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# A New Species of *Vriesea* (Bromeliaceae) from the Atlantic Forest, Brazil

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**ABSTRACT.** *Vriesea flava*, a new species from the Atlantic Forest of Brazil, is described and illustrated. It is distinguished in *Vriesea* sect. *Vriesea* (Bromeliaceae) from its closest relatives *V. paraibica*, *V. eltoniana*, *V. maxoniana*, and *V. laxa* mainly by the color and dimensions of its floral bracts and relative position of the stamens.

**Key words:** Atlantic Forest, Brazil, Bromeliaceae, *Vriesea*.

The genus *Vriesea* Lindley (Bromeliaceae) comprises about 230 species distributed in two sections, *Vriesea* and *Xiphion* (E. Morren) E. Morren (Smith & Downs, 1977; Luther & Sieff, 1994, 1997a, 1997b; Luther, 2001; Grant, 1995a, 1995b). Section *Vriesea* includes a group of species closely related to *V. paraibica* Wawra, which are distributed along the Atlantic Forest of southeastern and southern Brazil. For years specimens in this species group were misidentified in herbaria worldwide as *V. × morreniana* hortus ex E. Morren, based on Smith and Downs's (1977) interpretation. However, this taxon is an artificial hybrid between *V. psittacina* (Hooker) Lindley and *V. carinata* Wawra (Morren, 1882) and does not exist in nature (Costa, 1997).

The populations of the *Vriesea paraibica* complex were studied as part of the doctoral project of the first author, and the results of morphometric analysis indicate that two major groups form by the color and length of the floral bracts (Costa, 2002). Plants with entirely yellow bracts, yellow, orange, or green-tinged rachises, and lemon-yellow petals occur between São Paulo and Santa Catarina in

Brazil. Reitz (1983) treated this group as *V. × morreniana*, but no longer considered it a natural hybrid due to its abundant occurrence and dispersal by seeds in nature. Though he kept the name, he did not adopt the broader concept, which Smith and Downs (1977) suggested for the taxon. This species is herein proposed as new, based on its singular combination of characters.

***Vriesea flava*** A. F. Costa, H. Luther & M. G. L. Wanderley, sp. nov. TYPE: Brazil. São Paulo: Ribeirão Grande, Parque Estadual Fazenda Intervalles, 7 May 1997 (fl), M. G. L. Wanderley 2187 & B. A. Moreira, S. L. Proença, R. C. Forzza, F. Nascimento (holotype, SP; isotype, R). Figure 1.

A *Vriesea paraibica* cui affinis, foliis 3.2 cm latis, bracteis floriferis 3 cm longis, luteis, sepalis 2.6 cm longis, petalis luteis apicem versus virescentibus differt. A *V. eltoniana* cui affinis, foliis 15–34 cm longis, rhachidibus viridibus vel aurantiacis, sepalis adaxialibus carinatis, petalis luteis differt. A *V. maxoniana* cui affinis, foliis 3.2 cm latis, bracteis floriferis 3 cm longis, sepalis 2.6 cm latis differt. A *V. laxa* cui affinis, stamina exserta differt.

Plant flowering to 45 cm tall. Leaves densely sessile, suberect; sheaths oblong, 7 × 4.5 cm, pale green; blades linear, 26(15–34) × 3.2(2.6–3.8) cm wide, acuminate, bright green. Inflorescence simple, erect, 13(6–21)-flowered; scape to 25 cm long, sometimes sigmoid, yellow-green; scape bracts oblong, obtuse, apiculate, to 2.8 cm long, longer than the internodes, enfolding the scape, yellow-green; rachis 7.5(4.3–12) cm, yellow-green to orange; floral bracts ovate, acute, apiculate, carinate, slightly



