Pinochia, a New Genus of Apocynaceae, Apocynoideae from the Greater Antilles, Mexico and Central America

M. E. Endress & B. F. Hansen

Pinochia, a new neotropical genus of Apocynaceae, subfamily Apocynoideae, is segregated from Forsteronia, described and illustrated. Four new combinations and a key to the species are provided.

Keywords. Apocynaceae, Apocynoideae, Forsteronia, new combination, Pinochia.

Introduction

Among New World Apocynoideae, the genus Forsteronia G.Mey. has always been recognized by its small flowers with a very short corolla tube and exserted anthers in many-flowered inflorescences (e.g. Schumann, 1895; Woodson, 1933). The presence of colleters at the base of the leaf blade on the upper surface and domatia in the axils of the secondary veins on the lower surface were later added as important characters (Markgraf, 1968; Ezcurra, 1981; Hansen, 1985; Morillo & Carmona, 1995; Williams, 1996; Simões & Kinoshita, 2002; Morales, 2005). In a phylogenetic study, Simões et al. (2004) provided molecular and morphological evidence that for the first time strongly supported the inclusion of Forsteronia in the neotropical tribe Mesechiteae. In their study, Simões et al. showed that the sampled species of Forsteronia share the four morphological synapomorphies that characterize the tribe: (1) leaf blades with colleters at the base adaxially, (2) anthers with blunt-cordate to truncate basal appendages, (3) retinacle strongly united with the style-head via cellular fusion, and (4) style-head with five strongly protruding longitudinal ribs.

It has long been known, however, that a small cluster of Forsteronia species distributed in Mexico, Central America and the Greater Antilles differs from the others in the lack of colleters at the base of the leaf blades, in the presence of anthers with acuminate basal appendages, and in possessing an ovoid style-head (Woodson, 1933). Pichon (1950) noted additional differences from Forsteronia s.str. such as the presence of a small annulus at the base of the style-head, a larger number of ovules, and seeds without longitudinal ribs. A recent phylogenetic study of Apocynoideae (Livshultz et al., 2007) sampled for the first time Forsteronia subgenus Pinochia,
described in an unpublished PhD thesis by the second author (Hansen, 1985), and suggested that it is not congeneric with *Forsteronia* subgenus *Forsteronia*. Rather, the sampled species, *Forsteronia corymbosa*, is strongly supported as sister to *Thyrsanthella* Pichon, a monotypic genus of the southeastern United States, which was included in the otherwise Asian genus *Trachelospermum* by Woodson (1935). Considering only Livshultz et al.’s (2007) phylogenetic results, *Forsteronia* subgenus *Pinochia* could be included in *Thyrsanthella*. However, the two taxa differ considerably in their gross morphology, as was already noted by Pichon (1948). In *Forsteronia* subgenus *Pinochia*, the leaves usually have domatia in the axils of the secondary veins on the lower surface, the flowers are rotate with a corolla tube only 3 mm long or less, the anthers have slender filaments and are exserted from the corolla, and the ovary is pubescent (versus leaves without domatia, flowers with a salverform corolla tube 5.5–6 mm long, anthers sessile and included in the corolla tube, and ovary glabrous in *Thyrsanthella*).

Here we follow through with the taxonomic consequences of the accumulated data that indicate that *Forsteronia* as currently delimited is not monophyletic, by placing the four aberrant species in the new genus *Pinochia*. The name of the genus is an anagram of the name Pichon, in honour of Marcel Pichon (1921–1954), the prolific and insightful monographer of *Apocynaceae*, who was the first to notice the critical differences in morphological characteristics that distinguish *Pinochia* from *Forsteronia*. Based on its affinity to *Thyrsanthella* (Livshultz et al., 2007), we believe that *Pinochia* belongs in the tribe *Odontadenieae*, following the latest classification of the family (Endress et al., 2007).

