

Whilst compiling an account of the small southern African endemic genus *Astroloba* Uitewaal (Asphodelaceae: Alooideae) for Vol. 3 of the Synopsis Plantarum Succulentarum Project, co-ordinated by the Städtische Sukkulenten Sammlung in Zürich, Switzerland, it came to our attention that a well-known and frequently cultivated species of the genus has not been validly named.

The species is most commonly referred to as *Astroloba aspera* (Haw.) Uitewaal, but based on the original description of *Aloe aspera* provided in the protologue by Haworth (1804), this combination was established for a species of the genus *Haworthia* Duval. This is evident from the description of the leaf arrangement of *Aloe aspera* as '*foliis trifariis*' (Haworth 1804: 6). The leaves of species of *Astroloba* are arranged in five, not three, distinct rows, as the stems are viewed from above. This character has been adequately and unambiguously recorded as '*foliis quinquefariis*' in the description of e.g. *Aloe pentagona* (Aiton) Haw., which also appeared in Haworth (1804: 7).

If Haworth (1804) had given an adequate description of the flowers of the species, it could have given further clues to the exact identity of the novelty that he described as *Aloe aspera*. At the time, the flowers of species of *Haworthia* were usually simply described as '*in labio duo*', referring to the two-lipped flowers which are rather consistently encountered in *Haworthia* (see for example Haworth 1812: 90). Exceptions to this rule are representatives of *Haworthia* subg. *Robustipeduncularis* Uitewaal ex Bayer where the perianth somewhat resembles those of some species of *Astroloba*.

Eight years later, in 1812, the leaf arrangement of *Aloe aspera*, then clearly treated as a species of *Haworthia*, was again given as trifarious by Haworth. Furthermore, in his enumeration of the species he grouped his *Haworthia aspera* with the caulescent species of *Haworthia*, for example *H. viscosa*, and not with the other species nowadays included in *Astroloba*. The floral morphology was, however, clearly given as bilabiate, supporting the view that *Haworthia aspera* (Haw.) Haw. was in fact a species of *Haworthia* as generally circumscribed today. This name, *H. aspera*, was recently re-instated by Parr (1971), following his proposal to include *Astroloba* in *Haworthia*.

We do not uphold that interpretation.

Earlier, in 1811, Willdenow had the same view as Haworth (1812), although he included this species in the newly created genus *Apicra* Willd., a group which, in his concept, included all the species of *Haworthia* and *Astroloba*. The genus name *Apicra*, which was therefore an illegitimate renaming of *Haworthia* (Duval 1809), was unjustifiably taken up by Haworth in 1819 more or less solely for the species of *Astroloba*, as circumscribed today, and again the leaf arrangement of *Apicra aspera* (Haw.) Willd. was given as trifarious.

Salm-Reifferscheid-Dyck (1817), who preferred the Linnean concept of *Aloe* L. for all species currently dispersed amongst the genera *Aloe*, *Astroloba*, *Gasteria* Duval and *Haworthia*, accepted Haworth's (1804) interpretation of the trifariously leaved *Aloe aspera*. However, in 1840 Salm-Reifferscheid-Dyck extensively adapted the original description of Haworth by, amongst others, referring to the leaves of his *Aloe aspera* as '*foliis spiritaliter quinquefariis*'. By so doing he essentially described a new species, but made the critical mistake of adopting Haworth's (1804) name, *Aloe aspera*. As argued above, this was undoubtedly a species of *Astroloba* and not *Haworthia*, since the flowers were unambiguously described as '*limbo regulari*'. The species as known today therefore does not have a legitimate name.

The final combination of the epithet *aspera* in the genus *Astroloba* was made by Uitewaal in 1947 (Smith *et al.* 1994; Smith & Van Wyk 1996). As basionym for this new combination he cited Haworth's (1804) concept of the species.

More recently two researchers working independently came to the same conclusion as us. Roberts Reinecke (1965), in an unpublished M.Sc. thesis proposed the name *Astroloba rugosa* for the species, whereas Groen (1987) proposed the name *A. muricata*. Neither of these names have been validly published and to prevent further confusion, we decided to choose the name *A. corrugata* N.L.Mey. & G.F.Sm. for this unnamed species.

