

ALOE DELPHINENSIS IN *ALOE* SECT. *LOMATOPHYLLUM*

The genus *Lomatophyllum* Willd. has been distinguished from *Aloe* L. primarily by the former having fleshy, indehiscent fruit (berries) with unwinged seeds and the latter having dehiscent fruit (capsules) with winged seeds. Smith & Van Wyk (1991) following a cladistic analysis of the subfamily Alooiidae (Asphodelaceae), concluded that *Lomatophyllum* could be easily included in *Aloe* but that a comprehensive taxonomic revision of the species concerned was required. Evidence from chromosome morphology, leaf surface anatomy, pollen morphology (Schill 1973) and leaf sap flavanoid chemistry (Viljoen *et al.* 1998) all lend support

to this move to reduce *Lomatophyllum* to the synonymy of *Aloe*.

Rowley (1996) has proposed that species included in the genus *Lomatophyllum* be transferred to *Aloe* as members of *Aloe* sect. *Lomatophyllum* G.D.Rowley. Various new combinations and new names have been proposed to validate this proposal (Rowley 1996; Newton & Rowley 1998). These automatic transfers have done little to resolve the species relationships in the group. However, Rauh (1998) has recently provided an identification key to the 18 species he included in his concept of *Lomatophyllum*.

A comprehensive, phylogenetically based, infrageneric classification of *Aloe* is not currently available. Reynolds (1966, 1982) chose to recognise 10 sections in the genus *Aloe* s.s. However, the continued use of his classification has been questioned in recent times on the basis of chemical investigations (Viljoen *et al.* 1998). Van Wyk & Smith (1996) did not mention these sections at all and used informal groups to arrange the South African species of *Aloe*. The recognition of *Lomatophyllum* at sectional rank in *Aloe* is probably not equivalent to that used by Reynolds (1966, 1982) in defining the various sections in the genus. Hence the infrageneric classification of *Aloe* remains to be resolved and a different rank such as subgenus may need to be considered for the taxa of *Lomatophyllum*, assuming monophyly of this infrageneric unit.

Nevertheless the characters used to define the section *Lomatophyllum* are distinctive and easily ascertained if fresh fruit are available. There are a number of species of Madagascan *Aloe* for which the fruit are unknown (cf. Rauh 1995, 1998) and hence their sectional classification is unknown. One of these is *Aloe delphinensis* Rauh (1990), based on his collection *Rauh 68629a* from Pic St. Louis, near Fort Dauphin in southwest Madagascar. Rauh (1990) allied the new species to *A. bakeri* Scott Elliot but subsequently considered that a further new species *A. lucile-allorgeae* Rauh was the closest relative of *A. delphinensis* (Rauh 1998).

Fruit set was stimulated in a cultivated specimen of *Aloe delphinensis* using pollen from *A. dinteri* Berger, a 'true' *Aloe* from Namibia (Reynolds 1982). These fruits were fleshy and indehiscent, and contained wingless seeds (Figure 11).

Aloe delphinensis can be included in *Aloe* sect. *Lomatophyllum* thus bringing the number of included species in that section to nineteen. This species may be distinguished from the other Madagascan taxa in the group by inserting an additional couplet into the key of Rauh (1998).

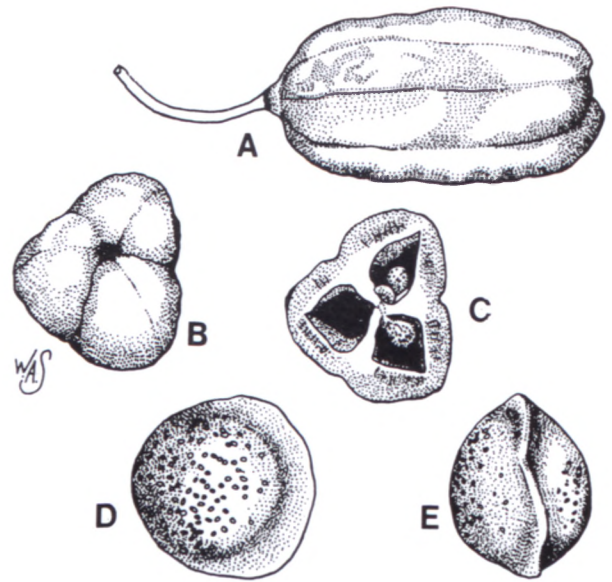


FIGURE 11.—*Aloe delphinensis*. A–C, fruit: A, side view, $\times 2$; B, apical view, $\times 2$; C, cross section, $\times 2$. D, E, seed, $\times 10$. All from fresh material of P.I. Forster PIF24630 [voucher at Queensland Herbarium (BRI)] prepared from a plant purchased by N. Carr in a Madagascan nursery as this species and in close agreement with the protologue and accompanying illustrations of Rauh (1990, 1995, 1998).

