
Emmotum harleyi, a New Species from Bahia, Brazil, and Lectotypification of Other Icacinaceae

Rodrigo Duno de Stefano and Diego F. Angulo

Herbarium CICY, Centro de Investigación Científica de Yucatán A.C., Calle 43, No. 130, Col. Chuburná de Hidalgo, 97200 Mérida, Yucatán, México. roduno@cicy.mx; dangulo@cicy.mx

Fred W. Stauffer

Conservatoire et Jardin botaniques de la Ville de Genève, Case postale 60, CH-1292 Chambésy/Genève, Switzerland. fred.Stauffer@ville-ge.ch

ABSTRACT. *Emmotum harleyi* R. Duno (Icacinaceae), a new species of *Emmotum* Desvaux, is described, illustrated, and compared with *E. nitens* (Benth.) Miers. This new species from Bahia, Brazil, is distinguished by leaves densely tomentose abaxially with large and crisped hairs, secondary nerves 9 to 11, and ovary glabrous. Furthermore, lectotypes for *E. nitens* (Benth.) Miers and *Mappia racemosa* Jacquin var. *brachycarpa* Grisebach are designated.

Key words: Bahia, Brazil, *Emmotum*, Icacinaceae, IUCN Red List, lectotype, *Mappia*.

Emmotum Desvaux is a small genus in the Icacinaceae with 11 recognized species, including seven in Brazil. The genus occurs in Colombia, Venezuela, Guyana, Suriname, French Guiana, Peru, Brazil, and Bolivia. Four regional taxonomic revisions of the genus have been published (Engler, 1897; Carvalho et al., 1973; De Roon, 1994; Howard & Duno de Stefano, 1999), and only one complete monograph was published, more than 60 years ago (Howard, 1942b). One of the most common species, *E. nitens* (Benth.) Miers, grows in cerrado vegetation across the Central Brazilian Plateau and the Mato Grosso Plateau, extending from Brazil into Bolivia and reaching the Amazonian basin in the north. *Emmotum nitens* is characterized by petals with a continuous band of hairs along the midvein on the inner surface, stamens with the connective broadly ovate and slightly prolonged at the apex, and a short style. When studying herbarium specimens referred to *E. nitens* (AAU, B, BM, F, G, GH, INPA, K, M, MO, NY, P, SPF, and US), a distinct set of populations was detected that differ in morphology and ecological features and therefore require taxonomic recognition.

Emmotum harleyi R. Duno, sp. nov. TYPE: Brazil.

Bahia: 19.5 km SE of Morro do Chapéu on BA052 rd. to Mundo Novo, by Rio Ferro Doido,

ca. 900 m, ca. 11°38'S, 41°02'W, 2 Mar. 1977 (fl), R. M. Harley, S. J. Mayo, R. M. Storr, T. S. Santos & R. S. Pinheiro 19248 (holotype, K; isotypes, K, NY). Figure 1.

Species haec *Emmoto nitenti* (Benth.) Miers similis sed foliis subtus dense tomentosis, pilis longioribus, erectis, crispatis non adpressis rectis, ovarii glabris non hirsutis recedit.

Shrub to small tree up to 5 m high; young branches tomentose, persistent, trichomes of icacinaceous hairs, simple, articulate at base. *Leaves* coriaceous, sharply bicolored, dark green and shiny adaxially, yellow or golden abaxially; petioles 1.3–1.5 cm, sulcate, tomentose; blade elliptic or widely elliptic, rarely ovate or narrowly ovate, 5–10 × 3–4.5 cm; apex acute, rarely acuminate, attenuate, shortly acuminate or emarginate; margin entire, slightly revolute; base rounded; nervation penninerved, camptodromous, 9 to 11 pairs of secondary nerves, alternate, well developed but hidden by a dense indument; adaxially glabrous; abaxially densely tomentose with crisped hairs ca. 0.2 mm. *Inflorescences* to 4 cm, axillary, paniculate, 1- to 4-floriferous branches per axil, all parts densely tomentose; peduncle short, to 2 cm, tomentose; bracts narrowly triangular, 3 mm, tomentose outside, glabrous inner surface; bracteoles 1 or 2, narrowly triangular, 1 × 0.1 mm, tomentose outside, glabrous inner surface. *Flowers* 5-merous, articulate at base, slightly fragrant; calyx campanulate, slightly fleshy, lobes triangular, 1 mm long, tomentose outside, glabrous inner surface; corolla with white petals, slightly retrorse or erect at anthesis, slightly fleshy, ovate or narrowly ovate, 2.5–3 × 1 mm, sericeous outside, slightly bearded on the inner surface, with large, undulate hair to 0.5 mm; stamens 2.5–3 mm, filament 1.5–1.8 mm, basally dilated, glabrous; anthers 1 mm, basifixed; connective broadly ovate, slightly prolonged at the apex; pistil subglobose, 1.8–2.5 mm high, glabrous; style terminal, very short, only 0.5 mm or less; stigma diminute,

