

Aspidonepsis (Asclepiadaceae), a new southern African genus

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ABSTRACT

Aspidonepsis, an endemic southern African genus, is described and compared to the closely allied genus *Aspidoglossum*. This newly described genus is composed of two subgenera, *Aspidonepsis* and *Unguilibium*, consisting of three and two species respectively. *Asclepias diploglossa*, *A. flava*, *A. cognata* and *A. reneensis* are transferred to *Aspidonepsis*, and *A. shebae* is newly described. All species are discussed, illustrated and a key is given to aid in their identification.

UITTREKSEL

Aspidonepsis, 'n genus endemies in suidelike Afrika, word beskryf en met die naverwante genus *Aspidoglossum* vergelyk. Die nuut beskrywe genus bestaan uit twee subgenusse *Aspidonepsis* en *Unguilibium*, met drie en twee spesies onderskeidelik. *Asclepias diploglossa*, *A. flava*, *A. cognata* en *A. reneensis* word na *Aspidonepsis* oorgeplaas, terwyl *A. shebae* nuut beskryf word. Al die spesies word bespreek, geïllustreer en 'n sleutel om te help met hul identifikasie, word gegee.

INTRODUCTION

A. A. Bullock's work on the family Asclepiadaceae (1952 to 1967) has received wide acceptance in Africa north of the Limpopo River. In southern Africa, however, his generic concepts and names have seldom been applied. This is explained partly by the fact that his research seldom included southern African plants and partly by the rejection of his work by Dyer (1975).

Unfortunately, three elements detract from Bullock's work: 1, he admitted that his delimitation of genera was only tentative (1952); 2, when resurrecting or expanding existing genera he seldom gave new descriptions for these taxa. As a result, the generic circumscriptions and exact application of some of these names is still unclear; 3, his species concepts were often very broad and there is now growing consensus that some species will need to be re-split.

Most southern African herbaria therefore still follow N.E. Brown's treatment of the Asclepiadaceae as outlined in the *Flora capensis* (1907–1909). However, workers like N.E. Brown had followed the tradition of their time and separated genera using floral differences only. They even separated some genera on the basis of a single character. Phenomena like convergent evolution were seldom taken into account, and workers were unaware that the evolution of analogous floral morphologies had taken place within the family. Bullock (1952) was the first to realize that such convergent evolution had taken place and that many genera in the family not only contained a number of unrelated entities, but that these entities could only be identified in terms of consistently produced correlated character combinations. He was the first taxonomist to attempt a phylogenetically based classification for the African members of the tribe Asclepiadeae.

What Bullock has done at the generic level, N.E. Brown has accomplished at the specific level. Consequently the work of N.E. Brown (species delimitation) and Bullock (generic delimitation) should be seen as complimentary rather than antagonistic.

Recent investigations concerning the southern African members of the genus *Asclepias sensu* N.E. Brown have shown that Bullock's generic concepts should be redefined and extended to embrace the taxa of this subcontinent (Nicholas 1981). Bearing in mind that the type species of the genus *Asclepias* L. is *A. syriaca* L., the authors agree with Bullock in the exclusion of *Asclepias* from Africa except as an adventive. The process of moving the southern African taxa of *Asclepias sensu* N.E. Brown to their correct generic position has already begun (Nicholas & Goyder 1990). The authors understand the desirability of giving a brief generic synopsis of the subtribe Asclepiadineae in Africa at this early stage of their work. However, as a number of genera still need to be: 1, resurrected from synonymy; 2, newly described; 3, extensively redefined; they feel that it is at present unwise to publish information that may change as their research progresses.

Aspidonepsis diploglossa (Turcz.) A. Nicholas & D.J. Goyder, *A. flava* (N.E. Br.) A. Nicholas & D.J. Goyder, *A. cognata* (N.E. Br.) A. Nicholas & D.J. Goyder, *A. reneensis* (N.E. Br.) A. Nicholas & D.J. Goyder and *A. shebae* A. Nicholas & D.J. Goyder form a phylogenetic unit quite distinct from the rest of *Asclepias sensu* N.E. Brown and can be distinguished from other genera in the tribe Asclepiadeae by the following set of consistently present correlated characteristics:

- 1, a globose, fusiform or napiform tuber just below the soil surface;
- 2, a single erect stem (rarely up to 3 in *A. flava*);
- 3, spreading to ascending linear to narrowly elliptic leaves which are ranked up the stem;
- 4, inflorescences gathered together at the top of the flowering stem, even if nodally produced;

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- 5, persistent inflorescence bracts, often grading with the leaf system;
- 6, cucullate corona lobes which are produced 0.5 to 1.8 mm above the insertion of the corolla;
- 7, a saccate corona lobe cavity;
- 8, wishbone-shaped pollinaria, with semicircular to hemiovoid pollinia.

Aspidonepsis is confined to high altitude grasslands of the Drakensberg and its foothills, although outlying populations of some species may be found in mountainous situations as far south as Grahamstown and on montane 'islands' nearer the Transkei-Natal coast. The northern limit of distribution of this endemic southern African genus is the eastern Transvaal. Species are usually, but not always, found in situations subject to annual burning. Populations are intermittent in the wild and usually consist of few widely dispersed individuals. Occasionally up to three tubers are produced in a connected series, possibly representing subsequent year's growths.

Aspidonepsis bears a number of similarities to the genus *Aspidoglossum* (Table 1), and it is the authors' opinion that the two genera may have originated from the same distant, ancestral stock. However, if this is the case, then the two taxa have since evolved along very different lines, for a number of major disjunctions in morphology now exist, such as the aggregation of inflorescences near the stem apex and the central cavities in the corona lobes of *Aspidonepsis*. In contrast *Aspidoglossum* bears inflorescences that are produced along the length of the stem and there is no corona lobe cavity.

The affinity of these two genera can be clearly seen in the corona lobe and pollinarium morphology of *Aspidoglossum delagoense* (Schltr.) Kupicha, which is very similar to *Aspidonepsis* (Figure 1). However, all other features of this species place it clearly within *Aspidoglossum*, of which *A. biflorum* E. Mey. is not only the type species but also typical of the genus as a whole (Kupicha 1984). *Aspidoglossum* has more species and is morphologically more diverse than *Aspidonepsis*.

The five species recognized in *Aspidonepsis* fall into two well-defined groups that require recognition at subgeneric level. The first group is characterised by spreading or ascending corolla lobes and cup- or dish-shaped corona lobes with a tooth-like appendage projecting from the floor

of the corona lobe cavity. The second group has reflexed corolla lobes and corona lobes with a more angled outer margin and no tooth-like structure projecting from the floor of the corona lobe cavity.

A total of 187 pressed specimens were examined during the course of this study from the following herbaria: BOL, CPF, GRA, J, K, NBG, NH, NU, PRE, SAM and TCD*. Additional data were obtained from spirit collections and supplemented by observations in the field.

* Herbarium abbreviations are taken from Holmgren *et al.* (1990).

TAXONOMY

***Aspidonepsis* A. Nicholas & D.J. Goyder, gen. nov.,**
Aspidoglossum affinis sed sinu coronae lobis prominenti et appendice distali coronae lobis non filiformi nec ornata differt.

Herba perennis. *Caudex*: tuber globosum, fusiforme vel napiforme. *Caulis* unicus (raro duo vel tres), erectus, gracilis, usque 625 mm tantum longus. *Folia* expansa, anguste elliptica vel linearia in subgenere *Aspidonepse*, sed ascendente, linearia vel nonnunquam lanceolata, margine manifeste revoluta in subgenere *Unguilibio*. *Inflorescentia* umbellata, terminalis subterminalisve vel ad nodos disposita, 2–17-flora (in subgenere *Aspidonepse*), 4–11-flora (in subgenere *Unguilibio*); bractae ad anthesin persistentes. *Coronae lobi* partibus inferioribus ad columnam staminalem connatis; 0.5–1.8 mm supra corollam producti, cucullati; sinus profundus appendice linguiformi centrali ornatus in subgenere *Aspidonepse*. *Appendix proximalis* ad apicem deltato-falcata et apicem stylii aequans vel superans impendensque; extremum distale coronae appendice parva ornatum vel appendice carente; sinus profundus rimiformis in subgenere *Unguilibio*. *Appendix antherae* reniformis vel pescapiformis profunde apicaliter fissa.

TYPUS.—*Aspidonepsis diploglossa* (Turcz.) A. Nicholas & D.J. Goyder, *vide infra*.

Perennial geophytic herb. *Rootstock* a globose, fusiform or napiform tuber. *Stems* 1 (rarely as many as three in *A. flava* only), erect, never more than 650 mm tall. *Leaves* spreading to ascending, linear, lanceolate to narrowly elliptic, older leaves shorter and broader; petiole

TABLE 1.—A comparison of *Aspidonepsis* and *Aspidoglossum*.

| Character | <i>Aspidonepsis</i> | <i>Aspidoglossum</i> |
|---------------------------------|-----------------------------------------|-----------------------------------------------------------|
| Habitat | Montane only | Widespread |
| * Habit in the field | Erect | Erect but usually pendulous apically |
| Stem number | 1, up to 3 in <i>A. flava</i> | Usually 1 to a few, occasionally many |
| Leaf insertion | Opposite | Opposite, or occasionally verticillate or irregular |
| Leaf shape | Usually linear, rarely lanceolate | Usually linear, rarely suborbicular, elliptic or obovate |
| * Inflorescence production | Near the stem apex only | Along the length of the stem, but also gathered apically |
| Inflorescence insertion | Not fascicled, rarely sessile | Fascicled, almost sessile near stem apex |
| * Flower colour | Yellow, purple, and brown | Purple and green, never yellow |
| * Corona lobe ornamentation | Appendages never complicate or filiform | Appendages either complicate & filiform or not ornamented |
| * Corona lobe cavity | Present | Not present, or rarely rudimentary |
| * Central corona lobe appendage | Within the corona lobe cavity | Present but not in the corona lobe cavity |
| Pollinaria shape | Wishbone-shaped | Wishbone-shaped or pachyform |
| Pollinia shape | Sausage-shaped | Sausage-shaped to pyriform |

* important differences between the two taxa.

