Aloiampelos ciliaris var. ciliaris. Asphodelaceae: Alooideae

Journal Item

PLATE 2362 *Aloiampelos ciliaris* var. *ciliaris*

Aloiampelos ciliaris var. *ciliaris* Asphodelaceae: Alooideae

South Africa

Aloiampelos ciliaris *(Haw.) Klopper & Gideon F.Sm*. var. **ciliaris** in Phytotaxa 76: 10 (2013); Smith et al.: 153 (2017). *Aloe ciliaris* Haw.: 281 (1825); Salm-Dyck: sect. 25, Fig. 1 (1837); Baker: 169 (1880); Baker: 317 (1896); Berger: 255 (1908); Marloth: 95, t. 23 (1915); Groenewald: 41 (1941); Reynolds: 352 (1950); Jacobsen: 156 (1960); Jeppe: 110 (1969); Bornman & Hardy: 191 (1971); Jacobsen: 75 (1974); Hunt: t. 763 (1978); Van Wyk & Smith: 94 (1996); Glen & Hardy: 93 (2000); Newton: 129 (2001a); Newton: 122 (2001b); Van Wyk & Smith: 98 (2003); Smith & Van Wyk: 69 (2008); Carter et al.: 540 (2011); Grace et al.: 36 (2011); Van Wyk & Smith: 108 (2014); Klopper: 175 (2015); Newton: 532 (2020). *Aloe ciliaris* var. *flanaganii* Schönland: 42 (1903). *Aloe ciliaris* f. *flanaganii* (Schönland) Resende: 101 (1943). *Aloe ciliaris* f. *haworthii* Resende: 101 (1943).

The genus *Aloiampelos* Klopper & Gideon F.Sm. was established in 2013 to accommodate *Aloe* sect. *Macrifoliae* (Haw.) Glen & D.S.Hardy, as part of a revised generic classification for *Aloe* L. *sensu lato*, based on results from molecular phylogenetic research (Grace et al. 2013). The name is derived from the Greek word *ampelos* (a climbing plant) and the word *aloe*, and alludes to the general climbing habit of these aloes. The genus comprises seven species (one with three varieties and a nothovariety, and another with two varieties), all of which are endemic to South Africa. Members of this genus occur mostly in the Western and Eastern Cape provinces, often close to the coast, but some are also present at higher altitudes inland, near the Free State–Lesotho border (*A. striatula* (Haw.) Klopper & Gideon F.Sm. var. *striatula*) or as far northeast as the KwaZulu-Natal border with Eswatini (*A. tenuior* (Haw.) Klopper & Gideon F.Sm.). These aloes are known as rambling or scrambling aloes and are generally characterised by their creeping, shrubby, or climbing habit. The rather narrow, thin leaves are spirally arranged along slender stems and are separated by prominent internodes, thus displaying a distinct sheathing base. The usually unbranched inflorescences can be either lax to subdense (Figure 1) and cylindrical, or densely near-capitate (Figure 2), and carry rather small to medium-sized, cylindrical flowers that range from yellow through orange to red. Rambling aloes occur in the winter, summer, and year-round rainfall regions in a variety of habitats where they are most often found in the ecotone between vegetation types (Ellis 2013; Klopper & Smith 2017).

Other rambling aloes that have been illustrated in this series are *Aloiampelos gracilis* (Haw.) Klopper & Gideon F.Sm. as *Aloe laxiflora* N.E.Br. (Pole Evans 1928), *Aloiampelos ciliaris* var. *tidmarshii* (Schönland) Klopper & Gideon F.Sm. as *Aloe tidmarshii* (Schönland) F.S.Mull. ex R.A.Dyer (Dyer 1943) and *Aloiampelos tenuior* as *Aloe tenuior* Haw. (Verdoorn 1961). *Aloiampelos striatula* var. *caesia* (Reynolds) Klopper & Gideon F.Sm. was also first described in this journal, as *Aloe striatula* var. *caesia* Reynolds (Reynolds 1936).

In terms of evolutionary relationships, the consensus phylogenetic tree of Asphodelaceae subfamily Alooideae produced by Daru et al. (2013) establishes *Aloiampelos* as a

PLATE 2362.—1, terminal portion of a leafy stem, × 1; 2, inflorescence, × 0.75; 3, single flower, × 1. Voucher specimen: *G.F. Smith & E. Figueiredo 62* in H.G.W.J. Schweickerdt Herbarium, Pretoria. Artist: Gillian Condy.