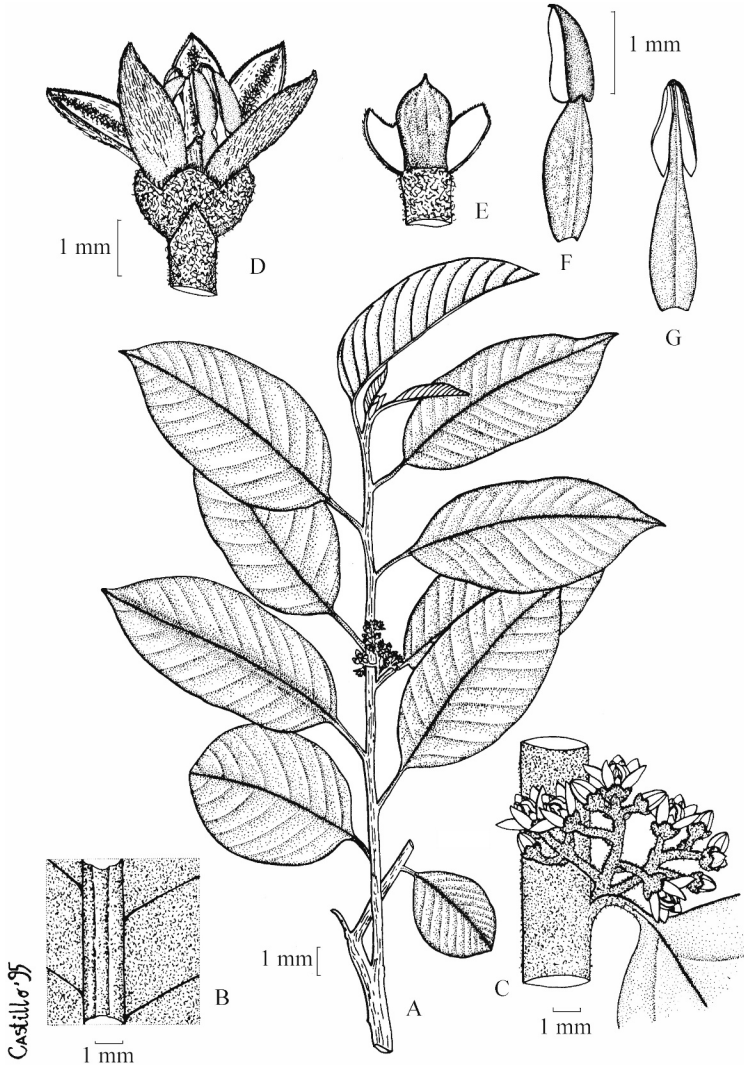


Figure 1. *Emmotum harleyi* R. Duno. —A. Habit. —B. Detail of the leaf indument (abaxial surface). —C. Detail of the inflorescence. —D. Flower. —E. Detail of the pistil. —F. Stamen, outside surface. —G. Stamen, inner surface. Drawn from the holotype, *Harley et al. 19248* (K).

capitate. *Fruit* 1 to 2(3) per infructescence, drupe, depressed-globose, 1–1.2 cm, 1–1.5 cm diam., the apex short or mucronate, 3 locules, each 1-seeded, sparingly pilose, becoming glabrate, with heavy stony endocarp, sutures not developed, but rugose or sculptured outside.

Etymology. The plant is named to honor R. M. Harley (1936–), who worked for many years and gathered many collections in the Chapada Diamantina, especially in the Mucugê area where the new species is found.

Distribution and ecology. *Emmotum harleyi* is only known from the Chapada Diamantina including

the Serra do Tombador in Bahia, Brazil. It grows mainly in campo rupestre over white crystalline sand rock, between 800 and 1200(–1450) m and, more rarely, on mata ciliar at 500 m. The plants flower from September to July, with fruits from September to June.

