

563. PASSIFLORA LONGICUSPIS

Passifloraceae

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Summary. *Passiflora longicuspis* (Passifloraceae), a new, red, large-flowered species of *Passiflora* from French Guiana is described; its history, taxonomy, distribution, pollination ecology and cultivation are discussed.

Vegetative material of a *Passiflora* species was collected in 1999 near the Sinnamary River in French Guiana, where it was found growing over scrub and small trees and was believed initially to be *P. aimae* Annonay & Feuillet, which is recorded in the same vicinity. Cuttings from the original plant were cultivated at The National Collection of Passiflora in England, but when they flowered and fruited over the next three years, it became apparent that this plant was not consistent with *P. aimae*, but represented a new species, *P. longicuspis*.

On a subsequent visit to the same area two years later, more vegetative material was collected. In spite of extensive searching, no flowerbuds, flowers or fruit could be found, although the remains of non-deciduous peduncles were evidence that the plants had recently been in flower. It seems that unlike its close relative *P. coccinea* Aubl., which flowers all the year around and is common throughout the Guianas, *P. longicuspis* only flowers for short periods one or more times each year and is endemic to a very small region of French Guiana.

Passiflora longicuspis is closely related to *P. coccinea* Aubl., *P. aimae* Annonay & Feuillet, and *P. quadrifaria* Vanderplank and is placed with these species and others in subgenus *Passiflora*, supersection *Coccinea* (Feuillet & MacDougal 2004); it is cultivated in the National Collection of Passiflora under accession number NCP 1431. The epithet *longicuspis* is given on account of the extremely long tapering corona filaments of this species, which are the longest in comparison to the height of the androgynophore of any species in supersection *Coccinea*.

Passiflora longicuspis is distinct from *P. coccinea* Aubl., *P. aimae* Annonay & Feuillet and *P. quadrifaria* Vanderplank in several prominent features, summarised in the table below. In particular it differs in its very long corona filaments, in two series, the outer series 2.2–2.6 cm high and orange or pale pink; in its very high

androgynophore, 3.8 cm high, and in its fruits which are pendulous, 4.5–6.0 cm long, elongate-pyriform, deep green speckled pale green.

The flowers of *Passiflora longicuspis* are strongly reflexed at anthesis and have an anther-corona clearance of 2.2–2.5 cm that is consistent with bird pollination. Although humming-birds were observed in the area, it is probable that very large bees like *Ptilotopus americanus*, which are the primary pollinators of *P. coccinea* Aubl. in French Guiana, may also be responsible for pollination. All *Passiflora* species that are recorded as being pollinated by humming-birds produce open flowers every day for extended periods to maintain daily visitation or line-pollination. *P. longicuspis* only flowers for a few days or weeks at a time, several times a year, which is not consistent with humming-bird pollination.

CULTIVATION: Plants were vigorous and free flowering for only two seasons when cultivated in a John Innes Potting type compost of loam, peat and sand with a pH of 6.5–7.0 in an open bed with the soil temperature maintained at 26–30°C. Vines grew over two metres high in one season on long robust fertile shoots. Two or three racemes of 6–15 flowers were produced in March, June and October. The flowers produced in March and June were vermilion with pale pinkish-white corona filaments, but flowers produced in October were orange-red with pale orange outer corona filaments. This may be due to changing soil acidity or a reduction of the cultivation temperature and it is possible that changes in flower colour may also occur in the wild. Plants cultivated in 1.5 litre and 3.0 litre containers were not vigorous and failed to flower. Soil pH in these pots was 7.5 or above due to the hard water used during cultivation. Soils samples taken from the Sinnamary area are rich in iron and are slightly acidic at pH 6.0–6.5.