FIGURE 1.—Most forms of *Aloiampelos ciliaris* var. *ciliaris* are characterised by having short, densely flowered inflorescences. However, this character shows some variation with other forms having more laxly flowered, elongated inflorescences, as here. Photograph: G.F. Smith.

well-supported clade in which *A. ciliaris* is sister to *A. tenuior*. This species pair is most closely related to *A. striatula*, with *Aloiampelos gracilis* and *A. commixta* (A.Berger) Klopper & Gideon F.Sm. slightly less closely related. *Aloiampelos decumbens* (Reynolds) Klopper & Gideon F.Sm. and *A. juddii* (Van Jaarsv.) Klopper & Gideon F.Sm. were omitted from this study, so we do not yet know how these fit into the phylogeny of *Aloiampelos*.

Aloiampelos ciliaris was described by the English botanist Adrian Hardy Haworth (19 April 1767–24 August 1833) in 1825 (as *Aloe ciliaris*) based on material sent to England from South Africa by James Bowie (ca. 1789–1869). Bowie was documented (Gunn & Codd 1981) to make two botanical collecting journeys into the Eastern Cape region, the first between September 1820 and January 1821 and the second from June 1821 into the early months of 1822. Based on his routes (Smith & Van Wyk 1989) he could reasonably have collected his material of *Aloiampelos ciliaris* during either of these excursions. However, Reynolds (1950) states that 'it appears that Burchell was the first to collect a specimen of this species on 9 October 1813 between Riet Fontein and the Kowie River, near Port Alfred, in the Bathhurst Division. According to Baker, this specimen (*Burchell 3993* in Herb. Kew) is *A. ciliaris*'. Principally due to its unusual characteristic of being the only hexaploid ($2n = 42$) alooid species in South Africa *A. ciliaris* has been subject to several studies (e.g. Müller 1945; Brandham 1971; Riley & Majumdar 1979; Brandham & Carter 1990). This uniquely high chromosome count for a South African alooid was first reported by Ferguson (1926), but the count was then given imprecisely as $2n > 45$.

Apart from the typical variety, two further varieties are currently recognised in *Aloiampelos ciliaris*, namely the tetraploid *A. ciliaris* var. *redacta* (S.Carter) Klopper & Gideon F.Sm. (in Grace et al. 2013) and the diploid *A. ciliaris* var. *tidmarshii* (Schönland) Klopper & Gideon F.Sm. (in Grace et al. 2013). Apart from chromosome numbers, these varieties are distinguished on morphological grounds, namely raceme density, dimensions of the leaves and flowers, and the size of the cilia on the leaf margins and adjacent amplexicaul leaf bases (Figure 3).

In the 1930s and 1940s the Portuguese botanist Flávio Ferreira Pinto Resende (28 February 1907–1 January 1967), who was attached to the University of Lisbon at the time,

had more than a passing interest in the taxonomy of southern African Asphodelaceae subfam. Alooideae, including *Aloiampelos*, which was then widely treated as belonging to *Aloe* § *Macrifoliae* (Fernandes 1967; Lima de Faria 1967; Figueiredo et al. 2019; Smith & Silva 2019; Smith et al. 2020). Resende inter alia published a number of names for formae in *Aloiampelos ciliaris*, all of which were based on minor morphological variations, and until recently none of these names were upheld. *Aloe ciliaris* f. *gigas* Resende, which Resende (1938) encountered in cultivation, was described as a pentaploid ($2n = 35$), and we therefore deliberately do not here place it in the synonymy of *Aloiampelos ciliaris* var. *ciliaris* (see Resende 1938, 1940). *Aloe ciliaris* f. *gigas* was later interpreted by Brandham & Carter (1990) as a possible natural hybrid between the tetraploid (*A. ciliaris* var. *redacta*) and hexaploid (*A. ciliaris* var. *ciliaris*) varieties. Smith & Figueiredo (2019) raised *Aloe ciliaris* f. *gigas* to the rank of nothovariety, as *Aloiampelos ciliaris* nothovar. *gigas* (Resende) Gideon F.Sm. & Figueiredo, given that Resende (1938, 1943) encountered the plants he described as *Aloe ciliaris* f. *gigas* in the Jardim Botânico de Coimbra, in 1937. A new combination and status for *Aloe ciliaris* f. *gigas* under *Aloiampelos ciliaris* as a nothovariety, and not a variety, was therefore preferred.