A single variety, var. *major*, has been described in *Apicra aspera* by Haworth (1819). This variety was later

transferred to the genus *Astroloba*, as *Astroloba aspera* var. *major* (Haw.) Uitewaal (1947). In our opinion this entity does not warrant recognition at any rank, and should be included in the synonymy of *A. corrugata*.

In summary, the following names have been misapplied to this species: *Aloe aspera* Haw. (1804) and *sensu* Salm-Reifferscheid-Dyck (1817) not of Salm-Reifferscheid-Dyck (1840); *Apicra aspera* (Haw.) Willd. (1811); *Astroloba aspera* (Haw.) Uitewaal (1947); and *Haworthia aspera* (Haw.) Haw. (1812) and *sensu* Parr (1971). The names *Astroloba rugosa* Roberts Reinecke *ined.* (1965) and *Astroloba muricata* L.E.Groen *nom. prov. ined.* (1987) have been proposed for *Astroloba corrugata*, but were never formally published.

***Astroloba corrugata* N.L.Mey. & G.F.Sm., sp. nov.** ab aliis speciebus tuberculato-foliatis *Astrolobae* apicibus non-marginatus foliorum, distributione aequiore densioreque tuberculorum staturaque parviore foliorum differt.

**TYPE.**—Western Cape, 3320 (Montagu): Warmwaterberg, 7.5 km west of Warmwaterberg turnoff on Montagu–Ladismith road, (–BD), 27-02-1994, E.J. van Jaarsveld 13913 (PRE, holo.).

Herbaceous, succulent perennial; caulescent, with leaves carried in  $\pm 5$  straight rows on vertical stem, up to 300–600 mm tall, 20–25 mm diam., solitary or proliferous from base and forming clusters. *Leaves* rigid, the young erect, the old spreading to more or less horizontal, 14–25 mm long, 11–18 mm broad at base, up to 5 mm thick, deltoid-ovate or lanceolate, sharply tapering, often twisted to one side in a spiral arrangement, tip pungent, light to dark green; upper surface flat to concave, tubercles concolorous, shiny, fairly evenly distributed, but tending to form raised longitudinal bands, up to 0.5 mm diam.; single distinct or indistinct keel occurring centrally or obliquely in distal third of leaf on upper surface, tubercled or with transverse ridges, keel not forming margin at apex; lower surface convex, similar to upper surface; margins upcurved, acute or rounded, rough. *Inflorescence* up to 430 mm long; peduncle simple, terete, 2–4 mm diam. at base, bracteate; sterile bracts membranous, ovate, acuminate, 4–8 mm long, erect, centrally keeled with reddish brown vein; raceme up to 270 mm long, lax, with 9–30 spirally arranged flowers and buds, 2–5 opening simultaneously; floral bracts membranous,  $\pm 5$  mm long, deltoid, acute, keeled with reddish brown vein, clasping pedicels, shorter than or as long as pedicels; pedicels erect, up to 9 mm long, up to 1 mm diam., green. *Flowers* subactinomorphic, funnel-shaped, white or cream with pink or greenish tinge, midribs of perianth segments green with beige or pink tinge; tube regular,  $\pm$  straight, slightly decurved apically,  $\pm 4$  mm across, constricted to 3 mm above; segments closely coherent, fused towards base; outer segments not adjacent, spoon-shaped, retuse at tips; tips flared,  $< 1$  mm long. *Stamens* 6 of two lengths, 5 and 6 mm long, inserted within perianth tube. *Ovary* 4  $\times$  2 mm, green; style 4 mm long, slightly curved, subcapitate, yellowish green. *Fruit* a trilocular capsule, cylindrical, apically retuse,  $\pm 12 \times 5$  mm diam. *Seed* dark grey, angled, shortly winged.