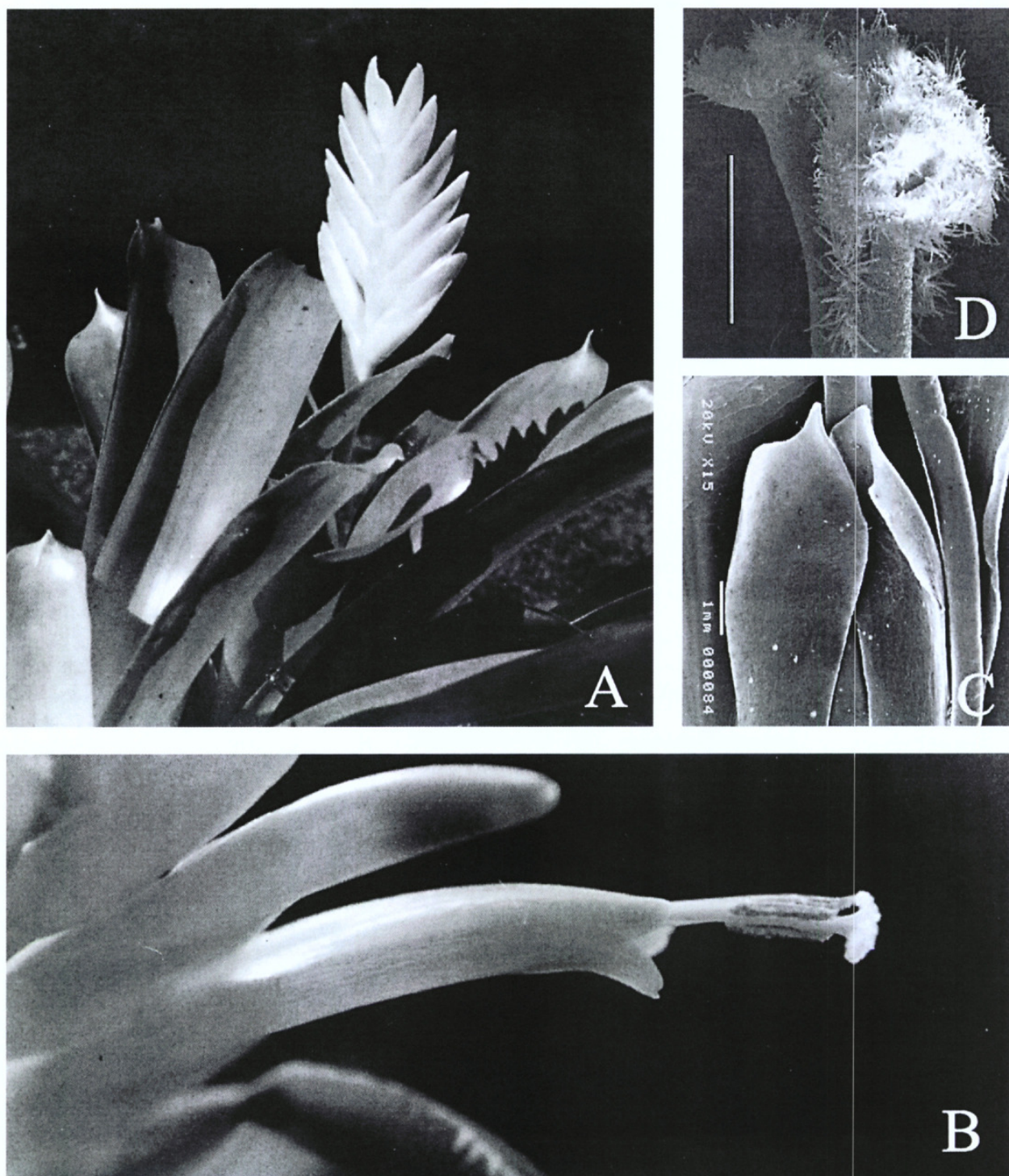


Figure 1. *Vriesea flava* A. F. Costa, H. Luther & M. G. L. Wanderley. —A. Habit, showing inflorescence. —B. Closeup of inflorescence showing one flower exerted from floral bract. —C. Micrograph of petal appendages (bar = 1 mm). —D. Micrograph of stigma (bar = 2 mm). (All photos from the type collection, M. G. L. Wanderley 2187 et al.)

incurved near the apex,  $3.0(2.6-3.7) \times 2.5$  cm (at base), yellow. Flowers suberect at anthesis, sometimes exerted from floral bract on one side; sepals linear, acute, the adaxial pair carinate, ca.  $2.6(-3.2)$  cm long, yellow; petals linear, obtuse, ca. 4 cm long, yellow with a yellow-green erect apex, appendages with acute-irregular apex, ca. 1 cm long; stamens with the anthers exerted, functionally on

the upper side of the corolla during anthesis; style longer than the stamens, stigma convolute-bladed. Fruits 3–3.5 cm long.

The *Vriesea paraibica* complex comprises a monophyletic group of nine species of section *Vriesea* with simple, complanate inflorescences with yellow or rarely red bracts, adaxial pair of sepals



Table 1. Features distinguishing *Vriesea flava* from its closest relatives. The boldfaced text indicates the distinctive characters between each species and *V. flava*.

