**Passiflora kapiriensis** (Passifloraceae), a new species from French Guiana

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**Key words**
Amazonia
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passion fruit

**Abstract**

*Passiflora kapiriensis* is a new Guianan species in the series *Laurifoliae* of subgenus *Passiflora*, found near Saint-Georges-de-l’Oyapock. The filaments of the fourth corona row are 1 cm long and oriented to the androgynophore, which is reminiscent of *P. acuminata*, *P. cerasina*, *P. fissurosa*, *P. killipiana* and *P. nitida*. It differs from these close relatives by the combination of subequal first and second rows of filaments, a very short hypanthium, very long petioles, with medial nectar glands, and much larger leaves.

**INTRODUCTION**

*Passiflora* is divided into five subgenera (MacDougal & Feuillet 2004, Krosnick et al. 2009). Within subgenus *Passiflora*, supersection *Laurifolia* (Cervi) Feuillet & J.M.MacDougal series *Laurifoliae* Killip ex Cervi is entirely neotropical and composed of lianas that have laurel-shaped leaves with biglandular petioles, setaceous to linear early deciduous stipules, as well as three verticillate wide bracts with entire or glandular-serrulate margins. The flowers are commonly large and showy, fragrant with a short hypanthium. Petals and sepals are generally white or densely spotted with purple. The coronal filaments, usually comprises two outer series of long filaments and a variable number of inner reduced series. The two long series are subequal or the outer series is about half as long. *Passiflora acuminata* DC., *P. cerasina* Annonay & Feuillet, *P. fissurosa* M.Á.D.Souza, *P. killipiana* Cuatrec. and *P. nitida* Kunth have an additional inner series of filaments, about 1 cm long, converging towards the androgynophore. The yellow fruits (berries) are generally large, with thick mesocarp and appreciable quantity of sweet and aromatic translucent pulp, produced by the arils that surround each seed. For this reason, *P. nitida* is commonly cultivated in northern South America and Central America. *Passiflora laurifolia* L. is cultivated in the Caribbean, however it is not commercially cultivated in French Guiana. Another species in this series, *P. popenovii* Killip, is highly prized in the Andes of Southern Colombia and Southern Ecuador (Yockteng et al. 2011).

As stated by Killip (1938), series *Laurifolia* is an “exceedingly difficult” group. This author distinguished two main subgroups, one “with the outermost series of corona filaments much shorter than the next series”, “the other with the outermost filaments equaling or exceeding those of the next series”. Other diagnostic traits highlighted by Killip (1938) are ovary pubescence and the position of nectaries on the petiole: near the apex, close to the middle, or below the middle. Since Killip’s monograph, reporting 13 species, series *Laurifoliae* has been augmented with eight more species, presenting new combinations for these criteria, as well as particular traits related to the presence of phellem or indumenta (Killip 1960, Feuillet 2004, De Souza & Hopkins 2011), shape and colour of stipules (Feuillet 1986) or bracts (Feuillet & Annonay 1997).

Series *Laurifoliae* is particularly well represented in French Guiana with seven known species (*P. acuminata*, *P. cerasina*, *P. crenata* Feuillet & Cremers, *P. gabrielliana* Vanderpl., *P. laurifolia*, *P. nitida* and *P. rufostipulata* Feuillet). They appear to occupy similar forest habitats, often close to small streams and temporarily flooded areas. This capacity to withstand excessive soil water is an interesting rare trait in *Passiflora*, with potential interest for the main commercial species, which are sensitive to root diseases (Yockteng et al. 2011).

From March to May 2007, a botanical expedition was carried out in French Guiana to characterize this remarkable diversity in series *Laurifoliae*, using a comprehensive list of 162 quantitative and qualitative descriptors. Although morphological analyses have not been completed yet, we could verify that the diagnostic traits mentioned by Killip (1938) do not vary at the infraspecific level. Three populations presented particular vegetative features, as compared to the other species of the complex. Two additional expeditions allowed for collection of fertile material and the description of this new species, under the name of *Passiflora kapiriensis* Rome & Coppens. As its flowers have the additional inner series of filaments present in *P. acuminata*, *P. cerasina*, *P. fissurosa*, *P. killipiana* and *P. nitida*, we have compared it to these five species.