FIGURE 2.—This form of *Aloiampelos ciliaris* var. *ciliaris* has short, densely flowered racemes. Photograph: N.R. Crouch.

FIGURE 3.—The amplexicaul portion of the leaf bases of *Aloiampelos ciliaris* var. *ciliaris* are adorned with conspicuous, white cilia. Photograph: G.F. Smith.

When Haworth (1825) established the basionym *Aloe ciliaris*, he stated that plants of the species he was describing had been found by 'Mr. Bowie; who safely transmitted them to […] Kew, where they are now flourishing'. In the description of the species Haworth stated that 'caudex nunc 3–5-pedalis apud Kew', meaning that the plant was then growing at Kew and had reached a height of 1.0–1.5 m. It is not known if Haworth obtained Bowie-collected herbarium specimens from Kew or if he described the plant based only on material that was cultivated there. The description is very brief and deals with vegetative characters only.

After Haworth died, his herbarium was bought by the English botanist Henry Borron Fielding (1805–1851). Fielding used this herbarium for study and most specimens were

thrown away (Clokie 1964). What remained of Haworth's herbarium was later bequeathed to the University of Oxford, together with the rest of Fielding's herbarium. It is now kept at OXF (Fielding-Druce Herbarium). There are no specimens of *Aloiampelos ciliaris* among the collections originating with Haworth (S.K. Marner pers. comm.). The specimen grown at Kew and described by Haworth does not appear to have been preserved in Herb. K either.

The Royal Botanic Gardens, Kew, hold an early illustration of *Aloiampelos ciliaris* (Figure 4) in their Art Collections section (P. Long, pers. comm.). The plate is undated and was executed ['del.'] by Thomas Duncanson (Hunt 1989; Blunt & Stearn 1994), and is of sterile material (a leafy stem only) (Figure 3). The name written in ink at the bottom of the painting reads: 'Aloe ciliaris. Haw.', and below it is written '(Provisional)' in a different hand using different writing material (pencil?). The name and the word below it seem to have been written at different times. On a strip of paper attached to the plate base is written: 'Received from Mr [James] Bowie in the year 1821 from the Cape of Good Hope.' A determinavit strip dated 11 Oct. 1989 and signed by S. Carter was affixed to the painting and states: 'In the absence of herbarium material, this painting becomes the HOLOTYPE of Aloe ciliaris Haworth. in Phil. Mag. et Journ. 66: 281 (1825)'. The plate does not carry any further numbers or annotations. However, this plate cannot be the holotype as it was not cited by Haworth (1825), and there is no evidence that it was 'the **one** [emphasis by present authors] specimen or illustration […] either *(a)* indicated by the author(s) as the nomenclatural type or *(b)* used by the author(s) when no type was indicated' (Turland et al. 2018: 19–20, Article 9.1).

The type (holotype, lectotype or neotype) of a name of a species or infraspecific taxon is either a single specimen conserved in one herbarium or other collection or institution, or an illustration (Turland et al. 2018: 16, Article 8.1). Further, Article 9.4 of the *Code* states that a lectotype is a specimen or illustration designated from the **original material** [emphasis by present authors] as the nomenclatural type, if no holotype was indicated at the time of publication. Under the Shenzhen *Code* (Turland et al. 2018) original material includes elements 'that the author associated with the taxon, and that were available to the author prior to, or at the time of, preparation of the description'. The Kew plate undoubtedly depicts the material that was dispatched to England, and the plate would have been available to Haworth by 1825; this is the material described by Haworth as *Aloe ciliaris*. The type status of the plate is here amended to that of lectotype, as it cannot be the holotype. It was designated by Glen & Hardy (2000) as 'iconotype', a term that has no standing under the *Code*. Until recently it had to be shown that the validating description or diagnosis was based on certain specimens or illustrations in order for them to qualify as original material, but this is no longer required. The present *Code* (Turland et al. 2018 in Article 9.4(d)) allows for duplicates of type material (isotypes or isosyntypes) that were not seen by the author to be considered as original material. Nevertheless, in this case, indications are that the plate represents the material on which the description was based and therefore the illustration, although unpublished and uncited, can be considered as associated with the taxon by the author (Article 9.4(a)).

