

Short note

Lectotypifications in *Meliosma* (Sabiaceae)

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Abstract. As part of the treatment of *Meliosma* (Sabiaceae) for *Flora Mesoamericana*, four lectotypes are selected for *Lorenzanea dentata* var. *minor* Liebm., *L. ira* Liebm., *L. grandifolia* Liebm., and *L. vernicosa* Liebm., and four second-step lectotypifications are performed for *Lorenzanea dentata* Liebm., *L. glabrata* Liebm., *Meliosma donnellsmithii* Urb., and *M. tonduzii* Donn.Sm.

Resumen. Como parte del tratamiento de *Meliosma* (Sabiaceae) para *Flora Mesoamericana*, se seleccionan cuatro lectótipos para *Lorenzanea dentata* var. *Minor* Liebm., *L. ira* Liebm., *L. grandifolia* Liebm. y *L. vernicosa* Liebm., y se llevan a cabo cuatro lectotipificaciones de segundo paso para *Lorenzanea dentata* Liebm., *L. glabrata* Liebm., *Meliosma donnellsmithii* Urb. y *M. tonduzii* Donn.Sm.

Keywords. Costa Rica, *Lorenzanea*, Flora Mesoamerica, Proteales.

Palabras clave. Costa Rica, *Lorenzanea*, Flora Mesoamerica, Proteales.

How to cite this article: Morales J.F. 2023. Lectotypifications in *Meliosma* (Sabiaceae). *Anales del Jardín Botánico de Madrid* 80: e139. <https://doi.org/10.3989/ajbm.539>

Title in Spanish: Lectotipificaciones en *Meliosma* (Sabiaceae)

Associate editor: Alejandro Quintanar. Received: 6 July 2022; accepted: 13 February 2023; published online: 20 June 2023.

Meliosma Blume (Sabiaceae Blume), as currently circumscribed, is distributed in Asia and the New World (Yang & al. 2018). The species number is not precise because there are no recent revisions for the Asian species. Ramos (2012) recognized 81 species and two varieties from the New World, whereas Morales (2013) estimated between 80 and 90 species, including around 15 species from Asia. Zúñiga (2015) reported around 80–100 species, including Asian taxa. Yang & al. (2018) reported ca. 50 taxa, which is probably an underestimated number, considering the high diversity of *Meliosma* in the New World (e.g., Morales 2003; Arbeláez 2004; Morales 2009; Ramos & Cornejo 2012). Morales (2013) accepted 30 species from Mexico and Central America, but *M. alba* (Schltdl.) Walp. is currently treated as *Kingsboroughia alba* (Schltdl.) Liebm., consistent with molecular phylogenetic data (Zúñiga 2015; Yang & al. 2018).

Gentry (1980) made some lectotypifications in *Meliosma*, designating as lectotypes gatherings with more than one specimen. Morales (2013) proposed a lectotype for *Lorenzanea dentata*, but omitted the specimen herbarium number. Following the Art. 9.17 of the Shenzhen Code (Turland & al. 2018), several second-step lectotypifica-

tions are here performed. Four additional lectotypifications are proposed.

All the type specimens cited were studied physically in the last 20 years as part of the treatment of the Sabiaceae for Costa Rica (Morales, 2015) and *Flora Mesoamerica*. Some specific details (barcode or accession number) were obtained from JSTOR (<https://plants.jstor.org/>) or TROPICOS (<https://tropicos.org/home>). Herbarium acronyms follow Thiers (2022+). The author's citation follow Brummit & Powell (1992) and IPNI (<https://www.ipni.org>). Lectotypifications are proposed in accordance with the International Code of Nomenclature for algae, fungi, and plants (Turland & al. 2018). Journals and books citations follow Lawrence & al. (1968), Bridson (1991, 2004), and Stafleu & Cowan (1976–1988). Specimens from the following herbaria were studied: B, BIGU, BM, BR, C, CAS, CGE, COL, CR, DUKE, EAP, F, G, GH, HUA, HUCO, HUQ, ICESI, JAUM, K, L, LAGU, M, MA, MEDEL, MEXU, MHES, MO, NY, O, P, PMA, Q, QAME, QAP, QCA, QCNE, QPLS, S, STRI, TEFH, TRIN, U, UBT, US, USF, USJ, UVAL, W, WAG, WU, WIS, Z, and VEN. More than 1,000 specimens and 35 type specimens were examined.

