LILIACEAE

ALOE, CHAMAEALOE, HAWORTHIA, ASTROLOBA, POELLNITZIA AND *CHORTOLIRION*

While engaged on drawing up a key for the Liliaceae for inclusion in the third edition of the Genera of South African Flowering Plants, the genera *Aloe* and *Haworthia* were reviewed together with the small related genera *Chamaealoe*, *Astroloba*, *Poellnitzia* and *Chortolirion* (tribe Aloineae).

In Bull. Afr. Succ. Plant Society, London 6: 145, 195, etc. (1971), a semi-popular magazine, unfortunately not readily available in South Africa, C. A. Parr has sunk the genera *Astroloba* and *Poellnitzia* under *Haworthia* in a new section, the Quinquefariae. These two genera had been separated from *Haworthia* because of their regular perianths, those of *Haworthia* being two-lipped. A few *Haworthia* species, however, e.g. *H. marginata* and *H. margaritifera*, also possess regular flowers and there being no other distinctive characters correlated with this regular perianth, it forms a weak basis for separation. Regular or bilabiate perianths frequently occur in the Iridaceae where species belonging to one genus, or even varieties of one species, show both types.* In the genus *Aloe* with its usually regular flowers two species, *A. albida* (Stapf) Reyn. and *A. myriacantha* (Haw.) Roem. & Schult.f. also possess bilabiate perianths.

It is interesting to observe the parallel development of variations inherent in these two large genera, *Aloe* and *Haworthia*. The tribe *Aloineae* to which they belong is characterised by possessing a stem or a rhizome but both have species producing a bulbous base (the leaf-bases having become swollen), e.g. *Aloe kniphofioides* Bak., *A. buettneri* Berg., *A. modesta* Reyn., etc., and *Haworthia angolensis* (*Chortolirion angolense*). In both genera the roots may be thin or swollen and the leaves variously arranged in spiral or longitudinal rows along the stems or in basal rosettes. The raceme may be simple or branched, the perianth regular or two-lipped. But in *Aloe* the flowers are usually regular and showy and possess long, often exserted stamens and style, whereas those of *Haworthia* are small and inconspicuous, usually bilabiate with the stamens and style short and included.

Haworthia angolensis *Bak.* in Trans. Linn. Soc. ser. 2, Bot. 1: 263 (1878), J. Linn. Soc. 18: 210 (1880), Fl. Trop. Afr. 7: 469 (1897). Type: Angola, Huilla, *Welwitsch* 3756 (BM, holo., PRE, photo).

H. tenuifolium Engl. in Bot. Jahrb. 10: 2, t. 1 (1889). Type: Cape, near Kuruman, *Marloth* 1049 (B, holo., PRE!). *H. stenophylla* Hook., Icon. pl. t. 1974 (1891). Type: Transvaal, Barberton, *Galpin* 858 (K, holo., PRE!). *H. subspicata* Bak. in Bull. Herb. Boiss. 2, ser. 4: 998 (1904). Type: Transvaal, Modderfontein near Johannesburg, *Conrath* 645 (Z, holo.).

Chortolirion angolense (Bak.) Berger in Pflanzenr. 4, 38, 3, 2: 723 (1908). *C. tenuifolium* (Engl.) Berger, l.c. p. 73. *C. stenophyllum* (Bak.) Berger, l.c. p. 72. *C. subspicatum* (Bak.) Berger, l.c. p. 74.

Chortolirion, separated from *Haworthia* by Berger because of its bulbous base, is closely related to *H. graminifolia* G. G. Smith, which also possesses thin, narrow denticulate leaves with a slight tendency for these to swell at the base. Berger also drew attention to the shape of the ovary which he considered an important difference, for he found it to be acuminate and not obtuse apically. He must have examined young fruits for initially the ovary is obtuse and well separated from the terete, short style; apparently the upper ovules are sterile causing the capsule to become attenuated. This may also be seen in other species of *Haworthia*.

Although Berger recognized 4 species in *Chortolirion*, a study of the ample material now available shows the differences enumerated by him as mere variations in this widespread summer rainfall species. It is found in grassland where, owing to fires or frost, its leaves may die back to ground-level.

Aloe bowiea *Roem. & Schult.f.* Syst. Veg. 7: 704 (1829); Kunth, Enum. 4: 515 (1843); Bak. in J. Linn. Soc. 18: 158 (1880), Fl. Cap. 6: 309 (1896). Type: Cape, *Bowie* (K, holo.).

Bowiea africana Haw., Phil. Mag. 299 (1824), l.c. 123 (1827). *Chamaealoe africana* (Haw.) Berger in Pflanzenr. 4, 38, 3,: 120 (1908).

This small rare plant, first collected by Bowie in 1822, most probably in the neighbourhood of Uitenhage, where it is endemic, was described by Haworth as *Bowiea africana*.* Another species, *Bowiea myriacantha*, was placed next to it and the genus described as possessing a bilabiate perianth which is not correct for *Bowiea africana*, for here it is regular. Roemer & Schultes f. removed them both to *Aloe* (1829) but since the name *Aloe africana* was not available, *Bowiea africana* Haw. became *Aloe bowiea* R. & S. In 1908 Berger placed *Aloe bowiea* in a separate genus, *Chamaealoe africana*. Reynolds upheld *Chamaealoe* for it is not included in his Aloes of South Africa. The genus was omitted in Phillips' Genera of South African Flowering Plants. The flowers of *Aloe bowiea*, although smaller and thinner, resemble those of *Aloe dolomitica*, *A. sessiliflora*, etc., which also possess erect, short perianth-segments and have the stamens and style much exserted. In the genus *Aloe* the extent of the fusion and/or connivence of the segments varies and it cannot be used as a distinguishing character.

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*In the Iridaceae experiments showed that if gravity was eliminated, the zygomorphic perianth would revert to an actinomorphic pattern.

**Bowiea* Harv. ex Hook.f. (containing the single species *B. volubilis* Harv. ex Hook.f.) is conserved against *Bowiea* Haw.