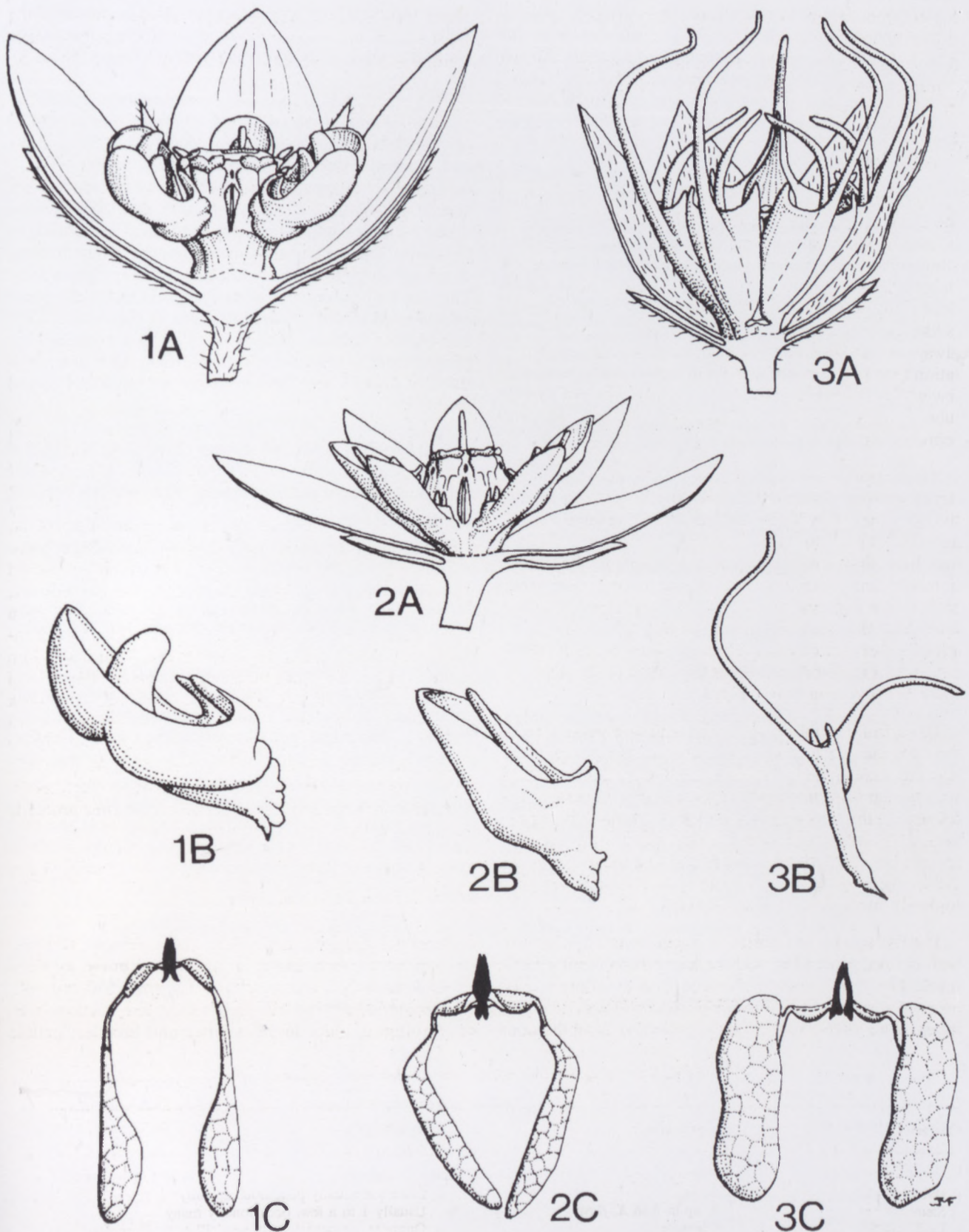


FIGURE 1.—Comparison of 1, *Aspidonepsis flava*, Coleman 813, (PRE); 2, *Aspidoglossum delagoense*, Barbosa & De Lemos 7958, (K); 3, *Aspidoglossum biflorum*, Bolus 238, (K). A, flower with part of corolla removed: 1A, $\times 11$; 2A, $\times 9.5$; 3A, $\times 7$. B, corona lobe, side view: 1B, $\times 28$; 2B, $\times 15$; 3B, $\times 11$. C, pollinarium: 1C, $\times 48$; 2C, $\times 22$; 3C, $\times 55$.

0–5 mm long. *Inflorescences* umbelliform; terminal, sub-terminal and nodal; bracts present at anthesis. *Corolla* catilliform or reflexed with lobe apices ascending. *Corona* with lower parts fused to the staminal column; lobes produced 0.5–1.8 mm above the corolla, cucullate; cavity

saccate with appendage (subgenus *Aspidonepsis*) or without appendage (subgenus *Unguilibium*). *Anther appendages* reniform to pescapiform, with a deep apical cleft, or rectangular. *Style*: head swollen; apex truncated. *Pollinaria* wishbone-shaped; corpusculum fusiform;

translator apparatus articulated and winged; pollinia semicircular to hemiovoid or clavate. *Habitat*: high altitude mountain grasslands. *Distribution*: southern African Drakensberg. *Etymology*: *Aspidonepsis* = *Aspidoglossum*'s cousin. *Aspid(os)*, (Greek for shield) but used here to indicate the genus *Aspidoglossum*, and *anepsia* (Greek for cousin).

Key to subgenera and species

- 1a Corolla not fully reflexed when mature. Corona lobe cavity with a tongue-like appendage (Subgenus *Aspidonepsis*):
- 2a Proximal corona lobe appendages projecting over the style apex *A. cognata*
- 2b Proximal corona lobe appendages not projecting over the style apex:
- 3a Corona lobes with arm-like proximal appendages that cross over each other and reflex back into the coronal cavity. These appendages are below the style apex and level with the anther wings *A. flava*
- 3b Corona lobes without true proximal appendages, instead, the proximal ends are produced into dentate or obtuse (but not protruding) shoulders that are level with the style apex *A. diploglossa*
- 1b Corolla reflexed when mature. Corona lobe cavity without an appendage (Subgenus *Unguilibium*):
- 4a Distal corona lobe appendage present (if somewhat short). Transkei, Natal and southern Transvaal bordering Natal *A. reenensis*
- 4b Distal corona lobe appendage absent. Eastern Transvaal only *A. shebae*

ENUMERATION OF THE SUBGENERA AND SPECIES

A. Subgenus *Aspidonepsis*

Inflorescences 2–17-flowered. *Flowers* yellow, green, brown and purple or these in combination. *Corolla* catiliform with lobe apices curving upwards or spreading, lobes with abaxial surface glabrous. *Corona lobes*: upper proximal margin various, distal margin obtusely rounded or truncate and raised above the proximal appendages (except *A. diploglossa*); cavity saccate with a centrally produced laterally flattened tongue-shaped or botuliform

appendage. *Anther appendages* reniform or pescapiform with a deep apical cleft. *Pollinia* narrowing proximally; translator arms in two distinct parts, winged (Table 2).

This subgenus is composed of three species: *Aspidonepsis diploglossa*, *A. flava* and *A. cognata*. For a number of years these three species were considered conspecific, and lumped together under the oldest name, viz. *A. diploglossa*. However, although all three species are vegetatively similar, close examination shows that they are distinct entities with very different floral morphologies (Nicholas 1987). They are usually found in annually burnt or grazed, high to medium altitude, montane grasslands. They are found along the Natal-Transkei Drakensberg, and on scattered island mountain ranges in the eastern Cape and Natal midlands. The flowers of this subgenus are predominantly yellow or yellow-green, although occasionally flowers with brown or purple markings can be found.

1. *Aspidonepsis diploglossa* (Turcz.) A. Nicholas & D.J. Goyder, comb. nov. Type: South Africa, Cape Province, peaks of the Winterberg, Ecklon 23 (KW holo., photo!; PRE!, iso.).

Gomphocarpus diploglossus Turcz.: 258 (1848). *Asclepias diploglossa* (Turcz.) Druce: 605 (1917).

Asclepias schizoglossoides Schltr.: 32 (1894); Schltr.: 451 (1896); N.E. Br.: 688 (1908); Wood: 461 (1910); Phillips: 194 (1917). Type: South Africa, eastern Cape, Mrs Barber s.n. (K!, neo., here designated).

