

## *Austronea phyllopogon* (Hyacinthaceae, Urgineoideae), a new species from the Kamiesberg, Northern Cape Province in South Africa

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Among the recently described genera in Hyacinthaceae subfamily Urgineoideae (= Asparagaceae subfam. Scilloideae tribe Urgineae), *Austronea* Mart.-Azorín, M.B.Crespo, M.Pinter & Wetschnig in Martínez-Azorín *et al.* (2018: 105) includes 20 species restricted to southern Africa (Martínez-Azorín *et al.* 2018, 2019a, 2019b). Some such species were traditionally included in *Urginea* Steinheil (1834: 321) or *Drimia* Jacq. ex Willdenow (1799: 165) *sensu lato* and resemble those of *Fusifilum* Rafinesque (1837: 27), a phylogenetic relationship supported by molecular data (Martínez-Azorín *et al.* in prep.). However, species of *Austronea* are easily identified by a unique syndrome of morphological characters, the most characteristic being the subcorymbose or congested raceme that commonly nods during early developmental stages, the green to yellowish ovary (in contrast to the white gynoeceum of *Fusifilum*) and the tetrahedrally folded seeds with narrowly winged angles (see Martínez-Azorín *et al.* 2018).

Our field work in the Kamiesberg, Northern Cape Province of South Africa in August 2017 resulted in the discovery of an undescribed species of *Austronea*, at that time in vegetative stage but matching the general morphology of the genus. In cultivation it produced the typical inflorescence and flower morphology of *Austronea*, but differed from the other known species by the 3 to 5, narrow leaves that are appressed to the ground, covered both above and below with a dense indumentum of slightly retrorse hairs, and the capitate inflorescence with almost sessile flowers. We here propose the name *Austronea phyllopogon* for this Kamiesberg species, and provide a complete description with illustration, as well as data on ecology and distribution.

### Materials and methods

Detailed morphological studies were undertaken on cultivated and wild specimens following the terminology used for species of Hyacinthaceae in Martínez-Azorín *et al.* (2007, 2009). Herbarium specimens from the herbaria ABH, BOL, GZU, GRA, NBG and PRE (acronyms according to Thiers 2020+) were studied. Authors of the cited taxa follow IPNI (2020+). Orthography of geographical names and grid-number system follow Leistner & Morris (1976). Measurements of tepals, stamens and ovaries were performed on fresh material.

### Description of new species

*Austronea phyllopogon* Mart.-Azorín, M.Pinter, M.B.Crespo & M.Á.Alonso, *sp. nov.* (Fig. 1)

*Austronea phyllopogon* approaches *A. barkerae* in leaf morphology, but the former species produces fewer and narrower leaves in mature plants, has a denser indumentum, and presents a densely capitate inflorescence (not subcorymbose) comprising subsessile flowers (not long pedicellate) with smaller ovary.

**Type**.—SOUTH AFRICA. Northern Cape. Kamiesberg (3018): NE of Garies, Kamiesberg, ca 2 km NW of turn-off to Leliefontein from Studer's Pass road, near farm house (–AC), 1123 m elevation, sandy soil, 11 April 2020 (in flower ex hort.), M. Martínez-Azorín, M.B. Crespo, M.Á. Alonso & M. Pinter MMA1817b (holotype GRA, isotype ABH).

Herbaceous deciduous geophyte. Bulb hypogeal, ovoid, 10–20 × 8–17 mm with a hypogeal neck 5–20 mm long, solitary, with compact, white, thickened, scales, and pale brown, membranous to papery outer tunics. Roots fleshy, white, branched, 8–30 × 0.5–1 mm. Leaves 3–5, proteranthous and mostly withered at flowering time, hypogeal portion 3–13 mm long, aerial portion 12–25 × 1.2–2.2 mm, spreading and appressed to the ground, narrowly linear-lanceolate, with the widest portion along the distal third, slightly fleshy-succulent, flattened and slightly canalculated, rounded abaxially, dull greyish green, covered with abundant white, spreading to slightly retrorse hairs of 0.4–0.8 mm long along the margins and abaxial side, sometimes less profuse adaxially. Inflorescence nodding in bud, raceme ca 2 mm long, capitate or subglobose, with 3–5, nearly sessile flowers; peduncle at anthesis 10–14 cm long, greyish, erect or flexuose, glabrous, smooth, papillate along the basal half; pedicels shorter than 1 mm long at anthesis, spreading, smooth; bracts ovate-lanceolate, 0.8–1.0 mm long, clasping the pedicels, the lowermost with broad, papery, reddish spurs with white membranous margin, ca 1.5 mm long, clasping the peduncle. Flowers pentacyclic, trimerous, stellate, opening about noon and withering in the night, 1–2 flowers open at a time, flower buds reddish; tepals 6, entire, reddish ('burnt orange'), with a darker longitudinal central band on the abaxial side, slightly glandulous at the apex, biseriate, outer overlapping inner at the base, connate at the base for ca 1 mm to form a distinct cup, free portions patent to slightly reflexed; outer tepals ovate, ca 4 × 1.5 mm, with strongly revolute margins; inner tepals ovate-lanceolate, 3.8 × 1.5 mm, with slightly revolute margins. Stamens 6, erect, adnate to perigone for ca 0.5 mm; filaments white, fleshy, narrowly lanceolate, flat, ca 1.5 × 0.4 mm, smooth; anthers yellow, oblong, ca 0.5 mm long, dehiscing by longitudinal slits, with yellow pollen. Ovary green to orange, oblong, truncate to the style, ca 1.5 × 1.2 mm; style white, columnar, erect, ca 1.4 mm long, trigonous in transverse section; stigma small, glandulose and slightly papillate. Capsules and seeds not studied.

