

## SEVEN NEW SPECIES OF STIGMAPHYLLON (MALPIGHIACEAE) FROM BRAZIL

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Since the publication of Niedenzu's treatments of *Stigmaphyllon* (1899, 1900, 1928), one of the wing-fruited genera of the Malpighiaceae, many new collections from South America have shown this Neotropical genus of yellow-flowered vines to be larger and more diverse than previously thought. Seven new species from Brazil are here described. They all exhibit the characters shared by most species: large and long-petioled leaves, flowers aggregated into umbels or pseudoracemes, a heteromorphic androecium with the stamens opposite the sepals modified, and styles bearing the apical foliole for which the genus is named. The samaras of the three species for which fruiting material is available also agree with the form typical for the genus, a nut bearing a large dorsal wing and often also lateral winglets.

***Stigmaphyllon bradei*** C. Anderson, sp. nov.—TYPE: BRAZIL. São Paulo: Registro, 21 Jun 1963, *Moura s.n.* [SP123438] (holotype: SP!).

Liana. Laminae 6.5–14.3 cm longae, 6.8–12.5 cm latae, cordatae vel suborbiculares, supra glabrae, subtus glabrae vel nervis sparsim sericeae, margine sparsim glanduloso; stipulae glandulosae. Inflorescentia solitaria (vel dichasialis?) constata ex umbellis, floribus in quaque umbella ca. 15–25. Pedunculi rudimentales vel usque 1.5 mm longi; pedicelli 8–13.5 mm longi. Petala limbo orbiculari; limbi petalorum antico-lateralium marginibus erosis vel irregulariter denticulato-erosis; limbi petalorum postico-lateralium et petali postici marginibus fimbriatis. Stamina heteromorpha; antherae sepalis lateralibus oppositae loculis redactis instructae vel steriles, antherae ceterae fertiles; antherae glabrae. Stylus anticus 2.6–3.2 mm longus, sparsim pubescens, utroque foliolo 1.2–1.4 mm longo, 1.1–1.2 mm lato, triangulari vel parabolico; styli postici 3.3–4 mm longi, lyrati, glabri vel sparsim pubescentes, foliolo 1.8–2 mm longo latoque, subquadrato vel suborbiculari. Samara ignota.

Vine. Laminas 6.5–14.3 cm long, 6.8–12.5 cm wide, cordate to suborbicular, apex mucronate in larger leaves to caudate in smaller ones, base auriculate in larger leaves to cordate in smaller leaves, glabrous above, glabrous or sparsely sericeous only on major veins below, margin with scattered stalked glands (0.2–0.3 mm in diameter, 0.3–0.6 mm long) and/or filiform glands (up to ca. 2 mm long), with a pair of prominent but sessile glands borne on the petiole 1–2.5 mm below the base of the lamina, each gland 1.5–1.8 mm in diameter, up to 0.5 mm high; petioles 2.8–7 cm long, pubescent in younger leaves to glabrate in older and larger ones; stipules 1.3–2.5 mm long, 0.9–1.6 mm wide, the proximal  $\frac{1}{3}$  a circular gland, the distal  $\frac{2}{3}$  herbaceous and narrowly triangular to linear. Flowers ca. 15–25 per umbel, the umbels borne solitary (and in dichasia?). Peduncles rudimentary to 1.5 mm long; pedicels 8–13.5 mm long; peduncles up to 0.1 times as long as the pedicels. Bracts

ca. 1.5–2.5 mm long, ca. 1.5–2 mm wide, broadly triangular, bracteoles ca. 1.3–2 mm long, 1.1–1.3 mm wide, broadly triangular, eglandular. Sepals ca. 2.2–2.4 mm long, ca. 2.5–2.7 mm wide, glands ca. 2.5–2.8 mm long, 1.3–1.5 mm wide. All petals with the limbs orbicular, glabrous, those of the anterior-lateral petals with the margin erose or irregularly denticulate-erose, the teeth up to 0.3 mm long, those of the posterior-lateral and posterior petals with the margin fimbriate, the fimbriae up to 0.6 mm long; anterior-lateral petals: claw 3–3.2 mm long, limb ca. 11 mm long and wide; posterior-lateral petals: claw 2.5–3 mm long, limb ca. 10 mm long and wide; posterior petal: claw 3.2–4 mm long, apex very slightly indented, limb ca. 7.5–8 mm long and wide. Stamens unequal, those opposite the posterior styles the largest, anthers of those opposite the lateral sepals with the connective enlarged and the locules reduced or absent; anthers glabrous. Anterior style 2.6–3.2 mm long, shorter than the posterior two, erect, with scattered hairs in the proximal  $\frac{1}{4}$ ; each foliole 1.2–1.4 mm long, 1.1–1.2 mm wide, triangular to parabolic. Posterior styles 3.3–4 mm long, lyrate, glabrous or with scattered hairs in the proximal  $\frac{1}{3}$ ; foliole 1.8–2 mm long and wide, subsquare to suborbicular. Samara not seen. Fig. 1.

ADDITIONAL SPECIMEN EXAMINED. BRAZIL. São Paulo: Iguape, Morro das Pedras, 1921, *Brade* 7987 (R).

*Stigmaphyllon bradei*, known only from two flowering collections from coastal São Paulo, is readily distinguished by its unusual stipules, each bearing a basal

