New Species of *Siparuna* (Monimiaceae) II. Seven New Species from Ecuador and Colombia

*Susanne S. Renner and Gerlinde Hausner*

Institute of Systematic Botany, University of Mainz, Bentzel-Weg 2, D-55099 Mainz, Germany

**ABSTRACT.** *Siparuna campii*, *S. guajaltensis*, and *S. pubanca* from central Ecuador, *S. multiflora* and *S. conica* from northwestern Ecuador and western Colombia, *S. verticillata* from Amazonian Ecuador, and *S. cascada* from southeastern Ecuador are described, illustrated, and discussed as to their relationships with morphologically similar species. Macrophotographs of male and female flowers illustrate the unusual details of *Siparuna* floral structure.

*Siparuna*, with about 200 named species, is the largest genus in the Monimiaceae. Recently we described four new species from Ecuador and Colombia (Renner & Hausner, 1995) as a result of treating *Siparuna* for the *Flora of Ecuador* (Renner & Hausner, submitted). Recent visits to herbaria in Quito (QCA, QCNE, synonyms following Holmgren et al., 1990) and material received in the course of ongoing monographic work on the genus have resulted in additional new species, which we describe here.

As a point of reference for the descriptions that follow we first give a brief overview of the morphology of the flowers, which is highly unusual in the angiosperms. Flowers of *Siparuna* have an obconical, cup-shaped, or slightly urceolate floral cup in which the carpels or stamens are more or less completely enclosed (Figs. 8, 9). A feature characteristic of the genus is that the bases of the tepals form a roof, or velum, which completely covers the young stamens and carpels (Fig. 9B, C, F). At anthesis, this roof opens via a central pore through which the upper parts of the styles or stamens protrude (Figs. 8B, D, 9A, D). In the female flowers the floral roof is usually differentiated into a more or less prominent cylindrical bulge and a central tube sheathing the styles (Figs. 8D, right-hand flower; 9A). In dried condition, both structures may be separated by a distinct groove. In the male flowers the pore through which the tips of the stamens protrude may be quite narrow, as in the seven species described here, or the stamens may be completely exposed on a cup-shaped receptacle as in *S. muricata*.

*Siparuna campii* Renner & Hausner, sp. nov.  

A *Siparuna muricata* (Ruiz & Pavón) A. DC. folis duplo longioribus (28–44 cm vs. 10–26 cm), staminibus paucioribus (20–30 vs. 50–72) stylibusque duplo plus (7–12 vs. (2–3)–5–(6) differt.

Diococious treelet, 4–10 m tall, the young branchlets quadrangular and often deeply sulcate, yellowish tomentose with minute stellate hairs to glabrescent. Leaves in whorls of 3, the petioles 2–9 cm long, the lamina drying brownish, papery and brittle, lanceolate, 28–44 × 9–15 cm, the base obtuse or acute, the apex acute, upper surface with few minute stellate hairs, lower surface with somewhat longer hairs of the same type, with 16–22 pairs of secondary veins, the veins flat above, distinctly raised below, the margin crenate-dentate. Gyres umbell-shaped, 3–5 cm long, with 15–20 flowers, densely pubescent like the young branchlets. Male floral cup at anthesis 2.5–4 mm diam, and 2.5–3.5 mm high, obconical, with stellate hairs and short wart-like outgrowths, about 0.2 mm long, the 4–6 tepals broadly triangular, 2–3 mm long, with few minute hairs on the upper tepal tips, the floral roof distinctly raised, glabrous, when fresh yellowish green, drying black; stamens 20–30. Female floral cup at anthesis of the same size but with longer outgrowths, up to 2 mm long, the floral roof differentiated into a cylindrical bulge separated by a distinct groove from a central acutely conical tube sheathing the styles; the styles 7–12. Fruit pear-shaped, subglabrous, 1.5–2 cm long, with thick conspicuous outgrowths and crowned by the persistent tepals, when fresh and mature reddish and with a strong pungent scent; fruitlets 5–10.