Meliosma dentata (Liebm.) Urban, Ber. Deutsch. Bot. Ges. 13: 212 (Urban 1895). *Lorenzanea dentata* Liebm., Vidensk. Meddel. Dansk Naturhist. Foren. Kjobenhavn 1850: 70 (Liebmann 1850). Type: Mexico, Oaxaca, volcán de Orizaba, Cuesta de la Choapa, 1841, fl., fr., C. Liebmann 1996 (lectotype, first-step, designated by Morales (2013: 24): C; lectotype, second-step, here designated: C [C10018513, photo F neg. 22054]; isolectotypes: C [C10018514, C10024343, C10024344], F [F0076107F], M [M0211728], US [03361375]).

Lorenzanea dentata Liebm. var. *minor* Liebm., Vidensk. Meddel. Dansk Naturhist. Foren. Kjobenhavn 1850: 70 (Liebmann 1850). Type: Mexico, Oaxaca, hacienda de Castresana, Jun. 1842, fl., C. Liebmann 1997 (lectotype, here designated: C [C10024339]; isolectotypes: C [C10024338]; US [03361455]).

Comments.—There are four duplicates of the type of *Lorenzanea dentata* at the herbarium of the University of Copenhagen (C). The specimen C10018513 of the gathering Liebmann 1996 is here selected as lectotype of this name because it is the most suitable specimen among the located specimens from the original material cited in the protologue. The two located specimens of the gathering Liebmann 1997 are well-preserved, with good flowers and inflorescences. The one with the barcode C10024339 is selected as the lectotype because it is the best preserved.

Meliosma donnellsmithii Urb., Bot. Gaz. 37: 214 (Smith 1904). Type: Costa Rica, Cartago, río Turrialba, 500 m, Mar. 1896. fl., J.D. Smith 6852 (lectotype, first-step, designated by Gentry (1980: 954): US; lectotype, second-step, here designated: US [US00094253]; isolectotypes: GH [GH00589327], K [K000601665], M [M0146988], MO [MO-260894], NY [NY00387437], US [US00094252]).

Comments.—Two specimens of the gathering D. Smith 6852, referred by Gentry (1980) as a lectotype of *M. donnellsmithii* Urb., are housed at the United States National Herbarium (US) and are well-preserved. The specimen US00094253 is selected as a second-step lectotype because, unlike specimen US00094252, it has a complete inflorescence.

Meliosma glabrata (Liebm.) Urb., Ber. Deutsch. Bot. Ges. 13: 212 (Urban 1895). *Lorenzanea glabrata* Liebm., Vidensk. Meddel. Dansk Naturhist. Foren. Kjobenhavn 1850: 71 (Liebmann 1850). Type: Costa Rica, Cartago, near Turrialba, May 1847, fl., C. Oersted 1999 (lectotype, first-step, designated by Gentry (1980: 956): F; lectotype, second-step, here designated: F [F0076108F]; isolectotypes: B (destroyed, photo F neg. 13373), C [C10024023, C10024024, C10024025], F).

Lorenzanea ira Liebm., Vidensk. Meddel. Dansk Naturhist. Foren. Kjobenhavn 1850: 71 (Liebmann 1850). *Meliosma ira* (Liebm.) L.O. Williams, Fieldiana, Bot. 31: 261 (Williams 1967). Type: Costa Rica, Alajuela, Naranjo, May 1847, fl., C. Oersted 1999b (lectoty-

pe, here designated: C [C10024342]; isolectotypes: C [C10024340, C10024341]).

Meliosma tonduzii Donn.Sm., Bot. Gaz. 55: 432 (Smith 1913). Type: Costa Rica, Cartago, Vueltas, Tucurrique, 650 m, May 1899, fl., fr., A. Tonduz 13368 (lectotype, first-step, designated by Gentry (1980: 956): US; lectotype, second-step, here designated: US [US00094282]; isolectotypes: BM [BM001125195], M [M0146987], US [US03361473]).