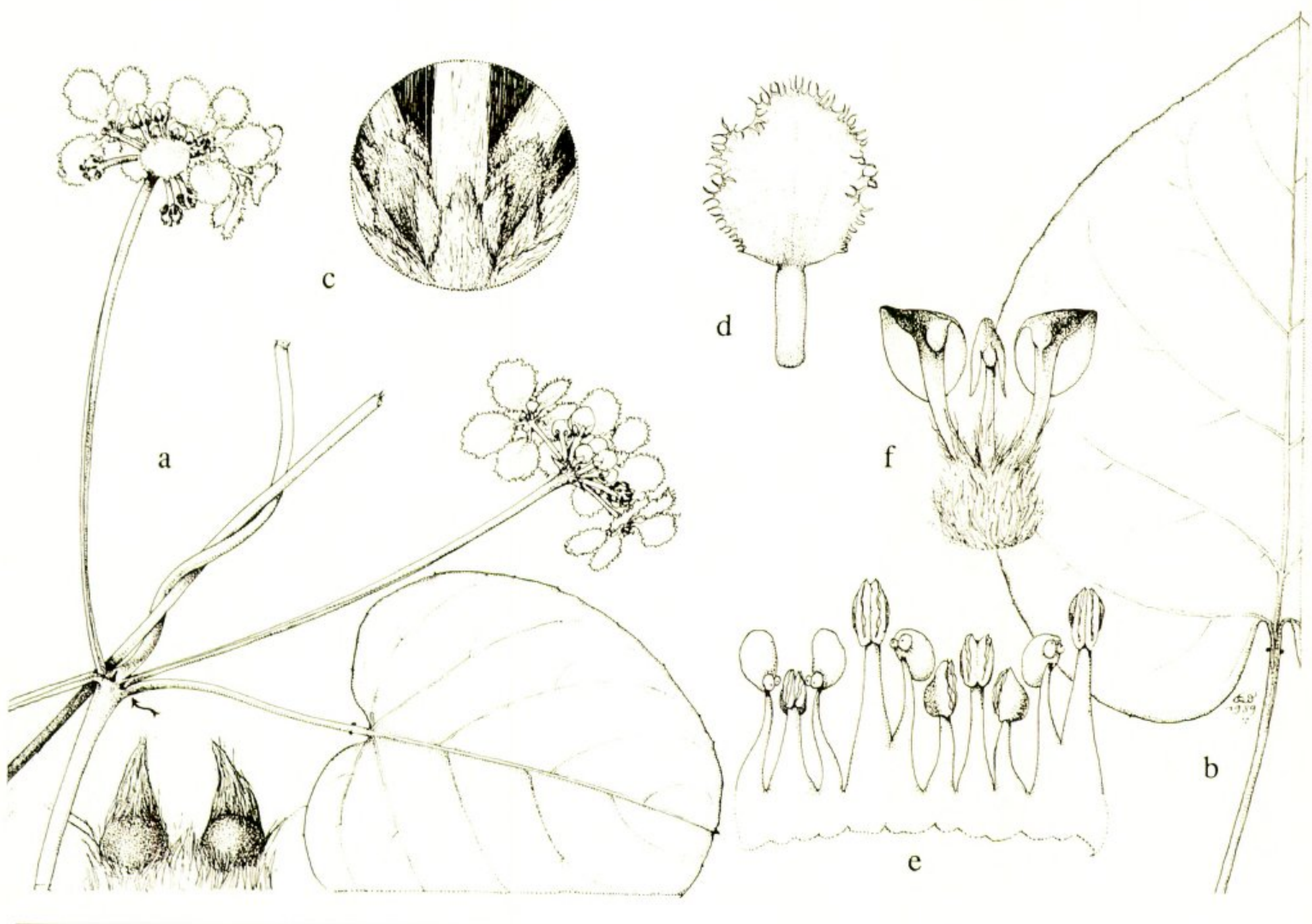


FIG. 1. *Stigmaphyllon bradei*. a. Flowering branch ( $\times 0.5$ ) and enlargement of stipules ( $\times 5$ ). b. Large leaf ( $\times 0.5$ ). c. Detail of base of umbel ( $\times 5$ ); the base of each pedicel is hidden by two bracteoles and one bract; the bracts and bracteoles are in such close association because the peduncle is rudimentary. d. Posterior petal ( $\times 2.5$ ). e. Androecium ( $\times 5$ ); second stamen from left opposes the posterior petal. f. Gynoecium ( $\times 5$ ); posterior styles bent slightly outward to show anterior style, which is in the middle. (a, c–e based on *Moura s.n.* [SP123438]; b based on *Brade* 7987.)

gland (Fig. 1a), and by its inflorescence structure. The flowers are aggregated into congested umbels, which are borne singly (and perhaps in dichasia) on long primary axes. The peduncles, often rudimentary, are at most 1.5 mm long, so that the bract and the pair of bracteoles (borne at the apex of the peduncle) are in close proximity.

*Stigmaphyllon bradei* is named for the noted Brazilian botanist Alexandre Curt Brade, who first collected it.

***Stigmaphyllon hatschbachii*** C. Anderson, sp. nov.—TYPE: BRAZIL. Minas Gerais: Realeza, orla da mata, 15 Oct 1983, *Hatschbach* 46863 (holotype: MBM!; isotype: MICH!).

Liana. Laminae ca. 10 cm longae, 6–7 cm latae, anguste ovatae vel ellipticae, supra glabrae vel glabratae costa pilis T-formibus instructa, subtus densissime pubescentes pilos T-formes aureos ferentes, margine sparsim glanduloso. Inflorescentia thyrsiformis constata ex umbellis, floribus in quaque umbella ca. 20–30. Pedunculi 7–9 mm longi; pedicelli 7–10 mm longi. Petala limbo orbiculari, margine fimbriato. Stamina heteromorpha; antherae sepalis antico-lateralibus oppositae 1–2 loculis redactis instructae, antherae sepalis postico-lateralibus oppositae steriles, antherae ceterae fertiles pubescentes. Stylus anticus ca. 3.5 mm longus, glaber, utroque foliolo ca. 1.8 mm longo, ca. 1.4 mm lato, parabolico; styli postici ca. 4 mm longi, lyrati, glabri, foliolo ca. 2.7 mm longo latoque, suborbiculari. Samara ignota.

Vine. Laminas ca. 10 cm long, 6–7 cm wide, narrowly ovate to elliptical, apex mucronate, base attenuate to truncate, glabrous to glabrate above but with T-shaped hairs on the midvein, very densely pubescent with golden T-shaped hairs below, irregularly spaced stalked glands (each ca. 0.3 mm in diameter, ca. 0.4–0.5 mm long) borne adjacent to the margin below, with a pair of prominent but sessile glands at the apex of the petiole, each gland 1.8–2 mm in diameter; petioles 2.5–3 cm long, densely pubescent with T-shaped hairs; stipules 0.5–1 mm long and wide, triangular, eglandular. Flowers ca. 20–30 per umbel, the umbels borne in small thyrses. Peduncles 7–9 mm long; pedicels 7–10 mm long; peduncles 0.7–1 times as long as the pedicels. Bracts 2.8–3.2 mm long, 1–1.3 mm wide, narrowly triangular; bracteoles 1.8–2.2 mm long, 1–1.2 mm wide, narrowly triangular, eglandular. Sepals ca. 3 mm long, 2.3–2.5 mm wide, glands 1.8–2 mm long, ca. 1 mm wide. All petals with the limbs orbicular, glabrous, margin with fimbriae up to 0.5 (–0.6) mm long; anterior-lateral petals: claw ca. 1.5 mm long, limb 13–14 mm long and wide; posterior-lateral petals: claw 1–1.3 mm long, limb 11–12 mm long and wide; posterior petal: claw 3–3.5 mm long, apex not indented, limb ca. 10 mm long and wide. Stamens unequal, those opposite the posterior-lateral petals (and the posterior styles) the largest, anthers of those opposite the anterior-lateral sepals with the connective enlarged and bearing only 1 or sometimes 2 reduced locules, anthers of those opposite the posterior-lateral sepals sterile; fertile anthers pubescent. Anterior style ca. 3.5 mm long, shorter than the posterior two, glabrous; each foliole ca. 1.8 mm long, ca. 1.4 mm wide, parabolic. Posterior styles ca. 4 mm long, lyrate, glabrous; foliole ca. 2.7 mm long and wide, suborbicular. Samara unknown. Fig. 2.

*Stigmaphyllon hatschbachii*, known only from the type, is easily recognized by the copious golden pubescence of most of the vegetative parts. The dense indumentum of the abaxial leaf surface obscures the epidermis and hides the briefly stalked marginal glands. The anthers of stamens opposite the anterior-lateral sepals bear only one (sometimes two) reduced locule and those of the stamens opposite the posterior-lateral sepals are sterile.