**Distribution, habitat, and phenology.** Endemic in the Chimborazo province in central Ecuador; growing in moist forested valleys in the afternoon fog-belt at elevations of 1500–2000 m; collected flowering and fruiting in May.

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Figure 1. *Siparuna campii* Renner & Hausner (*Camp E-3492*, NY). Fruiting specimen.
Siparuna campii resembles S. muricata (Ruiz & Pavón) A. DC., which is very widespread in the Andes, in having umbell-shaped inflorescences and fruits with tuberculate outgrowths. It differs from S. muricata in its smaller male flowers, typically less numerous stamens, and more numerous styles.


Siparuna guajalitensis Renner & Hausner, sp. nov. TYPE: Ecuador. Pichincha: Estación Río Guajalito, 1800 m alt., male, 10 June 1990 (fl), B. Ølgaard 98013 (holotype, QCA; isotypes, AAU, MO, QCE). Figures 2, 9E, F.

Siparuna echinata (HBK) A. DC. affinis sed differt foliis oblanceolatis duplo longioribus (30-65 cm vs. 13-32 cm).

Dioecious shrub or sparsely branched treelet, 3-10 m tall, young branches usually quadrangular and strongly sulcate, densely covered with hispid-stellate yellowish brown hairs. Leaves opposite, the petioles 1.5-5.5 cm long, the lamina drying brown or green, chartaceous and sometimes slightly bulble above, oblanceolate, 30-65 × 13-25 cm, the base acute or obtuse, the apex acuminate to cuspidate, the tip 1.5-3 cm long, upper surface with single or few-branched stellate hairs, lower surface stellate-tomentose, especially on the veins, with 18-32 pairs of secondary veins, the veins ± inconspicuous above, slightly raised below, the margin irregularly dentate. Cymes 5-8 cm long, with 40-60 flowers, pubescent like the young branches. Male floral cup at anthesis 4-5 mm diam. and 3-4 mm high, subglobose, with hispid-stellate hairs and small equally pubescent outgrowths, 0.5-0.8 mm long, tepals 4-5, triangular, 2.5-4.5 mm long, the floral roof slightly raised, glabrous, when fresh pale yellow, drying black; stamens 5-6, scarcely exerted at anthesis. Female floral cup at anthesis slightly larger than in the males and with longer stellate-pubescent outgrowths (up to 2 mm long), the floral roof differentiated into a low cylindrical bulge and a central narrow tube sheathing the styles; the styles 5-6. Fruit globose and with spine-like outgrowths, 1.5-2 cm diam., when fresh and mature pink or green suffused with red, strongly lemon-scented; fruitlets 5-6.

Distribution, habitat, and phenology. Known only from the Pichincha region in central Ecuador where it grows in wet montane forest at elevations of 1500-2050 m; collected flowering and fruiting year-round. The species appears to be relatively abundant near the Río Guajalito scientific station, where its flowers and fruits are occasionally used to prepare a lemon-flavored tea (Jaramillo & Zak 8043).

The suggested relative, S. echinata, has shorter, elliptic or ovate rather than oblanceolate leaves and narrower flowers. Both species have been collected numerous times at the Río Guajalito station.

Paratypes. ECUADOR. Pichincha: Saloya, Acosta Sola 5839 (P); km 56-59 on old rd. from Quito to Santo Domingo, Estación Río Guajalito, Feil 91348 (AAU, QCA, Z); Ølgaard 90413 (AAU, QCE), Grijalva 617 (MO, QCA); Jaramillo 7826 (MO, QCA), Jaramillo & Zak 7870 (MO, QCA), 7892 (MO, QCA), 8043 (MO, QCA), 3073 (AAU, QCA), km 69 on old rd. Quito-San Juan-Chiriboga-Emalpene, Zak 1201 (AAU, MO, QCA); Quito-Nono-Mindo rd., 3 km N of Mindo, Neill et al. 8944 (AAU, MO, QCE), Lateyn & Borchsena 13341 (AAU, F, MIG, NY, QCA, QCE).


Species ramulis et foliis subglabris et tepalis redactis a congeneribus in parte regionis Ecuadorienses occidentali diversa.