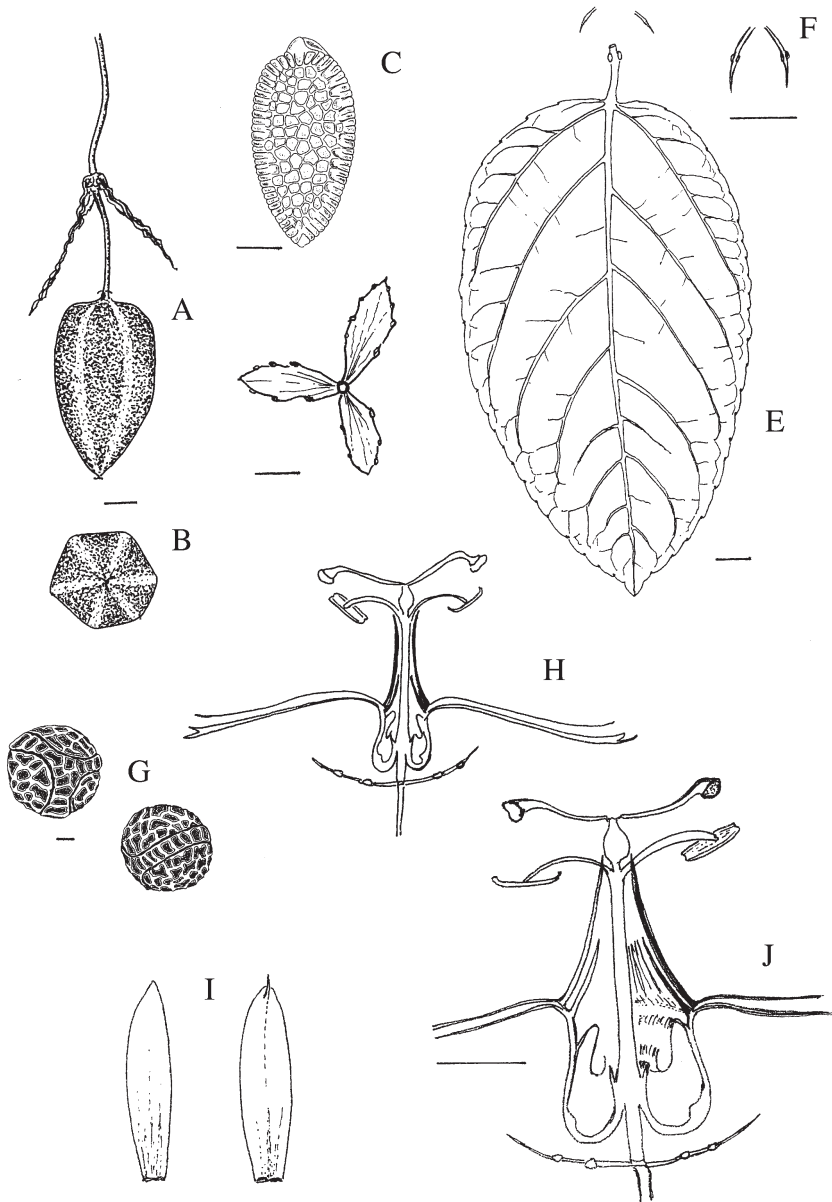
Propagation was by nodal cuttings which root in four to twelve weeks during spring. Self-pollination was unsuccessful but cross-pollination with *P. vitifolia* (NCP 1251) as the pollen parent and pollen recipient both produced fruit with many viable seed. The seedlings raised from both crossings are intermediate in leaf shape between their parents. The leaf colour of *P. vitifolia* × *P. longicuspis* is deep green and similar to *P. vitifolia*, while the leaves of *P. longicuspis* × *P. vitifolia* are olive green and more similar to *P. longicuspis*.

Passiflora longicuspis Vanderplank and S. Vanderplank **sp. nov.** (subgenus *Passiflora*, supersection *Coccinea*) *affinis P. coccineae* Aubl., *P. aimae* Annonay &



Passiflora longicuspis

DAPHNE BARNES



***Passiflora longicuspis*.** A, side view of fruit; B, view of fruit from below; C, seed with raphe on the right hand side; D, bracts; E, leaf with stipules; F, stipules; G, side and polar view of pollen grains; H, half flower; I, petal and sepal; J, half section through androgynophore and calyx. Scale bars: A, B, D, E, F, H, I, J = 1 cm; C = 1 mm; G = 10 μ m. Drawn by John Vanderplank.

Feuillet *et P. quadrifariae* Vanderplank sed longissimis coronae filamentibus, in duobus seriebus, serie exteriore 2.2–2.6 cm alta, colore aurantiacis vel pallide roseis; androgynophoro altissimo, 3.8 cm alto, et fructibus pendulis, 4.5–6.0 cm longis, elongato-pyriformibus, atroviridibus glaucisque maculatis, differt.

Type: French Guiana, in a small open area near the Sinnamary River, growing over low scrub and small trees. NCP 1431 (holotype, isotype K.)