Rootstock 1 or several tubers connected in series, 9–35 × 6–12 mm. *Stems* 1, erect, 170–400(–500) mm tall, bifariously pubescent. *Leaves* ascending to spreading, narrowly lanceolate, occasionally falcate, rarely linear or narrowly elliptic, 5–84(–130) × (0.25–)0.5–7.0 mm; apex acuminate or occasionally acute; base petiolate to cuneate; apetiolate or petiole up to 4 mm long. *Inflorescences* 1–3 per plant, 4–16-flowered, bracts present at anthesis; peduncles up to 9.5 mm long or occasionally inflorescences apedunculate. *Flowers* 4–9 × 6–13 mm, yellow

TABLE 2. — A comparison of the two subgenera *Aspidonepsis* and *Unguilibium*. All measurements in mm

| Character | <i>Aspidonepsis</i> | <i>Unguilibium</i> |
|---------------------------------------|-------------------------------|------------------------|
| Stem length | 170–550 | 190–625 |
| Leaf length | 5–133 | 7–56 |
| Peduncle length | 0–175 | 5–90 |
| Flower colour | Yellow, green, purple & brown | Yellow, purple & brown |
| * Corolla orientation | Spreading erect | Reflexed |
| Petal length | 3.5–10.5 | 5.2–6.5 |
| * Corona lobe shape | Cup-like (cucullate) | Claw-like (unguiform) |
| Proximal corona lobe appendage length | None–1.2 | 0.4–1.3 |
| Distal corona lobe appendage length | None | None–0.5 |
| * Corona lobe cavity appendage length | 0.2–1.3 | None |
| Alar fissure length | 0.5–1.4 | 0.7–1.1 |
| Anther appendage length | 0.3–0.6 | 0.5–1.5 |
| Style apex diameter | 1.1–2.8 | 1.6–2.4 |
| Translator arm length | 0.18–0.56 | 0.28–0.64 |
| Corpusculum length | 0.16–0.32 | 0.2–0.4 |
| Pollinium length | 0.48–0.96 | 0.68–1.0 |

* characters forming discontinuities between the two taxa.

or yellow-brown; pedicel 6–16 mm long. *Calyx*: lobes lanceolate, occasionally triangular or narrowly ovate, 2.5–4.6 × 1.0–1.5 mm, apex acuminate, pubescent to tomentose. *Corolla*: lobes ovate or occasionally elliptic, free to the base, 4–6(–7) × 2.4–4.1 mm; inside yellow, occasionally tinted with purple or lilac, outside yellow, brown or purple, these often in combination; abaxial surface with a few sericeous hairs. *Corona lobes* produced ± 0.5 mm above corolla, cucullate-cyathiform, 4–6(–7) × 2.4–4.1 mm, upper proximal ends forming 2 rounded shoulders, occasionally extended into short pointed appendages, level with or projecting (slightly) onto style apex, distal end obtuse or rounded without a distinct appendage and level with or lower than style apex, saccate cavity with a tongue-like or deltoid-oblong appendage 0.2–0.8 mm wide, projecting 0.2–0.7 mm above upper lobe margin, colour yellow to bright yellow. *Staminal column* 2.0–2.8 mm long; anther wings shallowly concave in upper two thirds, rounded at base, 0.75–1.1 × 0.3–0.5 mm; anther appendages pescapiform or ovate with a deep apical cleft, membranous, 0.3–0.6 × 0.6–0.9 mm, decumbent on style apex. *Style apex* truncated, with thickened undulating margins, concave in centre, 1.1–2.1 mm diameter, bright green to white. *Pollinaria*: corpusculum (0.22–)0.28–0.32 × 0.08–0.16 mm; translator arms 0.2–0.32(–0.36) mm long, thin with small transparent hook-like wings, pollinia clavate, 0.68–0.80(–0.84) × 0.24–0.36 mm. *Fruits and seeds* not seen. *Specific epithet etymology*: from the Greek words diplo- (two) and glosso- (tongue); probably in reference to the corona lobe and the appendage in its central cavity. (Figure 2.1).

Aspidonepsis diploglossa is found in annually burnt montane grasslands, normally on south- or east-facing hillside slopes or mountain plateaux. Usually, but not always, occurring in wettish areas. Collectors often report it as rare, although a great many collections exist. It is usually found growing at altitudes ranging from 1 500 to 2 400 m, but occasionally also at lower altitudes. Plants flower from October to January. The tubers of this plant lie just below the soil surface, and when sectioned reveal white, woody flesh that oozes sticky, milky latex.

A. diploglossa, a mountain-loving species, exhibits a rather strange distribution. It may be found at high altitudes around Grahamstown and Hogsback in the eastern Cape, then there is a gap in the Transkei Drakensberg (which may be an artifact caused by poor collection in this area) and then it occurs abundantly along the Natal Drakensberg and its foothills as far as Van Reenen's Pass. After yet another gap it is found again in the Wakkerstroom area. *A. diploglossa* may also inhabit mountain islands in the Natal midlands at places such as Inanda, Greytown and Weenen. However, it occurs in the most unlikely place near the southern Natal coast at the Umtamvuna Nature Reserve, where it grows at an altitude of only 350 m. This nature reserve is well known scientifically because it lies within the narrow belt of Natal Group sandstone in the coastal region between Port Shepstone and Port St Johns. Its rich flora includes a number of rare plants and endemic species. However, the occurrence of *Aspidonepsis diploglossa* at such a low altitude and so near the sea, is surprising and inexplicable (Figure 3).

Unfortunately, when R. Schlechter described *Asclepias schizoglossoides* in 1894 he not only failed to cite the

specimens he examined, but was also unaware that he was dealing with an already described taxon. Turczaninow had named this species *Gomphocarpus diploglossus* in 1848, citing *Ecklon 23* as the type. N.E. Brown picked up these two errors when preparing the Asclepiadaceae for *Flora capensis*, and in correspondence with Schlechter discovered that the latter taxonomist had based the name *Asclepias schizoglossoides* on a Barber specimen 'probably collected in British Kaffraria'. As a result, N.E. Brown (1908) suspected that the specimen may be part of Mrs Barber's gathering numbered 35. N.E. Brown's selection of *Barber 35* as the type of the name *Asclepias schizoglossoides* for *Flora capensis* was probably correct. However, due to the destruction of Schlechter's asclepiadaceous collections housed at Berlin herbarium during the Second World War, we cannot confirm this. In this paper we have, therefore, chosen *Barber 35* (K) as the neotype of the name *Asclepias schizoglossoides*.

W.H. Harvey has written (in pencil) on two Trinity College Dublin herbarium (TCD) sheets of this species, the name *Gomphocarpus luteus* (var.) *β heterophyllus*. This name was never validly published, and must be considered nothing more than a manuscript name.

Aspidonepsis diploglossa differs from *A. flava* and *A. cognata* in possessing longer (occasionally narrower) leaves, a deeply cleft anther appendage, yellow to yellow-brown flowers and a simple cup-shaped corona lobe, the upper proximal ends of which are no more than blunt rounded shoulders level with the style apex. See Table 3.

NATAL.—2730 (Vryheid): Altemooi, (–AD), *Thode All73* (NH, PRE). 2731 (Louwsburg): near Ngome, (–CD), *Schrire 1037* (NH). 2828 (Bethlehem): Royal Natal National Park, (–DB), *Trauseld 122* (PRE); Mont Aux Sources, (–DD), *Schweickerdt 779* (PRE). 2829 (Harrismith): Van Reenen, (–AD), *Jacobsz 1656* (PRE); Klawervlei, (–CA), *Blom 287* (PRE); Cathedral Peak State Forest, (–CC), *Killick 1016* (CPF, PRE). 2830 (Dundee): Weenen, (–CC), *Rogers 28436* (K). 2929 (Underberg): Giant's Castle, (–AB), *Stewart 2070* (K, NU); Tabamhlope Mountain, (–BA), *West 1383* (NH, PRE); Highmoor State Forest, (–BC), *Killick & Vahrmeijer 3583* (K, NH, PRE); Restmount area, (–CB), *Hilliard & Burt 15557* (K); Bushman's Nek area, (–CC), *Hilliard & Burt 17436* (K, PRE); Garden Castle Nature Reserve, (–CD), *Hilliard & Burt 7866* (K, NU); Runnymede, (–DB), *Moll 1480* (NU); near Maiwaga, (–DC), *Rennie 235* (NU); Glengariff, (–DD), *Rennie 488* (NU). 2930 (Pietmaritzburg): near Pietmaritzburg, (–AC), *Ram s.n.* (NU); Caversham, (–AD), *Mogg 2471* (PRE); Greytown, (–BA), *Wylie s.n.* (K, NH 21644, PRE ex Transvaal Museum 34205); Dargle, (–CA), *Fannin 39* (K, TCD); near Richmond, (–CD), *Wood 10819* (NH); Inanda, (–DB), *Groom s.n.* (K ex Wood 1408, NH 4106).

TRANSKEI.—3028 (Matatiele): near Ramatseliso, (–BB), *Boardman All* (PRE). 3029 (Kokstad): Ensikeni, (–BA), *Haygarth s.n.* (NH ex Wood 12049). 3130 (Port Edward): Umtamvuna Nature Reserve, (–AA), *Abbott 2868* (NH).

CAPE.—3227 (Stutterheim): near Fort Cunynghame, (–AD), *Sim s.n.* (BOL); Hogsback, (–CA), *Ratray s.n.* (BOL 15767); Dohne Hill, (–CB), *Sim 1237* (BOL, NU, PRE, SAM). 3326 (Grahamstown): Coldspring, (–AD), *Glass 276* (K, PRE, SAM); Howison's Poort, (–AD), *Hutton s.n.* (TCD); Grahamstown, (–BC), *MacOwan 850* (K).

WITHOUT PRECISE LOCALITY.—Eastern Cape, *Barber 35*, s.n. (K); Cape. (Mrs Barber records it as being collected at the Winterberg, but its occurrence there is highly improbable. Possibly she meant the Winterhoek Mountains near Uitenhage or the Klein Winterhoek near the Zuurburg, where its occurrence is much more likely) *Barber 84* (K, TCD).

2. *Aspidonepsis flava* (N.E. Br.) A. Nicholas & D.J. Goyder, comb. nov. Type: Transkei, Malowe Mountain, *Tyson 1086* (K! lecto., here designated; BOL!, SAM!, isolecto.)

Asclepias flava N.E. Br.: 687 (1908); Wood: 460 (1910).