IUCN Red List category. The information about the population status of this species is far from complete to produce a precise conservation evaluation, but some general information can be gathered from the specimen's label. *Emmotum harleyi* occurs along discontinuous extensions in an area of ca. 100,000 km². There are numerous botanical collections, including some made inside protected areas of Bahia such as Parque Municipal de Mucugê, P. M.

Natural Pico das Almas, Parque Nacional da Chapada Diamantina, and Santuário Ecológico do Largo do Queiroz, among others. Despite the cerrado and campo rupestre being two of the most threatened ecosystems in northeastern Brazil, the population of this species seems to be large enough to be excluded from any category of protection according to IUCN criteria (IUCN, 2001).

Vernacular name. Aderno (Melo *et al.* 1636).

Relationships. The proposed new taxon is similar to *Emmotum nitens*, but the abaxial surface of the leaves has long, erect, and crisped hairs, instead of short, appressed, straight hairs. The flowers have the inner surface of the petals with a continuous band of hairs along the midvein instead of two tufts of hairs at the base and the apex; the ovary is glabrous and not hirsute. The new species occupies a different habitat and a different geographical area of distribution. *Emmotum harleyi* occurs at the eastern edge of the distribution of *E. nitens*, in Chapada Diamantina, Bahia, where it grows in campo rupestre vegetation over white crystalline sand rock, between 900 and 1400 m. In contrast, *E. nitens* is found between 300 and 900 m in cerrado vegetation on clay soils in the states of Bahia, Distrito Federal, Goiás, Minas Gerais, and Pernambuco in Brazil and the departments of Beni, La Paz, and Santa Cruz in Bolivia. Another related species, *E. orbiculatum* (Benth) Miers, occurs in the Amazon basin and is distinguished by its orbicular leaves.

Paratypes. BRAZIL. **Bahia:** Mun. Morro do Chapéu, 4 km de Morro do Chapéu, na estrada a Utinga, 26 Mar. 1996, M. L. Guedes, E. Woodgyer & B. Stannard 2570 (SPF); Mun. Mucugê, área antropizada, 31 Jan. 1997, M. L. Guedes, B. Stannard, S. Atkins, E. Saar & L. Passos 4750 (K, SPF); 4 km S of Mucugê, on rd. from Cascavel by Rio Cumbuca, 6 Feb. 1974, R. M. Harley, S. A. Renvoize, C. M. Erskine, C. A. Brighton & R. Pinheiro 16055 (K, NY); 4 km S of Mucugê, on rd. from Cascavel by Rio Cumbuca, 6 Feb. 1974, R. M. Harley, S. A. Renvoize, C. M. Erskine, C. A. Brighton & R. Pinheiro 16056 (K); betw. 2.5 and 5 km S of Vila do Rio de Contas on side rd. to W of the rd. to Livramento, 28 Mar. 1977, R. M. Harley, S. J. Mayo, R. M. Storr, T. S. Santos & R. S. Pinheiro 20136 (NY, US); Mun. Rio de Contas, 2–9 km da cidade na estrada a Arapiranga (furna) para o aeroporto, R. M. Harley, M. C. Assis & F. S. Pires 26113 (MO, NY); Mun. Rio de Contas, Pico das Almas, vertente leste, Perto da Faz. Brumadinho, 16 km ao NO da cidade, 27 Nov. 1988, R. M. Harley & N. Taylor 27010 (NY, SPF); Mun. Lençóis, Serra da Chapadinha, entre Chapadinha e Brejões, 21 Feb. 1995, E. Melo, M. Sena & M. França 1636 (SPF); Mun. Rio de Contas, Barra do Brumado, 25 July 1978, S. A. Mori, T. S. dos Santos & I. White 10310 (A, NY); Mun. de Lençóis, arredores de Lençóis, caminho para Barro Branco, 1 Nov. 1979, S. A. Mori 12940 (A, NY); Mun. de Andaraí, Nova Rodovia Andaraí/Mucugê, a 15–20 km ao S de Andaraí, 21 Dec. 1979, S. A. Mori & F. P. Benton 13119 (A, NY); Mun. de Lençóis, BR 242, Km 214, entrada na antiga estrada para Lençóis, 12 km ao N de Lençóis, 29 Feb. 1980, S. A. Mori 13320 (A, NY); Mun. de Mucujê, a 6 km ao SW de Mucugê, 04 Mar. 1980, S.