**Etymology:**—Named after the distinctly hairy leaves, the diagnostic character of the species (from the Greek words “φύλλον” [*phyllon*: leaf] and “πώγων” [*pogon*: beard, hairs]).

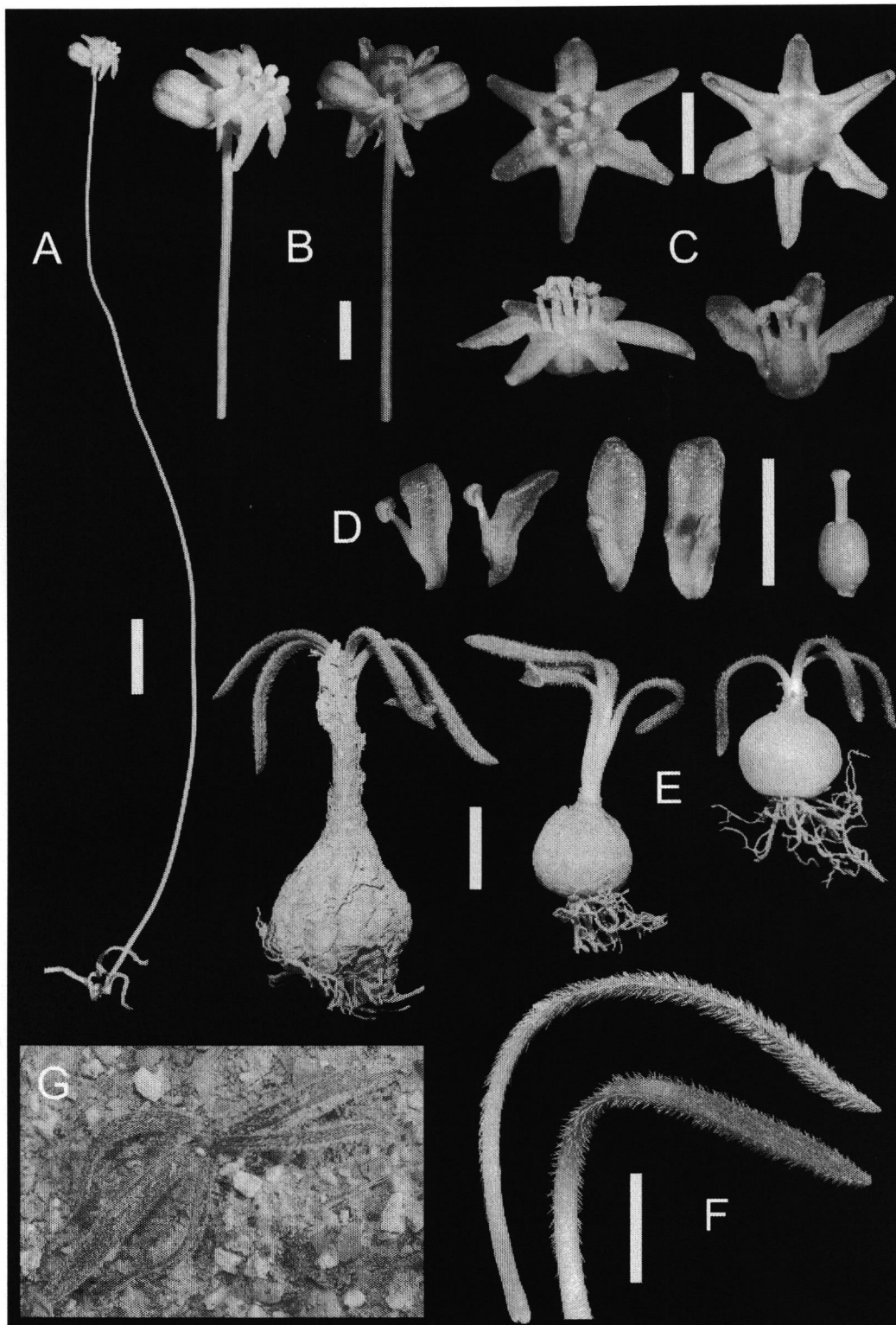
**Phenology:**—*Austronea phyllopogon* flowers around April in cultivation in the northern hemisphere. Flowers are short-lived, lasting less than a day and withering during the night.

