
New Combinations in *Mandevilla* Lindley (Apocynaceae)

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ABSTRACT. Historically, taxonomic delimitation of *Mandevilla* Lindley, a large Neotropical genus of Apocynaceae, has been controversial. Two competing classifications were proposed by Woodson (1933) and Pichon (1948), the former now being widely accepted by taxonomists in the family. Recent phylogenetic studies, however, support the monophyly of *Mandevilla* sensu Pichon rather than sensu Woodson, the latter being paraphyletic with respect to *Quiotania* Zarucchi, *Macrosiphonia* Müller Argoviensis, and *Telosiphonia* (Woodson) Henrickson. Based on the principle of monophyly, we here re-establish Pichon's classification and include *Quiotania*, *Macrosiphonia*, and *Telosiphonia* as synonyms of *Mandevilla*. Three new combinations are made here: *Mandevilla hesperia* (I. M. Johnston) A. O. Simões, L. S. Kinoshita-Gouvêa & M. E. Endress, *M. nacalpulensis* (Felger & Henrickson) A. O. Simões, L. S. Kinoshita-Gouvêa & M. E. Endress, and *M. undulata* (C. Ezcurra) A. O. Simões, L. S. Kinoshita-Gouvêa & M. E. Endress; *Q. colombiana* Zarucchi is newly synonymized with *M. ligustriflora* Woodson; and a lectotype is designated for *M. martii* (Müller Argoviensis) Pichon.

Key words: Apocynaceae, *Macrosiphonia*, *Mandevilla*, *Quiotania*, *Telosiphonia*.

Mandevilla Lindley is the largest genus of Mesechiteae (Apocynaceae, Apocynoideae), with about 140 to 150 species distributed throughout the Neotropics (Woodson, 1933; Sales et al., 2006; Simões et al., 2006). Historically, *Mandevilla* has been one of the most challenging genera for taxonomists working on Neotropical Apocynaceae, not only in terms of its circumscription, but also in determining its relationships with other genera of the tribe.

Woodson defined the currently accepted circumscription of *Mandevilla* in 1933, broadening its limits by including several other genera in its synonymy (e.g., *Laseguea* A. DC. and *Dipladenia* A. DC. (de Candolle, 1844), *Amblyanthera* Müller Argoviensis

and *Heterothrix* Müller Argoviensis (Müller Argoviensis, 1860), and *Eriadenia* Miers, *Micradenia* Miers, *Homaladenia* Miers, and *Angadenia* Miers, p.p. (Miers, 1878)). Woodson recognized the close affinities of *Mandevilla* and *Macrosiphonia* Müller Argoviensis, but maintained the generic status of the latter due to differences in habit, flowering time, and style-head structure. Woodson also proposed a subgeneric classification for *Macrosiphonia*, including the North American species in subgenus *Telosiphonia* Woodson and the South American species in subgenus *Macrosiphonia* Woodson.

Pichon proposed a revised classification of *Mandevilla* in 1948. He broadened the circumscription of the genus by including *Macrosiphonia* in its synonymy, arguing that the distinguishing characters used by Woodson (1933) for the generic recognition of *Macrosiphonia* were inconsistent and arbitrary. He also placed Woodson's subgenera *Macrosiphonia* and *Telosiphonia* in two distinct sections, *Megasiphon* Pichon and *Telosiphonia* Pichon, respectively, and did not consider them as each other's closest relative. Pichon's classification, however, has not caused a major impact among taxonomists of Neotropical Apocynaceae, and Woodson's circumscription of *Mandevilla* still prevails.

Since Pichon's (1948) revised classification, only a few taxonomic studies of *Mandevilla* and related genera have been published. In 1991, Zarucchi described a new monotypic genus, *Quiotania*, based on two collections from Antioquia, Colombia. He stated that it is clearly a member of Mesechiteae, and that it would key out to *Mandevilla* using Woodson's 1938 key in the *North American Flora*. In the light of having only flowering material available, the distinguishing character for *Quiotania* given by Zarucchi (1991) was its lack of a pronounced corolla tube. In 1996, Henrickson elevated Woodson's subgenus *Telosiphonia* to generic status based on characters such as inflorescence type, style head structure, and pollen size.

Recently, Simões et al. (2004) provided the first phylogenetic study of the Mesechiteae. Their results showed that *Macrosiphonia* and *Telosiphonia* are strongly supported as nested within a clade formed by species of *Mandevilla*, which largely corresponds to the circumscription of *Mandevilla* proposed by Pichon (1948), but not by Woodson (1933). These preliminary results were later confirmed in a second phylogenetic study based on a broad taxon sampling of *Mandevilla* (Simões et al., 2006). In addition, the status of *Quiotania* was evaluated, and that genus was also found to be nested within *Mandevilla*.

