Vantanea maculicarpa (Humiriaceae): a new tree species from French Guiana

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Abstract

A new species of Humiriaceae, Vantanea maculicarpa, growing in French Guiana terra-firme forest is described and illustrated. This new species is distinguished from all other species of Vantanea by fruits covered by white lenticels, a character so far unknown in this genus. It also presents a pubescent intrastaminal disk, a feature encountered in two other Vantanea species only: it is further distinguished from V. parviflora, the morphologically most similar species, by more stamens and from V. ovicarpa by a much smaller rough endocarp with five valves. A key to the species of French Guiana and the IUCN status Least Concern (LC) are proposed.

Keywords: Vantanea, Humiriaceae, French Guiana, taxonomy

Introduction

The genus Vantanea Aubl. (1775: 572, pl.229) comprises 21 species (including the new species here described) and is the largest genera of Humiriaceae. It is spread from Costa Rica through northern South America to Bolivia and south Brazil (Kubitzki 2014). In French Guiana, four species (including the new species described in this article) have been recorded in terra-firme forests up to 800 m a.s.l. The genus Vantanea is characterized by its arborecent habit, coriaceous simple leaves with entire margins, flowers with a cupular calyx and five distinct petals (usually white), and drupaceous fruits with carnose mesocarp and woody endocarp dehiscent at seed germination by oblong valves. Vantanea differs from other Humiriaceae genera in having numerous stamens (30–230) and anthers with two bilocular thecae (Cuatrecasas 1961). The species described in this article was already distinguished from V. parviflora Lam. (1792: 145, pl.7) and considered as a distinct morphospecies in French Guiana based on vegetative criteria, specifically obovate blades and shorter petioles. Fruits were collected in 1985 and are covered by distinctive white lenticels, a character so far unobserved in other species of Vantanea.

Materials and Methods

The studied material was received on loan from CAY and includes six fertile specimens (two with flowers and four with fruits) and three sterile specimens of the new species, plus three fertile specimens of V. parviflora (the species morphologically most similar). A comprehensive bibliographic survey of publications describing Vantanea species (Cuatrecasas 1961; Rodrigues 1982; Sabatier 1987; McPherson 1988; Gentry 1990; Sabatier 2002; Herrera et al. 2010) was carried out. Digitized herbarium sheets of all Vantanea species were downloaded from various database portals, including the New York Botanical Garden (http://sweetgum.nybg.org/science/vh/), the Muséum national d’Histoire naturelle (https://science.mnhn.fr/institution/mnhn/collection/p/item/search/form?lang=en_US), the Smithsonian National Museum of Natural History (http://collections.nmnh.si.edu/search/botany/) and the Kew Royal Botanic Gardens (http://apps.kew.org/herbcat/gotoSearchPage.do). Terminology of leaf and inflorescence are based on Harris & Harris (2001). The conservation status was evaluated using the IUCN Red List criteria (IUCN 2012); the Area of Occupancy (AOO) was calculated by using the online “GeoCAT” software “http://geocat.kew.org” (Bachman et al. 2011).
Taxonomy

Key to the species of *Vantanea* in French Guiana, adapted from (Sabatier 2005)

1. Leaves with petioles not thickened at base; blades elliptic to oblong-elliptic, apex shortly acuminate. Flower buds ca. 3 cm long. Petals red; ovary and disc glabrous ........................................................................................................... *V. guianensis* Aubl. (1775: 572, pl.229)
   - Leaves with petioles often thickened at base; blades obovate, obovate-elliptic, elliptic, or oblancoate, apex rounded, emarginate (sometimes shortly acuminate). Flower buds 0.8–1.2 cm long. Petals white or greenish-white; ovary and disc pubescent......... 2

2. Leaf blades obovate, 4–11 cm long, petioles ca. 0.5 cm long. Stamens 150–230. Fruits globose, covered by numerous white lenticels, ca. 2.5 cm in diameter, exocarp brown, firm, ca. 3 mm thick, endocarp rough with 5 valves................... *V. maculicarpa*
   - Leaf blades obovate-elliptic or elliptic, 4–11 cm long, petioles 0.5–1.5 cm long. Stamens 80–120. Fruits smooth or slightly pubescent, ca. 2.4–2.8 × 2.2–2.5 cm, exocarp green, fleshy, ca. 2 mm thick, endocarp rough with 5 valves .............. *V. parviflora*
   - Leaf blades oblancoate to obovate-elliptic, 8–15 cm long, petioles 0.8–1 cm long. Stamens 120–200. Fruits smooth, ca. 5–7 × 4–5 cm, exocarp ca. 5 mm thick, endocarp smooth with 6–7 valves.............................. *V. ovicarpa* Sabatier (2003: 235, fig.1)

*Vantanea maculicarpa* Sabatier & Engel, sp. nov. (Figs. 1 and 2)

Type:—FRENCH GUIANA. RN2 Cayenne—Régina, niveau Petites Montagnes Tortue, 4°18’N, 52°15’W, 1 November 2009, *D. Sabatier* 5574 (Holotype CAY! (barcode CAY111685); Isotype P! (barcode P01156374)).