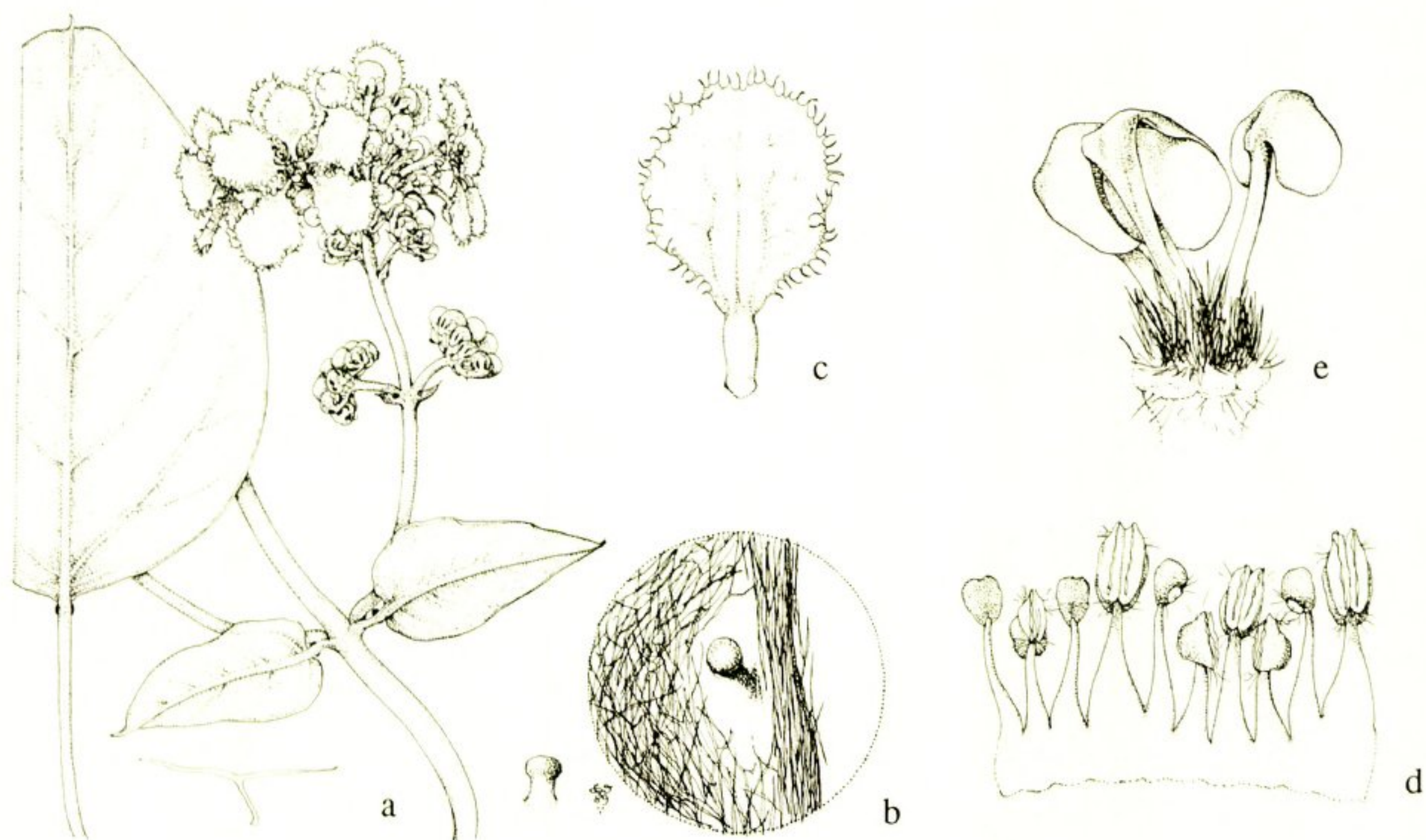


FIG. 2. *Stigmaphyllon hatschbachii*. a. Flowering branch and portion of large leaf ( $\times 0.5$ ), and enlarged T-shaped hair ( $\times 20$ ). b. Detail of margin of abaxial leaf surface with some of the hairs removed to show position of gland ( $\times 10$ ), lateral view of marginal gland ( $\times 10$ ). c. Posterior petal ( $\times 2$ ). d. Androecium ( $\times 5$ ); second stamen from left opposes the posterior petal. e. Gynoecium, with anterior style to the right ( $\times 5$ ). (Based on *Hatschbach* 46863.)

This distinctive species is named in honor of the Brazilian botanist Gert Hatschbach, discerning collector of many novelties.

***Stigmaphyllon macedoanum*** C. Anderson, sp. nov.—TYPE: BRAZIL. Minas Gerais: Capinópolis, Fazenda Santa Terezinha, as margens do Rio Paranaíba divisa de Goiás e Minas Gerais, 27 Jan 1989, *A. Macedo* 5486 (holotype: RB!; isotypes: G! K! MICH! NY! R! UB! US!).

Liana. Laminae 9–18.5 cm longae, 6.3–19 cm latae ambitu, majores palmatim 3–5(–7)-lobatae vel late ovatae vel late ellipticae, minores 2–3-lobatae vel late ovatae, supra sparsim pubescentes vel glabratae, subtus sparsim sericeae, margine sparsim glanduloso. Inflorescentia dichasialis constata ex pseudoracemis, floribus in quoque pseudoracemo ca. 15–25. Pedunculi 2.5–4 mm longi; pedicelli 5.5–6 mm longi. Petala limbo orbiculari, margine fimbriato. Stamina heteromorpha; filamenta sepalis lateralibus opposita longissima; antherae omnes fertiles pubescentes. Stylus anticus ca. 2.5 mm longus, utroque foliolo ca. 0.8 mm longo, 0.6–0.7 mm lato, triangulari vel late triangulari; styli postici ca. 3 mm longi, parum lyrati, foliolo ca. 1.2 mm longo, ca. 1 mm lato, triangulari. Samara ala dorsali 1.8–2.1 cm longa, ca. 1.2 cm lata; alulae laterales absentes; nux ca. 7 mm alta.

Vine. Laminas 9–18.5 cm long, 6.3–19 cm wide in outline, the larger palmately 3–5(–7)-lobed to broadly ovate or broadly elliptical, the smaller 2–3-lobed to broadly ovate, apex cuspidate, base deeply cordate to auriculate or in the smaller

sometimes sagittate, sparsely pubescent to glabrate above, sparsely sericeous below, margin with filiform glands (up to 1.5 mm long), these terminating the major veins, with a pair of shallowly cupulate glands at the apex of the petiole, each gland 0.9–2 mm in diameter, ca. 0.5 mm high; petioles 4–15 cm long, sericeous, confluent across the node and forming a corky ridge bearing the stipules; stipules 0.2–0.5 mm long, 0.5–0.6 mm wide, triangular, eglandular. Flowers ca. 15–25 per pseudoraceme, the pseudoracemes borne in dichasia or compound dichasia. Peduncles 2.5–4 mm long; pedicels 5.5–6 mm long, somewhat inflated; peduncles 0.4–0.7 times as long as the pedicels. Bracts 1.1–1.5 mm long, 0.6–0.9 mm wide, triangular; bracteoles 0.8–1 mm long, 0.5–0.8 mm wide, triangular, eglandular. Sepals ca. 2 mm long and wide, glands 1.8–2 mm long, ca. 1 mm wide. All petals with the limbs orbicular, those of the lateral petals with the margin fimbriate, fimbriae up to 0.4 mm long; anterior-lateral petals: claw 1.6–1.7 mm long, limb ca. 9.5 mm long and wide; posterior-lateral petals: claw ca. 1 mm long, limb ca. 7.5 mm long and wide; posterior petal: claw ca. 3 mm long, apex not indented, limb ca. 6.5 mm long and wide, margin with fimbriae up to 1 mm long. Stamens equal in shape but unequal in size, those opposite the lateral sepals with the longest filaments; anthers all fertile, glabrous. Anterior style ca. 2.5 mm long, shorter than the posterior two, glabrous; each foliole ca. 0.8 mm long, 0.6–0.7 mm wide, triangular or broadly triangular. Posterior styles ca. 3 mm long, slightly lyrate, glabrous; apex 1.5 mm long and incurved, foliole ca. 1.2 mm long, ca. 1 mm wide, triangular. Dorsal wing of samara 1.8–2.1 cm long, 1.2 cm wide, upper margin with a blunt tooth; lateral winglets absent; nut ca. 7 mm high, ca. 3.5 mm in diameter, areole plane, carpophore up to 2.3 mm long. Seed ca. 7.8 mm long, embryo ovoid, outer cotyledon ca. 6.6 mm long, ca. 4.2 mm wide, distally curved but not folded over the inner cotyledon, inner cotyledon ca. 6 mm long, ca. 3.8 mm wide, straight. Fig. 3.

ADDITIONAL SPECIMEN EXAMINED. BRAZIL. Minas Gerais: Ituiutaba, Capinópolis, Fazenda Santa Terezinha, ramosa de mata em Pedreiras, 22 Nov 1971, A. Macedo 5057 (MBM).

*Stigmaphyllon macedoanum*, known only from one locality in Minas Gerais, is easily recognized by its polymorphic, sparsely pubescent leaves, whose petioles are fused across the node into a corky ridge bearing the tiny caducous stipules (Fig. 3b), a condition not found in any other species. All laminae are cuspidate, and the major veins terminate in filiform marginal glands. The petiole glands are shallowly cupulate. The flowers are arranged in pseudoracemes. The androecium is unusual in that the stamens opposite the lateral sepals have the longest filaments and unreduced or only slightly reduced locules. The small samara lacks lateral winglets.

This unusual species is named for Engenheiro Agrônomo Cássio Macedo at the request of his brother Amaro Macedo, who collected the type and paratype.

***Stigmaphyllon matogrossense*** C. Anderson, sp. nov.—TYPE: BRAZIL. Mato Grosso: Mpio. Cáceres, 9 km ENE de Porto Esperidião, BR-174, 150 m, 18 May 1985, *Krapovickas et al.* 40114 (holotype: MICH!; isotype: CTES!).

Liana. Laminae 5.5–9.6 cm longae, 3–5.8 cm latae, ovatae vel anguste ovatae, supra glabrae, subtus tomentosae, margine eglanduloso. Inflorescentia solitaria vel dichasialis constata ex umbellis, floribus in quaque umbella ca. 15. Pedunculi 3.5–4.5 mm longi; pedicelli 5–8.5 mm longi. Petala limbo orbiculari, margine glanduloso-fimbriato; limbus petali postici supra basin fimbriis crassis glandulosis instructus.