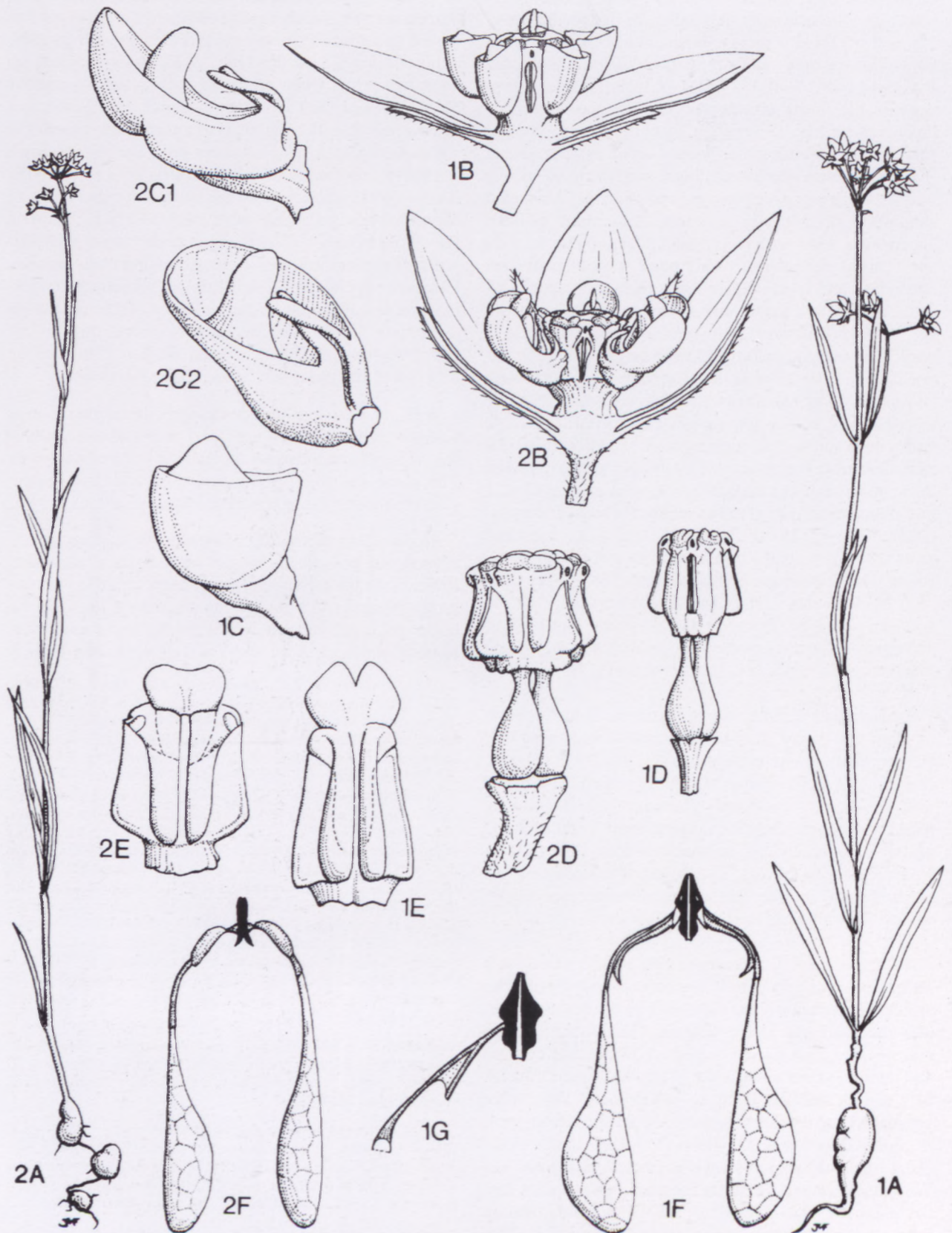


FIGURE 2.—1, *Aspidonepsis diploglossa*; 2, *A. flava*. A, whole plant with flowers: 1A, $\times 0.7$; 2A, $\times 0.4$. B, flower with part of corolla removed: 1B, $\times 10$; 2B, $\times 9$. C, corona lobe: 1C & 2C1, side view, $\times 14$ & $\times 27$; 2C2, angled view to show crossed, inwardly flexed proximal appendages, $\times 30$. D, gynostegium excluding corona: 1D, $\times 16$; 2D, $\times 19$. E, abaxial surface of anther: 1E, $\times 24$; 2E, $\times 30$. F, pollinarium: 1F, $\times 51$; 2F, $\times 65$. 1G, translator apparatus showing winged spur, $\times 89$. 1A, *Ruddock 136* (CPF); 1B, 1D, 1E, 1F, *Boardman All* (PRE); 1C, 1G, *Boardman 186* (PRE); 2A–2C1, 2D–2F, *Coleman 813* (PRE); 2C2, *Wood 4249* (NH).

TABLE 3.—A comparison of the three species of subgenus *Aspidonepsis*. All measurements in mm

| Character | <i>A. diploglossa</i> | <i>A. flava</i> | <i>A. cognata</i> |
|-----------------------------------------|-----------------------|------------------------|-------------------|
| Leaf length | 5–33 | 7–83 | 7–68 |
| Petiole length | 0–4 | 0–5 | 0–3 |
| Peduncle length | 0–95 | 4–175 | 3–92 |
| Flower colour | Yellow purple | Yellow, yellow & brown | Yellow-green |
| ‡ Petal length | 4–7 | 3.5–5.0 | 5.8–10.5 |
| * Corona lobe shape | Bonnet-like | Cup-like | Bowl-like |
| * Coronal lobe cavity depth | 1.1–2.0 | 0.4–0.7 | 2.2–2.5 |
| # Proximal corona lobe appendage length | None | 0.25–0.7 | 0.6–1.2 |
| + Corona lobe cavity appendage length | 0.2–0.7 | 0.4–0.7 | 0.8–1.3 |
| ● Alar fissure length | 0.75–1.1 | 0.5–0.7 | 0.8–1.4 |
| ‡ Anther appendage length | 0.6–0.9 | 0.5–0.8 | 0.8–1.3 |
| Style apex diameter | 1.1–2.1 | 1.1–1.6 | 1.5–2.8 |
| ● Pollinium length | 0.68–0.84 | 0.48–0.68 | 0.72–0.96 |
| ● Pollinium width | 0.24–0.36 | 0.16–0.24 | 0.24–0.32 |

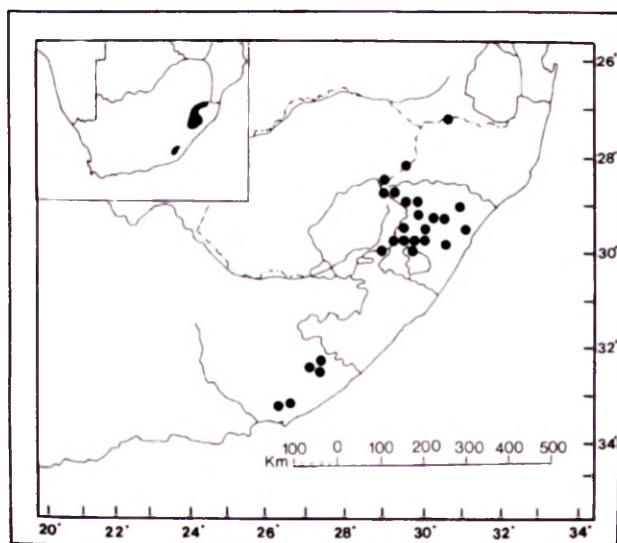
Discontinuities between *A. diploglossa* and the other two taxa; ● discontinuities between *A. flava* and the other two taxa; + discontinuities between *A. cognata* and the other two taxa; ‡ discontinuities between *A. flava* and *A. cognata*; * discontinuities between all three taxa.

Rootstock a globose tuber, occasionally several connected in series, 6–10 × 4–9 mm. *Stems* usually 1, rarely as many as 3, slender, erect, 180–475 mm long. *Leaves* spreading to erect, lanceolate, linear to narrow-elliptic, 7–83 × 0.5–6.0(–7.0) mm; apex acuminate or rarely acute; base petiolate to cuneate. *Inflorescences* 1–3(–6) per plant, 1–3 per stem, 4–18(–24)-flowered; bracts present at anthesis, 2.6–5.3(–7.5) × 0.15–0.5 mm; peduncles (4–)10–175 mm long. *Flowers* 3–5(–6) × 5–8 mm; pedicel 5–11 mm long. *Calyx*: lobes lanceolate, 2.0–3.6(–4.0) × 0.7–1.2 mm. *Corolla*: lobes ovate, occasionally elliptic, free to the base, 3.5–5.0 × 2.0–3.2 mm, inside greenish yellow or yellow, outside yellowish green, pale yellow or yellow with a purple apex, margins occasionally slightly revolute. *Corona lobes* produced 0.5–0.8 mm above corolla, cucullate-crateriform, in side view boxing glove-shaped, 1.0–1.6 mm long, upper proximal ends extending into 2 short (0.25–0.70 mm), subulate or arm-like appendages that meet and are then reflexed back to point to distal end of lobe, lower than style apex, distal end dilated and bowl-shaped with upper margin overtopping the style apex (even if only slightly);

cavity crateriform, 0.4–0.7 mm deep with a central sausage-shaped appendage projecting 0.4–0.7 mm above cavity margin; orange-yellow, golden yellow, yellow-green or yellow. *Staminal column* 1.0–1.5 mm long; anther wings shallowly concave in upper two thirds, rounded in lower third, truncate basally, 0.5–0.7 × 0.2–0.45 mm; anther appendages reniform, membranous, (0.2–)0.3–0.4 (–0.5) × 0.5–0.8 mm, decumbent on sides and top of style apex. *Style apex* truncate, margin undulate, apex concave with a small central pore, 1.1–1.6 mm wide. *Pollinaria*: corpusculum 0.16–0.20(–0.26) × (0.60–)0.08–0.10 mm; translator arms (0.20–)0.18–0.28 mm long; pollinia dilated distally, narrowing proximally, (0.48–)0.52–0.64 (–0.68) × 0.16–0.24 mm. *Fruits*: mature follicles not seen, immature follicles narrowly fusiform with an attenuate apex, not echinate. *Seeds* not seen. *Specific epithet etymology*: from the Latin word *flav(us)* meaning pale yellow. This is in reference to the pale yellow flowers of this species. (Figure 2.2).