**Figure 1.** *Vantanea maculicarpa* (photographs A–C by Daniel Sabatier and D–E by Julien Engel). A. Flowering branch. B. Flower buds and flowers. C. Medial section of flower (note the pubescent intrastaminal disk). D. Two fruits (right), transverse section with one seed (below left) and upper view of endocarp (above left). E. Fruit surface showing white lenticels. *(A. Sabatier & Prévost 4911. B–C. Sabatier 5574. D–E. Sabatier 4898.)*
**Diagnosis:** — *Vantanea maculicarpa* is distinguished from all other species of *Vantanea* by its fruits that are covered by white lenticels, a character so far unknown in this genus as all other species of *Vantanea* have smooth, slightly pubescent or rarely tuberculous fruit surface (*V. tuberculata* Ducke (1938: 31, pl.5)). Fruits shape is globose, another distinctive feature of *V. maculicarpa*, as fruits are mostly ovoid or ellipsoid in this genus. Regarding flowers, *V. maculicarpa* has a pubescent disk, a feature shared by two other species only, *V. parviflora* and *V. ovicarpa* respectively. The new species closely resembles *V. parviflora*: they share leaves greenish-brown above, with secondary and smaller veins visible on both sides, and petioles thickened at base. *V. maculicarpa* is distinguished by shorter petiole and obovate blades while *V. parviflora* has more elliptical blades. Regarding flowers, *V. maculicarpa* differs from *V. parviflora* in having more stamens (150–230 against 80–120). Filaments length is also more variable (within a same flower) in *V. maculicarpa*, while it is more uniform in *V. parviflora*. The length ratio between the longest and the smallest filament of a same flower is also more variable between flowers in *V. maculicarpa*. To get an approximate picture, this ratio ranges from about 2 to 5 in *V. maculicarpa* while it is ranging around 1.6 and quite homogeneous among flowers in *V. parviflora*. *V. maculicarpa* differs from *V. ovicarpa* in having globose, strongly rugose and smaller endocarp with 5 valves while the latter has large, ovoid, smooth endocarp with 6–7 valves.

**Description:** — *Tree*, up to 40 m tall, 80 cm dbh; bole irregular, buttressed; bark becoming fibrous with age; branchlet terete, glabrous. *Leaves* simple, alternate, rigid coriaceous, glabrous, with several small glands scattered on lower surface, ca. 4–11 × 3–6 cm, margins entire, blades obovate, cuneate or attenuate at base, rounded and emarginated at apex, sometimes somewhat acuminate, midvein prominently raised on abaxial surface, slightly raised on adaxial surface, secondary veins 8–10, arcuate and united near the margin, smaller veins reticulate; petiole sulcate, usually thickened at base, 4–6 mm long. *Inflorescence* paniculate-cymose, ca. 9 cm long, axillary or terminal, axis pubescent, pedicels ca. 0.5 mm long, pubescent; bracts deciduous. *Flower* buds 0.8–1 cm long; calyx broadly cupulate, ca. 3 mm long, 2 mm diameter, entire or slightly 5-lobed, minutely pubescent; petals valvate in bud, white, linear, rather thick, 5–8.5 × 1–1.5 mm, pubescent outside, hairs abundant, glabrous inside; stamens 150–230, united at base, filaments glabrous, white, 1–6 mm long with high variability within and among flowers (within-flower ratio between the length of the longest and the length of the smallest filament ranging from 2 to 5); anthers lanceolate, ca. 0.7 mm long, affixed near the base, orangish-yellow; thecae 2, bilocular, ca. 0.3 mm long; the connective long and acute (about half the length of the anther); disk thick, cupular, densely pubescent abaxially and in its adaxial upper-third; ovary 1.6 × 0.6 mm, globose-ovoid, densely crisp-pubescent, 5-locular; style ca. 3.6 mm long, sparsely pilose at base; stigma small, rounded. *Fruit* a globose drupe, ca. 2.5 cm in diameter, dark with numerous whitish lenticels; mesocarp ca. 3 mm thick, firm; fruit stone (pyrene) woody, strongly rugose, with 5 linear, ca. 5 mm wide, valves alternating with broad ribs; one (two) seed ca. 5 × 2.5 mm.

**Phenology:** — Flowers of *Vantanea maculicarpa* have been observed from the end of the rainy season in June to the dry season in November, immature fruits in October and mature fruits during the rainy season in April–May.

**Distribution and Ecology**

**Conservation status:** — The new species occurs in French Guiana terra-firme forest.

**Etymology:** — The epithet refers to the surface of the fruits covered by numerous white lenticels.

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