**Pinochia** M.E.Endress & B.F.Hansen, gen. nov.


High climbing, woody lianas with white latex. *Leaves* opposite; with both a row of caducous interpetiolar colleters and clusters of persistent intrapetiolar colleters, petiolate; petioles canaliculate; blades membranaceous to coriaceous, elliptic to narrowly elliptic or ovate or obovate, lanceolate or oblanceolate, glabrous except for the often pubescent or ciliate domatia (when present) on the lower surface in the axils of the secondary veins. *Inflorescence* terminal, subcorymbose, 20–60-flowered; bracts scarious, lanceolate. *Flowers* 5-merous, actinomorphic, up to 3 × 3 mm; pedicels 1.5–5 mm. *Sepals* free; calycine colleters at the sepal margins, 1–4 per sepal. *Corolla* rotate to sub-rotate; tube cylindrical to obconical, 1.5–2 mm long; lobes spreading
and reflex-curled, 3–5 × 2 mm, oblong to lanceolate, dextrorsely convolute; stamens inserted near the base of the corolla tube, the filaments connate around the style; anthers adnate to the style-head, exserted, the apices acuminate and hyaline, the bases sagittate, fertile in the upper third, lower parts enlarged and lignified dorsally and laterally. Disc composed of five fleshy lobes that are about the same height as the ovary. Ovary superior, bicarpellate, apocarpous, puberulent to pubescent above the disc; ovules 20–40 per carpel; placentation marginal; style short, filiform; style-head ovate, with an annulus around the base. Fruit apocarpous, composed of two elongate, narrowly cylindrical follicles, dehiscent along the ventral suture. Seeds cymbiform, elongate to linear, puberulent to sericeous or strigose, with a single, broad ventral groove, and with a yellowish brown coma at the micropylar end.

Key to the species of Pinochia

1a. Secondary veins arcuate _______________________________ 2
1b. Secondary veins straight _______________________________ 3

2a. Corolla red; plants of Cuba, Hispaniola and Puerto Rico ___ 1. P. corymbosa
2b. Corolla white to yellowish; plants of Mexico, northern Guatemala and Belize _______________________________ 2. P. peninsularis

3a. Calyx lobes acute to acuminate; plants of southern Guatemala and Costa Rica _______________________________ 3. P. monteverdensis
3b. Calyx lobes obtuse to rounded; plants endemic to Jamaica __________

_________ 4. P. floribunda

1. Pinochia corymbosa (Jacq.) M.E.Endress & B.F.Hansen, comb. nov.


Periploca umbellata Aubl., Hist. Pl. Guiane 1: 273 (1775). – Type: Illustration in Plumier mss. 2: pl. 81 (holo P n.v.), possibly from Dominican Republic, without locality. This name was placed in synonymy by Urban (1920: 142), who identified Plumier’s original plates.

Thyrsanthus pyriformis Miers, Apocyn. S. Amer. 100 (1878). – Type: Cuba, without locality, Sagra 141 (holo BM; iso GOET, P, UC).

Taxonomic remarks. In his account of the American Apocynoideae, Woodson (1935) described Forsteronia portoricensis as a species closely related to F. corymbosa, but differing in its slightly longer and more slender, acuminate, reflexed-divaricate follicles and glabrous corolla lobes (versus relatively stout, blunt, sharply divaricate follicles and minutely and irregularly papillate corolla lobes in F. corymbosa).
Additional collections since Woodson’s revision of the genus did not show a marked difference in the orientation or shape of the apex of the follicles between the two species. Thus, the Puerto Rican material differs from other Antillean *Pinochia corymbosa* only by its glabrous corolla lobes and tendency towards longer follicles. We consider the bright red flower colour that characterizes both taxa and distinguishes them immediately from other species of the genus, in which flower colour ranges from white to greenish white to yellow, to be a more meaningful character than slight differences in follicle length or pubescence of corolla lobes. We therefore here treat the Puerto Rican taxon as a subspecies of *P. corymbosa*. The recognition of this relatively weak taxon at subspecific rank reflects our opinion that incipient speciation via isolation is taking place here rather than a mere representation of genetic variability expressed as populations with particular morphologies.

**Key to the subspecies of *P. corymbosa***

<table>
<thead>
<tr>
<th>Option</th>
<th>Subspecies</th>
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<tbody>
<tr>
<td>Corolla lobes minutely papillate-puberulent; follicles mostly 8.5–14 cm long</td>
<td>1A. <em>P. corymbosa</em></td>
</tr>
<tr>
<td>Corolla lobes glabrous; follicles mostly 14–20 cm long</td>
<td>1B. <em>P. portoricensis</em></td>
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</table>

1A. *P. corymbosa* subsp. *corymbosa*


*Fig. 1.*


*Echites floribundus* Sw., Prodr. 52 (1788), as ‘floribunda’. – *Forsteronia floribunda* (Sw.) A.DC., Prodr. 8: 437 (1844). – *Parsonia floribunda* (Sw.) R.Br. ex Roem. &


**Fig. 1.** *Pinochia monteverdensis* (J.F.Morales) M.E.Endress & B.F.Hansen. A, flowering branch; B, flower; C, flower, opened to show relationships of organs. All from Haber 127 (MO).
designated here; iso B (destroyed), GOET, K n.v., NY; photo of K isotype, USF). Lectotype chosen against Grisebach’s syntype: *Purdie* s.n. (K?).

**Acknowledgements**

We thank Alex Bernhard for his expertise in transforming the drawing into a digital figure.

**References**


Received 20 April 2007; accepted for publication 27 April 2007