellate, pedicels at least twice as long as perianth, filaments attached to broad style base, style distinctly widest at base.

11 spp.: *S. argillicola* G.D.Duncan, *S. chaplinii* (W.F.Barker) Snijman, *S. discifera* Marloth ex Snijman subsp. *discifera*, *S. discifera* subsp. *bulbifera* Snijman, *S. gemmata* Ker Gawl., *S. karoocica* (W.F.Barker) Snijman, *S. karoopoortensis* (D.Müll.-Doblies & U.Müll.-Doblies) Snijman, *S. leipoldtii* (L.Bolus) Snijman, *S. massoniella* (D.Müll.-Doblies & U.Müll.-Doblies) Snijman, *S. merxmulleriana* (D.Müll.-Doblies & U.Müll.-Doblies) Snijman, *S. unguiculata* (W.F.Barker) Snijman, *S. villosa* Snijman

Section **Bokkeveldia** (*D.Müll.-Doblies & U.Müll.-Doblies*) Snijman in Contributions from the Bolus Herbarium 16: 131 (1994). *Bokkeveldia* D.Müll.-Doblies & U.Müll.-Doblies: 27 (1985). Type: *Bokkeveldia watermeyeri* (L.Bolus) D.Müll.-Doblies & U.Müll.-Doblies = *S. watermeyeri* L.Bolus

Bulb tunics whitish or yellowish. *Cataphyll* present. *Foliage leaves* 2(3). *Flowers* more-or-less funnel-shaped, pedicels slightly shorter or longer than perianth, filaments adnate to style for 2.5 to 4.0 mm above base, style more-or-less evenly thickened in proximal half.

5 spp.: *S. aestivalis* Snijman, *S. perryae* Snijman, *S. pubescens* W.F.Barker, *S. salteri* W.F.Barker, *S. watermeyeri* L.Bolus subsp. *watermeyeri*, *S. watermeyeri* subsp. *botterkloofensis* (D.Müll.-Doblies & U.Müll.-Doblies) Snijman

Section **Cryptomeria** Snijman in Contributions from the Bolus Herb. 16: 105 (1994). Type: *S. picta* W.F.Barker

Bulb tunics whitish. *Cataphyll* absent or rarely present. *Foliage leaves* usually more than 3, only 2 exerted above ground, shortly ciliate. *Flowers* weakly campanulate, pedicels somewhat longer than perianth, minutely pubescent, filaments thickened and ventrally ridged in proximal half, attached to style

base, style narrowly ovoid, 6-grooved proximally, tapering distally.

1 sp.: *S. picta* W.F.Barker

Hessea *Herb.*, Amaryllidaceae: 289 (1837). Type: *Hessea stellaris* (Jacq.) Herb.

Subgenus **Hessea**

Hessea subgenus *Kamiesbergia* (Snijman) Snijman: 71 (1994); Snijman: 109 (1999). *Kamiesbergia* Snijman: 125 (1991). Type: *Kamiesbergia stenosphon* Snijman = *H. stenosphon* (Snijman) D.Müll.-Doblies & U.Müll.-Doblies

Bulb tunics parchment-like. *Cataphyll* present. *Foliage leaves* 2, glabrous or rarely minutely pilose. *Flowers* stellate, somewhat funnel-shaped or rarely hypocrateriform, tepals often adnate to filaments, filaments connate proximally into a short to long tube, rarely inner and outer whorls dissimilar, smooth, anthers centrifixed, ovary dome flattened. *Chromosome base number* $x = 11$.

11 spp.: *H. breviflora* Herb., *H. cinnamomea* (L'Hérit.) T.Durand & Schinz, *H. incana* Snijman, *H. monticola* Snijman, *H. pilosula* D.Müll.-Doblies & U.Müll.-Doblies, *H. pusilla* Snijman, *H. speciosa* Snijman, *H. stellaris* (Jacq.) Herb., *H. stenosphon* (Snijman) D.Müll.-Doblies & U.Müll.-Doblies, *H. tenuipedicellata* Snijman, *H. undosa* Snijman

Subgenus **Myophila** (Snijman) Snijman [validated above]. *Hessea* section *Myophila* Snijman: 76 (1994). Type: *H. mathewsii* W.F.Barker

Bulb tunics softly fibrous. *Cataphyll* present. *Foliage leaves* 2(3), glabrous. *Flowers* stellate, tepals free to base, filaments free or shortly connate basally, densely papillate adaxially and each bearing a curved blunt hook arching over central disc, anthers subcentrifixed, ovary dome raised into 3 trichome-covered green pulvini between style and inner whorl. *Chromosome base number* $x = 11$.

2 spp.: *H. mathewsii* W.F.Barker, *H. pulcherrima* (D. Müll.-Doblies & U.Müll.-Doblies) Snijman

Namaquanula D.Müll.-Doblies & U.Müll.-Doblies in *Botanische Jahrbücher* 107: 20 (1985); Snijman: 155 (2005), emend. *Hessea* subgenus *Namaquanula* (D.Müll.-Doblies & U.Müll.-Doblies) Snijman: 74 (1994), excluding section *Myophila* Snijman. Type: *N. bruce-bayeri* D.Müll.-Doblies & U.Müll.-Doblies

Bulb tunics brittle, tan-coloured. *Cataphyll* absent. *Foliage leaves* (1)3 or 4, glabrous. *Flowers* stellate, tepals shortly connate or free, filaments proximally papillate on adaxial surface, anthers dorsifixed. *Chromosome base number* $x = 11$.

2 spp.: *N. bruce-bayeri* D.Müll.-Doblies & U.Müll.-Doblies, *N. bruynsii* Snijman

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