In the light of this strong phylogenetic evidence and following the principle of monophyly, we here propose nomenclatural changes to include *Macrosiphonia*, *Quiotania*, and *Telosiphonia* in the synonymy of *Mandevilla*. Most of the required changes were already made by Pichon (1948), and these are enumerated here. The new combinations and synonyms proposed here merely complete the process.

Mandevilla Lindley, Edwards's Bot. Reg. 26: pl. 7. 1840, nom. cons. TYPE: *Mandevilla laxa* (Ruiz & Pavón) Woodson.

Macrosiphonia Müller Argoviensis in Mart., Fl. Bras. 6(1): 137. 1860. *Macrosiphonia* subg. *Eumacrosiphonia* Woodson, Ann. Missouri Bot. Gard. 20: 784. 1933. TYPE: *Macrosiphonia relame* (A. Saint-Hilaire) Müller Argoviensis (lectotype, designated by R. E. Woodson, 1933: 778).

Quiotania Zarucchi, Novon 1: 33. 1991. Syn. nov. TYPE: *Quiotania colombiana* Zarucchi.

Telosiphonia Henrickson, Aliso 14: 179. 1995 [1996]. Syn. nov. *Macrosiphonia* subg. *Telosiphonia* Woodson, Ann. Missouri Bot. Gard. 20: 778. 1933. TYPE: *Echites hypoleucus* Benthham [= *Telosiphonia hypoleuca* (Benthham) Henrickson] (lectotype, designated by J. Henrickson, 1995 [1996]: 184).

For complete synonymy, see Woodson (1933) and Pichon (1948).

1. *Mandevilla brachysiphon* (Torrey) Pichon, Bull. Mus. Natl. Hist. Nat., sér. 2, 20: 106. 1948. Basionym: *Echites brachysiphon* Torrey, Rep. U.S. Mex. Bound., Bot. 2(1): 153. 1859. *Macrosiphonia brachysiphon* (Torrey) A. Gray, Syn. Fl. N. Amer. 2(1): 83. 1878. TYPE: U.S.A. Arizona: 1851, *C. Wright 1655* (holotype, BM not seen; isotypes, MO, US).

Telosiphonia brachysiphon (Torrey) Henrickson, Aliso 14: 187. 1995 [1996]. TYPE: Mexico, Sonora: gravelly hillside, San Bernardino, Aug. 1852, *G. Thurber 761* (lectotype, designated by J. Henrickson (1995 [1996]: 186), NY; isotype, GH not seen).

2. *Mandevilla hesperia* (I. M. Johnston) A. O. Simões, L. S. Kinoshita-Gouvêa & M. E. Endress, comb. nov. Basionym: *Macrosiphonia hesperia* I. M. Johnston, Proc. Calif. Acad. Sci., ser. 4, 12: 1125. 1924. *Telosiphonia hesperia* (I. M. Johnston) Henrickson, Aliso 14: 191. 1995 [1996]. TYPE: Mexico, Baja California Sur: cliffs back of Puerto Ballandra, Carmen Island, Gulf of California, 21 May 1921, *I. M. Johnston 3807* (holotype, CAS not seen; isotypes, US, US photo MO).

3. *Mandevilla hypoleuca* (Benthham) Pichon, Bull. Mus. Natl. Hist. Nat., sér. 2, 20: 106. 1948. Basionym: *Echites hypoleucus* Benthham, Pl. Hartw. 23. 1839. *Macrosiphonia hypoleuca* (Benthham) Müller Argoviensis, Linnaea 30: 452. 1860. *Rhodocalyx hypoleucus* (Benthham) Miers, Apocyn. S. Am. 140. 1878. *Telosiphonia hypoleuca* (Benthham) Henrickson, Aliso 14: 185. 1995 [1996]. TYPE: Mexico, [Aguas Calientes: Rosa de San Juan dictus, in petrosis Aguas Calientes, 1837–1838, fide McVaugh, 1970], *K. T. Hartweg 193* (holotype, P; isotypes, GH not seen, NY, W not seen, W photo MO not seen).

4. *Mandevilla lanuginosa* (M. Martens & Galeotti) Pichon, Bull. Mus. Natl. Hist. Nat., sér. 2, 20: 106. 1948. Basionym: *Echites lanuginosus* M. Martens & Galeotti, Bull. Acad. Sci. Roy. Bruxelles 11(1): 357. 1844. *Rhodocalyx lanuginosus* (M. Martens & Galeotti) Miers, Apocyn. S. Am. 139. 1878. *Macrosiphonia lanuginosa* (M. Martens & Galeotti) Hemsley, Biol. Cent.-Amer., Bot. 2(10): 316. 1881. *Telosiphonia lanuginosa* (M. Martens & Galeotti) Henrickson, Aliso 14: 189. 1995 [1996]. TYPE: Mexico, Hidalgo: "crôit sur les versants calcaires et schisteux du gran ravin de Mexitlan au NNE de México," 6000 ft., "18 Sep.," *H. Galeotti 1594* (type, BR).