Dioecious shrub, 2.5-5 m tall, young branches terete, with few minute stellate hairs to glabrescent. Leaves opposite, the petioles 1.5-4.5 cm long, the lamina drying dark brown or olive green, papery and brittle, oblanceolate, 13-23 × 5.5-9 cm, the base acute, the apex acuminate to cuspidate, the tip to 1.5 cm long, both surfaces with few minute appressed stellate hairs, with 7-8(10) pairs of secondary veins, the veins inconspicuous on both surfaces, the margin subentire or denticate. Cymes to 1 cm long, with 5-10 flowers. Male floral cup at anthesis 1.5-2.5 mm diam. and 3-3.5 mm high, obconical, the tepals fused, the floral roof glabrous and forming a thin-walled central tube, when fresh green, drying black; stamens mostly 5. Female floral cup at anthesis similar in size, the tepals fused to a narrow, somewhat undulate rim, the floral roof differentiated into a ± prominent cylindrical bulge separated by a groove from a central tube sheathing the styles; the styles 5-8. Fruits globose, 1-1.5 cm diam., drying black and glabrous and with the 5-8 fruitlets distinctly protruding, when fresh and mature pink or purple and with a strong lemon smell.

Distribution, habitat, and phenology. Occurring in northwestern Ecuador where it has been collected in patches of forest surrounded by farmland and in mature rainforest; from 500 to 2000 m ele-
Figure 2. *Siparuna guajatensis* Renner & Hausner (A. Feil 91348, AAU; B. Øllgaard 98013, AAU isotype; C. Jaramillo & Zak 8075, QCA). — A. B. Leaves and male inflorescences. — C. Flower and fruits.
Figure 3. *Siparuna pubaneura* Renner & Hausner (A, Jaramillo 6539, QCA; B, Harling & Anderson 23342, GB).
—A. Fruiting specimen. —B. Female flowers.
vation. Flowering and fruiting at least from December to June.

**Siparuna pubancura** is easily recognized among western Ecuadorian species by being almost entirely glabrous. It is called "puban cura," "hu wann cura," or "guayusa" by the Colorado Indians, who use an extract of the leaves in hot water as a drink or bath against colds, fever, stomach, kidney, and bladder problems.

**Paratypes.** **ECUADOR.** Carechí: from Prima Vera hike about six hrs. up Rio Guachlan drainage to shelter built by Nilo Ortiz, Bradford et al. 32 (MIG, MO, QCNE); Canton Mira, Norte del Carmen, Camino a Chicaal, Palacios et al. 9748 (MIG, MO, QCNE). **Pichincha:** Reserva ENDESA, ca. 6 km NW of Pedro Vicente Maldonado, Harley & Andersson 23342 (AAU, GB, QCA), Jaramillo 6305 (AAU, GB, MO, QCA), 6434 (AAU, QCA), 7545 (AAU, GB, QCA), 7563 (NY, QCA), 7609 (AAU, GB, MO, QCA), Latour & Borbaenaxs 13536 (AAU, MIG, NY, QCA, QCNE); Rio Toachi near Santo Domingo de los Colorados, Jáurea & Epling 539 (UC, US); km 23 of Santo Domingo–Puerto Limón rd., Krist & Holm-Nielsen 40216 (AAU), Krist 40693 (AAU).

**Siparuna multiflora** Renner & Hausner, sp. nov.

**TYPE:** Ecuador. Carechí: Canton Tuparquía, Tolbar Donoso, Reserva Indígena Awá, 500 m alt., male, 19 June 1992 (fl), G. Tipaz 1337 (holotype, QCNE; isotypes, MIG, MO).

Figures 4, 9C, D.

A **Siparuna eggersii** Hieronymus differs in florescentis duplo longioribus (4–6 vs. 2–4 cm) et floribus minoribus (1.3–1.7 vs. 2–4 mm diam.).