Aloiampelos ciliaris var. *ciliaris* occurs naturally in the Eastern Cape Province of South Africa (Figure 5) where it is a component of sparse to very dense thicket vegetation in the

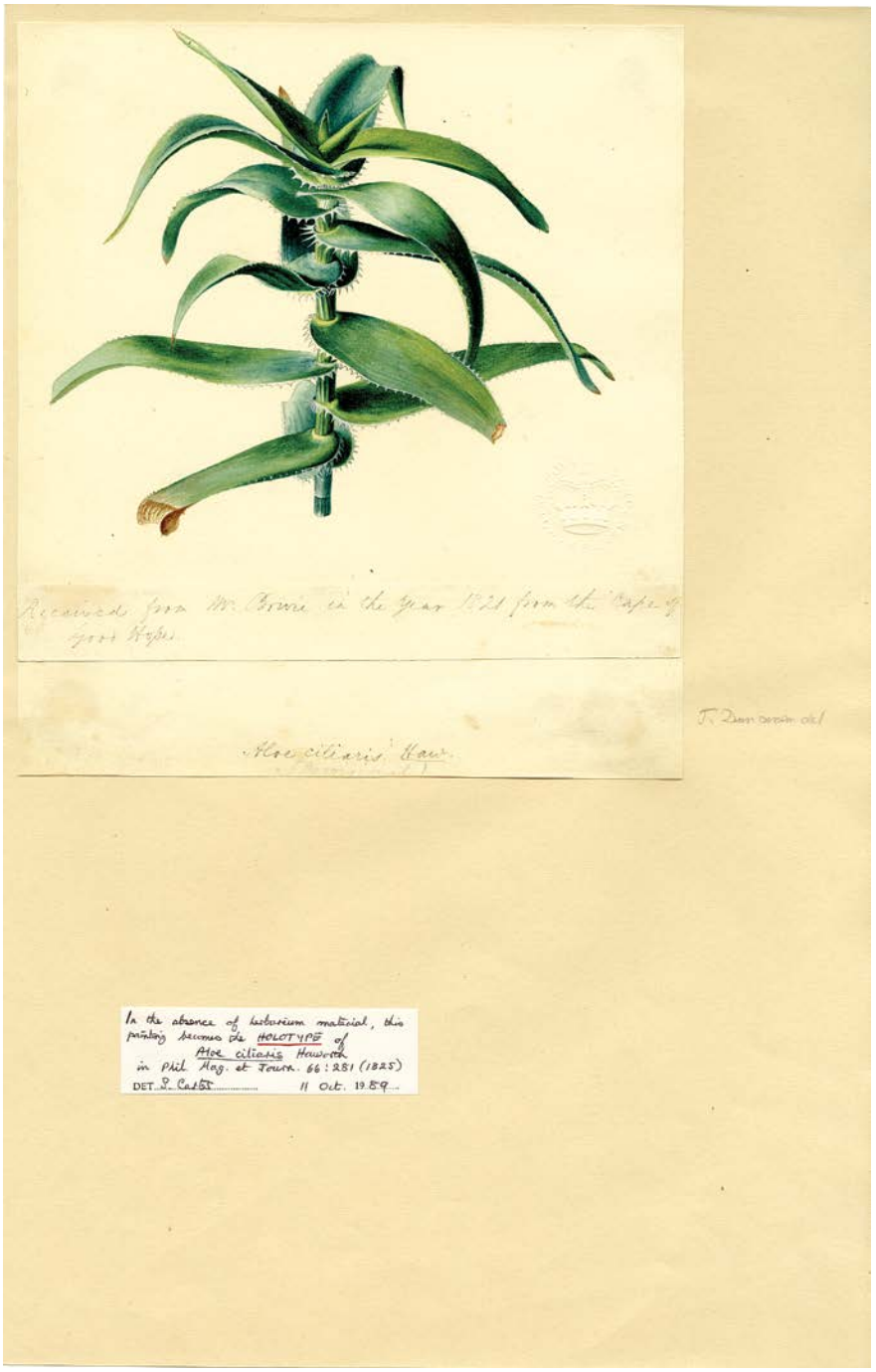

FIGURE 4.—Image of the lectotype of the name *Aloiampelos ciliaris*. This illustration by Thomas Duncanson is inscribed: 'Received from Mr [James] Bowie in the year 1821 from the Cape of Good Hope.' Reproduced with the kind permission of the Director and the Board of Trustees, Royal Botanic Gardens, Kew.

