

A note on *Ceropegia* L. (Asclepiadaceae) of Silent Valley, Kerala, India

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Abstract

The paper makes a few comments on the relationships of the Indian species of the genus *Ceropegia* (Asclepiadaceae) in the broad geographical and morphological context and provides additional observations on the nomenclature, identity and distribution of six species collected in and around the Silent Valley National Park, Kerala, India.

INTRODUCTION

Falling within the tribe Stapelieae Decne. (Bruyns & Forster, 1991) of the Asclepiadaceae, *Ceropegia* L. is a pantropical Old World genus of over 170 species occurring around much of the perimeter of the Indian Ocean. By far the majority of these species is found in Africa south of the Sahara. There are, for example, over 50 in Southern Africa (Dyer, 1983) and at least 30 in Kenya (Archer, undated). In general, the genus is more common in the tropical to subtropical (and generally wetter) eastern side of the continent, although several species occur in the extratropical, temperate parts of South Africa and in this region are recorded as far south as 34° (Bruyns, 1985).

The Arabian Peninsula is relatively poor in *Ceropegia* (10 species; Bruyns, 1988) and *Ceropegia* disappears entirely, it seems, between Arabia and Pakistan. In Pakistan only one is recorded. East of the African continent there are two centres of diversity in *Ceropegia*: Madagascar and the Indian subcontinent. There is remarkable diversity in *Ceropegia* in Madagascar (Rauh, 1993) where the number of species involved is still unclear. In India ± 40 species are found (Ansari, 1984). For the region further east of this, facts are sparse, but in Australia only one seems to occur (Bruyns & Forster, 1989).

In India, there is one very widespread species, viz. *C. bulbosa*. This occurs over much of the subcontinent south of the Himalaya, including Pakistan, and also has outliers in southern Arabia and Ethiopia (Bruyns, 1988). *C. bulbosa* is an African element: apart from the fact of its distribution, this theory is further supported by its close relationship to *C. linophyllum* from West Africa and the fact that it is a typical species in the *C. africana*

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- *C. linearis* - *C. rendallii* - *C. purpurascens* group of species (taxa with flattened discoid fleshy tubers, often fleshy leaves and with very similar flowers and coronal structure throughout) which is widespread in Africa. India has another species with a clear African affinity, namely *C. mahabalei*. This most remarkable plant is very closely allied to the rather little known *C. campanulata* - *C. insignis* - *C. turricula* group (short non-succulent erect plants with a flattened discoid tuber and rather complex flowers), which is also widely distributed, though generally rare, from West Africa to southern Africa.

There seem to be two broad groupings among the remaining Indian species: those that occur in the Himalaya and those in Peninsular India.

Apart from the widely distributed and common *C. juncea* (which is the only truly succulent-stemmed species with very reduced leaves found in India and is not closely allied to any others, nor to any vegetatively similar species from further west), the Peninsular Indian species are mainly found along the Western Ghats, from Bombay southwards towards Cape Comorin. There are, among these, many of very restricted distribution; most noteworthy among these are probably the peculiar white-flowered taxa from the northern end of the Western Ghats, some of which exhibit an unusual coronal structure not otherwise known in *Ceropegia*. Several of the non-succulent species without tubers from the Western Ghats seem to be both vegetatively and florally quite similar to species from West Africa and even to *C. cumingiana* from Australasia. These are possibly modern representatives of the most primitive form in the genus.

The Himalayan species (such as *C. longifolia*, *C. macrantha*, etc.) are quite distinct from those from Peninsular India - there are in fact no taxa in *Ceropegia* that are common to both regions. Here there are no tuberous species, they are all softly herbaceous and the Indian species all have a wider distribution in the Himalaya from Nepal eastwards into China. This region has its own localized endemic species, such as *C. dorjei*, *C. meleagris* and *C. poluniniana*, but none of these grow in India.