5. *Mandevilla ligustriflora* Woodson, Ann. Missouri Bot. Gard. 37: 404. 1950. *Quiotania ligustriflora* (Woodson) J. F. Morales, nom. ined. TYPE: Ecuador, Zamora-Huaico: ca. 6 km SE of Loja, alt. 2300–2400 m, 3 July 1947, *R. Espinosa 1547* (holotype, MO).

Quiotania colombiana Zarucchi, Novon 1: 33. f. 1. 1991. Syn. nov. TYPE: Colombia, Antioquia: Mpio. de La Unión, Km 33 of road Sonsón–La Unión (23 km from La Unión), 5°52'N, 75°08'W, alt. 2330 m, 8 Dec. 1986 (fl), *J. L. Zarucchi & N. Bedoya 4510* (holotype, HUA-33422 not seen; isotypes, COL not seen, K not seen, MO, US).

During preparation of the Apocynaceae treatment for the *Flora of Ecuador*, the second author received two specimens of an undetermined species of *Mandevilla*. After detailed examination, these speci-

mens were identified as *M. ligustriflora*, a species described by Woodson in 1950 and known only from the type collection. In Simões et al. (2004), *M. ligustriflora* was clearly nested in *Mandevilla*, and with the increased taxon sampling in a second phylogenetic study (Simões et al., 2006) this relationship was also strongly supported. At the same time, however, a strong morphological similarity to the single species of *Quiotania*, *Q. colombiana*, was noticed. Both species are vines with unbranched, pseudo-umbellate inflorescences bearing white to pale yellow flowers that lack a pronounced corolla tube. By comparing our specimens with photocopies of the type collection kindly provided by J. Zarucchi and the original descriptions of both *Q. colombiana* and *M. ligustriflora*, we determined that they are conspecific. We found no significant morphological differences between the two taxa, even in the length of the corolla tube (2.5–3 mm in *Q. colombiana* and 3–5 mm long in *M. ligustriflora*), which was the main character used by Zarucchi (1991) to distinguish *Quiotania* from *Mandevilla*. Therefore, we feel confident in adding *Quiotania* to the synonymy of *Mandevilla*.

6. *Mandevilla longiflora* (Desfontaines) Pichon, Bull. Mus. Natl. Hist. Nat., sér. 2, 20: 107. 1948. Basionym: *Echites longiflorus* Desfontaines, Mém. Mus. Natl. Hist. 5: 276. 1819. *Macrosiphonia longiflora* (Desfontaines) Müller Argoviensis in Mart., Fl. Bras. 6(1): 140. 1860. TYPE: Brazil. "San Borja dans la province de Missionum," A. de Saint Hilaire 2681 (holotype, P; isotype, US).

7. *Mandevilla macrosiphon* (Torrey) Pichon, Bull. Mus. Natl. Hist. Nat., sér. 2, 20: 106. 1948. Basionym: *Echites macrosiphon* Torrey, Rep. U.S. Mex. Bound., Bot. 2(1): 158. 1859. *Telosiphonia macrosiphon* (Torrey) Henrickson, Aliso 14: 187. 1995 [1996]. TYPE: U.S.A. New Mexico: without locality, 1851–1852, C. Wright 1664 (lectotype, designated by J. Henrickson (1995 [1996]: 187), NY; isotypes, GH not seen, US).

8. *Mandevilla martii* (Müller Argoviensis) Pichon, Bull. Mus. Natl. Hist. Nat., sér. 2, 20: 107. 1948. Basionym: *Macrosiphonia martii* Müller Argoviensis in Mart., Fl. Bras. 6(1): 138. 1860. TYPE: Brazil. "In prov. Goyanensi," 1842, G. Gardner 3312 (lectotype, designated here, NY; isotypes, P, SP, W, W photo F).

Echites virescens was originally published in 1824 by Saint-Hilaire based on a single collection (*Saint-Hilaire s.n.*, deposited at P). Stadelmeier (1841) broadened the circumscription of *E. virescens* by adding a second collection (*Martius s.n.*, deposited at

M) on its limits. In his treatment for the *Flora Brasiliensis*, Müller Argoviensis (1860) considered these two collections as representing distinct species from a new genus, *Macrosiphonia*. *Saint-Hilaire s.n.* was designated by him as the type specimen of *M. virescens*, and *Martius s.n.* was included in the protologue of *M. martii*, together with two other collections (Gardner 3312 and Pohl 970). Müller Argoviensis (1860), however, did not designate a holotype for *M. martii*, making it necessary to choose a lectotype from the three collections selected by him. We feel confident to designate Gardner 3312 as the lectotype of *M. martii*, because this collection is a representative element of the taxon and duplicates are deposited in four herbaria.