*Passiflora kapiriensis* Rome & Coppens, sp. nov. — Fig. 1, 2, Map 1

*Passiflora kapiriensis* Rome & Coppens differs from other species in series *Laurifoliae* by its unusually long petioles and wide leaves. It is unique in presenting a combination of medial petiole nectaries, an inner series of 1 cm long filaments, and subequal external series of filaments. Thus, it can be distinguished from *P. acuminata*, *P. fissurosa*, *P. killipiana* and *P. nitida*, by its two glands at the middle of the petiole (vs at apex), and from *P. cerasina* by its two subequal external series of corona filaments (vs shorter outermost series). — Type: *Rome* 48 (holotype CAY; isotype LYJB, P), French Guiana, on the road between Regina and Saint-Georges-de-l’Oyapock, 56 m, N4°4’25.32” W52°2’33.72”, 10 Apr. 2008.
**Passiflora kapiriensis** Rome & Coppens.

**Etymology.** The specific epithet of the new species refers to the type locality, situated near Kapiri Creek where the species forms a large population.

Woody liana. **Stem** terete, glabrous, and green; internodes 19–60 cm. **Tendrils** glabrous. **Stipules** setaceous to linear, generally aristate, green to yellow green, glandular (1–4 nectaries), very slightly pubescent at apex, 8–18 × 0.6–1.9 mm (including an arista 1–4 mm), early deciduous. **Petiole** 3–8 cm long, green to dark green, slightly canaliculate adaxially, glabrous, bearing two conspicuous oval sessile glands (about 2 mm long), at the middle (1–4 cm from petiole base). **Leaves** simple, unlobed, 12–23 × 8–22 cm, glabrous throughout, green to dark green, adaxial surface lustrous, rounded to cordate at base, acute at apex, mucronate and generally acuminate; margins entire to glandular-serrulate (0–35 minute nectaries along margins). **Inflorescence** axillary, sessile, solitary. **Peduncles** terete, green, glabrous, wide (2.5–5 mm diam), 3–4 cm long; **pedicel** 3.5–4.5 mm long. **Bracts** persistent (until fruit maturity), slightly pubescent on both sides, yellow green dotted with dark purple, concave, 4–4.5 × 2 cm, with 2–4 marginal sessile nectaries in distal half. **Flowers** pendulous, 2.5 cm long (from the base of nectary chamber to the ovary apex), sometimes presented in clusters on pseudoracemes (small branches with short internodes, small leaves, and flowers at each node). **Nectary chamber** glabrous, green outside and white inside, 17.5–19 mm in outer diam, about 5 mm in depth. **Hypanthium** glabrous, green outside and white inside, about 2 mm long and 18 mm diam at the base of sepals. **Sepals** glabrous, oblate, 4–4.3 × 1.7–2 cm, adaxial surface dark purple, abaxial surface green with dark purple dots, slightly keel-shaped in distal half with a short awn (3–6 mm long) below apex. **Petals** glabrous, oblate, 3.9–4.4 × 0.8–1.1 cm, white, with dark purple dots. **Corona filaments** in four series, banded white and dark purple; two major outer series, slightly curved, subequal: outer series 41–49 mm, second series 40–48 mm; third series 1–2 mm, curved filiform capitulate; fourth inner series 8–10 mm long, straight, oriented towards the androgynophore, covering the entrance to the hypanthium. **Staminal filaments** 8–10 mm long, white greenish finely speckled with dark purple. **Ovary** tomentose, light yellow, 8–10 mm long; three styles, white, finely speckled with dark purple, 11–13 mm long, stigmas light yellow. **Androgynophore** glabrous, greenish white, finely speckled with dark purple, 15–16 mm long with a trochea about 10 mm wide. **Operculum** membranaceous, 5–6 mm long, recurved, shortly fimbriated at the margin. **Fruit** obovoid, round in transversal section, lightly pubescent, 6–10 cm long, about 6–10 cm diam; pericarp 1.5–2.2 cm thick; immature fruits green with fine white
Fig. 2 *Passiflora kapiriensis* Rome & Coppens. a. Setaceous stipules with nectaries, petiolar glands and young bud (mature plant); b. conical petiolar gland and foliaceous stipules (young seedling); c. bract; d. sepals and petals (outer view); e. flower section (same as Fig. 1a); f, g. fruits, showing mesocarp. — Scale bars: 1 cm. — Photos by Maxime Rome, from the holotype (Rome 48, CAY) or by David Scherberich, from the holotype offspring (photo b).
Comparison with related species — In series Laurifoliae, *Passiflora kapiriensis* differs from the other species by its slightly pubescent stipules, its much larger leaves and petals. It shares a particular floral morphology with *P. acuminata*, *P. cerasina*, *P. fissurosa*, *P. killipiana* and *P. nitida*. Indeed, these species also present a particular development of the innermost series of filaments, a third series with very short, comma-like filaments, and a fourth inner series oriented towards the androgynophore. Thus, all indicates that they belong to *P. kapiriensis*, which implies a surprisingly wide distribution for a rare species. On the other hand, several other species of series Laurifoliae appear both rare and widely distributed: *P. phellos* Feuillet, dispersed in Amazonia, from Venezuela to the lower Amazon in Brazil; *P. killipiana* (three stations in Amazonian regions of Colombia and Peru, at distances comprised between 300 and 900 km); *P. gleasonii* Killip has been reported in Guyana, Venezuela and Peru. Furthermore, the rarity of these species may be only apparent; first because the Amazonian region has been poorly collected as compared to other regions (compare for example the inventory of Andean and Amazonian *Passifloraceae* of Colombia in Ocampo et al. 2007); second, because more recently and/or less often collected *Laurifoliae* species are poorly known and easily confused with or assimilated to ‘older’ and more common species (*e.g.*, *Villa 855* and *Melo 610* were identified as *P. cf. riparia* and *P. nitida*, respectively). The online availability of many scanned specimens with approximate identification facilitates the comparison of specimens collected in different countries, which could lead us to revise supposed endemisms among *Laurifoliae*, particularly in the relatively small French Guiana.