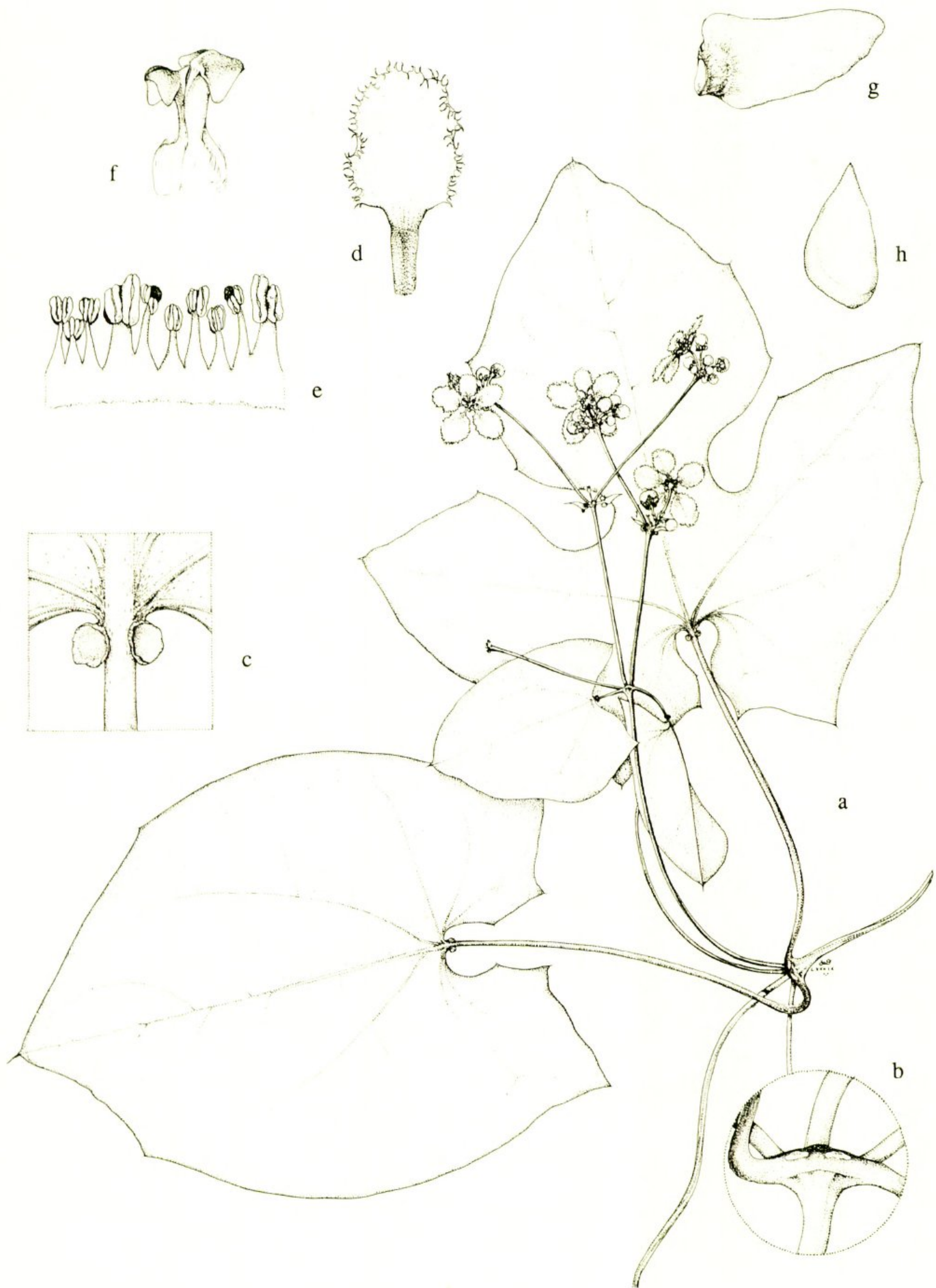


FIG. 3. *Stigmaphyllon macedoanum*. a. Flowering branch ( $\times 0.5$ ). b. Detail of node showing corky ridge formed by confluent bases of petioles ( $\times 1.5$ ); note stipule scars. c. Detail of abaxial surface of leaf base showing sparse appressed pubescence and basal glands ( $\times 2.5$ ). d. Posterior petal ( $\times 3$ ). e. Androecium ( $\times 5$ ); second stamen from left opposes the posterior petal. f. Gynoeceum, with anterior style to the left ( $\times 5$ ). g. Samara ( $\times 1$ ). h. Embryo ( $\times 2.5$ ). (Based on A. Macedo 5486.)

Stamina heteromorpha; antherae sepalis postico-lateralibus oppositae steriles, antherae ceterae fertiles glabrae. Stylus anticus ca. 3.5 mm longus, glaber, utroque foliolo ca. 1.7 mm longo, ca. 2.2 mm lato, subrectangulari; styli postici ca. 4.3 mm longi, lyrati, adaxaliter pubescentes, foliolo ca. 2.2 mm longo, ca. 2.7 lato, suborbiculari. Samara ignota.

Vine. Laminas 5.5–9.6 cm long, 3–5.8 cm wide, ovate or narrowly so, apex mucronate or emarginate-mucronate, base cordate or shallowly cordate, glabrous above, tomentose below, margin eglandular, with a pair of prominent but sessile glands at the apex of the petiole, each gland 1.4–2 mm in diameter; petioles 1.3–4.5 cm long, sericeous; stipules 1–1.4 mm long, 0.8–1.3 mm wide, triangular, eglandular. Flowers ca. 15 per umbel, the umbels borne solitary or in dichasia or compound dichasia. Peduncles 3.5–4.5 mm long; pedicels 5–8.5 mm long; peduncles 0.5–0.8 times as long as the pedicels. Bracts 1.5–2.2 mm long, 1.2–1.6 mm wide, triangular; bracteoles 1.6–2 mm long, 1.2–1.5 mm wide, triangular, eglandular or each bracteole with a pair of inconspicuous glands (each 0.1–0.2 mm in diameter). Sepals 2.8–3 mm long and wide, glands ca. 2.2 mm long, 1–1.1 mm wide. All petals with the limbs orbicular, glabrous, margin with gland-tipped fimbriae up to 0.5 mm long; anterior-lateral petals: claw 2–2.3 mm long, limb ca. 13 mm long and wide; posterior-lateral petals: claw ca. 1.5 mm long, limb ca. 10 mm long and wide; posterior petal: claw 3–3.2 mm long, apex indented, limb 9–9.5 mm long and wide, the margin at the base with 1–3 stout glandular fimbriae, these 0.6–0.7 mm long, ca. 0.2 mm wide. Stamens unequal, those opposite the posterior-lateral petals (and the posterior styles) the largest, anthers of those opposite the lateral sepals sterile; anthers glabrous. Anterior style ca. 3.5 mm long, shorter than the posterior two, glabrous; each foliole ca. 1.7 mm long, ca. 2.2 mm wide, subrectangular. Posterior styles ca. 4.3 mm long, lyrate, adaxially with a row of hairs in the proximal  $\frac{2}{3}$ – $\frac{3}{4}$ ; foliole ca. 2.2 mm long, ca. 2.7 mm wide, suborbicular. Samara not seen. Fig. 4.

*Stigmaphyllon matogrossense*, known only from the type, has the leaves tomentose below and flowers with several distinctive features. The limbs of the petals have glandular-fimbriate margins, but the limb of the posterior petal also bears 1–3 stout gland-tipped fimbriae on each side near the base. The stamens opposite the lateral sepals are sterile. The posterior styles only bear an adaxial row of scattered hairs in the proximal  $\frac{2}{3}$ – $\frac{3}{4}$  of their length.

**Stigmaphyllon paraense** C. Anderson, sp. nov.—TYPE: BRAZIL. Pará: Rio Paranapebas, control point at entrance to Serra Norte, ca. 39 km E of AMZA camp N-5, 6°04'S, 49°55'W, ca. 150 m, *Sperling* 6322 (holotype: INPA!; isotypes: MICH! NY!).