Aloe L. sect. **Lomatophyllum** G.D.Rowley in *Excelsa* 17: 59 (1996).

***Aloe delphinensis* Rauh** in *Cactus & Succulent Journal* (US) 62: 230 (1990). Type: Madagascar, on granitic rocks on the Pic St. Louis, near Fort Dauphin, 100 m, *Rauh 68629a* (holo., HEID).

Fruiting pedicel 14–15 \pm 0.5 mm, glabrous. *Fruit* oblong, triquetrous, indehiscent and fleshy, 18–20 \times 9–10 mm diam. *Seed* \pm globose, \pm 2 mm diam., with a minute ring or ridge around \pm $\frac{2}{3}$ of the circumference (Figure 11).

Key to Madagascan species

(based mainly on Rauh 1998, but with nomenclature updated for inclusion within *Aloe*)

- 1a Plants with bulbils in the inflorescence 2
- 1b Plants without bulbils in the inflorescence 3
- 2a Rosettes small, with leaves spreading, green with white bands and spots; bulbils 1 or 2, in the floral region
..... *A. propagulifera* (Rauh & Raz.) L.E.Newton & G.D.Rowley
- 2b Rosettes larger, with leaves erect, uniformly green; bulbils in the axils of bracts up the scape
..... *A. schilliana* L.E.Newton & G.D.Rowley
- 3a Stems decumbent, short, richly branched, forming dense mats *A. socialis* (H.Perrier) L.E.Newton & G.D.Rowley
- 3b Stems erect, single or branched from the base, but not forming dense mats 4
- 4a Plants with thick stems to 100 mm diam. and 2–3 m tall with a large terminal leaf rosette *A. peyrierasii* Cremers
- 4b Plants with thinner and shorter stems 5
- 5a Stems short, to 0.5 m and 10–20 mm in diam. 11
- 5b Stemless rosette plants or with very short stems 6
- 6a Rosettes small, to 0.5 m in diameter; leaves spreading or erect 7
- 6b Rosettes larger, stemless or with a short stem; leaves 0.1–1.0 \times 0.1–0.12 m 8
- 7a Leaves narrow linear, erect, densely dentate along the margins; in cultivation forming dense clumps; inflorescence much longer than leaves *A. belavenokensis* (Rauh & Gerold) L.E.Newton & G.D.Rowley
- 7b Leaves triangular, not densely dentate 9

- 8a Leaves up to $1 \times 0.1-0.12$ m, acute; inflorescences much exceeding the leaves *A. occidentalis* (H.Perrier) L.E.Newton & G.D.Rowley
- 8b Leaves shorter, with rounded apices; inflorescences shorter than the leaves *A. orientalis* (H.Perrier) L.E.Newton & G.D.Rowley
- 9a Leaf blades with large deltoid marginal teeth, often chocolate brown; raceme few-flowered, globular *A. prostrata* (H.Perrier) L.E.Newton & G.D.Rowley
- 9b Leaf blades with small marginal teeth, not chocolate brown; raceme elongated 10
- 10a Flowers lemon yellow with green tips *A. citrea* (Guillaumin) L.E.Newton & G.D.Rowley
- 10b Flowers rose pink *A. rosea* (H.Perrier) L.E.Newton & G.D.Rowley
- 11a Inflorescences shorter than the leaves 12
- 11b Inflorescences longer than the leaves 13
- 12a Stems not creeping at the base; leaves very long and narrow, at least over 0.3 m *A. oligophylla* Baker
- 12b Stems very thin and stolon-like at the base, creeping and producing adventitious roots; leaves shorter, 0.2–0.3 m long *A. antsingyensis* (Leandri) L.E.Newton & G.D.Rowley
- 13a Stems not branching from base, leaf blades green, straight; raceme dense with hanging flowers *A. namorokaensis* (Rauh) L.E.Newton & G.D.Rowley
- 13b Stems branching from base, leaf blades bluish green or brownish green, spirally rolled in upper part or decurved; raceme lax 14
- 14a Leaf blades bluish green; marginal teeth 10–15 mm apart; floral tube 25–30 mm long; fruit globose, ± 12 mm diam. *A. anivoranonensis* (Rauh & Hedding) L.E.Newton & G.D.Rowley
- 14b Leaf blades brownish green; marginal teeth 2–8 mm apart; floral tube 20–22 mm long; fruit oblong, 9–10 mm diam. *A. delphinensis* Rauh

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