Aspidonepsis flava is usually found growing in annually burnt montane grasslands. Colonies are usually scattered and occur at altitudes between 600 and 2 000 m, rarely at altitudes as low as 450 m. Distributed from Grahamstown in the eastern Cape through Transkei to Natal. This species is commonly found in the Drakensberg or its foothills, although it can be found in the midland and coastal belts if mountainous areas provide it with a suitable refuge (Figure 4). *A. flava* flowers in the midsummer months between November and January, although there is one record of a plant flowering in October.

This taxon was first described by N.E. Brown in *Flora capensis* (1908), and is abundant in southern Natal and the Transkei interior. The limits of its southern distribution is near Grahamstown where a few specimens have been collected. Plants grow in small colonies in annually burnt grasslands, and usually occur on hillside slopes amongst scattered rocks where they receive some protection from grazing animals and fire. Plants may have up to three tubers connected in series, each probably representing a previous year's growth. Like *A. diploglossa*

FIGURE 3.—Distribution of *Aspidonepsis diploglossa*.

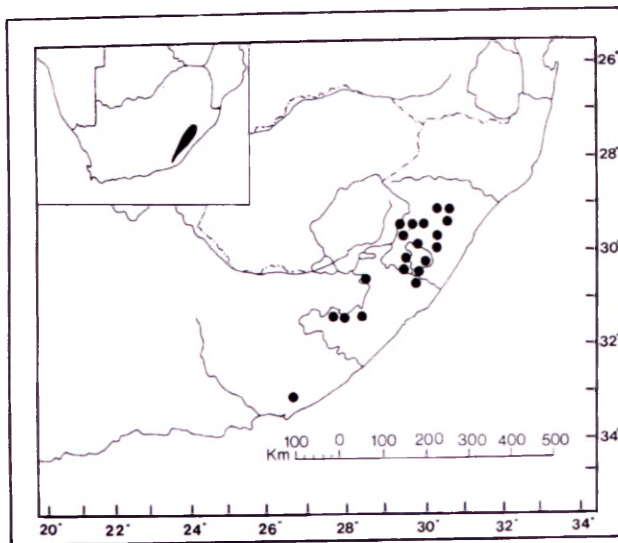


FIGURE 4.—Distribution of *Aspidonepsis flava*.

these globose tubers are found just below the soil surface, and have white, latex-filled flesh.

A. flava is distinguished from the other two species in subgenus *Aspidonepsis* by its longer peduncles, smaller, paler coloured flowers, smaller pollinaria, bowl-shaped corona lobes with arm-like proximal appendages that cross one another and are then reflexed into the corona lobe cavity and the sausage-shaped appendage projecting from the floor of the corona lobe cavity. Table 3.

NATAL.—2929 (Underberg): Cobham State Forest, (–CB), *Cowan 124* (NU); near Underberg, (–CD), *Dyer 3744* (K, NH); Mawahqua Mtn area, (–DA), *Rennie 275* (NU); Mpendle, (–DB), *Huntley 625* (NH); Nkonzo State Forest, (–DD), *Nicholas & Norris 1159* (CPF, NH, PRE); 2930 (Pietermaritzburg): Howick, (–AC), *Hutton 408* (BM, K, PRE); Benvie, Karkloof, (–AD), *Hilliard & Burt 13491* (NU); Winterskloof, (–CB), *Sim s.n.* (PRE); near Byrne Village, (–CC), *Stewart 2023* (K, NU); Weza State Forest, (–DA), *Nicholas 2080* (NH); Fort Donald, (–DC), *Tyson 1660* (SAM). 3030 (Port Shepstone): Ixopo, (–AA), *Shirley s.n.* (NU).

TRANSKEI.—3028 (Matatiele): near Eland's Height, (–CD), *Stewart 1908* (NU). 3029 (Kokstad): near Mt Currie, (–AD), *Hutchinson 1823* (K), *Tyson 1686* (BOL, PRE, SAM); Ensikeni, (–BA), *Haygarth s.n. ex Wood 12049* (NH 18644, SAM); Malowe, (–BD), *Tyson 2723* (K, SAM); Vaal Bank, (–CB), *Haygarth s.n. ex Wood 4230* (K, NH). 3127 (Lady Frere): Mount Kwenkwe, (–DA), *Bolus 10215* (BOL), Engcobo, (–DB), *Bolus 10216* (BOL). 3128 (Umtata): Mhlahlane, (–BC), *Hutchings 1387* (KEI); Bazija, (–CB), *Baur 556* (K, SAM).

CAPE.—3326 (Grahamstown): Grahamstown, (–BC), *Glass 1503* (K, NBG).

WITHOUT PRECISE LOCALITY.—Natal (Liddesdale), *Wood 4249* (K, NH); *Gerrard 1315* (BM, K).

3. *Aspidonepsis cognata* (N.E. Br.) A. Nicholas & D.J. Goyder, comb. nov. Type: Transkei, Mount Insizwa, *Schlechter 6496* (K!, holo.; BOL!, NH!, PRE!, iso.)

Asclepias cognata N.E. Br.: 687 (1908).

Rootstock a tuber, $\pm 7 \times 7$ mm. **Stems** 1, erect, 180–550 mm tall. **Leaves** spreading to ascending, linear, occasionally lanceolate, (7–)11–68 \times (0.3–)0.7–4.0(–6.0) mm; apex acuminate, base shortly petiolate, occasionally cuneate. **Inflorescences** occasionally subtended by leaves, 1–2 per plant, 1–7(–9)-flowered; bracts not fugaceous, grading with leaves; peduncles 3–76(–92) mm long. **Flowers** 5–12 \times 7–17 mm; pedicels 6–12 mm long.

Calyx: lobes lanceolate, 3.0–5.0 \times 1.0–1.8 mm, apex acuminate. **Corolla** glabrous; lobes elliptic, occasionally narrow-elliptic to ovate, (5.8–)7.6–10.5 \times 2.6–5.8 mm, apex acute, inside yellow, yellow-purple, brown-purple, yellow and lilac, outside pale greenish yellow sometimes suffused purple, or mustard yellow, or greenish brown, or base yellow and apex purple, or base mauve and apex yellow to dark brown, or yellow-brown with purple veins. **Corona lobes** produced 1.5–1.8 mm above corolla, cucullate, bonnet-shaped, 3.0–4.8(–5.3) [oblique measurement] \times 1.3–2.5 mm, upper proximal ends extended into 2 short (0.6–)0.8–1.2 mm, subulate or arm-like appendages sometimes projecting over style apex, dilated distal end overtopping style apex by 0.6–1.0 mm and truncated along its upper margin; cavity 0.8–1.3 mm deep with a yellow tongue-like central appendage projecting 0.8–1.3 mm above lip of corona lobe (i.e. almost level with the upper margin of the distal end); colour dull yellow-green, mustard yellow, or yellow and purple, with red or brown along the margin. **Staminal column** 1.5–2.6 mm long; anther wings 0.8–1.4 \times 0.4–0.6 mm; anther appendages reniform, membranous, 0.3–0.6 \times 0.8–1.3 mm, decumbent on the sides of the style head. **Style apex** truncated with thickened undulate margins, concave with a small pore in the centre, 1.5–2.8 mm wide. **Pollinaria:** corpusculum 0.2–0.3 \times 0.1–0.12 mm; translator arms 0.32–0.56 mm long; pollinia semi-circular to semi-ovate with a short narrow proximal end, 0.72–0.96 \times 0.24–0.32 mm. **Fruits:** mature follicles not seen, young follicles tomentose (but not echinate). **Seeds** not seen. **Specific epithet etymology:** from the Latin word *cognat(us)* meaning related. Unfortunately, N.E. Brown did not explain the sense in which he applied this name. (Figure 5).

Aspidonepsis cognata may be found scattered in annually burnt (but not always) montane grassland, usually occurring in river valleys or near streams where the soil is quite damp. This graceful species flowers between November and December (although there is one record for October), and occurs at altitudes between 1 200 and 2 100 m, rarely lower. *A. cognata* is confined to a small area in the southern Natal and northern Transkei Drakensberg (Figure 6).

It is unfortunate that N.E. Brown (1908) chose *Schlechter 6469* as the type of *Asclepias cognata*, because this collection is not typical of the species as a whole. However, all specimens of *Schlechter 6469* examined, although not typical, clearly belong to this species. In appearance *Hilliard & Burt 7855* is more representative of the species.

Aspidonepsis cognata can be distinguished from the other species in subgenus *Aspidonepsis* by its larger flowers, larger corona lobes which are broadly helmet-shaped, wider anther appendages and its longer translator arms and pollinia. (See Table 3). The corona lobe shape is highly diagnostic, in particular the subulate or arm-like proximal appendages which may project over the style apex, and the raised distal end which is usually truncated along its upper margin and overtops the style head.

NATAL.—2929 (Underberg): Fort Nottingham Commonage, (–BD), *Wright 2241* (NU); Gxalingenwa Valley, (–CB), *Hilliard & Burt 17090* (K, PRE); Garden Castle State Forest, (–CC), *Hilliard & Burt 13767* (K, NU); Umzimkulu headwaters, (–CD), *Hilliard & Burt 7855* (K, NU); Mpendle, (–DB), *Hilliard & Burt 13856* (NU).