Comments.—Gentry (1980: 956): made a first-step lectotypification of *Lorenzanea glabrata* Liebm. citing as the “type” the gathering Oersted 1999 kept at F. The specimen F0076108F is designated here as the lectotype because it is the best preserved. Three specimens of the gathering have been located: Oersted 1999b at C, selected by Morales (2013) as a first-step lectotype for *Lorenzanea ira* Liebm. (incorrectly cited as consisting of two sheets). The specimen C10024342 is selected here as a second-step lectotype because it is the best preserved; it also has a complete infructescence and some loose fruits. Similarly, Gentry (1980) chose the gathering Tonduz 13368, housed at US, as a lectotype (first-step) for *Meliosma tonduzii* Donn.Sm. This gathering consists of two sheets and we here narrow that designation by choosing the best preserved specimen, US00094282, as its second-step lectotype.

Meliosma grandifolia (Liebm.) Urb., Ber. Deutsch. Bot. Ges. 13: 211 (Urban 1895). *Lorenzanea grandifolia* Liebm., Vidensk. Meddel. Dansk Naturhist. Foren. Kjobenhavn 1850: 73 (Liebmann 1850). Type: Mexico, Oaxaca, Chinantla, Cuesta de Teotalcingo, Nov. 1842, st, C. Liebmann 1999c (lectotype, here designated: C [C10018516, photo F neg 22055]; isolectotypes: C [C10018517], F [F0076109F]).

Comments.—The gathering Liebmann 1999c consists of two specimens, one sterile (C10018517) and the second (C10018516) with an inflorescence without flowers or fruits. Although the specimen C10018516 lacks fertile structures, the inflorescence axis is still present, and is selected as lectotype. This sheet is available in the Field Museum type photograph collection.

Meliosma vernicosa (Liebm.) Griseb., Cat. Pl. Cub. 47 (Grisebach 1866). *Lorenzanea vernicosa* Liebm., Vidensk. Meddel. Dansk Naturhist. Foren. Kjobenhavn 1850: 72 (Liebmann 1850). Type: Costa Rica, Alajuela, Naranjo, May s.d., fl., C. Oersted s.n. [1999 d] (lectotype, here designated: C [C10024026]; isolectotypes: B [destroyed, photo F neg 13379], C [C10024027, C10024029]).

Comments.—The specimen C10024026 of the gathering Oersted s.n. [1999 d] is here selected as the lectotype of *Lorenzanea vernicosa* Liebm. because it is the best preserved specimen. Specimen C10024027 has immature leaves, while C10024028 has inflorescences only.

ACKNOWLEDGEMENTS

This study was partially supported by the National Herbarium of Trinidad and Tobago (TRIN), University of the West Indies and the Missouri Botanical Garden (MO). The following herbaria allowed the study of their collections: B, BIGU, BM, BR, C, CAS, CGE, COL, CR, DUKE, EAP, F, G, GH, HUA, HUCO, HUQ, ICESI, JAUM, K, L, LAGU, M, MA, MEDEL, MEXU, MHES, MO, NY, O, P, PMA, Q, QAME, QAP, QCA, QCNE, QPLS, S, STRI, TEFH, TRIN, U, UBT, US, USF, USJ, UVAL, W, WAG, WU, WIS, Z, and VEN. Michael Grayum (MO) clarified specific questions about the International Code of Nomenclature. I thank Olof Ryding (C) for providing barcodes of specific specimens at C.