DESCRIPTION. *Vine* medium sized, robust, up to 5m. *Roots* fibrous. *Stem* stout, strong, terete, finely puberulent or rufo-puberulent to rufo-tomentose. *Tendrils* strong, puberulent, green to rufo-puberulent with age, 10–25 cm long. *Stipules* narrowly linear, setaceous 8–10 mm long, 1 mm diameter with two small sessile glands midway or above, very soon deciduous. *Petiole* robust, puberulent to tomentose, 1.5–2.0 cm long, 2–3 mm diameter at base, biglandular 2–3 mm above base of petiole on both sides; glands nectariferous, raised, sessile, 2 mm in diameter, olive green with a red rim, turning pale brown with age and loss of function. *Leaves* simple, ovate to oblong, 9–20 cm. long, 5–11 cm wide, acute at apex, rounded at base, one main central vein usually reddish with 5–7 lateral veins each side, with reticulate veining; leaf margin shallowly crenulate with small nectariferous glands between crenulations, glands 0.5 mm or less in diameter, adaxial surface glabrous deep green, abaxial surface sparsely puberulent dull green. *Peduncles* stout, borne singly, rufo-puberulent, 3–6 cm long. *Bracts* 3, oblanceolate, 2.0–3.5 cm × 0.4–1.4 cm, maroon red or purple red, serrate glandular margin, glands prominent, very deep red or deep purple red, 1.0–1.5 mm in diameter, nectariferous, 2–8 glands per bract. *Stipe* 5–8 mm long. *Flowers* bright vermillion or orange-red, borne singly, 10–13 cm in diameter, held vertically or almost vertically, sepals and petals reflexing at anthesis, odourless; anther-corona clearance 2.0–2.2 cm. *Hypanthium* campanulate, with 10 well-defined crenate sections, 1.2–1.7 cm diameter, glabrous, pale yellow-green with pink or red tints, inner surface pink or red. *Sepals* linear-lanceolate, 4.0–5.0 cm long, 1.0–1.5 cm wide, adaxial surface vermillion red or orange red with deep crimson band for 2–3 mm. above base, abaxial surface dull brownish red, deeply keeled, terminating in an awn to 3–5 mm long. *Petals* linear-lanceolate 4.0–5.0 cm long, 0.5–1.0 cm wide, vermillion or orange-red both sides. *Corona filaments* in two series; outer series 2.2–2.6 cm long, fleshy, erect, free to base, pale orange or very pale whitish pink, closely surrounding the androgynophore at the base of the androecium; inner series 1.0–1.2 cm long, distal half free, filaments with membranous basal half, deep pink or red. *Operculum* pink or red, dependent, recurved and filamentous for 1–2 mm at distal end. *Nectar ring* pale pink. *Limen* cupuliform, pink, filamentous for 1–2 mm. *Androgynophore* erect, 3.6–4.0 cm high, pink towards base and pink speckled red to androecium. *Staminal filaments* slender, dull pink flecked and speckled red, 1.3–1.4 cm long. *Anthers* adaxial surface pale yellow with green edges, anther-corona clearance of 2.2–2.5 cm. *Pollen* pale yellow; pollen grains zonate, geminate and heterocolpate, anastomosing at the poles, with three pairs of colpi at the equator. *Ovary* narrowly pyriform, 6 mm high, 3 mm diameter, downy, pale olive green or greenish-pink. *Style* slender, bright red, 10 mm long. *Stigma* olive green. *Fruit* pyriform, pendulous, 4.5–6.0 cm long, 2.5–3.5 cm. diameter, deep green speckled pale green,



Habitat of *Passiflora longicaulis* in forest openings and along roads in French Guiana.

yellowing from distal end when ripe. Exocarp 0.5mm thick, tough. Mesocarp thin, 0.5–1.0 mm thick. Endocarp a white, thin translucent bag. Arils clear white, juicy, very sweet when fully ripe. *Seeds* symmetrical or slightly asymmetrical, ovate with narrow crenulated margin, with an acute triangular chalazal beak, shallowly convex in cross-section with reticulate-foveate surface on each side, deep charcoal brown in colour, 5.5–6.0 mm × 2.7–3.0 mm × 1.0–1.1 mm, mass of 100 seeds 0.97–1.09 g. *Germination* epigeal.

DISTRIBUTION. French Guiana, near the Sinnamary River.

HABITAT. Found in a small open area growing over low scrub and small trees.

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