Diococious shrub or treelet, 2–12 m tall and reaching a DBH of 10 cm, young branches terete and with minute appressed stellate hairs. Leaves opposite, the petioles 2.5–7 cm long, the lamina drying brown, olive-brown, or grayish brown above and olive-brown below, papery and brittle, obovate to oblanceolate, 15–29 × 7–14 cm, the base acute to obtuse, sometimes with small domatia to 0.5 cm long, the apex cuspidate, the tip 0.5–1.5 cm long, both surfaces with minute appressed stellate hairs sometimes mixed with a few stellate-lipidate hairs on the midrib, with 9–13 pairs of secondary veins, veins flat above, slightly raised below, the margin finely dentate or subentire, Cymes amplex, 4–8 cm long, with 40–60 flowers. Male floral cup at antheris 1.3–1.7 mm diam. and 1.1–1.2 mm high, subglobose or ovoidal, with few minute appressed stellate hairs, tepals fused to a narrow upright rim, the floral roof slightly raised, glabrous, when fresh pale yellow or cream, drying dark brown; stamens 8–10. Female floral cup at anthesis of the same shape as in the male but slightly larger (1.5–1.8 mm diam.), the floral roof usually domed and with only a short central tube sheathing the styles; the styles 5–8. Fruits globose, 0.8–1 cm diam., the narrow tepal rim persistent in fruit, drying glabrous and black with the ca. 8 fruitlets distinctly protruding, when immature green with white spots, when mature yellow and purple, with a strong lemon smell.

**Distribution, habitat, and phenology.** Restricted to undisturbed wet forest in northwestern Ecuador; from 80 to 1500 m elevation; collected flowering and fruiting almost year-round. Known by the Spanish name "palo de monte" and the Quichua names "ingal teu" or "engal teų"; used to make animal traps (Alesi et al. 51; Tipaz 1337).

**Siparuna multiflora** resembles *S. eggersii*, also from western Ecuador, in having terete branchlets and obovate to oblanceolate leaves with minute appressed stellate hairs, but the latter species has mature flowers twice the size, a broader tepal rim, shorter inflorences, and more numerous stamens and styles. *Siparuna eggersii* and *S. multiflora* co-occur at the Rio Palenque Science Center, where they have been confused in the past.

**Paratypes.** **ECUADOR.** Esmeraldas: 10 km N of Lita, Acevedo & Daly 1681 (QCA, NY), 1689 (QCA, NY); Reserva Etnica Awá, Alesi et al. 51 (QCNE), 411 (QCNE), 411 (QCNE), 623 (QCNE), Ruvio et al. 973 (AAU, MO, QCNE); creek pouring into Río Palavi across from Awá camp, Hoever et al. 3087 (QCA); Reserva Ecológica Cotacachi-Cayapas, Tirado et al. 474 (QCNE), Carechí: above San Marcos de los Co Mayes, Blijgardi et al. 57226 (AAU, QCA), 57322 (AAU, QCA), 57531 (AAU, QCA); about 30 km past Lita on rd. to Alto Tambo, van der Wacht et al. 12114 (AAU, QCNE). **Pichincha:** Santo Domingo de los Colorados, 1000 m, Croat 72995 (MO). **Los Ríos:** Río Palenque, Dodson & Gentry 5508 (F, GB, MO, QCNE, SEL, US), Dodson 6653 (MO, SEL), Dodson & Gentry 12941 (MO, SEL).

**Siparuna conica** Renner & Hausner, sp. nov.

**TYPE:** Ecuador. Carechí: Reserva Etnica Awá, Comunidad de Guatapi Medio, 900 m alt., female, 21 May 1992 (fl), C. Quegal 685 (holotype, QCNE; isotypes, MIG, MO). Figure 5.

A **Siparuna aspera** (Ruiz & Pavón) A. DC. differs foliis tenuioribus, nervis lateralisibus paucioribus (9–13 vs. (12)–16–20–(26)) et floribus angustioribus.