During early October 1993, I had the remarkably good fortune to spend three days in the Silent Valley National Park, Kerala, India, along with a group of scientists from the Kerala Forest Research Institute. We observed six species of *Ceropegia* within a radius of some 8 km of the Camp Shed. This concentration of species is so relatively small an area must be one of the highest for this genus anywhere. Of the six species listed below, all except *C. candelabrum* grow above 800 m, i.e., above the coastal plains. These species were also recorded by Manilal (1988) in his pioneering work on the Nature Reserve, *Flora of Silent Valley*. Additional notes are provided below on identity, updated nomenclature and other observations on the species.

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1. *Ceropegia candelabrum* L., Sp. Pl. 211. 1753; Manilal, Fl. Silent Valley 176. 1988, var. *candelabrum* Ansari in Fasc. Fl. India 16: 12. 1984. (Fig. 1: A-F).

Twining herbs, to 1-2 m height; leaf 3-6 (-10) x 1-3 (-4.5) cm, elliptic lanceolate. Corolla 3-4.5 cm long, lobes yellowish, beak not prominent.

Habitat: Edges of moist deciduous forest along roadsides. Several patches of this species were observed along the road, on the way to Silent Valley.

Specimen examined: Thadikkundu, P. Kumar 11115 (CALI).

Distribution: A Peninsular Indian species distributed in the states of Andhra Pradesh, Karnataka, Kerala and Tamilnadu, and also known from Sri Lanka.

Notes: *C. candelabrum* consists of two varieties, var. *candelabrum* with only a very small beak to the corolla lobes and var. *biflora* with a very long prominent beak. All the material seen in Silent Valley had a very short beak to the corolla and are therefore of the typical variety.

2. *Ceropegia decaisneana* Wight, Ic. Pl. 4: t. 1259. 1848; Ansari in Fasc. Fl. India 16: 13. 1984 (Fig. 1: G-K).

C. intermedia sensu Manilal, Fl. Silent Valley 177. 1988, *pro parte* (*non* Wight, 1848).

Twining, to 3 m or more on shrubs and small trees. Leaf 7-13 (-16) x 4-6 (-9) cm, lanceolate. Corolla 4-7.5 cm long, lobes long-beaked.

Specimen examined: Near Camp Shed, Sabu 10686 (CALI).

Habitat: This species is fairly common in Silent Valley, almost always growing in moist situations along the edges of forests and along paths.

Distribution: Distributed in Kerala and Tamilnadu along the Western Ghats at medium elevations (ca. 800-1200 m); also represented in Sri Lanka. The species is represented by only a few collection and Nayar & Sastry (1988) listed it as 'rare'.

Notes: Huber (1957) considered this species to have two varieties, var. *decaisneana* and var. *brevicollis* (Hook. f.) Huber. Ansari (1984) separated *C. metziana* Miq. from *C. brevicollis* Hook. f. and left *C. decaisneana* as a distinct species with no varieties.