TRANSKEI.—3029 (Kokstad): Ensikeni, (–BA), *Haygarth s.n. ex Wood 12045* (K, NH 13661); Mount Insizwa, (–CD), *Schlechter 6496*

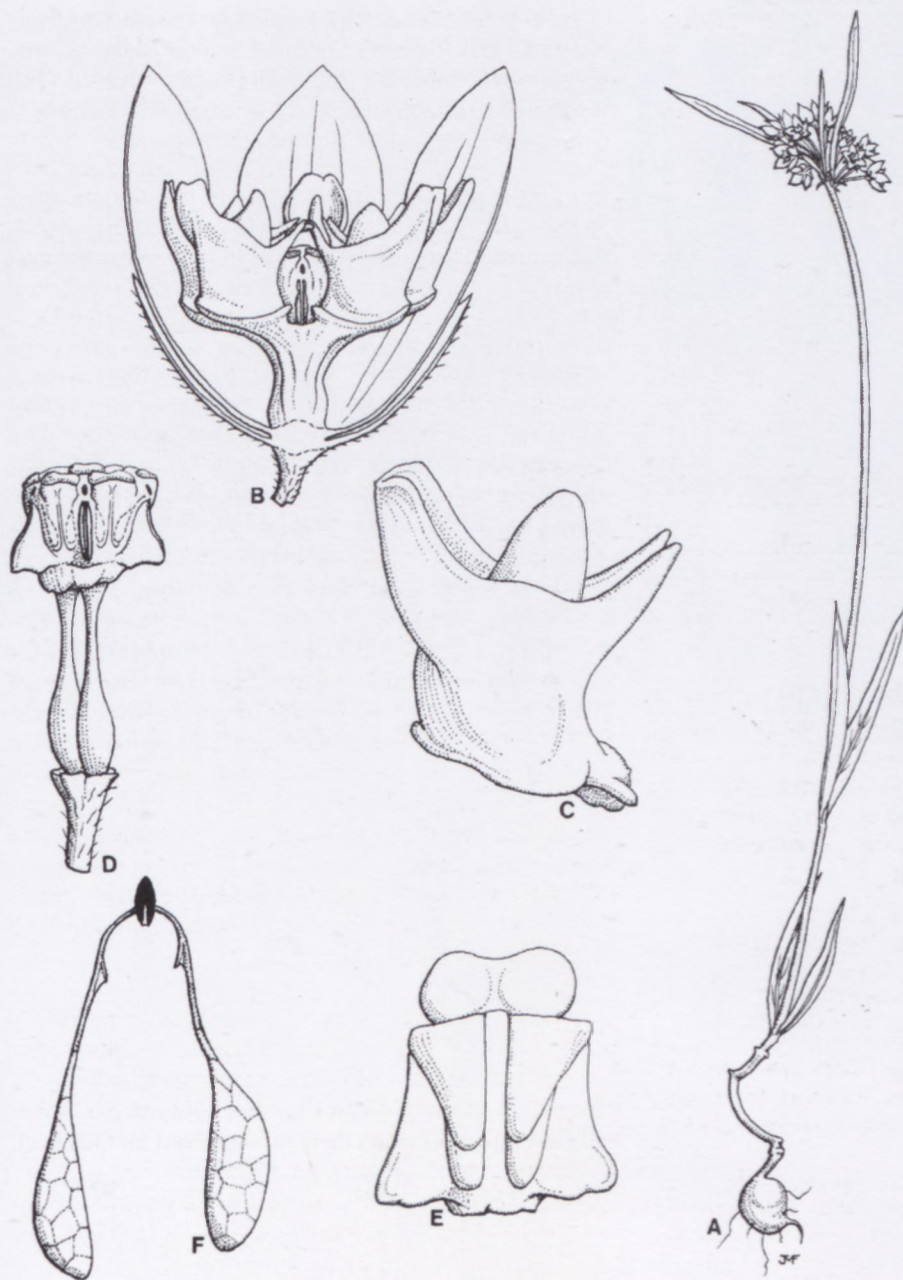


FIGURE 5.—*Aspidonepsis cognata*. A, whole plant with flowers, $\times 0.5$; B, flower with part of corolla removed, $\times 4.5$; C, corona lobe side view, $\times 11$; D, gynostegium excluding corona, $\times 9$; E, abaxial surface of anther, $\times 19.5$; F, pollinarium, $\times 36$. A–F, Hilliard & Burt 9056 (NU).

(BOL, K, NH, PRE); Weza State Forest, (–DA), Nicholas 2081 (NH, MO).

B. Subgenus *Unguilibium*

Unguilibium A. Nicholas & D.J. Goyder, subgen. nov.

Folia ascenduntia, margine manifeste revoluta. *Inflorescentia* 4–11-flora. *Corolla* reflexa; pagina abaxialis pubescentia. *Coronae* lobi ad columnam staminalem circa 1 mm super insertionem corollae conjuncti, cucullati; appendix proximalis ad apicem deltato-falcata et apicem styli aequans vel superans impendensque; extremum distale coronae appendice parva ornatum (*A. reenensis*) vel appendice carente (*A. shebae*); sinus profundus rimiformis.

TYPUS. — *Aspidonepsis reenensis* (N.E. Br.) A. Nicholas & D.J. Goyder *vide infra*.

Stems 1, erect, thin, up to 625 mm tall. *Leaves* ascenduntia, linear, occasionally lanceolate, older leaves shorter

and broader, margins noticeably revolute. *Inflorescences* 4–11-flowered, bracts present at anthesis and grading in size and shape with leaf system. *Flowers* purple, brown, lilac and yellow. *Corolla* reflexed, lobe apices ascending, abaxial surface pubescent. *Corona* produced high on staminal column, ± 1 mm above corolla; lobes with proximal appendages deltoid-falcate with obtuse apex level with or projecting over style apex, distal end of corona with arm-like appendage reflexed into corona lobe cavity (*A. reenensis*) or without appendage (*A. shebae*). *Staminal column*: anther wings ear-like in outline; anther appendages pescapiform, deeply cleft at apex (*A. shebae*), or ovate to rectangular and occasionally cleft at apex (*A. reenensis*). *Style apex* with slightly thickened, undulate margins. *Pollinia*: distal end noticeably dilated and narrowed towards proximal end. *Etymology*: from the Latin words *ungu(is)* (claw) and *lob(us)* lobe, in reference to the claw-shaped corona lobes of this subgenus (Table 2).

There are two species in subgenus *Unguilibium*, viz. *A. reenensis* (the type species) and *A. shebae*. Both are

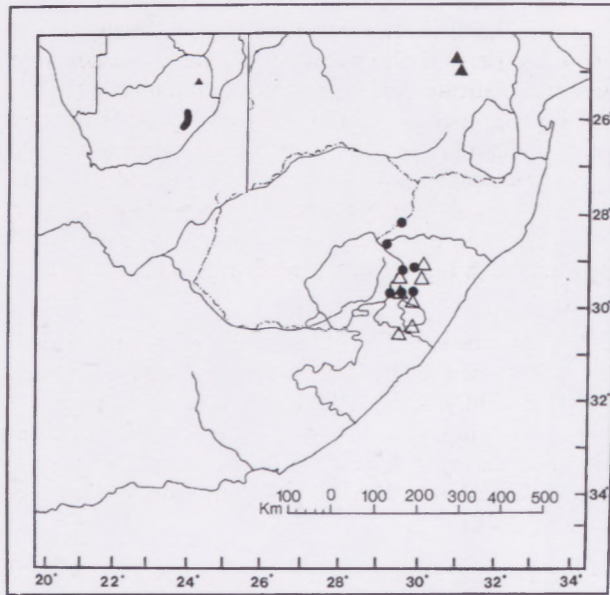


FIGURE 6.—Distribution of *Aspidonepsis cognata*, Δ ; *A. reenensis*, \bullet ; and *A. shebae*, \blacktriangle .

confined to mountainous areas of the southern African Drakensberg. *A. reenensis* is found in the southern regions

of this mountain system (namely Natal), whereas *A. shebae* is found in the northeastern region (the eastern Transvaal). As such, these species are quite widely separated geographically (Figure 6). Although probably related (even if somewhat distantly), they can be easily told apart using corona lobe and anther appendage shape.

4. *Aspidonepsis reenensis* (N.E. Br.) A. Nicholas & D.J. Goyder, comb. nov. Type: South Africa, Natal, Van Reenen, Wood 8635 (K! holo.; GRA!, NH!, PRE!, SAM!, iso.).

Rootstock a tuber, 17–25(–41) \times 7–14 mm. *Stems* 1, erect, 240–520(–625) mm long, scabrous. *Leaves* linear, 10.0–56.0 \times 0.7–2.5(–4.0) mm, apex acuminate, base cuneate; usually apetiolate or petiole up to 1 mm long. *Inflorescences* occasionally a number massed towards the stem apex, 1–3(–4) per plant, (1–)4–8-flowered; bracts 2.50–5.90 \times 0.25–0.50 mm; peduncles (9–)12–65(–75) mm long. *Flowers* (4–)5–7 \times 7–11 mm; pedicel 9–15(–21) mm long. *Calyx* reflexed, lobes lanceolate, apex acuminate, 2.7–4.5 \times 1.0–1.7(–2.5) mm. *Corolla*: lobes narrow-elliptic to ovate, 5.5–6.5 \times 2.5–3.8 mm, colour (inside and out) dark reddish brown, dark brown, brown, dull reddish purple or purple, margins light yellow or

