

## A NEW SPECIES OF PIPER (PIPERACEAE) FROM THE SEYCHELLES

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### SUMMARY

A new species of *Piper* (Piperaceae), *P. silhouettanum*, is described from the Anse Mondon river valley, Silhouette Island, Seychelles. This species is close to *P. nigrum* but distinguished by its different venation, glabrous leaves, persistent elongated stipules and reduced bracts. This species is restricted to one valley where it is found in 1.7 hectares.

**Key words:** *Piper*, Piperaceae, Seychelles, Silhouette.

### INTRODUCTION

The family Piperaceae is widely distributed in the tropics. In the Seychelles Islands the genera *Piper*, *Peperomia* and *Lepianthes* have been recorded (Robertson, 1987; Friedmann, 1994). The highly diverse genus *Piper* is represented by three species in the Seychelles (Friedmann, 1994): *P. nigrum* L., *P. betle* L. and an unidentified species known only from the Anse Mondon valley on Silhouette Island. The Silhouette species was first located in 1981 in the *Pisonia sechellarum* forest at about 500 m above sea level (Friedmann, 1994). Several visits to that site have resulted in collections of sterile material only. This was suggested to belong to an undescribed species on the apparent distinctive vegetative characters in comparison with Madagascar taxa (Friedmann, 1994). This species has been referred to on several occasions (Robertson, 1987; Friedmann, 1986, 1994; Gerlach, 1997; Wise, 1998).

In July 1997 a species of *Piper* was found at lower altitudes in the same valley (c. 250 m above sea level); the growth form of these plants appeared to be different from the high altitude population but subsequent research has found that this represents a contiguous population extending from 250–500 m. In July 2000 isolated male *Piper* flowers were found at 500 m. In April 2001 flowering and fruiting stems were collected from the lower part of the valley suggesting that the species is dioecious. These collections enable the Silhouette *Piper* to be recognised as a distinct new species and to be described.

The Silhouette *Piper* is a vigorous climber; of the African, Indian Ocean, Asian and Australasian *Piper* species it most closely resembles *P. guineense* Thonn., *P. borbonense* (Miq.) C. DC., *P. argyrophyllum* Miq. and *P. nigrum* L. in habit and absence of wax pearls as indicated by specimens in the Cambridge University Herbarium and literature accounts (Trimen, 1884; Balle, 1942; Steyermark, 1984; Verdcourt, 1996).

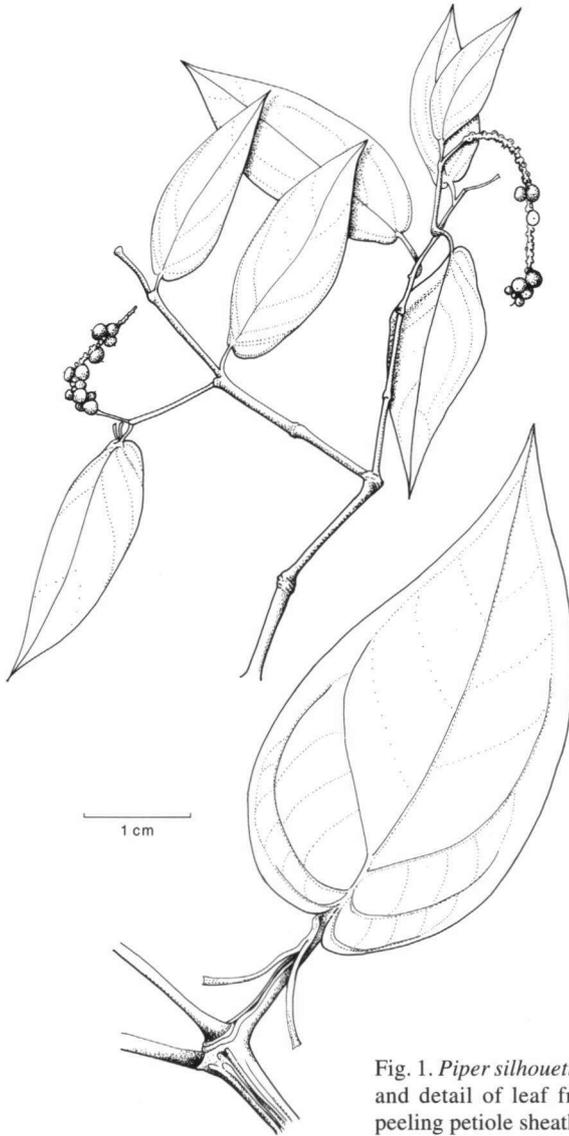


Fig. 1. *Piper silhouettanum* J. Gerlach. Fertile shoots habit and detail of leaf from main climbing stem, showing peeling petiole sheath remaining attached apically.