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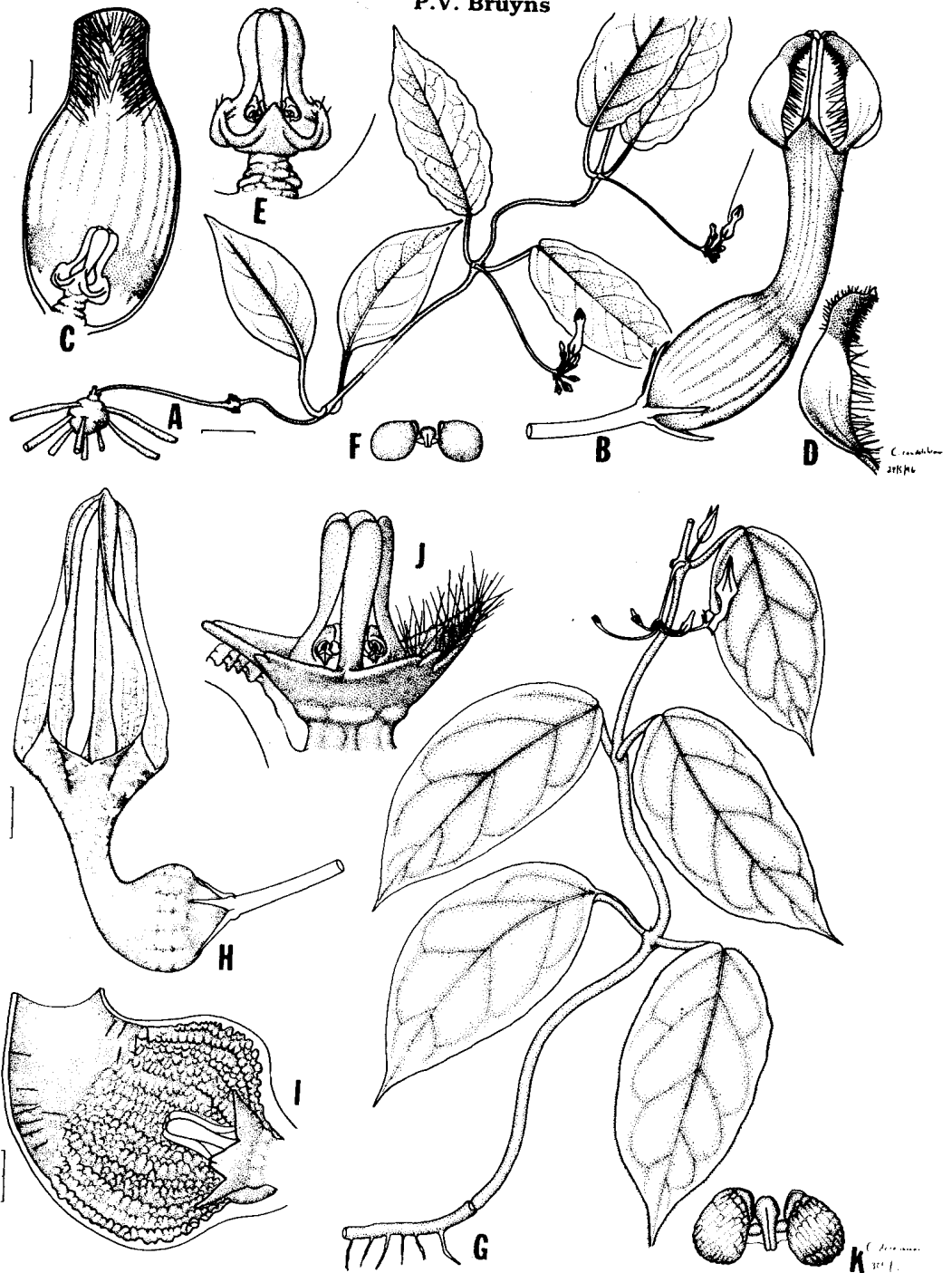


Fig. 1. A-F. *Ceropogia candelabrum* L.; G-K. *Ceropogia decausneana* Wight.

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3. *Ceropegia elegans* Wall. in Bot. Mag. t. 3015. 1830; Ansari in Fasc. Fl. India 16: 14. 1984, var. *elegans* (Fig. 2).

C. intermedia sensu Manilal, Fl. Silent Valley 177. 1988, *pro parte* (*non* Wight, 1848).

Twining often found trailing or climbing to 2 m or more. Leaf 4.5-9 x 1.5-4.5 cm, ovate-lanceolate. Corolla 3-3.5 cm long, lobes velvet green, not beaked.

Specimen examined: On the banks of rivulet before reaching Camp Shed, P. Kumar 10363 (CALI).

Habitat: This species was seen in several moist places growing in shallow soils overlaying rocks; sometimes along the banks of rivulets.

Distribution: A rare species growing at 800 to 2400 m; known from Karnataka, Kerala and also from Sri Lanka.

Notes: It is a highly variable species. Huber (1957) recognized two varieties, viz., var. *elegans* and var. *gardneri* (Thwaites *ex.* Hook.) Huber. The latter, treated as a distinct species by Hooker is only known from Sri Lanka. The material from Silent Valley belongs to the typical variety and differs from the Sri Lankan variety in the absence of rounded pouches between the corolla lobes. Ansari (1984) however considered the two varieties as one, indicating the need for further studies to clarify the status of these infraspecific taxa.

4. *Ceropegia ensifolia* Bedd., Madras J. Sc., ser. 3, 1: 52. 1864; Ansari in Fasc. Fl. India 16: 14. 1984.