Liana. Laminae 9.2–17.5 cm longae, 5.5–11.5 cm latae, anguste triangulares vel triangulares vel anguste ovatae vel ovatae, supra sparsim sericeae vel glabrae, subtus sericeae, margine sparsim glanduloso. Inflorescentia dichasialis constata ex umbellis, floribus in quaque umbella ca. 12–20. Pedunculi 4–13.3 mm longi; pedicelli 4.5–7 mm longi. Petala limbo orbiculari, margine fimbriato. Stamina heteromorpha; antherae sepalis lateralibus oppositae 1–2 loculis redactis instructae; antherae glabrae. Stylus anticus 3.8–4.5 mm longus, glaber vel sparsim pubescens, utroque foliolo 1.8–2.3 mm longo, 2–2.4 mm lato, subquadrato; styli postici 4.5–5 mm longi, lyrati, adaxaliter pubescentes, foliolo 2.5–3.2 mm longo, 2.2–2.5 mm lato, subquadrato vel interdum subrectangulari. Samara ala dorsalis ca. 4 cm longa, ca. 1.6 cm lata; nux ca. 8.5 mm alta, pari alularum lateralium instructa; locus cavernulis aëriis circumcinctus.

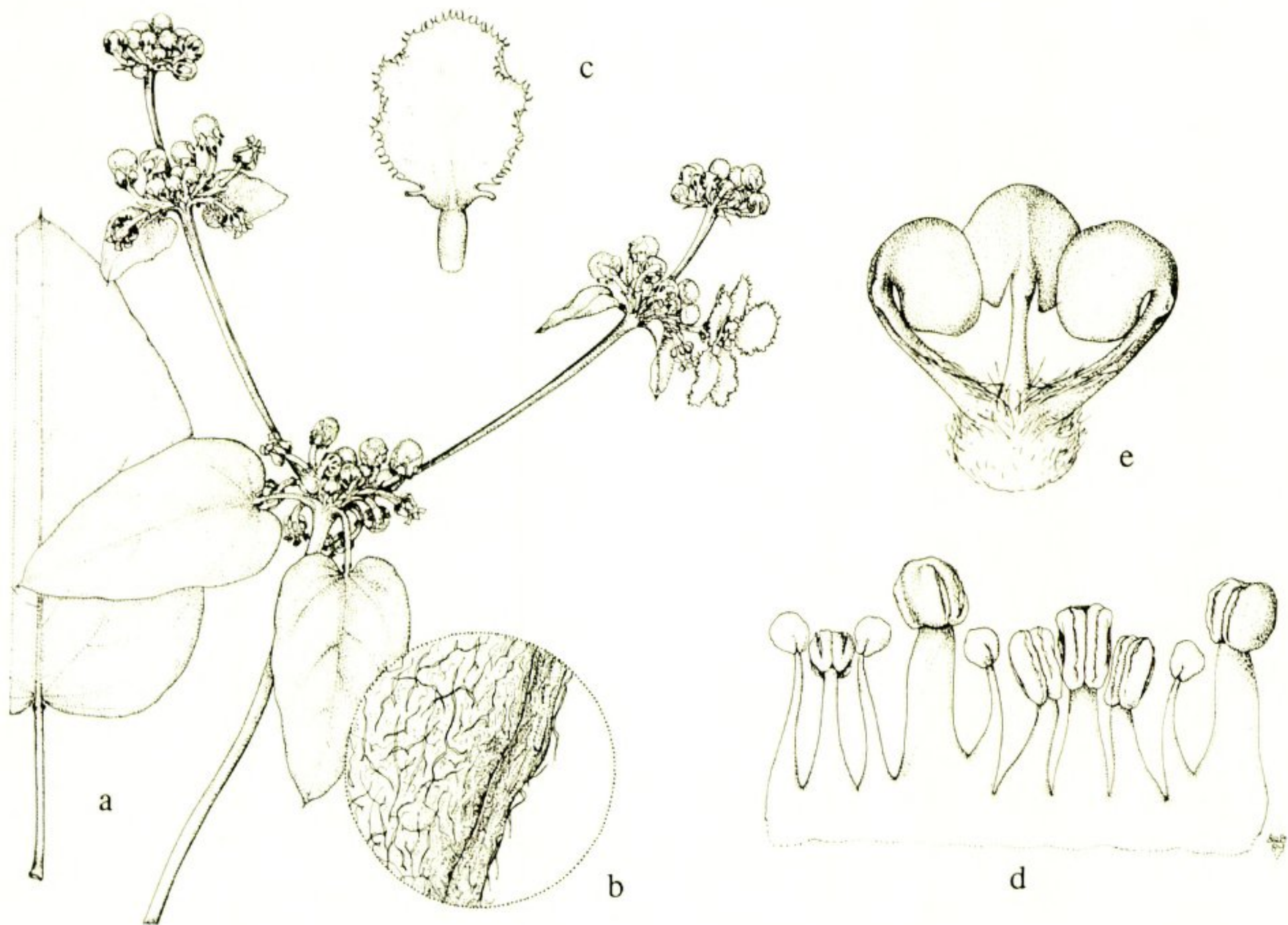


FIG. 4. *Stigmaphyllon matogrossense*. a. Flowering branch and portion of large leaf ( $\times 0.5$ ). b. Detail of abaxial leaf surface ( $\times 15$ ). c. Posterior petal ( $\times 2$ ). d. Androecium ( $\times 5$ ); second stamen from left opposes the posterior petal. e. Gynoecium ( $\times 5$ ); posterior styles bent slightly outward to show anterior style (in center). (Based on Krapovickas *et al.* 40114.)

Vine. Laminas 9.2–17.5 cm long, 5.5–11.5 cm wide, narrowly triangular to triangular to narrowly ovate to ovate, apex acuminate to sometimes almost caudate, base truncate to cordate, sparsely sericeous to glabrous above, sericeous below, margin very shallowly crenate to subentire and with irregularly spaced glands (0.5–0.8 mm in diameter) at the sinuses, with a pair of prominent but sessile glands at the apex of the petiole, each gland 1.5–2.2 mm in diameter; petioles 1.8–8.5 cm long, sericeous; stipules 0.6–1 mm long, 0.8–1 mm wide, triangular, eglandular. Flowers ca. 12–20 per umbel, the umbels borne in dichasia or compound dichasia. Peduncles 4–13.3 mm long; pedicels 4.5–7 mm long; peduncles 0.9–2.3 times as long as the pedicels. Bracts 1.4–3 mm long, 1.2–1.8 mm wide, triangular; bracteoles 1.2–2.3 mm long, 1–1.6 mm wide, triangular, each bracteole usually with a pair of inconspicuous glands 0.2–0.5 mm in diameter, sometimes one or both glands absent. Sepals 2.5–3.2 mm long, 2.8–3.5 mm wide, glands 2.3–3 mm long, 1.2–1.4 mm wide. Limbs of the lateral petals orbicular, the margin with fimbriae up to 0.8 mm long; anterior-lateral petals: claw 2.8–3.4 mm long, limb 14–15 mm long and wide; posterior-lateral petals: claw 1.5–2 mm long, limb 12–13.5 mm long and wide; posterior petal: claw 3–3.3 mm long, apex indented, limb 10–11 mm long and wide, orbicular or broadly obovate, margin fimbriate or fimbriate-lacerate, the fimbriae/teeth up to 0.8 (–1) mm long. Stamens unequal, those opposite the posterior-lateral petals (and the posterior styles) the largest, anthers of those opposite the anterior-lateral sepals with the connective enlarged and the locules reduced, anthers of those opposite the posterior-lateral sepals commonly with only 1 reduced unopened locule and thus essentially sterile or sometimes with

2 tiny locules; anthers glabrous. Anterior style 3.8–4.5 mm long, shorter than the posterior two, glabrous or with a few scattered hairs in the proximal  $\frac{1}{4}$ ; each foliole 1.8–2.3 mm long, 2–2.4 mm wide, subsquare. Posterior styles 4.5–5 mm long, lyrate, with a row of hairs adaxially in the proximal  $\frac{1}{3}$ – $\frac{3}{4}$ ; foliole 2.5–3.2 mm long, 2.2–2.5 mm wide, subsquare to sometimes subrectangular. Dorsal wing of samara ca. 4 cm long, ca. 1.6 cm wide, upper margin with a blunt tooth; nut bearing a pair of lateral winglets, each 8–11 mm long, 3–4.5 mm wide, semicircular to lunate, sometimes also with a spur ca. 0.1 mm long; nut ca. 8.5 mm high, ca. 6 mm in diameter, inflated, the thick-walled locule flanked by incompletely partitioned narrow air chambers, areole concave, carpophore up to 4.5 mm long. Seed ca. 8 mm long, embryo narrowly ovoid, ca. three times as long as wide, outer cotyledon ca. 7.1 mm long, ca. 2.6 mm wide, straight, inner cotyledon ca. 6.7 mm long, ca. 2.2 mm wide, straight. Fig. 5.