Diocious shrub or treelet, sometimes semi-semi-scan dent over other trees, 3–7(–15) m tall, the young branchlets terete or subquadranular, with brownish stellate hairs. Leaves opposite, those of a pair slightly unequal in size, the petioles (2.5–)3–5(–6.5) cm long, the lamina drying khaki to burnt um ber, chartaceous, smooth, obovate, 20–30 × 12–14.5(–17) cm, the base truncate, cordate or more rarely obtuse, the apex acuminate, the tip 0.5–1(–}
Figure 4. *Siparuna multiflora* Renner & Hausner (A, Audesta et al. 121, QCNE; B, Ølgaard et al. 57531). —A. Flowering male specimen. —B. Young fruits.
Figure 5.  *Siparuna conica* Renner & Hausner (Cazalet & Pennington 5242, B). Fruiting specimen.
1.5) cm long, upper surface with few stellate hairs on the veins, lower surface moderately covered with stellate hairs, with 9–13 pairs of secondary veins, the veins slightly raised on both surfaces, the margin finely dentate or crenate. Cymes often on leafless nodules, 2–7 cm long in the males, 1–3 cm long in the females, with 15–25 flowers, densely covered with golden-brown or grayish stellate hairs. Male floral cup at anthesis 2.5–3 mm diam. and 4–7 mm high, narrowly obconical, pubescent like the cymes, tepals 4–6, triangular, 2–3 mm long, with a few stellate hairs on the upper tepal tips or glabrous, the floral roof glabrous and centrally raised to a thin-walled tube surrounding the pore, when fresh greenish yellow or yellow, drying black; stamens 4–6, the outer ones distinctly exerted at anthesis and often with their tips bent backwards. Female floral cup at anthesis more densely pubescent, the tepals 4–5 mm long, the floral roof conspicuously acutely conical; the styles 10–14. Fruits globose, 1.5–2 cm diam., with stellate hairs and crowned by the persistent tepals, when fresh and mature dull red with white spots and with an astrangent odor; fruitlets 8–14.

**Distribution, habitat, and phylogeny.** Known from northwestern Ecuador (provinces of Los Ríos, Pichincha, Esmeraldas, and Carchi) and western Colombia (provinces of Nariño, Caquetá, Valle, Chocó, and Antioquia); lowland tropical forest and secondary forest; from 10 to 1800 m. Collected flowering and fruiting year-round.

Local names for *Siparuna conica* are “limón de monte,” “rama de hediondo” (Spanish), and “nechin buca” (Cayapa), but no uses have been reported.

Poor collections of *S. conica* may be confused with the widespread and variable *S. aspera*, from which it differs in having thinner leaves with usually fewer lateral veins, more narrowly obconical male floral cups, an acutely raised floral roof in the female flowers, and globose rather than pear-shaped fruits. In the flora of the Río Palenque Science Center (Dodson & Gentry, 1978) *S. conica* is described and illustrated under the name *S. gesnerioides* (HBK) A. DC.