*Piper guineense* Thonn. and *P. borbonense* (Miq.) C.DC. of Africa resemble the Seychelles *Piper* closely in habit, habitat, size, venation, in having adventitious roots near the nodes, being glabrous and having older stems with corky ridges. The leaves are similar and the petiole can be similarly long (0.5–4 cm). However, Seychelles specimens differ from these species in usually having non-caducous auriculated leaves, adnate glabrous triangular bracts and a subcylindrical ovary, as opposed to the cordate leaves, free obovate ciliate bracts and ovoid ovary. *Piper argyrophyllum* Miq. of Sri Lanka is similar in habit, size and venation, it lacks the adventitious roots, its less robust, short, dehiscent petiole sheaths and free bracts.

The Silhouette species most closely resembles *P. nigrum* L. and extensive material (herbarium specimens from India and cultivated and escaped plants on the islands of Mahé and La Digue in the Seychelles) of this species was examined to establish the range of variation in *P. nigrum*. In *P. nigrum* the veins curve along the margin whereas in the Silhouette plants the venation is brachydromous. In both species the venation is pinnate but with all the main veins in the basal 25% of the leaf length. In the Silhouette plants the veins are restricted to the basal 5–10%, whilst in *P. nigrum* they are restricted to the basal 9–25% of the leaf length. *Piper nigrum* may be finely pubescent

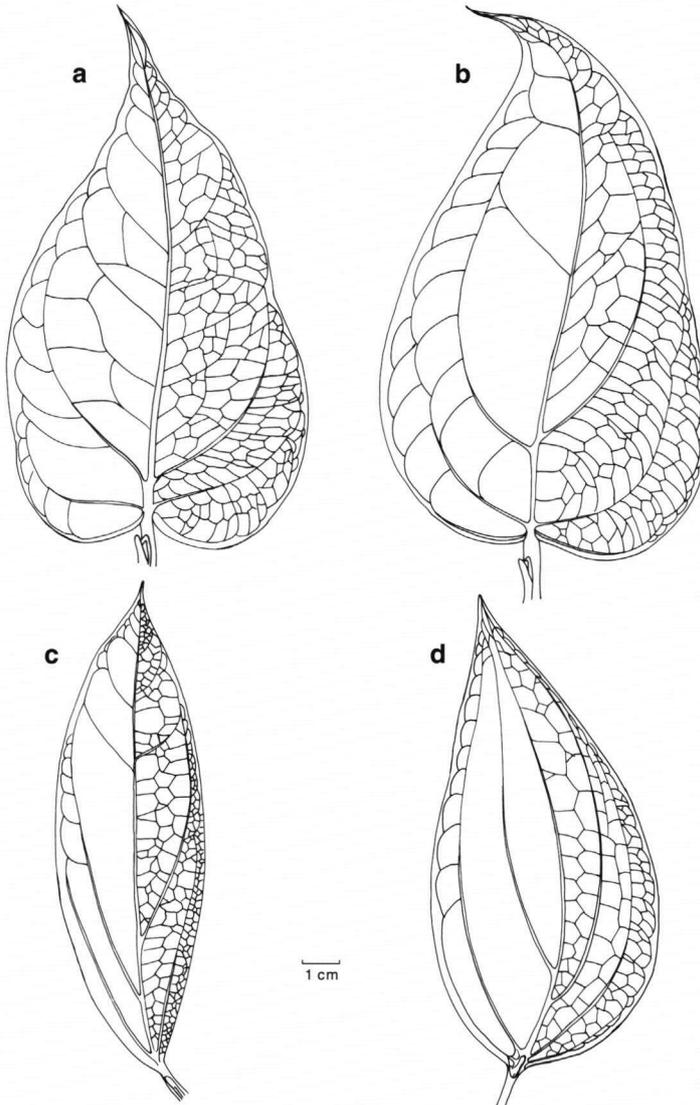


Fig. 2. Variation in leaf form in *Piper silhouette* J. Gerlach (a–c) compared to *P. nigrum* L. (d).