**Phenology.** Collected in flower from April through June, in fruit in August.

**Distribution.** Collected in savanna and várzea in Pará, Brazil.

**ADDITIONAL SPECIMENS EXAMINED.** BRAZIL. Pará: Serra do Cachimbo, Mpio. Itaituba, estrada Santarém-Cuiabá, BR-163, Km 794, 9°22'S, 54°54'W, *Amaral et al.* 961 (MICH, NY); Mpio. Itaituba, estrada Santarém-Cuiabá, BR-163, Km 1011, margem direita do Rio Jamaxim, 7°40'S, 55°15'W, *Amaral et al.* 1230 (MICH, NY); Boa Vista, 1931, *Carr s.n.* (F); Rio Tapajós, Fordlândia, *M. Silva* 1641 (MG).

The leaves of *S. paraense* are silvery-sericeous below and have sessile glands in the sinuses of the very shallowly crenate leaf margin. The peduncles commonly

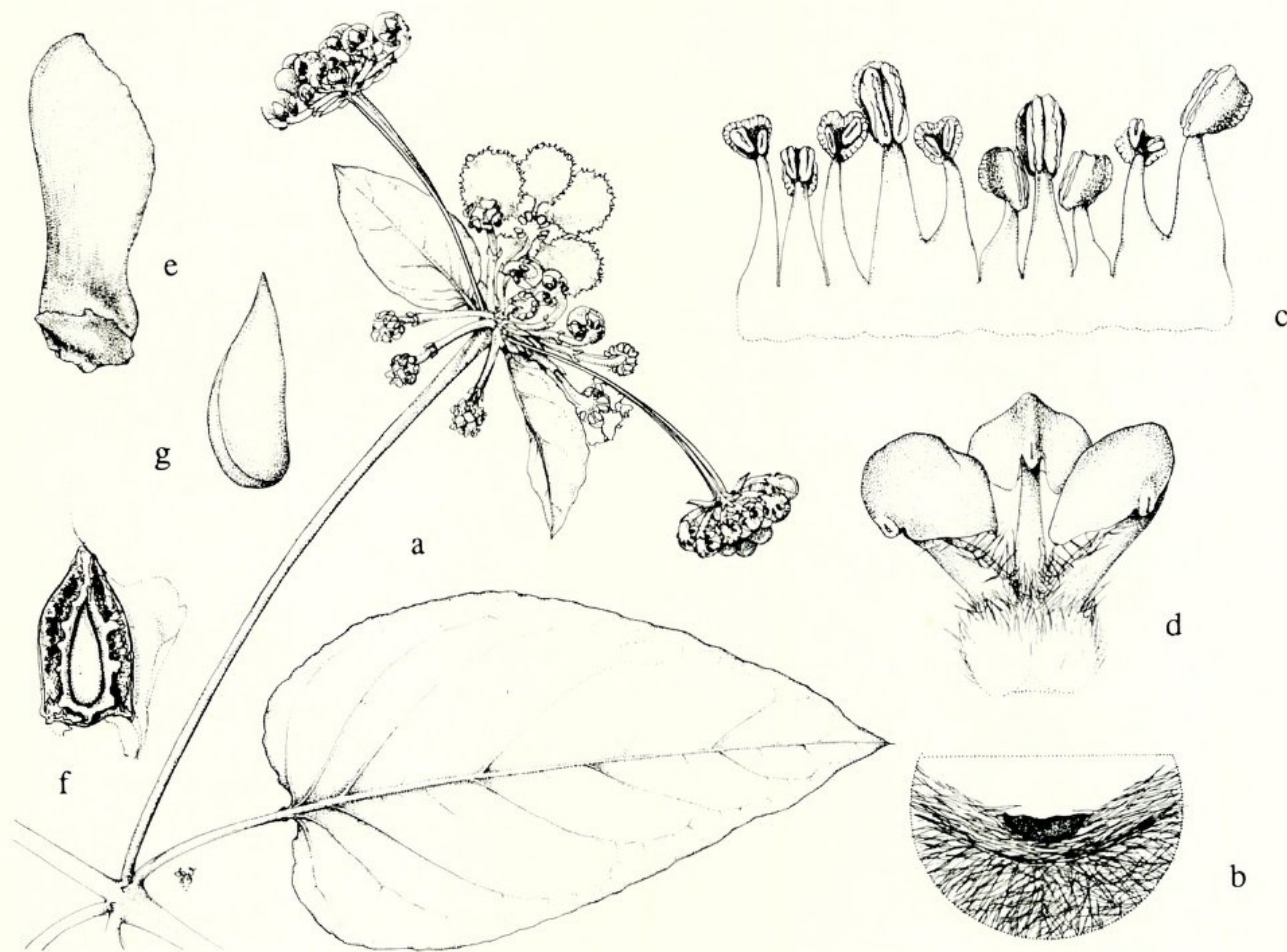


FIG. 5. *Stigmaphyllon paraense*. a. Flowering branch ( $\times 0.5$ ). b. Detail of abaxial leaf surface with marginal gland ( $\times 15$ ). c. Androecium ( $\times 5$ ); second stamen from left opposes the posterior petal. d. Gynoecium, with anterior style in center ( $\times 5$ ). e. Samara ( $\times 0.75$ ). f. Longitudinal section through nut ( $\times 1.5$ ); the thick-walled locule is surrounded by incompletely partitioned air chambers. g. Embryo ( $\times 2.5$ ). (a–d based on *Sperling* 6322, e–g based on *M. Silva* 1641.)

exceed the pedicels. The anthers are glabrous, and the stout posterior styles bear an adaxial row of scattered hairs. The samara is unusual in that the thick-walled locule is surrounded by an array of incompletely partitioned air chambers.

**Stigmaphyllon saxicola** C. Anderson, sp. nov.—TYPE: BRAZIL. Espírito Santo: Mpio. Ibatiba, Corrego S. João, sobre bloco de rochas, 14 Jun 1985, *Hatschbach* 49397 (holotype: MBM!; isotype: MICH!).

Liana. Laminae 10–17 cm longae, 8–11 cm latae, ellipticae vel ovatae vel suborbiculares, supra tomentulosae vel glabratae, subtus dense tomentosae, margine sparsim glanduloso. Inflorescentia dichasialis vel thyrsiformis constata ex umbellis, floribus in quaque umbella ca. 15, axibus secundariis distalibus interdum alternantibus divaricatis. Pedunculi 6–9.5 mm longi; pedicelli 5–7.5 mm longi. Petala limbo orbiculari, margine fimbriato. Stamina heteromorpha; antherae sepalis antico-lateralibus oppositae 2 loculis redactis instructae, antherae sepalis postico-lateralibus oppositae 1 loculo redacto instructae; antherae sparsim pubescentes. Stylus anticus ca. 2.4 mm longus, utroque foliolo ca. 1.2 mm longo, ca. 1.3 mm lato, subquadrato; styli postici ca. 2.8 mm longi, lyrati, foliolo ca. 1.5 mm longo latoque, subquadrato vel suborbiculari. Samara ala dorsali 5.8–6.2 cm longa, ca. 1.8 cm lata; nux 9.5–10 mm alta, alulis lateralibus vel calcaribus vel cristis instructa.

