

**PYROSTRIA TRIFLORA, A NEW SPECIES OF VANGUERIEAE (RUBIACEAE)
FROM LUZON, PHILIPPINES**

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Abstract

Pyrostria triflora, a new species of the tribe Vanguerieae of Rubiaceae from the Philippines is described and illustrated. The new species is unique from other representatives of the genus by its strictly 3-flowered inflorescences and geographic distribution.

Introduction

Vanguerieae is a monophyletic tribe of Rubiaceae recognized by its swollen styler knob for pollen presentation (Verdcourt, 1987; Verdcourt and Bridson, 1991). The group is widely distributed in tropical Asia, Africa, Madagascar and the Pacific thriving in various habitats and environments (Razafimandimbison *et al.*, 2009). Infrageneric classifications within the tribe have been very difficult due to the unnaturalness of several genera, such as *Canthium* Lam., *Pyrostria* Comm. *ex* Juss. and *Vangueria* Juss. (Bridson, 1987, 1992). However, morphological and molecular phylogenetic works of various authors (Bridson, 1992; Lantz *et al.*, 2002; Lantz and Bremer, 2004, 2005; Razafimandimbison *et al.*, 2009) have resulted in the reinstatement of several genera [e.g., *Afrocanthium* (Bridson) Lantz and Bremer, *Bullockia* (Bridson) Razafim., Lantz & Bremer, *Canthium sensu stricto*, *Keetia* E. Phillips, *Psydrax* Gaertn. and *Pyrostria* Comm. *ex* Juss.] as well as establishment of clearer synapomorphies among these taxa. This taxonomic amendment has now in general resulted in morphologically clearly defined and monophyletic genera within the tribe.

In an effort to revise the Philippine Vanguerieae (Arriola and Alejandro, 2013) owing to various nomenclatural changes within the tribe, we recollected all the endemic Philippine representatives of the Vanguerieae. An interesting specimen of Vanguerieae was collected in the mountain ranges of Ilocos Norte, Luzon, the Philippines. The plant material showed distinguishing characters of *Pyrostria* based on recent circumscription of the genus by Razafimandimbison *et al.* (2009) by having large connate peduncular bracts that enclose the young inflorescences, fleshy corolla with numerous moniliform hairs inside the throat and dioecious sexuality. After examination of various herbarium specimens (L, PNH and UST) and checking various databases, our specimen showed no exact match with the currently recognized species under *Pyrostria*. Further, combined molecular sequence data from ITS (nrDNA) and *trnL-F* (cpDNA) revealed a phylogenetic position of our material in the *Pyrostria* clade. Therefore a new species of *Pyrostria* is described and illustrated.

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Materials and Methods

This study was based on field observations and examinations of collected materials from Mount Palemlem, Adams Ilocos Norte in the Island of Luzon, the Philippines. Herbarium specimens and spirit collections (persevered in 70% ethanol) were submitted to the PNH and USTH. All measurements were taken using a graduated vernier caliper (Disston). Detailed examinations of all vegetative and reproductive parts were examined using the LW Scientific dissecting microscope. Available herbarium specimens (L, PNH and USTH) were examined and online database were checked for possible match of our materials.

Results

Pyrostria triflora Arriola, Calaramo & Alejandro, **sp. nov.**

(Fig. 1).

Diagnosis: *Pyrostria triflora* is distinguished from other species of the genus by its strictly 3-flowered inflorescences and geographic distribution.

Type: Philippines. Luzon, Ilocos Norte Province: Municipality of Adam, 13°47.8'N, 123°40.0'E, 623 m, 26 Mar 2013, *Arriola, Calamaro and Alejandro 13098* (*Holotype*: PNH!; *Isotype*: USTH!).