C. ciliata sensu Manilal, Fl. Silent Valley 176. 1988 (*non* Wight, 1848).

Twining from 10 cm to 1 m on grasses and bushes. Leaf 7-11 x (0.5) - 0.8-3 cm, narrow-ensiform, hairy. Corolla 2.5-4 cm long, lobes beaked.

Specimen examined: Dam site, Sabu 10665 (CALI).

Habitat: Dam site.

Explanation of Fig. 1. A. Part of plant; B. Flower; C. Base of dissected flower; D. Corolla-lobe; E. Gynostegium; F. Pollinarium. Scales: A, 15 mm; B, 3 mm (at A); C, D, 2 mm (at C); E, 1 mm (at A); F, 0.25 mm (at A). Drawn from: *Bruyns* 5898 (K). G-K. *Ceropegia decaisneana*. G. Part of plant; H. Flower; I. Base of dissected flower; J. Gynostegium; K. Pollinarium. Scales: A, 15 mm (at B); B, 5 mm; C, 2 mm; D, 1 mm (at B); E, 0.25 mm (at B). Drawn from: *Bruyns* 5945 (K).

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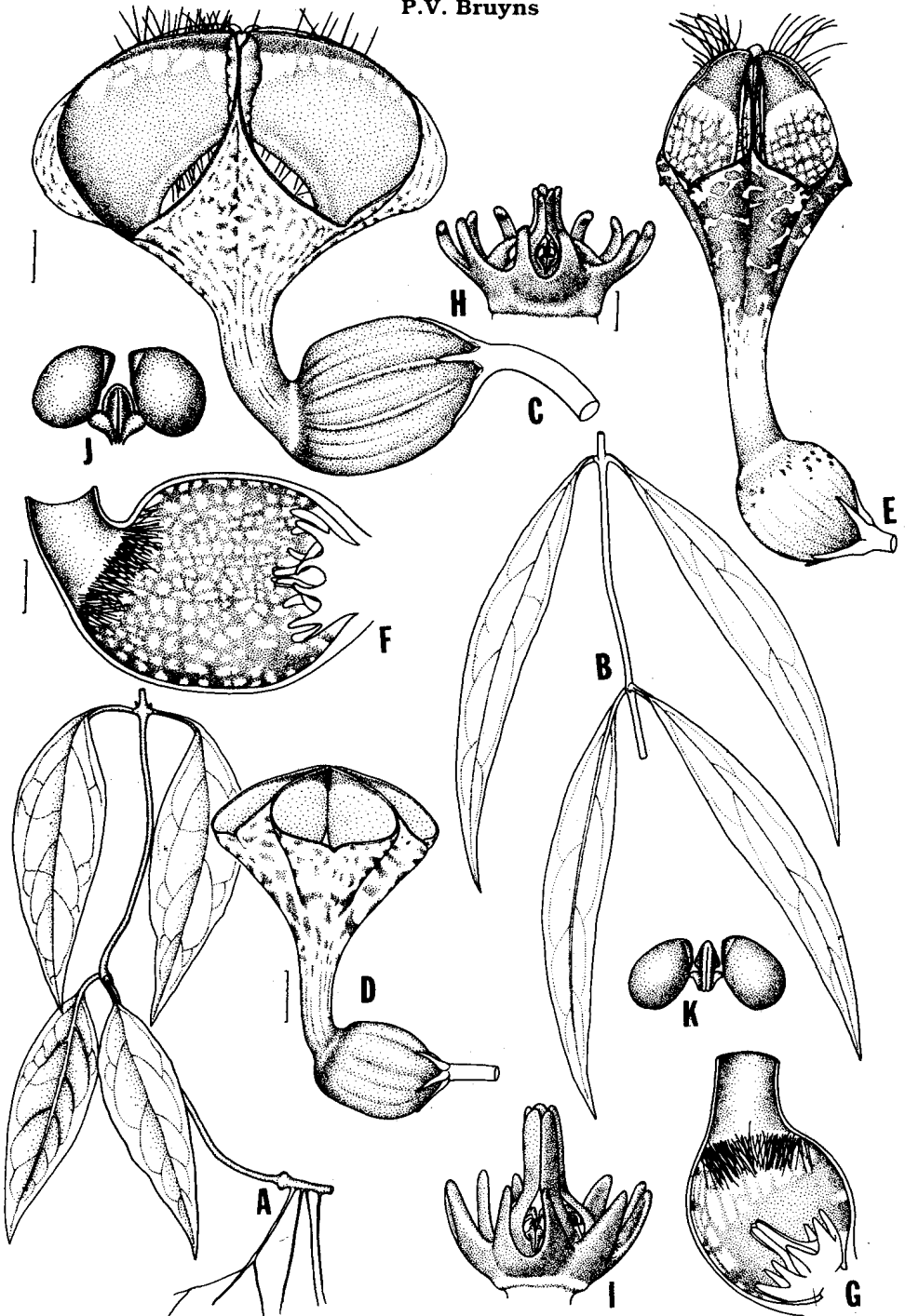