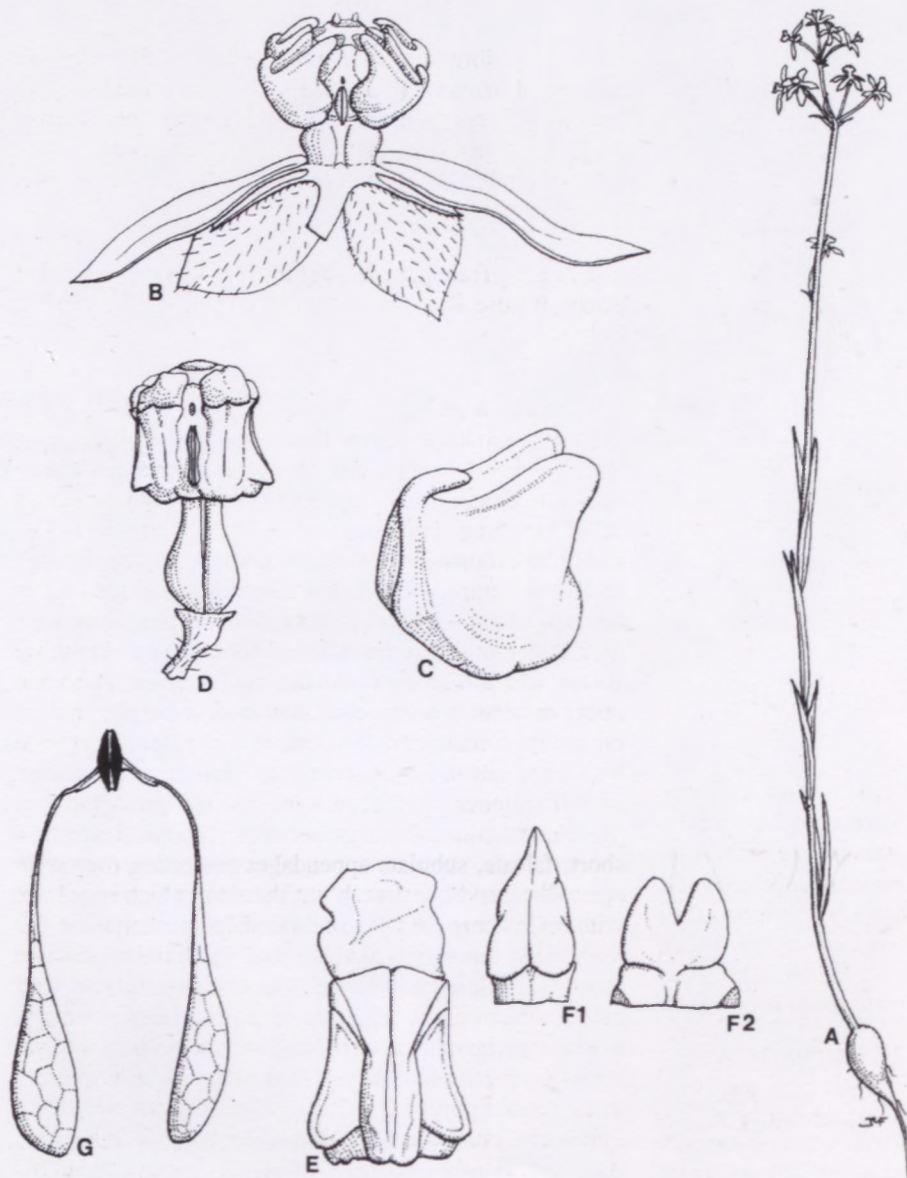


FIGURE 7.—*Aspidonepsis reenensis*. A, whole plant with flowers, \times 0.4; B, flower with part of corolla removed, \times 7; C, corona lobe, side view, \times 12; D, gynostegium excluding corona, \times 8.5; E, anther, \times 27. F, anther appendage: F1, uncleft, \times 12; F2, cleft, \times 12; G, pollinarium, \times 40. A–E, F2, G, Killick 1205 (PRE); F1, Trausel 1042 (PRE).

purple to white, abaxial surface puberulent to villous, especially in centre and towards the base. *Corona lobes* produced from staminal column 0.8–1.0 mm above corolla, cucullate, almost cyathiform, (1.6–)2.2–2.6 × 1.3–1.8 mm; upper proximal ends forming 2 short, falcate, arm-like appendages with rounded or broad and frilly apices, (0.4–)0.7–1.3 × 0.4–1.0 mm, projecting over or (at least) raised above the style apex; distal appendage short (\pm 0.5 mm), broad and arm-like, reflexed into the cavity (sometimes totally hidden by sides of lobe), appendage below style apex and almost level with corpusculum. *Staminal column* \pm 3 mm tall, slightly inflated in lower portion below each corona lobe; anther wings shaped like an elongated ear lobe, 0.8–1.1 × (0.3–)0.4–0.5 mm; anther appendages ovate to rectangular, appearing wrinkled, white, membranous, occasionally cleft at apex, 0.8–1.5 × 1.0–1.3 mm, decumbent on style apex. *Style apex* truncate with undulate margins, concave with a small central pore, 1.8–2.4 mm wide. *Pollinarium*: corpusculum 0.28–0.34 (–0.40) × 0.12–0.18 mm; translator arms 0.44–0.64 mm long, thin, transparent; pollinia dilated distally with a long narrow proximal arm-like section, 0.84–1.00 × 0.22–0.28 mm. *Fruits and seed* not seen. *Specific epithet etymology*: a latinization of Reenen from Van Reenen's Pass, the type locality of this species (Figure 7).

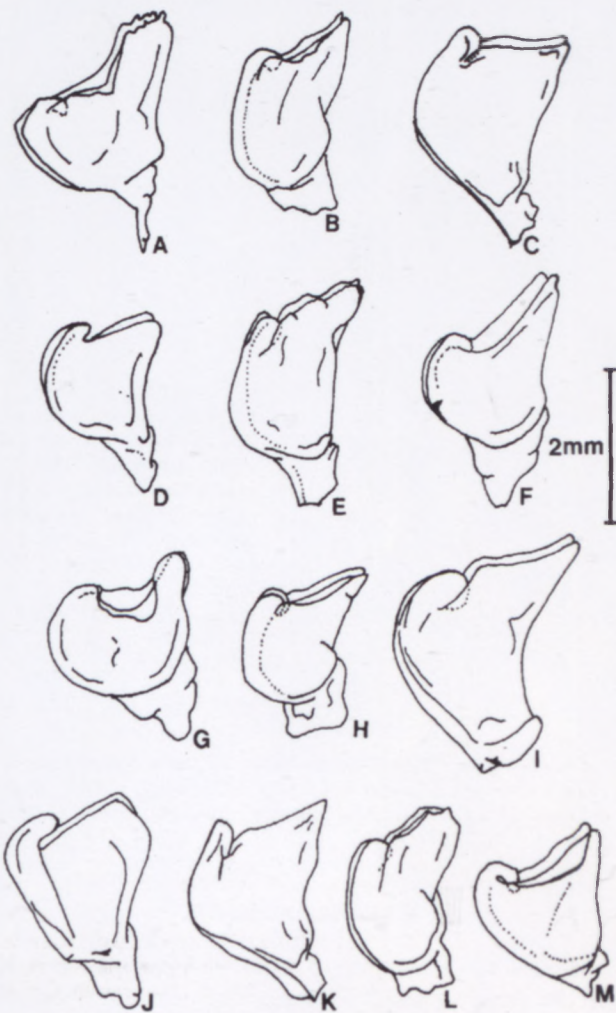


FIGURE 8.—Corona lobe variation in *Aspidonepsis reenensis*. A, Wood 8635 (PRE); B, Stewart 2110 (NU); C, Hilliard & Burt 7796 (NU); D, Killick & Vahrmeijer 3654 (PRE); E, Hilliard & Burt 9423 (NU); F, Killick 1205 (NU); G, Franks s.n. (NH 12112); H, Hilliard & Burt 9481 (NU); I, Wood 8635 (NH); J, Trauseld 1042 (PRE); K, Hilliard & Burt 7796 (NU); L, Rennie 1109 (NU); M, Wood 8635 (SAM).

A. reenensis grows in dry mountain grasslands, often in sandy situations on top of the Cave Sandstone zone of the Little Berg. It also occurs in *Themeda triandra* veld, which is indicative of a fire climax community (Killick 1963). This species, said by collectors to be frequent to rare, is found in the Natal Drakensberg, from Bushman's Nek in the south to Van Reenen's Pass in the north (Figure 6). It occurs at altitudes varying from 1 500 to 2 100 m, and flowers in the midsummer months, December and January, with one record from November.

Corona lobe structure in the tribe Asclepiadeae is very species-specific and usually uniform within a species (Nicholas 1987). There are however certain exceptions, *A. reenensis* being one of them. The corona lobe structure of this species is extremely variable, although one can still see an underlying, and therefore unifying, corona lobe pattern (Figure 8).

NATAL.—2829: (Harrismith): Van Reenen, (–AD), Franks s.n. ex Wood 12112 (NH); Hilliard & Burt 9481 (NU); Wood 8635 (GRA, K, NH, PRE, SAM); Mount Manyanya, (–AD), Stewart 2110 (NU); Cathedral Peak State Forest, (–CC), Killick 1205 (CPF, K, NH, PRE). 2929 (Underberg): Giant's Castle Nature Reserve, (–AD), Trauseld 1042 (PRE); Highmoor State Forest, (–BC), Killick & Vahrmeijer 3654 (K, PRE); Cobham State Forest, (–CC), Hilliard & Burt 9423 (NU); Garden Castle State Forest, (–CD), Hilliard & Burt 7796 (NU); Mawahqua Mtn area, (–DC), Rennie 1109 (NU).

5. *Aspidonepsis shebae* A. Nicholas & D.J. Goyder, sp. nov., *A. reenensi* (N.E. Br.) A. Nicholas et D.J. Goyder affinis sed coronae lobis unguiformibus nec cyathiformibus, appendice proximali brevi falcataque nec rotundata vel fimbriata, appendice distali brachiformi carente differt.

TYPE.—Transvaal, 2430 (Pilgrims Rest): (–DC), Mt Sheba Nature Reserve, Forrester & Gooyer 216 (PRE!, holo.).