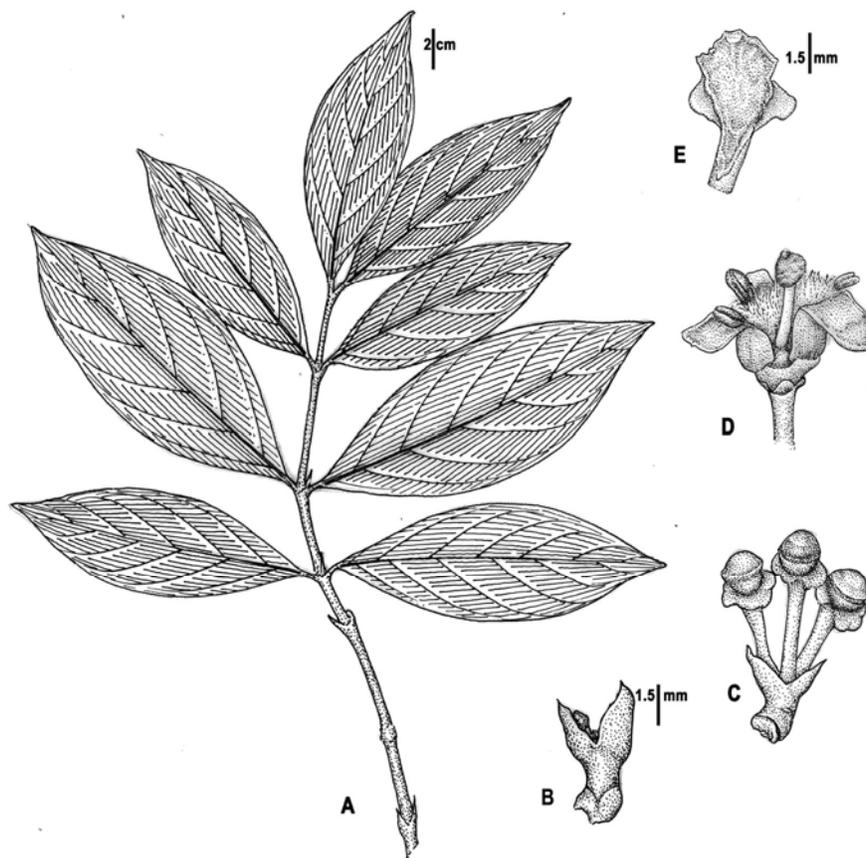


Fig. 1. *Pyrostria triflora* Arriola, Calaramo & Alejandro, **sp. nov.** (from the holotype). A. Single branch; B. Persistent peduncular bract; C. Male inflorescence; D. Male flower; E. L.S. of calyx.

Shrub, 0.5–1.0 m high; branches terete and glabrous. Leaves lanceolate, 2–8 × 1–3 cm, glabrous on both sides; apex attenuate; base attenuate; visible lateral nerves 5 or 6 on each side of the midrib; petiole 1–2 mm, glabrous. Stipules ovate to triangular, 3 × 1 mm, glabrous on both sides. Male inflorescence axillary on 0.8–1.0 mm long peduncles, 3-flowered; peduncular bracts present, 3.5–4.5 mm long, triangular to broadly triangular, glabrous on both sides, enclosing the young inflorescence; pedicels erect, 4.5–5.0 mm long at flowering, persistent. Male flowers: calyx glabrous; tube 0.8–1.2 mm long; lobes broadly triangular, 0.2 × 0.4 mm. Corolla 4-merous, white, glabrous outside; tube tubular, 0.8–1.2 mm long, moniliform hairs present at the throat; lobes broadly triangular, 2.0–2.5 × 1.0–1.2 mm, recurved. Stamens attached to corolla tube adjacent to the throat; anthers narrowly ovate to ovate, 0.3 mm long, exerted. Style including stigmatic knob 3.0–3.9 mm long; stigmatic knob 1 mm long, with a shallow cleft above, style not recessed into the stigmatic head; disk glabrous. Fruits not seen.

Phenology: Flowers from April to June.

Distribution and habitat: *Pyrostria triflora* thrives in lowland forest at 200–300 m of Adam, Ilocos Norte, Philippines.

Etymology: The specific epithet was based on the strictly 3-flowered male inflorescence of the species.

Notes: Although *Pyrostria triflora* approaches the sessile inflorescence of *P. subsessilifolia* (Merr.) Arriola & Alejandro (Alejandro *et al.*, 2013), several features (size of leaf blades, leaf apex and base, and longer peduncular bracts) delineate the former from the latter. The inflorescence of our material approach that of the Madagascan *Pyrostria pendula* Lantz, Klack. & Razafim. (Lantz *et al.*, 2007), however, *P. triflora* is exceptional from the Madagascan species with its strictly 3-flowered inflorescence and a different geographical distribution.

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