Fig. 2. *Ceropegia elegans* Wall. var. *elegans*.

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Notes: This species was treated as subspecies of *C. ciliata* Wight by Huber (1957). It resembles the latter closely, the diagnostic difference being the erect tip of the inner coronal lobules, which are recurved in *C. ciliata*. This species is also less hairy and has longer inflorescences.

Although Ansari (1984) considered this to be a species distinct from *C. ciliata*, the two species share similar topography along the Western Ghats (Pulneys, High Wavy Mountains, the Anamallays, and the Nilgiris) and, owing to the striking similarities between the two, it remains a question why they cannot be treated as two varieties of *C. ciliata* Wight.

5. *Ceropegia fimbriifera* Bedd., Madras J. Lit. Soc. 1861: 53. 1861; Ansari in Fasc. Fl. India 16: 16. 1984.

C. spiralis sensu Manilal, Fl. Silent Valley 176. 1988 (*non* Wight, 1848).

Erect herb, 5 t 30 cm tall, rarely sparingly twining on grasses. Leaf 5-9 (-12) x 0.5-0.7 (-1.3) cm, linear. Corolla 4-5 cm long, lobes beaked.

Specimen examined: Near Camp Shed, P. Kumar 10949 (CALI).

Habitat: A few plants of this species were found near the Camp shed in shallow soil overlying rocks.

Distribution: Known only from small grassy banks on rocky hills in Karnataka, Kerala and Tamilnadu.

Notes: Although the flowers in plants from Silent Valley lack the cilia along the bases of the corolla lobes supposedly characteristic of *C. fimbriifera*, the shape of the corolla tube, lobes and the corona are nearer to this species than to *C. spiralis*, where the corolla tube is broadly inflated at the base and the corolla lobes are long and noticeably twisted together above.

6. *Ceropegia hirsuta* Wight & Arnott in Wight Contrib. Bot. India 1848; Ansari in Fasc. Fl. India 16: 16. 1984; Manilal, Fl. Silent Valley 177. 1988.

Twining to a height of 1-2 m. Leaf 13-20 x 3.5-6.5 cm. Corolla 3-5.6 cm long, lobes not beaked.

Explanation of Fig. 2. A, B. Part of plant; C-E. Flower; F,G. Base of dissected flower; H,I. Gynostegium; J,K. Pollinarium. Scales: A,B, 15 mm (at C); C-E, 3 mm (at C); F,G, 2 mm (at F); H,I, 1 mm (at H); J,K, 0.25 mm (at C). Drawn from: A-D,F,H,J - *Bruyns 5951* (K); E,G,I,K - *Bruyns 5906* (K).

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Specimen examined: Nilikkal, P. Kumar 10908 (CALI).

Habitat: Seen in several places beyond the Dam Site among grasses and small trees along forest edges.

Distribution: The species is widely distributed throughout India except the Himalayan region (Ansari, 1984).

Notes: The shape of the corolla with its relatively long lobes forming an almost rectangular cage on top of the tube is unusual for *C. hirsuta* where the cage formed by the corolla lobes is usually nearly spherical.

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