**Paratypes.** COLOMBIA. Antioquia: Municipio de Mutatá, Zarucchi et al. 3099 (COL, MO; Mpio. San Carlos, along creeks leading into ISA hydroelectric dam reservoir, McPherson et al. 13323 (MJC, MO, WIS); Mutatá, Fincas Poantiadero-La Palma, left-hand margin of Río Mutatá, Fonsegra et al. 2213 (MO), 2257 (MO); Chocó: Municipio Quibdó, Arias 032 (COL); Río San Juan, near Palestina, Cuatrecasas 16928 (F, US); Río Calima, Quebrada La Brea, Cuatrecasas 21277 (F, US); Municipio de Pizarro, km 30–33 of rd. Pte de Pepe-Puerto Machu, España 1637 (MO); Quibdó-Guayabal rd., Forero et al. 1289 (COL, MO, NY); Quibdó, Forero & Jaramillo 2607 (COL, MO, NY); Quibdó-Itsmíra rd., km 30, Forero & Jaramillo 2656 (MO); Quibdó-Tutunendo rd., 15 km from Quibdó, Forero & Jaramillo 2632 (COL, MO); hoya del Río San Juan, Río Bicordó, Noamáni, Forero et al. 4753 (COL, MO); Río San Juan between Tadó and El Tapón, Gentry & Fuller 17749 (COL, F, MO); 12 km E Quibdó, Gentry & Rentería A. 23932 (AUA, COL, MO); 14 km E Quibdó, Gentry & Rentería A. 24121 (MO); area of Baúnd, Fuchs & Zanolli 21099 (G, MO, NY, US); rd. Bolívar-Quibdó, near km 210, Juncosa 1145 (MO, PTBG). Valle: Río Naya, upriver from Puerto Merizalde, Gentry & Juncosa 40681 (COL, MO). Cauca: Bajo Calima, Buenventura, Monsalve B. 577 (MO); Nariño: above Barbacoas, Ewan 16852 (BM, S, US). ECUADOR. Carchi: Parroquia Maldonado, Reserva Etnica Awá, Auleta et al. 683 (QCNE), Griswold et al. 582 (QCNE), Quetal et al. 541 (MO, QCNE), Rubio et al. 1042 (AUA, QCNE). Esmeraldas: Río San Miguel, Haring 4668 (S); Eloy Alfaro, Reserva Ecológica Cotauchí-Cayapas, Tirolo et al. 696 (QCNE). Los Ríos: Río Palenque Biological Station, Dodson & Dodson 6788 (AUA, MO, QCA, SEL); Dodson et al. 7570 (F, MO, QCNE, SEL). Pichincha: Santo Domingo de los Colorados, Cazallet & Pennington 5242 (B, FHO, K, NY, UC, US); km 41 of rd. Santo Domingo–Quininde, Zak et al. 5509 (MO, QCA, QCNE).

**Siparuna verticillata** Renner & Hausner, sp. nov.


A *Siparuna giglzenia* Perkins foliorum pilis pluris (non stellatis) et staminibus 5 (vs. 2) differt.

Dioecious shrub or treelet, 3–6 m tall, occasionally scandent, the young branchlets terete, with few short thick simple hairs. Leaves in whorls of 3, rarely opposite, the petioles 1–2 cm long, the lamina drying grayish brown or brown, chartaceous, oblong or elliptic, 8–17 × 3–6 cm, the base acute to obtuse, the apex acuminate to cuspidate, the tip 0.5–1 cm long, both surfaces with short simple or biserial hairs, with 6–8(–10) pairs of secondary veins, the veins smooth above, slightly raised below, the margin subentire or serrulate. Cymes 1–2.5 cm long, with 10–20 flowers. Male floral cup at anthesis 1.5–2 mm diam. and 1.8–2 mm high, obconical, the tepals fused to a narrow undulating rim about 0.8 mm broad, the floral roof moderately raised, globose, when fresh pale yellow or cream, drying black; stamens mostly 5. Female floral cup at anthesis obconical, the floral roof differentiated into a prominent cylindrical bulge separated by a deep groove from a hardly raised central tube sheathing the styles; styles 8–12. Fruit globose, 1.1–1.5 cm diam., glabrescent and with the 6–12 fruitlets distinctly protruding in dry condition, when fresh and mature yellowish red or purple with pale brown or green spots and a strong lemon smell.
Figure 6. *Siparuna verticillata* Renner & Hausner (A, Cerón 3591, AAU isotype; B, Neill et al. 6342, QCNE). —A. Flowering male specimen. —B. Female flower.
Figure 7. *Siparuna cascada* Renner & Hausner (Jaramillo & Winnerklof 5651, MO), Flowering female specimen.
Figure 8. Male and female flowers of three new species of Siparuna; bars equal 1 mm. —A. S. pubancura, female flowers (Jaramillo 6305, QCNE). —B. S. pubancura, male flowers from the type (Krist & Barfoed 59638, AAU). —C. S. campii, male flower (Camp E-3398, US). —D. S. campii, female flowers from the holotype (Camp E-349, NY). —E. S. cascada, section through a young male flower showing arrangement of stamens (Feil 91326, AAU). —F. S. cascada, young fruit, one tepal removed (Jaramillo & Winnerskjold 5653, AAU).
Distribution, habitat, and phenology. Endemic in Amazonian Ecuador; growing in primary forest on lateritic soils at elevations of 200–450 m; flowering and fruiting year-round. Vernacular name: “veñasabo” (Waorani).