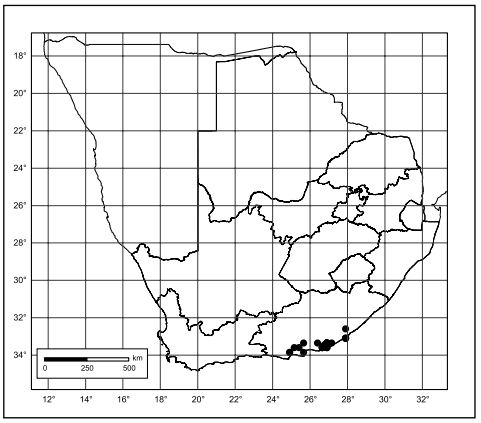

FIGURE 5.—Known geographical distribution range of *Aloiampelos ciliaris* var. *ciliaris* in southern Africa.

FIGURE 6.—When subjected to significant water stress during the flowering season, *Aloiampelos ciliaris* has a tendency to self-prune flowers from its inflorescences. Photograph: G.F. Smith.

Maputaland–Pondoland Region of Endemism (Van Wyk & Smith 2001). Interestingly, the species reportedly also occurs on Mount Kulal in northern Kenya, several thousand kilometres further north from its Eastern Cape range (Hunt 1978). We have been unable to confirm the natural occurrence of the species at this east-central African locality, where Hunt (1978) stated it to not have been a garden escape, the most likely explanation for this discontinuity. Notably there is a village on Mount Kulal, where several expatriates have lived, and it seems likely that this plant was cultivated there, as it is in Nairobi, and became a garden escape (L.E. Newton pers. comm.).

Like the other taxa of *Aloiampelos*, for example *A. tenuior* and *A. ciliaris* var. *tidmarshii*, from the central and eastern parts of the Eastern Cape of South Africa, *A. ciliaris* var. *ciliaris* is very easy in cultivation in southern Africa and some parts of the northern hemisphere. Propagation is through cuttings about 200–500 mm long that require no special treatment. Such cuttings, of which the cut ends have been allowed to dry for a few days in a shady position, can be established directly in the place that they are intended to grow. Plants are tolerant of a wide range of soil types, ranging from rather heavy clays to light, sandy soils. They do especially well when the soil is enriched with thick layers of compost; in their natural thicket habitats considerable leaf-fall collects under the canopies of the small to medium-sized trees into which they scramble. *Aloiampelos ciliaris*, including the varieties and nothovariety recognised in it, is one of the few aloe species that will self-prune flowers from its congested or slightly elongated inflorescences when under water stress (Figure 6). Accordingly, to ensure full and attractive inflorescences, plants should not be allowed to dry out completely during the flowering season.

The subject of this account could be confused with other genus members, especially *Aloiampelos tenuior*, which may also present red flowers with yellow tips. However, the prominent cilia that fringe the sheathing bases of the leaves of *A. ciliaris* (except in the case of *A. ciliaris* nothovar. *gigas*, Figure 7) is a highly distinctive feature that should settle any concerns about identity. In addition, the flowers of *A. tenuior* are consistently smaller than those of *A. ciliaris* and hardly, if at all, banana-like curved.

FIGURE 7.—The upper margin of the amplexicaul section of the leaves of *Aloiampelos ciliaris* nothovar. *gigas* completely lacks prominent cilia. Photograph taken on 30 September 2014 of material cultivated near Serra de Santo António in central Portugal. Photograph: G.F. Smith.

Aloiampelos ciliaris is a perfect scrambler to train onto a trellis if a dull spot or wall needs to be brightened up with a plant that forms multiple stems. In time, plants tend to topple over so it is best to tie the stems to stakes that can later be removed; as plants elongate the stems can be tied to the trellis. If otherwise left untrained in a garden bed, plants will form a large mass of tangled stems; these are especially striking when in flower (Figures 8 and 9). Once established and growing, the stems of *A. ciliaris* can reach a staggering 5–6 m in length. In cultivation, fruit development and seed-set in *A. ciliaris* var. *ciliaris* depend on the availability of multiple clones of the variety that flower simultaneously. Otherwise, given that *A. ciliaris* var. *ciliaris* is a hexaploid and the majority of widely cultivated aloes are diploid, fruit and seed production is at best erratic (Figure 10), such that germinated seeds almost invariably give rise to tetraploid hybrids.