Feature	<i>V. flava</i>	<i>V. paraibica</i>	<i>V. eltoniana</i>	<i>V. maxoniana</i>	<i>V. laxa</i>
Blade length	26 (15–34) cm	25–38 cm	<b>40 cm</b>	28–30 cm	15–18 cm
Blade width	3.2 (2.6–3.8) cm	<b>2.5–3.3 cm</b>	3–3.5 cm	<b>2.2 (2.0–2.5) cm</b>	<b>2.5 cm</b>
Color of scape	green to yellow-green	green	<b>red-purple</b>	green	green
Floral bract length	3.0 (2.6–3.7) cm	<b>3.5–4 cm</b>	2.9–3.4 cm	<b>4.5–5.5 cm</b>	2.5–3.4 cm
Color of floral bracts	yellow	<b>red with green apex</b>	yellow	yellow	yellow (rarely orange)
Sepal length	2.6 (–3.2) cm	<b>3.2 (2.7–3.7) cm</b>	2.7–3.1 cm	<b>3.7 (3.5–4.0) cm</b>	3.0–3.5 cm
Dorsal keel on the sepals	on the adaxial pair	on the adaxial pair	<b>on all three sepals</b>	on the adaxial pair	on the adaxial pair
Color of petals	yellow with yellow-green apex	yellow	<b>yellow with dull green tip</b>	yellow	yellow
Position of stamens	exserted	exserted	exserted	exserted	<b>included</b>
Geographical distribution	Brazil, São Paulo to Santa Catarina	Brazil, Rio de Janeiro, Minas Gerais and São Paulo, on Serra da Mantiqueira, Serra da Bocaina, and Serra dos Órgãos	Brazil, Rio de Janeiro, coastal semi-deciduous forests	Argentina, Saltá; and Bolivia, Chuquisaca, La Paz, Santa Cruz, and Tarija	Venezuela, Aragua, Falcón, and Yaracuy

carinate, actinomorphic corolla, petals linear with transversal posture erect or recurved, yellow or greenish, appendages with acute-irregular apex, and exserted stamens (Costa, 2002).

*Vriesea flava* occurs in the Atlantic Forest about 800 m above sea level, in São Paulo, Paraná, and Santa Catarina States, Brazil. It is an epiphyte especially on the trunks and main branches of trees. *Vriesea paraibica*, a red bracteate species, occurs on the same altitudinal range on the Serra do Mar, between northeastern São Paulo State and Rio de Janeiro State (Table 1). Fieldwork and herbarium data (HB, HBR, MBM, R, RB, SP, UPCB) indicate that sympatric populations with red and yellow floral bracts are not known. Within the yellow bracteate species, *V. eltoniana* E. Pereira is also related, but differs from *V. flava* in the longer leaves, the red-purple rachis, the three sepals bearing a dorsal keel, and the petals yellow with dull green tips. *Vriesea eltoniana* has a restricted geographical distribution, occurring only in the coastal semi-deciduous forests in Rio de Janeiro State. *Vriesea flava* is also closely related to *V. maxoniana* (L. B. Smith) L. B. Smith from Argentina and Bolivia and *V. laxa* Mez from Venezuela. These two last species also belong to the same complex and are similar in appearance to *V. flava*, and could be interpreted as a single species. However, despite this relatively common circum-Amazonian geographic distributional pattern among several angiosperm species (Granville, 1992), the features shown in Table 1 were considered relevant to recognize *V. flava* as a new species.

Concerning the affinity between *Vriesea flava* and *V. laxa*, the exsertion and inclusion of the stamens can be interpreted as a relevant taxonomic character, considering also their disjunct distribution. Although the occurrence of individuals with exserted and included stamens has been observed in the same population of bromeliad species (*Tillandsia*, Gardner, 1986; *Vriesea*, Costa, unpublished data), all material of *V. flava* and *V. laxa* analyzed to date have shown only exserted or included stamens and stigmas, respectively.

The epithet *flava* refers to the completely yellow floral bracts. The morphometric analysis and taxonomic treatment of the *Vriesea paraibica* complex will be presented in two forthcoming papers.

*Paratypes.* BRAZIL. **Paraná:** Jacareí, 4 June 1915 (fl), *Dusén* 6765 (S); Campina Grande do Sul, Serra do Espia, 5 Apr. 1964 (fl), *G. Hatschbach & Joly* 11145 (HB, HBR, MBM, UPCB). **São Paulo:** Tapiraí, 13 Dez. 1999 (fl), *H. Luther s.n.* (SEL 081296).

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