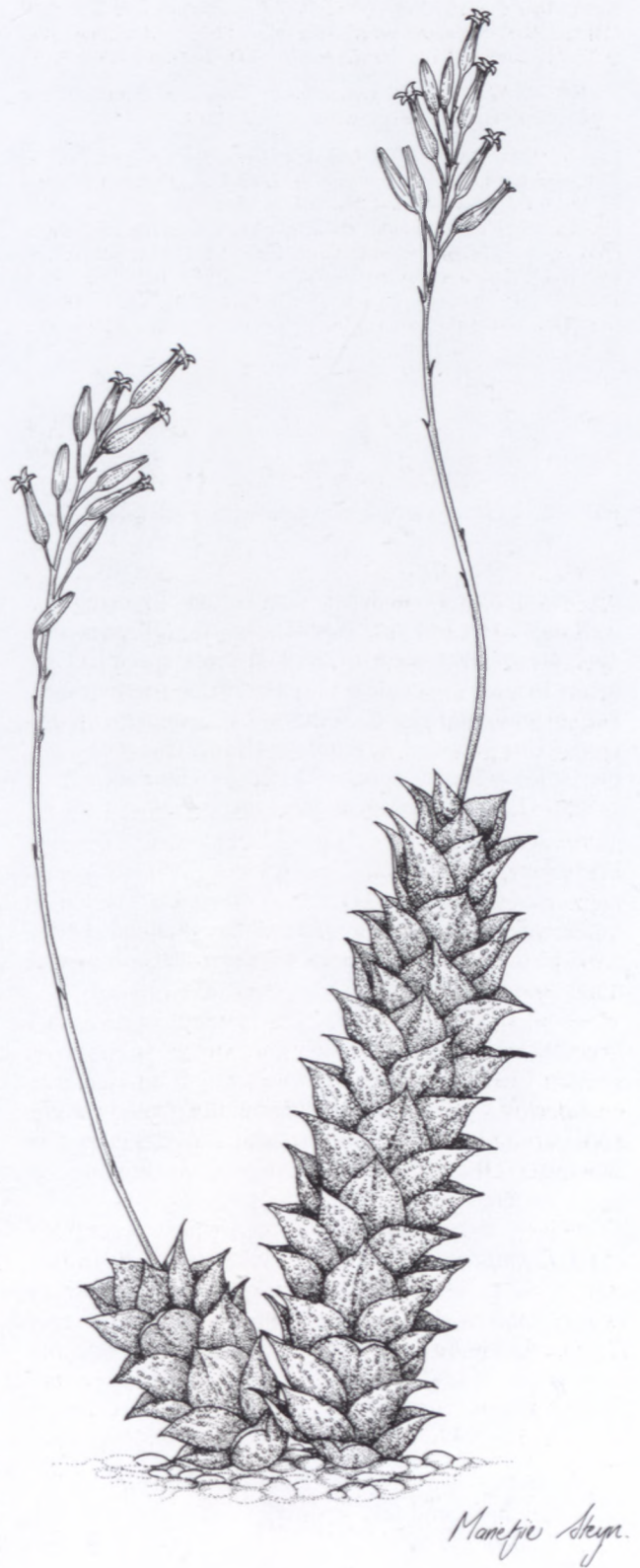


FIGURE 22.—*Astroloba corrugata*. Artist: Marietje Steyn.

*Chromosome number:*  $2n = 14$  (Ferguson 1926; Majumdar 1968; Snoad 1951).

#### *Diagnostic characters*

*Astroloba corrugata* differs from the other tuberculato-leaved species, although glabrous members have been observed, in the genus by the non-marginate leaf

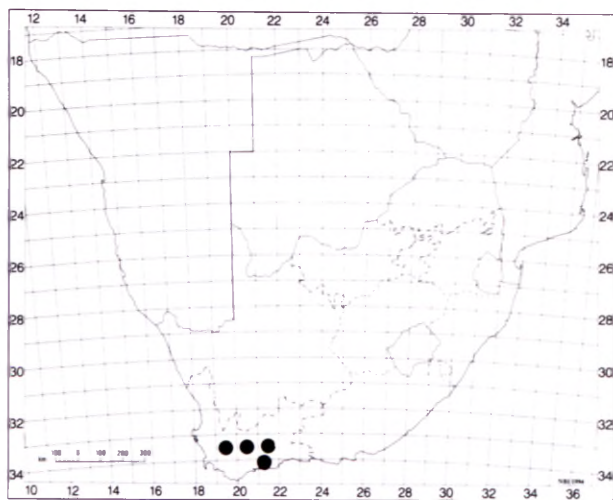


FIGURE 23.—Known geographical distribution of *Astroloba corrugata*.

tips and a more even, denser distribution of tubercles, as well as smaller leaf size. Furthermore, the affinities of *A. corrugata* would seem to lie with those species of the genus that lack a marked inflation of the perianth tube, viz. *A. bullulata* (Jacq.) Uitewaal, *A. congesta* (Salm-Dyck) Uitewaal and *A. foliolosa* (Haw.) Uitewaal. Only two smooth-leaved species, *A. herrei* Uitewaal and *A. spiralis* (L.) Uitewaal show this trait.