FIGURE 8.—If *Aloiampelos ciliaris* is left untrained in a garden bed, plants will form large masses of tangled stems; these are especially striking when in flower. Photograph: N.R. Crouch.

In greenhouse or conservatory cultivation in Europe and perhaps elsewhere in the northern hemisphere, this plant can be slightly tricky given that its leaves are not all that succulent. Consequently, it requires modest winter warmth and water to prevent desiccation and death, so we recommend a minimum winter temperature of +10°C so that it can be watered regularly. In contrast, both varieties of *Aloiampelos*

FIGURE 9.—The inflorescences of *Aloiampelos ciliaris* are usually simple, but sometimes a short branch is produced. Photograph: G.F. Smith.

FIGURE 10.—In cultivation, fruit and seed production in *Aloiampelos ciliaris* var. *ciliaris* is erratic, as here, unless multiple clones of this hexaploid variety are flowered together. Photograph: G.F. Smith.

striatula are frost-hardy and have survived outdoor cultivation in England in unheated greenhouses and cold frames for many winters.

Plants of *Aloiampelos ciliaris* can be temperamental when it comes to flowering. Some clones have been observed to skip one or more seasons between flowering events, while others will produce only one or two inflorescences per clump per season. Doubtless through a process of horticultural selection, profuse-flowering forms are commonplace and have become popular in cultivation in mild-climate parts of the world, for example in Mediterranean Europe and along the central and southern Californian coast in the USA (Van Wyk & Smith 1996). *Aloiampelos ciliaris* generally flowers during the late winter (July–August, southern hemisphere), but, like *A. tenuior*, can sporadically flower during any month of the year. The preferred form of *A. ciliaris* that has found favour among gardeners has comparatively short inflorescences and crimson red flowers. However, forms with more elongated racemes and orange-red flowers are also often encountered in cultivation.

Description.—Much-branched, tangled shrub. *Stems* long and slender, up to 5–6 m long, 10–15 mm in diameter, repeatedly branched, scandent, only terminal 0.3–0.6 m with leaves. *Leaves* cauline-dispersed, spreading to recurved, green, without spots, rather thin, linear-lanceolate, long acuminate, 100–150 mm long, 15–25 mm wide; sheath distinctly auriculate with ciliate margin, cilia 2–4 mm long, obscurely green-lineate, 5–15 mm long; margin with firm, white, cartilaginous teeth, ± 1 mm long, ± 3 mm distant. *Inflorescence* 0.2–0.3 m long, ascending, arising laterally below apical leaves, usually simple, sometimes with short branch. *Peduncle* 0.12–0.15 m long, biconvex at base,

with few scattered, deltoid-subulate sterile bracts, ± 5 mm long. *Racemes* broadly cylindric, 80–150 mm long, 40–50 mm wide, erect, subdense to dense; buds spreading, flowers nodding to pendulous when open. *Floral bracts* ovate-acuminate, 4–5 mm long, 1–2 mm wide, white, thin, scarious, 3-nerved. *Pedicels* 5–8 mm long. *Flowers*: perianth orange to orange-red to scarlet red with yellowish green tips, 28–35 mm long, ± 5 mm across ovary, enlarging slightly to ± 7 mm towards mouth, slightly clavate or cylindric; outer segments free for 6 mm, tips straight or slightly incurved; stamens with filiform-flattened filaments, exserted 2–4 mm; ovary 4 mm long, 2 mm in diameter, pale green; style exserted 3–4 mm. *Fruit* an erect, dull green, apically truncate, loculicidally dehiscing, cylindrical to nearly round, trilocular capsule, (13–)15(–18) mm long, (8–)9–11(–13) mm in diameter, desiccating tepals remaining attached to fruit for a long time, chartaceous to slightly woody and transversely ridged when dry, apically valves sigmoidally curved outwards. *Seeds* dark greyish brown to black, irregularly angled, laterally somewhat compressed, 5–7 mm long, with up to 1 mm wide yellowish brown wing stretching around part of periphery of seed. *Chromosome number*: $2n = 42$ (hexaploid). Plate 2362.

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