Vine. Laminas 10–17 cm long, 8–11 cm wide, elliptical to ovate to suborbicular, apex emarginate-mucronate, base cordate, tomentulose to glabrate above, densely tomentose below, irregularly spaced prominent glands (each 0.2–0.3 mm in diameter) borne adjacent to the margin below, with a pair of flush glands at the apex of the petiole or borne halfway on the lamina, each gland 1.5–2 mm in diameter; petioles 2.5–4.5 cm long, densely pubescent with stout T-shaped hairs; stipules 1–1.2 mm long, 0.6–0.8 mm wide, narrowly triangular, eglandular. Flowers ca. 15 per umbel, the umbels arranged in dichasia or compound dichasia or small thyrses, the distal secondary axes sometimes alternate and divaricate and the inflorescence then appearing racemiform. Peduncles 6–9.5 mm long; pedicels 5–7.5 mm long; peduncles 1–1.4 times as long as the pedicels. Bracts 1–1.5 mm long, 0.8–1 mm wide, triangular; bracteoles 1.3–2 mm long, 0.8–1 mm wide, triangular, eglandular. Sepals 2–2.2 mm long, 2.2–2.4 mm wide, glands 2–2.2 mm long, 1 mm wide. All petals with the limbs orbicular, margin with fimbriae up to 0.3 mm long; anterior-lateral petals: claw ca. 1.8 mm long, limb ca. 8 mm long and wide; posterior-lateral petals: claw ca. 1 mm long, limb ca. 7 mm long and wide; posterior petal: claw ca. 2 mm long, apex slightly indented, limb ca. 6 mm long and wide. Stamens unequal, those opposite the posterior-lateral petals (and the posterior styles) with the longest filaments, anthers of those opposite the anterior-lateral sepals with the connective enlarged and the locules reduced, anthers of those opposite the posterior-lateral sepals with only 1 reduced locule; anthers very sparsely pubescent. Anterior style ca. 2.4 mm long, shorter than the posterior two, glabrous or with a few scattered hairs in the proximal  $\frac{1}{2}$ ; apex ca. 1.5 mm long, each foliole ca. 1.2 mm long, 1.3 mm wide, subsquare. Posterior styles ca. 2.8 mm long, lyrate, pubescent in the proximal  $\frac{1}{2}$ – $\frac{3}{4}$ ; foliole ca. 1.4 mm long, ca. 1.5 mm wide, subsquare to suborbicular. Dorsal wing of samara 5.8–6.2 cm long, ca. 1.8 cm wide, upper margin with a slight blunt tooth; nut bearing a grossly dentate lateral winglet on each side, these up to 1.2 mm long, and/or spurs and crests, these 1.5–6 mm long, 1.5–3.3 mm wide; nut 9.5–10 mm high, 5.5–6 mm in diameter, areole concave, carpophore up to 2.5 mm long. Mature seed not seen. Fig. 6.

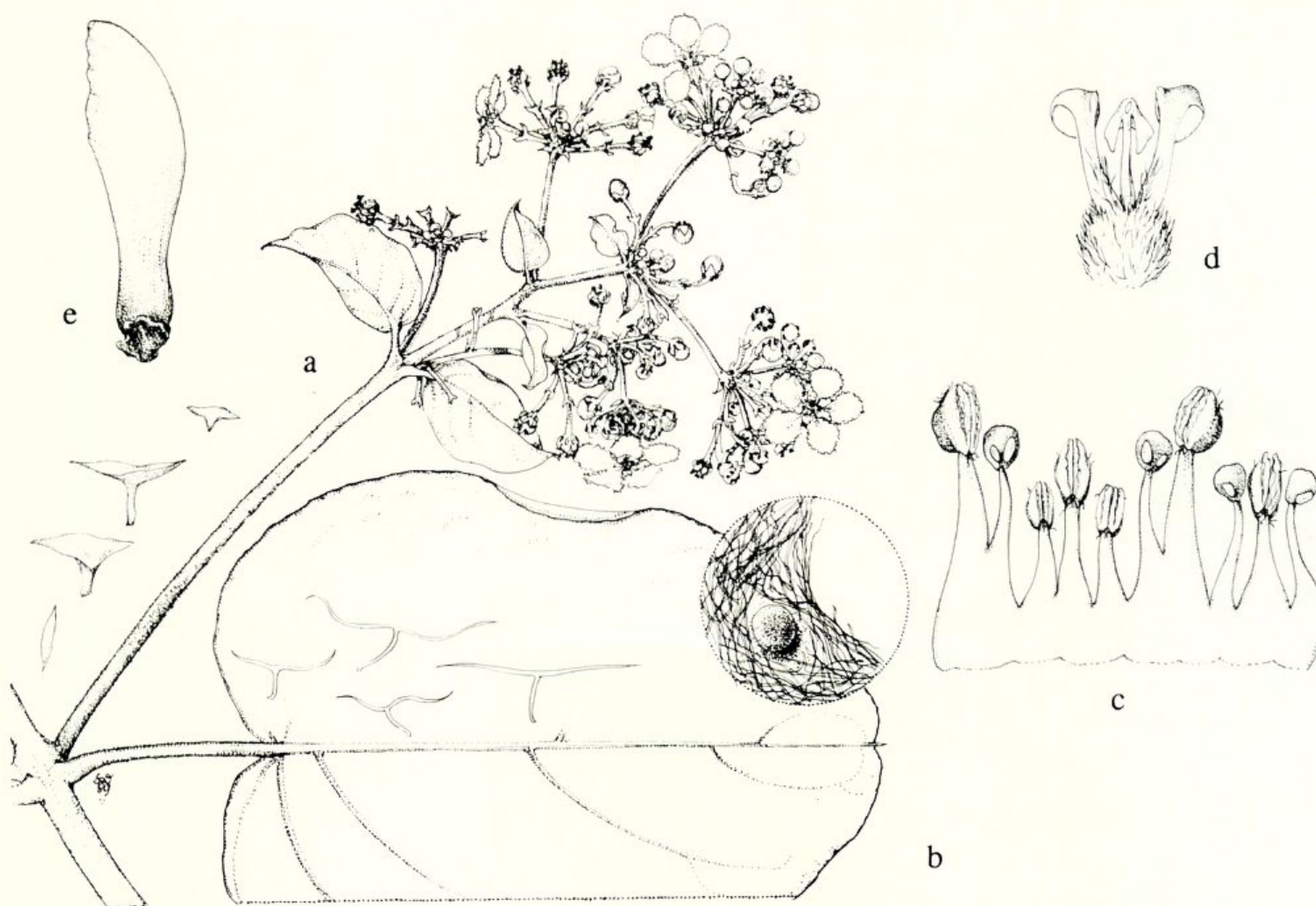


FIG. 6. *Stigmaphyllon saxicola*. a. Flowering branch ( $\times 0.5$ ) and enlargements of stem hairs ( $\times 20$ ). b. Detail of abaxial leaf surface with submarginal gland ( $\times 25$ ) and enlargements of T-shaped hairs ( $\times 20$ ). c. Androecium ( $\times 7.5$ ); second stamen from right opposes the posterior petal. d. Gynoecium, with anterior style in center ( $\times 5$ ). e. Samara ( $\times 0.5$ ). (a–d based on *Hatschbach 49397*, e based on *Hatschbach 49399*.)

ADDITIONAL SPECIMEN EXAMINED. BRAZIL. Espírito Santo: Mpio. Ibatiba, Corrego S. João, 14 Jun 1985, *Hatschbach 49399* (MBM, MICH).

*Stigmaphyllon saxicola*, known only from two collections from Espírito Santo, has relatively small flowers borne in umbels arranged in sometimes eccentrically branched inflorescences. Although the branching is basically in the dichasial pattern, the distal branches may be alternate and somewhat divaricate, so that the inflorescence appears racemiform (Fig. 6a). The limbs of the petals are less than 1 cm in diameter, and the styles are less than 3 mm long. The anthers are very sparsely pubescent with a few apical hairs; those of the stamens opposite the posterior-lateral petals bear only one reduced locule. The broad leaves are so densely tomentose below that the prominent submarginal glands are hidden. The samaras are rather large; the dorsal wing is ca. 6 cm long and the nut ca. 1 cm high.

***Stigmaphyllon stylopogon*** C. Anderson, sp. nov.—TYPE: BRAZIL. Rondônia: Mpio. Pimenta Bueno, rodovia Cuiabá-Pôrto Velho, BR-364, Km 188, 11°12'S, 61°62'W, *Cid et al. 4648* (holotype: INPA!; isotypes: MICH! NY!).

Liana. Laminae 7.5–10.5 cm longae, 5–9 cm latae, ovatae, supra sparsim tomentulosae vel glabratae, subtus dense tomentosae, margine parum crenato vel subintegro sinubus glanduliferis. Inflorescentia dichasialis vel thyriformis constata ex umbellis, floribus in quaque umbella ca. 10–15. Pedunculi 5.5–8.5 mm longi;

pedicelli 3–9.5 mm longi. Petala limbo orbiculari, margine fimbriato; limbus petali postici supra basin fimbriis crassis glandulosis instructus. Stamina heteromorpha; antherae sepalis antico-lateralibus oppositae loculis redactis instructae, antherae sepalis postico-lateralibus oppositae 1 loculo redacto instructae; antherae glabrae. Stylus anticus 3.7–4.5 mm longus, adaxaliter pubescens, utroque foliolo 2–2.3 mm longo, ca. 2 mm lato, subquadrato; styli postici ca. 5 mm longi, lyrati, adaxaliter pubescentes, foliolo 3–3.7 mm longo, 3–3.2 mm lato, subquadrato. Samara ignota.