9. *Mandevilla nacapulensis* (Felger & Henrickson) A. O. Simões, L. S. Kinoshita-Gouvêa & M. E. Endress, comb. nov. Basionym: *Telosiphonia nacapulensis* Felger & Henrickson, Aliso 14(3): 194, f. 4E–J, 5. 1995 [1996]. TYPE: Mexico. Sonora: Cañón nacapules, ca. 4 km N of Bahía San Carlos, 11 Aug. 1985, R. S. Felger & M. A. Dimmitt 85-830 (holotype, ARIZ not seen; isotypes, GH not seen, MEXU not seen, NY, TEX).

10. *Mandevilla petraea* (A. Saint-Hilaire) Pichon, Bull. Mus. Natl. Hist. Nat., sér. 2, 20: 107. 1948. Basionym: *Echites petraea* A. Saint-Hilaire, Mém. Mus. Natl. Hist. 12: 322. 1825. *Macrosiphonia petraea* (A. Saint-Hilaire) K. Schumann in Engler & Prantl, Nat. Pflanzenfam. 4(2): 168. 1895. *Macrosiphonia verticillata* (A. Saint-Hilaire) Müller Argoviensis in Mart., Fl. Bras. 6(1): 140. 1860. *Macrosiphonia verticillata* var. *petraea* (A. Saint-Hilaire) Müller Argoviensis in Mart., Fl. Bras. 6(1): 141. 1860. TYPE: Brazil. Rio Grande do Sul: "au milieu des rochers près l'Arroio del Rosario," 1816–1821, A. de Saint Hilaire 2338 (holotype, P; isotype, P photo F not seen).

For complete synonymy, see Woodson (1933).

11. *Mandevilla undulata* (C. Ezcurra) A. O. Simões, L. S. Kinoshita-Gouvêa & M. E. Endress, comb. nov. Basionym: *Macrosiphonia undulata* C. Ezcurra, Hickenia 1(45): 243, f. 2. 1981. TYPE: Argentina. Misiones: Departamento Candelaria, Loreto, Jan. 1957, R. Martínez Crovetto 8603 (holotype, BAB not seen; isotype, SI).

12. *Mandevilla velame* (A. Saint-Hilaire) Pichon, Bull. Mus. Natl. Hist. Nat., sér. 2, 20: 107. 1948. Basionym: *Echites velame* A. Saint-Hilaire, Bull. Sci. Soc. Philom. Paris 77. 1824. *Macrosiphonia*

velame (A. Saint-Hilaire) Müller Argoviensis in Mart., Fl. Bras. 6(1): 138. 1860. TYPE: Brazil, sine loc., 1816–1821, *A. de Saint-Hilaire s.n.* (type, P).

- 13. *Mandevilla virescens*** (A. Saint-Hilaire) Pichon, Bull. Mus. Natl. Hist. Nat., sér. 2: 107. 1948. Basionym: *Echites virescens* A. Saint-Hilaire, Bull. Sci. Soc. Philom. Paris 77. 1824. *Macrosiphonia virescens* (A. Saint-Hilaire) Müller Argoviensis in Mart., Fl. Bras. 6(1): 139. 1860. TYPE: Brazil. "Province de Saint-Paul, Fortaleza," 1816–1821, *A. de Saint Hilaire s.n.* (holotype, P; isotype, P photo F not seen).

Acknowledgments. We thank James L. Zarucchi for sending the photocopies of the type collection of *Quiotania colombiana*; Steffen Matezki for sending specimens of *Mandevilla ligustriflora*; and Tom Van Devender, Ana Lilia Reina G., Alberto Burquez, and Phil Jenkins for sending specimens of *Telosiphonia*. We also thank Victoria Hollowell and one anonymous reviewer for helpful comments. This study was partially supported by grants to the first author from CAPES ("Coordenação e Aperfeiçoamento de Pessoal de Nível Superior," Brazil), FAPESP ("Fundação de Amparo à Pesquisa do Estado de São Paulo," Brazil), and the "Stipendien für Doktorierende aus Entwicklungsländern" from the Ressort Internationale Beziehungen of the University of Zürich, Switzerland.

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Kinoshita-Gouvêa, Luíza Sumiko, Endress, Mary E., and Simões, André Olmos. 2007. "New combinations in *Mandevilla* Lindley (Apocynaceae)." *Novon a journal of botanical nomenclature from the Missouri Botanical Garden* 17, 87–90. [https://doi.org/10.3417/1055-3177\(2007\)17\[87:NCIMLA\]2.0.CO;2](https://doi.org/10.3417/1055-3177(2007)17[87:NCIMLA]2.0.CO;2).

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