

Notes on African plants

VARIOUS AUTHORS

ROSACEAE

OBSERVATIONS ON *CLIFFORTIA MICRANTHA*

A fresh specimen of a *Cliffortia* species from the Swartberg (*Vlok 2113*) clearly showed more than one style and, following Weimarck's (1934, 1948) keys, was identified as *C. propinqua* Eckl. & Zeyh. (subgenus *Digraphidium* section *Complanatae*), but its appearance differed greatly from that species. It did, however, match *C. micrantha* Weim. (subgenus *Monographidium*, section *Costatae* or *Bacciformes*; see below) a single-styled species, both in appearance and by key except for the number of styles. With the handling of the fresh specimen, it was clear that the styles were easily shed. A re-evaluation of existing herbarium collections of *C. micrantha* seemed, therefore, necessary. In 15 herbarium specimens examined from three major Cape herbaria (BOL, NBG, STE), two-styled fruits were found occasionally on only five of the specimens; most fruits had no styles and a few only one. The fresh specimen (*Vlok 2113*) was predominantly two-styled with only a few three-styled fruits.

According to Weimarck (1934, 1948), the number of styles and achenes correspond. It should therefore be feasible to count the achenes instead of the styles.

The number of achenes in at least two fruits per specimen, were counted for the 15 specimens of *C. micrantha*. The fruits of the fresh Swartberg specimen (*Vlok 2113*) were also examined for number of achenes. *Esterhuysen 28523*, identified by the collector as *C. micrantha*, but possibly of hybrid origin (see below), was also examined.

All the fruits of *C. micrantha* proper contained at least two achenes. A single specimen from near Prince Albert (*Bond 1680*) had two to three achenes per fruit. A specimen from Noukloof Nature Reserve (*Laidler 154*) had two to four achenes per fruit as well as two styles on some of the fruits. The Swartberg specimen (*Vlok 2113*) had two to three achenes corresponding with the number of styles (Figure 1A–E). The fruit of *Esterhuysen 28523* appeared more oblong and furrowed than the norm for *C. micrantha* and contained only one achene. Closer examination showed this specimen to differ from *C. micrantha* in the shape and size of the leaves as well, tending towards the characters found in *C. cervicornu* Weim. (Weimarck 1959).

If it is accepted that one style concurs with one achene and two (or more) styles with two (or more) achenes consistently enough to subdivide a genus (Weimarck 1934, 1948), then *C. micrantha* must be regarded as a multiple-styled species because there were never less than two achenes per fruit in all the specimens examined. This is confirmed by the fresh Swartberg specimen (*Vlok 2113*) which has two to three styles and two to three achenes.

Weimarck's (1934, 1948) perception of *C. micrantha* as having a single style could be due to the fact that the styles

in his material had been shed. As he equated the number of achenes to the number of styles, it is most likely that he did not examine the achenes in this species.

Weimarck (1940) placed *C. micrantha* in the section *Costatae* with *C. serpyllifolia* Cham. & Schlecht. and *C. browniana* Burt Davy on the basis of its ribbed fruits and the mistaken assumption that it has a single style. *C. micrantha* can, however, have ribbed or smooth fruits, depending on the age of the fruit, (Figure 1A, F & G) and was therefore placed in two divisions in his key for the section *Costatae* (Weimarck 1948). In the same article, he placed *C. micrantha* in his key for the section *Bacciformes* as well (Weimarck 1948). He discussed it under the latter section which contains only one other species, *C. baccans* Harv. This latter species has a smooth and berry-like fruit, resembling the mature fruit of *C. micrantha*, but with only one style. If *C. micrantha* is retained in either the sections *Bacciformes* or *Costatae*, the number of styles loses its taxonomic importance. Furthermore, the feasibility of subdividing the genus into subgenera on this basis becomes questionable.