Vine. Laminas 7.5–10.5 cm long, 5–9 cm wide, ovate, apex mucronate or emarginate-mucronate, base deeply cordate to sometimes auriculate, sparsely tomentulose to glabrate above, densely tomentulose below, margin very shallowly crenate to subentire and with irregularly spaced glands (0.4–0.6 mm in diameter) at the sinuses, with a pair of prominent but sessile glands at the apex of the petiole, each gland 1.5–2.5 mm in diameter; petioles 2.2–4 cm long, densely sericeous to glabrate; stipules 1–1.7 mm long, 1.2–2 mm wide, triangular, eglandular. Flowers ca. 10–15 per umbel, the umbels borne in dichasia or compound dichasia or small thyrses. Peduncles 5.5–8.5 mm long; pedicels 3–9.5 mm long; peduncles 0.7–2.2 times as long as the pedicels. Bracts 1.6–2.2 mm long, 1.2–1.7 mm wide, triangular; bracteoles 1.5–2 mm long, 1–1.5 mm wide, triangular, eglandular or each bracteole with a narrow band of glandular tissue along the margin. Sepals 2.7–3 mm long, 2.5–3 mm wide, glands 2.6–3 mm long, 1.3–1.5 mm wide. All petals with the limbs orbicular, those of the lateral petals with the margin with fimbriae up to 0.5 mm long; anterior-lateral petals: claw 3–3.5 mm long, limb 12–13 mm long and wide; posterior-lateral petals: claw 2.2–2.5 mm long, limb 11–12 mm long and wide;

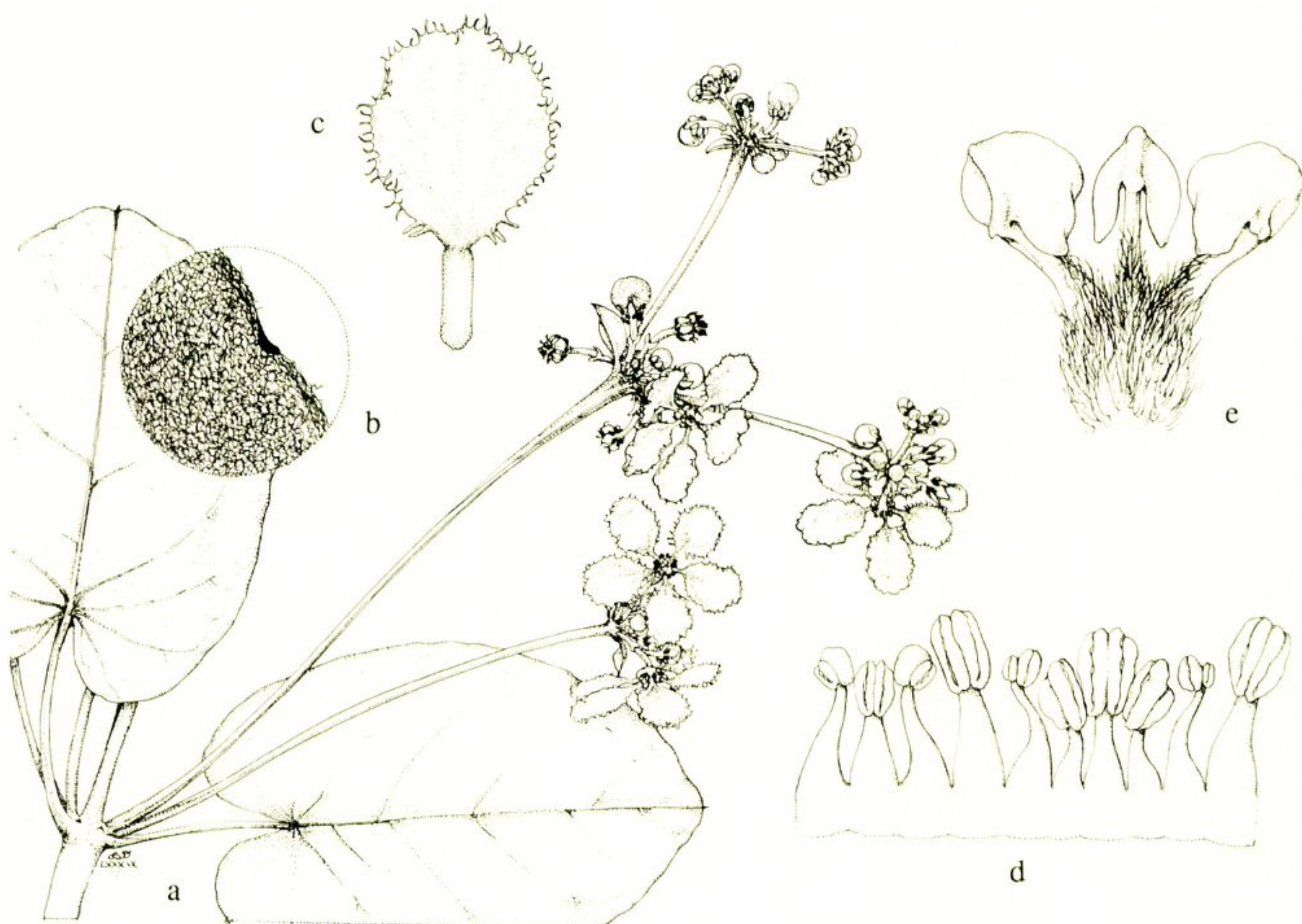


FIG. 7. *Stigmaphyllon stylopogon*. a. Flowering branch and portion of large leaf ( $\times 0.5$ ). b. Detail of abaxial leaf surface with marginal gland ( $\times 10$ ). c. Posterior petal ( $\times 2.5$ ). d. Androecium ( $\times 5$ ); second stamen from left opposes the posterior petal. e. Gynoecium ( $\times 5$ ); posterior styles bent slightly outward to show anterior style (in center). (Based on *Cid et al.* 4648.)

posterior petal: claw 3.5–4 mm long, apex not indented or only slightly so, limb 10–11 mm long and wide, margin with fimbriae up to 0.7 mm long and at the base on each side with 2–3 stout gland-tipped fimbriae (0.6–1 mm long, ca. 0.2 mm wide). Stamens unequal, those opposite the posterior-lateral petals (and the posterior styles) the largest, anthers of those opposite the lateral sepals with the connective enlarged and the locules reduced, anthers of those opposite the posterior-lateral sepals with only 1 reduced locule; anthers glabrous. Anterior style 3.7–4.5 mm long, shorter than the posterior two, adaxially with a row of hairs in the proximal  $\frac{1}{2}$ – $\frac{3}{4}$ ; each foliole 2–2.3 mm long, ca. 2 mm wide, subsquare. Posterior styles ca. 5 mm long, lyrate, adaxially with a row of hairs from the base nearly to the stigma; foliole 3–3.7 mm long, 3–3.2 mm wide, subsquare. Samara not seen. Fig. 7.

ADDITIONAL SPECIMEN EXAMINED. BRAZIL. Mato Grosso: Rio Juruena, Aripuanã, Fontanilha, RADAM SC-21-YD, descampado da beira do rio, 25 Jun 1977, *M. G. Silva* 3192 (MG, NY).

*Stigmaphyllon stylopogon*, a species of western Brazil, is named for the bearded styles, all bearing an adaxial row of hairs. The anthers are glabrous, and those of stamens opposite the posterior-lateral sepals bear only one reduced locule. This species, like *S. matogrossense*, bears several marginal, stout, gland-tipped fimbriae near the base of the limb of the posterior petal. The leaves are densely tomentose below and bear sessile glands in very shallow sinuses along the margin.

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#### LITERATURE CITED

- Niedenzu, F. 1899. De genere Stigmatophyllo (pars prior). Ind. Lect. Lyc. Brunsberg. p. hiem. 1899–1900: 1–33.  
———. 1900. De genere Stigmatophyllo (pars posterior). Ind. Lect. Lyc. Brunsberg. p. aest. 1900: 1–32.  
———. 1928. Malpighiaceae. In *Das Pflanzenreich*, ed. A. Engler, IV. 141: 1–870. Leipzig: Wilhelm Engelmann.