**Habitat:**—This species is restricted to the Fynbos Biome and occurs in deep sandy soil in FRgI Namaqualand Granite Renosterveld. It is characterized by a mean annual precipitation from 130 to 370 mm (mean: 235 mm), peaking from May to August, a mean annual temperature of ca 14 °C and 10–30 days of frost incidence per year (Mucina & Rutherford 2006).

**Distribution:**—*Austronea phyllopogon* is only known from one population SE of Leliefontein in the Kamiesberg, Northern Cape Province of South Africa. Further research is needed to evaluate its real extension range, especially considering its cryptic appearance.

**Diagnostic characters and taxonomic relationships:**—*Austronea phyllopogon* is identified by the solitary bulb, the 3–5 proteranthous, narrowly linear-lanceolate, appressed leaves covered with abundant white, spreading to slightly retrorse hairs of 0.4–0.8 mm long, the capitate inflorescence with nearly sessile flowers and the small ovary. *Austronea phyllopogon* shares hairy or ciliate leaves with *A. barkerae* (Oberm. ex Manning & Goldblatt 2003:109) Mart.-Azorín *et al.* (2018: 107), *A. ciliolata* (J.C.Manning & J.M.J.Deacon in Manning & Goldblatt 2018: 89) Mart.-Azorín *et al.* (2019b: 293), *A. fimbri-marginata* (Snijman in Snijman & Harrower 2009: 234) Martínez-Azorín *et al.* (2018: 108), *A. hispidoplicata* Martínez-Azorín *et al.* (2018: 114) and *A. olifanta* Martínez-Azorín *et al.* (2018: 119), though those latter species differ by leaf size, morphology and indumentum in combination with inflorescence and flower morphology (Martínez-Azorín *et al.* 2018). The morphologically closest relatives appear to be *A. barkerae* and *A. olifanta*, using the identification key in Martínez-Azorín *et al.* (2018), but both latter species present broader and more numerous leaves in mature plants together with lax indumentum, and long pedicellate flowers with longer ovaries. They further occur in different habitats that are restricted to the surroundings of Piketberg and Clanwilliam respectively. *Austronea phyllopogon* also resembles *A. pygmaea* (Duthie 1928: 10) Martínez-Azorín *et al.* (2018: 108), *A. chalumnensis* (Dold & Brink 2004: 631) Martínez-Azorín *et al.* (2018: 107) or *A. patersoniae* Martínez-Azorín *et al.* (2019a: 77) based on leaf morphology, although the latter species do not exhibit hairs but rather only minute papillae; their different inflorescences and flower morphologies further distinguish them (cf. Martínez-Azorín *et al.* 2018).

**Additional material studied (paratypes):**—SOUTH AFRICA. Northern Cape. Kamiesberg (3018): NE of Garies, Kamiesberg, ca. 2 km NW of turn-off to Leliefontein from Studer's Pass road, near farm house (–AC), 1123 m elevation, sandy soil, 21 August 2017 (in leaf), M. Martínez-Azorín, M.B. Crespo, M.Á. Alonso & M. Pinter MMA1817a (ABH!).



**FIGURE 1.** *Austronea phyllopogon* Mart.-Azorin, M.Pinter, M.B.Crespo & M.Á.Alonso from the type locality, in the Kamiesberg in South Africa (bulbs and leaves of wild plants on 21 August 2017 and inflorescence ex hort. on 11 April 2020). **A.** General habit in flower showing withered leaves; **B.** Details of capitulate inflorescences with very shortly pedicellate flowers; **C.** Flowers in frontal, dorsal and lateral views; **D.** Dissected flower; **E.** Bulbs with leaves; **F.** Detail of leaves; **G.** Plant in habitat at vegetative stage. Scale bars: A, E: 1 cm; B–D: 3 mm; F: 5 mm.

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