On the above evidence, *C. micrantha* should be placed in the subgenus *Digraphidium* on the basis of the predominance of two-styled flowers. This placement is further substantiated by the trifoliate leaves, the tetramerous flowers and the low stamen count common in this subgenus. However, fruits of the only section (*Complanatae*) of this subgenus are flattened and hard, and not berry-like as are the mature fruits of *C. micrantha* (Figure 1A). The older fruits, however, can appear ribbed and the two-achened ones are dorsiventrally flattened, to some extent resembling the fruits in the section *Complanatae* (Figure 1F & G). *C. micrantha* might therefore be placed in the subgenus *Digraphidium* but in its own section. This needs further investigation.

The possible occurrence of more than two styles and achenes in the recognised two-styled species of *Cliffortia* also needs investigation.

The probability of the specimen *Esterhuysen 28523* being a hybrid between *C. micrantha*, a two-styled species, and *C. cervicornu* Weim., a one-styled species, raises more questions about relationships. A field trip to collect fresh material of this probable hybrid was unsuccessful, but needs to be done again as part of further work on hybridisation and relationships in the genus.

SPECIMENS EXAMINED

For number of styles

CAPE. — 3320 (Montagu): Touwsberg, in kloof, S slope near top, 1 100 m, 11-07-1941, (–DB), *Levyns 7483* (NBG). 3321 (Ladismith): Swart-