on the undersurface of the leaves and the petiole, at least along the veins, in contrast to the glabrous surface of the Silhouette plants. In *P. nigrum* the petiole is 1–3 cm long with the petiole sheath extending up to half its length, although usually the sheath is not distinct. In the Silhouette material the petiole is 1.5–4.8 cm long and the sheath runs the whole length of the petiole. *Piper nigrum* produces dense clumps of fine adventitious roots on mature stems over 6 mm wide and has few coriaceous ridges. On the Silhouette specimens 5–8 robust adventitious roots are produced on stems as narrow as 3 mm and coriaceous ridges are well developed, covering all mature stems. Flower spikes in both taxa are pendulous with bracts that are glabrous, concave, adnate to the rachis but with the margin and apex free. In *P. nigrum* the bracts are 0.8–1.5 mm wide, in the Silhouette material they all measure less than 0.5 mm. Stigmata in *P. nigrum* are yellow, elongate, strap-shaped (in Seychelles specimens) or triangular (Indian material), 0.5 mm long. The Silhouette species has green, triangular stigmata, 0.05 mm long. In both taxa the fruit is globose and glabrous, with sessile stigmata. In *P. nigrum* it is black but remains green in Silhouette material.

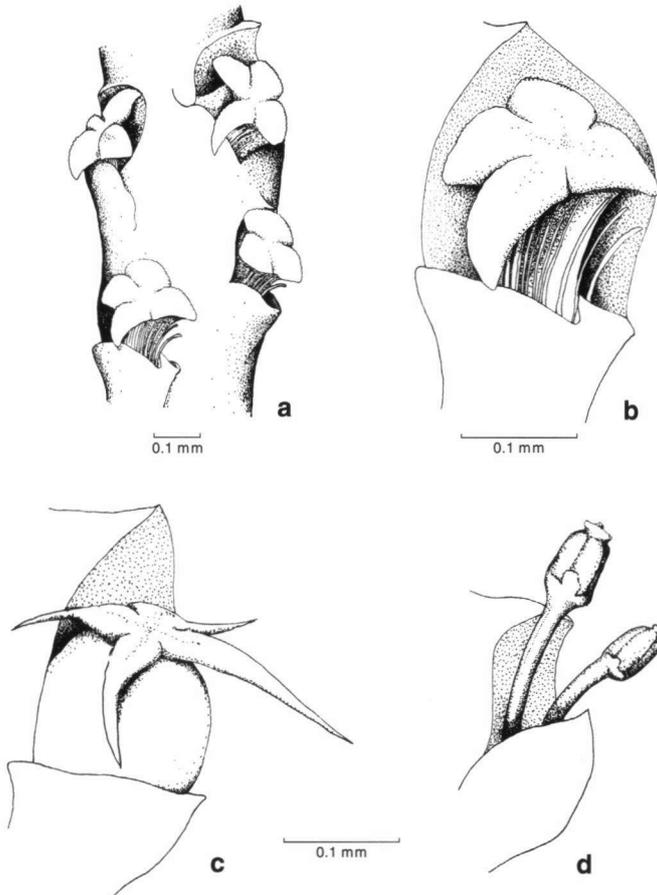


Fig. 3. a, b & d. *Piper silhouettanum* J. Gerlach. a. Section of female flowering spike; b. female flower; d. male flower. — c. *P. nigrum* L. female flower.