*Siparuna verticillata* is similar in habit to *S. gilgiana* from Amazonian Peru, but that species has stellate, rather than simple, hairs on the leaf blades and floral cups and always seems to have two stamens.

Paratypes. ECUADOR. Napo: 45 km N of Coca, rd. Coca–Lago Agrio, Rio Palanda Yacu, Bohlin & Bohlin 324 (GB); San José de Payamino, Irene 507 (QCNE); Parque Nacional Yasuni, Pozo Petrolero Daini 2, Cerón & Hurtado 4197 (AAU, QCNE); Jatun Sacha, Cerón & Iguano 5486 (AAU, QCNE), Cerón 6344 (AAU, MO, QCNE); Palacios et al. 4913 (AAU, MO, QCNE); Hacienda Cotapino (Concepción), Harting et al. 9679 (AAU, GB); Fina de del Sr. Becelmo, 83 km S of Coca, Hurtel 693 (QCNE): 15 km W Coca, Neill et al. 6342 (AAU, MO, QCNE); Reserva Emica Huaorani, Maxus petroleum pipeline rd. under construction km 75–76, 250 m, Aulesia & Conti 1799 (QCNE).


Diococious shrub or treelet, 3–7 m tall, young branchlets terete and densely covered with reddish brown hispid-stellate hairs. Leaves opposite, the petioles 1–2.5 cm long, the lamina drying greenish brown, chartaceous, lanceolate, 8–20 × 3.5–7.5 cm, the base acute to obtuse, the apex acuminate, the tip about 1 cm long, upper surface with hispid-stellate hairs, lower surface more densely pubescent with softer hairs of the same type, with 8–12 pairs of secondary veins, the veins almost flat above, slightly raised below, the margin finely dentate. Cymes 3.5–4 cm long, with 5–12 flowers, densely covered with brownish stellate hairs. Male floral cup obconical, with brownish stellate hairs, tepals 4, triangular, 3–4 mm long, on both sides pubescent like the floral cup; stamens 10–15–20, when fresh red. Female floral cup about 5 mm diam. and 3.2 mm high, the tepals fused to a 3-mm-wide collar, their free apical lobes 0.8–2 mm long, the floral roof differentiated into a cylindrical bulge separated by a distinct groove from a central tube sheathing the styles; the styles 6–12, barely exserted from the pore, when fresh reddish. Fruits globose, 1–1.5 cm diam. and crowned by the persistent tepals, in dried fruits the 6–11 fruitlets somewhat protruding, when fresh and mature purple with white spots and a strong pungent smell.

Distribution, habitat, and phenology. *Siparuna cascada* grows in montane forest in southeastern Ecuador (Azuay, Morona–Santiago, Zamora–Chinchipe) at 1500–2000 m elevation.

*Siparuna cascada* resembles the Peruvian species *S. tomentosa* (Ruiz & Pavón) A. DC., *S. weberbaueri* Perkins, and *S. saurauifolia* Perkins in having reddish brown densely pubescent leaves; the Peruvian species usually have three leaves per whorl (vs. leaves opposite in *S. cascada*).

Observations on the pollination and floral longevity of *S. cascada* were made by J. P. Feil (Feil, 1992, sub *S. saurauifolia*) who found that the species differs from other Ecuadorian species of the genus in having red stamens and stigmas. He studied it near a waterfall to which the epithet cascada refers.

Paratypes. ECUADOR. Azuay: Guarulales trail, Jaramillo & Wimerskjold 5651 (MO), Morona–Santiago: Guarulales, Larsen & Eriksen 45296 (QCA, QCNE), Zamora–Chinchipe: 15 km on new rd. from Loja to Zamora, Feil 91313 (AAU, QCA), 91326 (AAU, QCA); Cantón Nangaritza, sector Fachlejita, Jaramillo & Grijales 13571 (QCA).

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Literature Cited