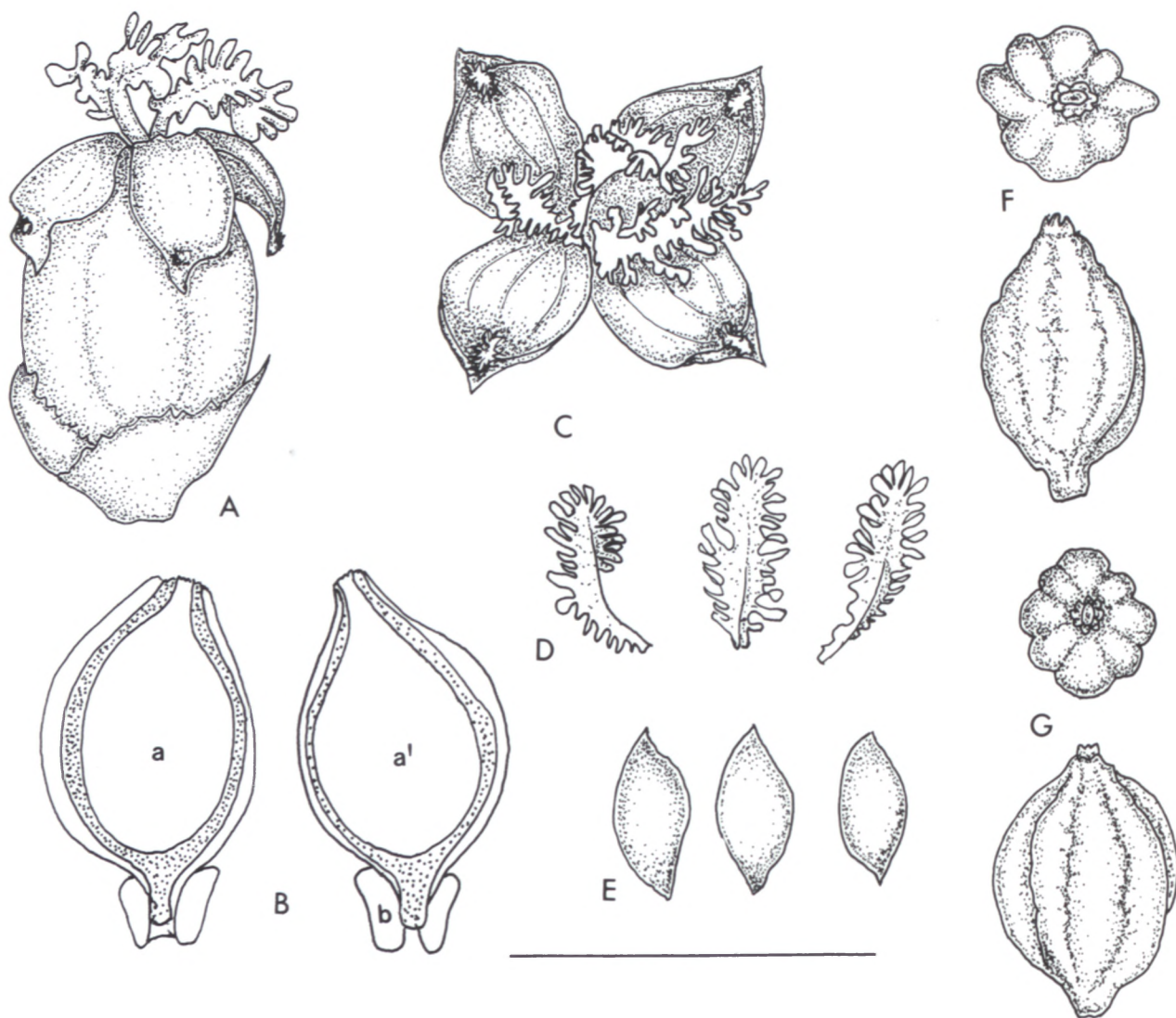


FIGURE 1.—*Cliffortia micrantha*: A, mature fruit with two styles (bracteoles in place, covering the stipe). B, mature fruit in longitudinal section showing flat sides of two achenes (a, a') covered by two layers of tissue; stipe (b) attached; sepals, styles and bracteoles removed. C, top view of three-styled fruit; D, styles from C; E, achenes from C; F, old fruit, side and corresponding top views showing ribs and dorsiventral flattening; G, old fruit, showing four major and four minor ribs in a regular pattern. A–E, *Vlok 2113* (STE); F, *Laidler 154* (STE); G, drawn from *Boshoff 315* (STE). Scale bar = 2 mm.

berg, top of pass into Gamkaskloof, 1 333 m, 8-05-1963, (–BC), *Taylor 4744* (STE); Swartberg, in ravine between Kliphuisvlei and Gamkaskloof, 1 250 m, 7-05-1989, (–BD), *Vlok 2113* (PRE, STE); Noukloof Nature Reserve, gentle SE slope, 566 m, 12-07-1982, (–CA), *Laidler 154* (STE); Roodeberg, S slope near stream, 24-05-1950, (–CB), *Esterhuysen 17152* (NBG).

For number of achenes

CAPE.—3320 (Montagu): Anysberg, S slopes, 810 m, 2-08-1956, (–DA), *Wurts 1424* (NBG); Touwsberg, steep rocky lower S slopes to 1 000 m, 1-06-1956, (–DB), *Esterhuysen 25933* (BOL); Touwsberg, 1 100 m, 11-07-1941, (–DB), *Levyns 7483* (Type) (BOL, NBG, STE). 3321 (Ladismith): Ladismith, koppie 4 miles from town, 566 m, 15-08-1948, (–AD), *Levyns 9030* (BOL); Gamka Mtn Reserve, N slope (moist kloof), 866 m, 03-1976, (–BC), *Boshoff P315* (STE); Prince Albert–Gamkaskloof road, 890 m, 3-08-1979, (–BD), *Bond 1680* (STE); Swartberg, in a ravine between Kliphuisvlei and Gamkaskloof, 1 250 m, 7-05-1989, (–BD), *Vlok 2113* (STE); Noukloof Nat. Res., gentle SE slope, 566 m, 12-07-1982, (–CA), *Laidler 154* (STE); Roodeberg, S slopes near stream, 24-05-1950, (–CB), *Esterhuysen 17152* (BOL, NBG.); Roodeberg, 1 000 m, 10-08-1948, (–CB), *Levyns 8981* (BOL, STE).

Probable hybrid (*C. micrantha* × *C. cervicornu*)

CAPE.—3321 (Ladismith): Swartberg foothills between Bosluiss Pass and Die Hel, 10-10-1960, (–BC), *Esterhuysen 28523* (BOL).

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