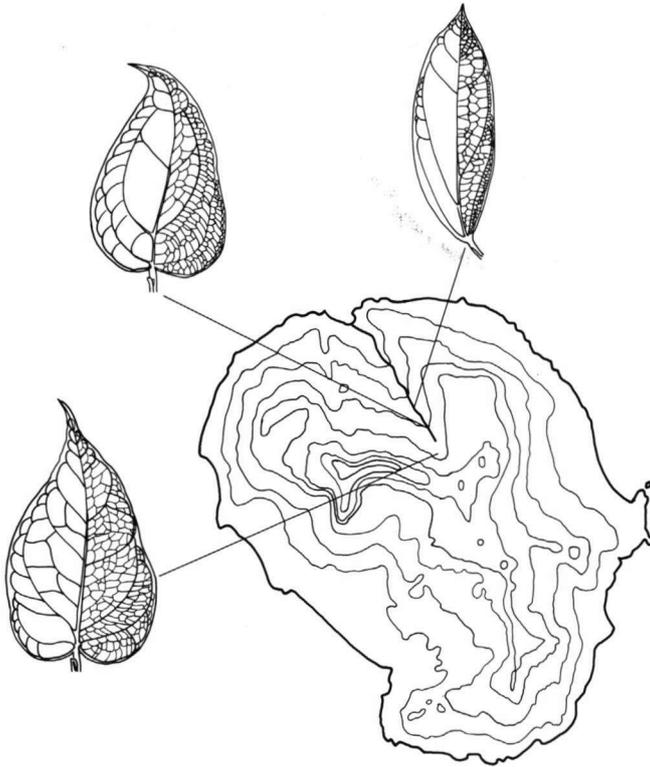


Fig. 4. Geographical variation in leaf morphology of *Piper silhouettanum* J. Gerlach on Silhouette 100 m contours shown.

***Piper silhouettanum* J. Gerlach, *spec. nov.* — Fig. 1–4**

*Piper nigrum* affinis sed venatio pluris restrictus, brochidodrome; petiolus longior (1.5–4.8 cm), vaginam decurrens pro totam longitudinem petiolus, vaginam petiolarum persistens, elongatus; radice robusta; cristae coriaceae plerumque adsunt; bractee breviorae (0.5 mm), viridi; stigmata breviorae (0.05 mm), triangulari, viridi; fructus viridus. —Typus: *J. Gerlach s.n.* (holotype: Cambridge University Herbarium; paratype: Nature Protection Trust of Seychelles NPTS P 2001.3), Seychelles, Silhouette Island, Anse Mondon river, 29.VIII.2001.

Root-climber to 10 m long. Stem diameter 1–4 cm. Leaves glabrous, chartaceous or coriaceous, drying papery, lacking wax pearls or glands. Form variable (Fig. 1, 2); ovate to elliptic, 8–15(–17) by 4–7(–11) cm, apex acuminate, base cordate or unevenly auriculate, always asymmetrical, major veins subopposite in 3 or 4 pairs, all constricted to basal 10% of leaf, secondary veins brachydodromous; petiole 15–48 mm; petiole sheath persistent, bases peeling but always remaining attached apically, scar extending full length of petiole. Dioecious; flowering female spike (Fig. 3) 58–64 by 4 mm; pedicel 9–11 mm. Ovary subconical; 4 (or 3 or 5) green ciliate stigmas 0.05 mm long. Stamens paired, 1 mm long. Fruits globose, 4–5 mm diameter, green, aromatic.

**Habitat & Ecology** — A climbing species found only in high forest in the Anse Mondon valley, Silhouette Island, Seychelles. At the lower altitudes this can be characterised as riverine forest, at higher altitudes it is on the edge of the moss forest zone. The species appears to flower in the tree canopy. The only collections of flowering material were made in the months of April and August. It is found from 250–500 m above sea level, in an area of 1.7 hectares.

**Note** — Leaf form changes significantly along the valley in which it has been collected (Fig. 4) with the form previously described (Friedmann, 1994; Wise, 1998) occurring at the upper end of the altitude range (500 m above sea level). At 350 m the leaf form is identical but the texture coriaceous; below this altitude coriaceous oval leaves dominate and the plants could be mistaken for *P. nigrum* except for slight venation differences, the lack of pubescence and the persistent long stipules.

*Material examined:*

coll.: *J. Gerlach* (holotype: Cambridge University Herbarium, Anse Mondon river, Silhouette Island, Seychelles, 29.III.2001; paratype: NPTS P2001.3, Anse Mondon river, Silhouette Island, Seychelles, 29.III.2001; sterile specimen: NPTS P2001.2, Anse Mondon river, Silhouette Island, Seychelles, 29.VIII.1997).

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