Comparison with related species — In series Laurifoliae, *Passiflora kapiriensis* differs from the other species by its slightly pubescent stipules, its much larger leaves and petals. It shares a particular floral morphology with *P. acuminata*, *P. cerasina*, *P. fissurosa*, *P. killipiana* and *P. nitida*. Indeed, these species also present a particular development of the innermost series of filaments, contributing to close the nectary chamber. In addition, it shares an extremely short hypanthium with at least *P. acuminata* and *P. fissurosa*. *Passiflora acuminata*, *P. fissurosa* and *P. nitida* differ from *P. kapiriensis* by their glabrous and shorter stipules and by their glands borne at the petiole apex. Additional differences concern the white corollas of *P. acuminata* and *P. nitida*, and the suberous stems of *P. fissurosa*. *Passiflora killipiana* can be distinguished from *P. kapiriensis* by its glands situated at the apex of the petiole and its ruf-to-tomentose peduncles and bracts, whereas *P. cerasina* mostly differs by its unequal two outermost series of filaments and its typical cherry-red bracts at anthesis (Table 1).
Passiflora nitida (herbarium specimens): Brazil, Pará, Porto Trombetas, 26 Apr. 1987, Knowles s.n. (INPA); Belem, 25 Nov. 1942, Archer 7864 (K); Amazonas, Estrada Manaus, Caracarai, trecho perdido, 10 Mar. 1978, Silva 4557 (NY); De Candolle s.n. (type P).


Passiflora cerasina (holotype CAY; isotypes P, NY); Amazonas, District Agropecuario, 13 Feb. 2012, Peirera-Silva 16087 (COL); Acre, Municipality of Sena Madureira, 13 Feb. 2012, Peirera-Silva 16087 (INPA).

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REFERENCES