### Etymology

The epithet *corrugata* refers to the wrinkled appearance of the leaves, imparted by the thickly dispersed, rough tubercles (Figure 22).

### Distribution

*Astroloba corrugata* is widely distributed in the Ladismith, Montagu, Riversdale, Swellendam and Worcester Districts of the Western Cape Province of South Africa (Figure 23).

### Conservation status

*Astroloba corrugata* is not threatened in any way (Hilton-Taylor & Smith 1994; Hilton-Taylor 1996).

### ACKNOWLEDGEMENTS

The authors are indebted to Dr O.A. Leistner for the Latin diagnosis, and Mrs E. du Plessis for comments on a first draft of the paper.

### REFERENCES

- DUVAL, H.A. 1809. *Plantae succulentae in horto Alenconio*. Apud Gabon, Paris.
- FERGUSON, N. 1926. V. The Aloineae: a cytological study, with especial reference to the form and size of the chromosomes. *Philosophical Transactions of the Royal Society of London, B* 215: 225–253.
- GROEN, L.E. 1987. *Astroloba* Uitew. (III). *Succulenta* 66: 82–87.
- HAWORTH, A.H. 1804. A new arrangement of the genus *Aloe*, with a chronological sketch of the progressive knowledge of that genus, and of other succulent genera. *Transactions of the Linnean Society of London* 7: 1–28.
- HAWORTH, A.H. 1812. *Synopsis plantarum succulentarum*. Richard Taylor, London.
- HAWORTH, A.H. 1819. *Supplementum plantarum succulentarum*. Harding, London.
- HILTON-TAYLOR, C. 1996. Red Data List of southern African plants. *Strelitzia* 4: 1–117. National Botanical Institute, Pretoria.
- HILTON-TAYLOR, C. & SMITH, G.F. 1994. The conservation status of Aloaceae in southern Africa. In B.J. Huntley, Botanical diversity in southern Africa. *Strelitzia* 1: 287–303. National Botanical Institute, Pretoria.
- MAJUMDAR, S.K. 1968. *Morphology, cytogenetics and evolution of the tribe Aloineae*. Ph.D. dissertation, Graduate School, University of Kentucky, Lexington.
- PARR, C.A.E. 1971. Revision of the genus *Astroloba*. Part II. *Bulletin of the African Succulent Plant Society* 6: 145–150.
- ROBERTS REINECKE, P. 1965. *A revision of the genus Astroloba*. M.Sc. thesis, University of Cape Town.
- SALM-REIFFERSCHIED-DYCK, J.M.F.A.H.I. 1817. *Catalogue raisonné des espèces et variétés d'Aloës*. Düsseldorf.
- SALM-REIFFERSCHIED-DYCK, J.M.F.A.H.I. 1840. *Aloe aspera*. Fasc. 3, Fig. 1; [Sect. 2, Fig. 2]. *Monographiae generum Aloe et Mesembryanthemum*. Bonn.
- SMITH, G.F., MEYER, N.L. & GLEN, H.F. 1994. Little-known generic names in the family Aloaceae. *South African Journal of Science* 90: 489, 490.
- SMITH, G.F. & VAN WYK, A.E. 1996. Asphodelaceae. Generic numbers in the subfamily Alooideae. *Bothalia* 26: 158.
- SNOAD, B. 1951. Chromosome numbers of succulent plants. *Heredity* 5: 279–283.
- UITEWAAL, A.J.A. 1947. Revisie van de nomenclatuur der genera *Haworthia* en *Apicra*. *Succulenta* No. 5, Sept./Oct. 1947: 51–54.
- WILLDENOW, C.L. 1811. Bemerkungen über die Gattung *Aloë*. *Der Gesellschaft naturforschender Freunde zu Berlin Magazin für die neuesten Entdeckungen in der gesammten Naturkunde* 5 (Neue Schreibe): 163, 164, 265–283.

N. L. MEYER\* & G. F. SMITH\*

\* Research Directorate, National Botanical Institute, Private Bag X101, 0001 Pretoria.  
MS. received: 1997-09-09.