Rootstock a tuber, \pm 15 × \pm 7 mm. *Stems* 1, erect, 190–340 mm long. *Leaves* linear or occasionally lanceolate, 7–44 × 1–4 mm, older leaves smaller and broader, apex acuminate; usually apetiolate, rarely with petiole up to 0.5 mm long. *Inflorescence* 1–2 per plant, (2–)4–11-flowered; peduncle (5–)19–90 mm long. *Flowers* 4.0–6.5 × 6.0–8.0 mm; pedicel 10–15 mm long. *Calyx*: lobes lanceolate, 3.4–3.6 × 1.1–1.3 mm. *Corolla*: lobes ovate or rarely elliptic, 5.1–5.8 × 3.0–3.6 mm; inside: base pale yellow with a lilac apex, or base lilac with a dark purple apex; outside: base green-yellow with a purple or dark purple apex; margins pale yellow to white; abaxial surface pubescent. *Corona lobes* produced from staminal column \pm 1 mm above corolla, claw-like (unguiform), 1.8–3.0 × 2.0–2.1 mm; upper proximal ends extended into 2 short, falcate, subulate appendages projecting over style apex; distal end a square, blunt shoulder which is \pm level with style apex; cavity a shallow, central channel \pm 0.9 mm deep; yellow in dried specimens. *Staminal column* \pm 2.5 mm tall; anther wings ear-shaped, \pm 0.7 × 0.4–0.45 mm; anther appendages pescapiform, deeply cleft at apex, membranous, \pm 0.5 × \pm 0.7 mm, decumbent on style apex. *Gynoecium*: style apex truncate, concave with a small central pore, 1.6–1.8 mm wide; ovaries noticeably pubescent. *Pollinarium*: corpusculum 0.20–0.26 × 0.10–0.12 mm; translator arms 0.28–0.40 mm long; pollinia

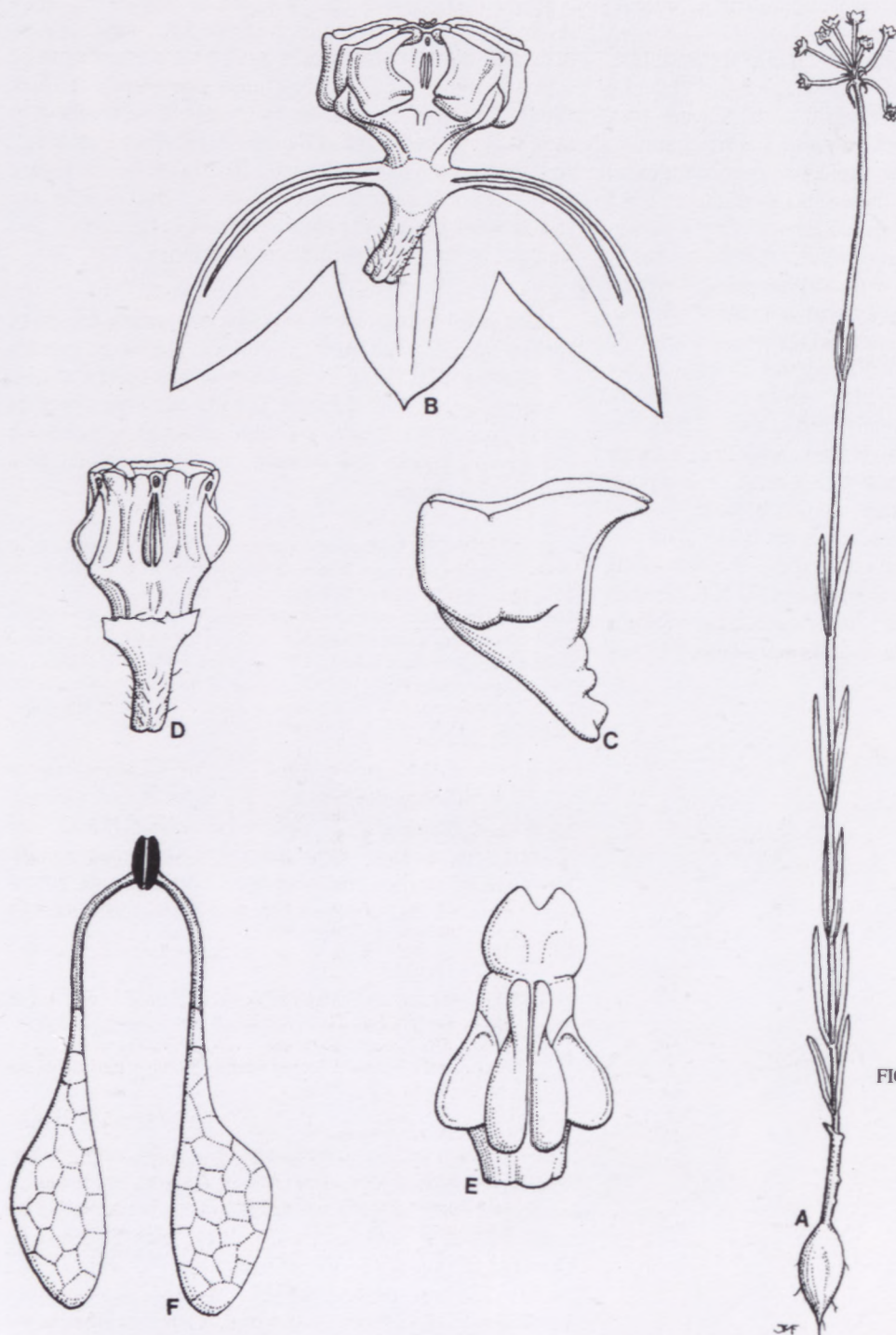


FIGURE 9.—*Aspidonepsis shebae*. A, whole plant with flowers, $\times 0.5$; B, flower with part of corolla removed, $\times 7.5$; C, corona lobe, side view, $\times 14$; D, gynostegium excluding corona, $\times 11$; E, abaxial surface of anther, $\times 24$; F, pollinarium, $\times 53$. A, B, D–F, Smuts & Gillett 2326 (PRE); C, Forrester & Gooyer 216 (PRE).

clavate, $0.68\text{--}0.76 \times 0.32\text{--}0.36$ mm. Fruits and seeds not seen. *Specific epithet etymology*: a latinization of Sheba from Mt Sheba, the type locality. (Figure 9).

A. shebae probably occurs in montane grasslands, and is restricted to high altitude areas (1 400 to 2 100 m) of the Pilgrim's Rest region of the eastern Transvaal (Figure 6). Plants flower in December–January, and according to one set of collections is said to be frequent.

Vegetatively *A. shebae* is very similar to *A. reenensis*, and it is probably closely related to this species (Table 4). In floral morphology, however, these two species differ greatly, especially in corona lobe structure (Figure 10).

TRANSVAAL.—2430 (Pilgrim's Rest): Mt Sheba Nature Reserve, (–DC), Forrester & Gooyer 216 (PRE); Mauchsberg, (–DC), Smuts & Gillett 2326 (PRE). 2530 (Lydenburg): Mount Anderson, (–BA), Smuts & Gillett 2370 (PRE).

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TABLE 4.—A comparison of the two species in subgenus *Unguilibium*. All measurements in mm

| Character | <i>A. reenensis</i> | <i>A. shebae</i> |
|---------------------------------------|---------------------|------------------------|
| Stem length | 24.0–62.5 | 19–34 |
| Leaf length | 10–56 | 7–44 |
| Peduncle length | 9–79 | 5–90 |
| Flower colour | Brown & purple | Brown, purple & yellow |
| Petal length | 5.5–6.5 | 5.2–5.8 |
| * Corona lobe width | 1.3–1.8 | 2.0–2.1 |
| Proximal corona lobe appendage length | 0.4–1.3 | ± 0.5 |
| * Distal corona lobe appendage length | ± 0.5 | None |
| * Alar fissure length | 0.8–1.1 | ± 0.7 |
| * Anther appendage length | 0.8–1.5 | ± 0.5 |
| * Anther appendage width | 1.0–1.3 | ± 0.7 |
| * Style apex diameter | 1.8–2.4 | 1.6–1.8 |
| * Translator arm length | 0.44–0.64 | 0.28–0.4 |
| * Corpusculum length | 0.28–0.4 | 0.2–0.26 |
| * Pollinium length | 0.84–1.0 | 0.68–0.76 |
| * Pollinium width | 0.22–0.28 | 0.32–0.36 |

* characters forming discontinuities between the two taxa.

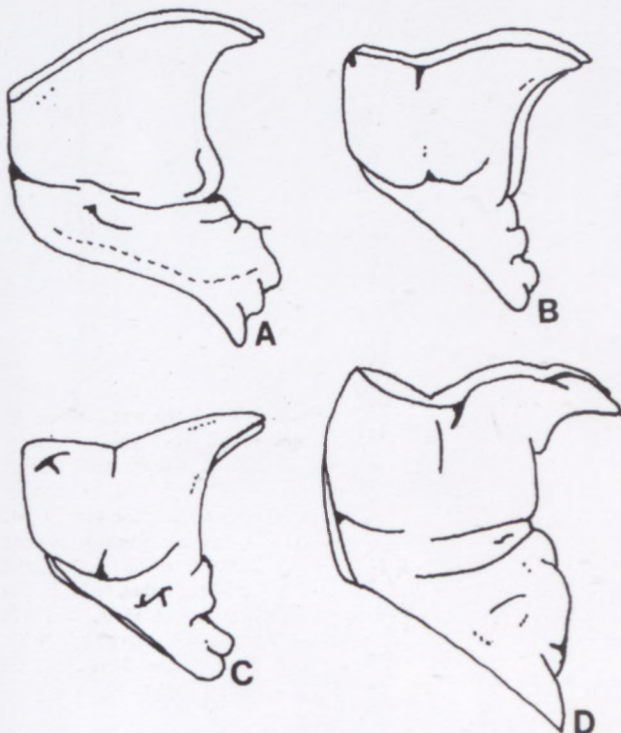


FIGURE 10.—Corona lobe variation in *Aspidonepsis shebae*. A, Forrester & Gooyer 216 (PRE), × 16; B, Smuts & Gillett 2326 (PRE), × 15; C, Smuts & Gillett 2326 (PRE), × 15; D, Smuts & Gillett 2370 (PRE), × 18.5.

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