REFERENCES

- Arbeláez A.L. 2004. Two new species of *Meliosma* (Sabiaceae) from Bolivia. *Novon* 14: 12–16.
- Bridson G.D.R. (ed.) 1991. B-P-H/S: *Botanico-Periodicum-Huntianum/Supplementum*. Hunt Institute for botanical documentation, Pittsburg.
- Bridson G.D.R. (ed.) 2004. BPH-2: *Periodicals with Botanical Content*. Vols. 1–2. Hunt Institute for botanical documentation, Pittsburg.
- Brummitt, R.K., & Powell, C.E. 1992. *Authors of Plant Names*. Kew: Royal Botanic Gardens.
- Gentry A.H. 1980 [1981]. Flora of Panama, Part VI. Family 109. Sabiaceae. *Annals of the Missouri Botanical Garden* 67: 949–963.
- Grisebach A.H.R. 1866. *Catalogus Plantarum Cubensium exhibens collectionem Wrightianam aliasque minores ex insula Cuba missas*. Leipzig, G. Engelmann.
- Lawrence G.H.M., Günther Buchheim A.F., Daniels G.S. & Dolezal H. (eds.) 1968. *B-P-H: Botanico-Periodicum-Huntianum*. Hunt Institute for botanical documentation, Pittsburg.
- Liebmann F.M. 1850. Bidrag til Meliosmeernes Familie. *Videnskabelige Meddelelser fra Dansk Naturhistorisk Forening i Kjøbenhavn* 1850: 65–73.
- Morales J.F. 2003. Sinopsis del género *Meliosma* (Sabiaceae) en Costa Rica y Panamá, con tres nuevas especies. *Sida* 20: 931–943.
- Morales J.F. 2009. Una nueva especie y novedades nomenclaturales en el género *Meliosma* (Sabiaceae). *Journal of the Botanical Research Institute of Texas* 3: 535–540.
- Morales J.F. 2013. Sinopsis del género *Meliosma* (Sabiaceae) en México y Centroamérica. *Phytoneuron* 2013-82: 1–86.
- Morales J.F. 2015. Sabiaceae. In Hammel B.E., Grayum M.H., Herrera C. & Zamora N. (eds.). *Manual de Plantas de Costa Rica*. Vol. VIII. *Monographs in Systematic Botany from the Missouri Botanical Garden* 131: 1–10.
- Ramos E. 2012. Revisão taxonômica de Sabiaceae Blume para o Neotrópico. Ph.D. dissertation, Universidade Estadual Paulista, São Paulo.
- Ramos E. & Cornejo X. 2012. Three new taxa of *Meliosma* (Sabiaceae) Neotropical Sabiaceae: Three New Species and a new variety of *Meliosma*. *Harvard Papers in Botany* 17: 283–293.
- Smith J.D. 1904. Undescribed plants from Guatemala and other Central American Republics XXV. *Botanical Gazette* 37: 208–214.
- Smith J.D. 1913. Undescribed plants from Guatemala and other Central American Republics XXXVI. *Botanical Gazette* 55: 431–438.
- Stafleu R.A. & Cowan R.S. 1976–1988. *Taxonomic Literature: A Selective Guide to Botanical Publications and Collections with Dates, Commentaries and Types* ed. 2. Vols. 94, 98, 105, 110, 112, 115–116. Utrecht, Amberes, La Haya and Boston.
- Thiers B. 2022 [continuously updated]. Index Herbariorum: A global directory of public herbaria and associated staff. New York Botanical Garden's Virtual Herbarium. Website: <http://sweetgum.nybg.org/ih/> [accessed:1 June 2022]
- Turland N.J., Wiersema J.H., Barrie F.R., Greuter W., Hawksworth D.L., Herendeen P. S., Knapp S., Kusber W.-H., Li D.-Z., Marhold K., May T.W., McNeill J., Monro A.M., Prado J., Price M.J. & Smith G.F. (eds.) 2018. International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code) adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017. [Regnum Vegetabile 159.] Koeltz Botanical Books, Glashütten. <https://doi.org/10.12705/Code.2018>
- Urban I. 1895. Über die Sabiaceengattung *Meliosma*. *Berichte der Deutschen Botanischen Gesellschaft* 13: 211–222.
- Williams L.O. 1967. Tropical American Plants, VIII. *Fieldiana, Botany* 31: 249–269.
- Yang T., Lu L.-M., Wang W., Li J.-H., Manchester S.T., Wen J. & Chen Z.-D. 2018. Boreotropical range expansion and long-distance dispersal explain two amphi-Pacific tropical disjunctions in Sabiaceae. *Molecular Phylogenetics and Evolution* 124: 181–191.
- Zimmermann G. & Morales J.F. 2001. Sabiaceae. In, Weber A., Huber W., Weissenhofer A, Zamora N. & G. Zimmermann (eds.) An introductory Field Guide to the Flowering plants of the Golfo Dulce Rain Forest, Costa Rica. *Stapfia* 78: 397–398.
- Zúñiga J.D. 2015. Phylogenetics of Sabiaceae with Emphasis on *Meliosma* Based on Nuclear and Chloroplast Data. *Systematic Botany* 40:761–775.