A. Mori 13410 (A, NY); Mun. de Rio de Contas, Serra das Almas, a 5 km ao NW de Rio de Contas, 21 Mar. 1980, S. A. Mori & F. Benton 13526 (A, NY).

LECTOTYPIFICATION OF SOME SPECIES OF THE FAMILY ICACINACEAE

There are some species of the family Icacinaceae that need to be lectotypified to increase the nomenclatural precision. Such is the case of *Emmotum nitens* and *Mappia racemosa* Jacquin var. *brachycarpa* Grisebach. In concordance with the *International Code of Botanical Nomenclature* (McNeil *et al.*, 2006), a lectotype for each taxa is proposed.

LECTOTYPIFICATION OF *EMMOTUM NITENS*

This species was originally described by George Benth (1800–1884) as a member of the genus *Pogopetalum*. Benth used one collection of *George Gardner 3309* from Brazil as type material, and two sheets were deposited at Kew. We chose the collection with flowers as the lectotype of *Emmotum nitens*. Also, *E. faia* Kuhlmann is included here as a synonym; even though the type was not studied, its description and illustration correspond to *E. nitens*.

Emmotum nitens (Benth) Miers, Ann. Mag. Nat. Hist., ser. II, 10: 180. 1852. Basionym: *Pogopetalum nitens* Benth, London J. Bot. 2: 377. 1843. TYPE: Brazil. Goiás: *G. Gardner 3309* (lectotype, designated here, K; isotypes, G, K [2], NY).

Emmotum faia Kuhlmann, Arch. Jard. Bot. Rio de Janeiro XXVI: 45. 1982. Syn. nov. TYPE: Brazil. Espírito Santo: “ad marginis Lagoa do Durão, Rio Doce,” 12 May 1934, *J. G. Kuhlmann 177* (holotype, RB).

LECTOTYPIFICATION OF *MAPPIA RACEMOSA* VAR. *BRACHYCARPA*

Mappia Jacquin is a genus of the Icacinaceae with four or five species. The genus occurs from Mexico to Panama and in the Antilles. *Mappia racemosa* is the most common species in the Antilles and has two varieties (Howard, 1942a). Grisebach described *M. racemosa* var. *brachycarpa* in his *Plantae Wrightianae* (1860), using two collections made by Charles Wright (numbers 1389 and 1578) as type material, but without indication of the herbarium where these specimens were stored. Here, we propose one of these syntypes deposited at GOET as the lectotype for the species. The collection *C. Wright 1389* is chosen because the original description mentioned a plant with flowers and fruits, congruent with the specimen at GOET. Borhidi (1983) previously elevated this variety to the rank of subspecies without further explanation. We are still studying the botanical material of the Greater Antilles to

evaluate any correlation between morphological variation and any geographical or ecological differentiation.

Mappia racemosa Jacquin var. **brachycarpa** Grisebach, Pl. Wright. 8: 119. 1860. *Mappia racemosa* subsp. *brachycarpa* (Grisebach) Borhidi, Acta Bot. Hung. 29: 185. 1983. TYPE: Cuba. *Ch. Wright 1389* (lectotype, designated here, GOET; isotypes, GH, HAC, K, MA, MO [2], NY).

Acknowledgments. The first author thanks Santiago Castroviejo and Mauricio Velayos (MA), who helped to get loan material for this study; the curators of the following herbaria: A, AAU, B, BM, F, G, GH, INPA, K, M, MO, NY, SPF, and US; Fernando Rivadavia, who provided digital images of the material at SPF; Jochen Heinrichs (GOET) for digital images of Wright's material; Kanchi Gandhi (GH) for his nomenclatural advice; Juan Castillo for his excellent illustration; and Kew Latin American Research Fellowships program for providing funding to visit K and BM to study the type material.

Literature Cited

- Borhidi, A. 1983. New names and new species in the flora of Cuba and Antilles, III. Acta Bot. Hung. 29: 181–215.
- Carvalho, M. J. C., M. E. Van Der Berg & P. B. Cavalcantes. 1973. O gênero *Emmotum* Desv. (Icacinaceae) na amazônia Brasileira. Publ. Avulsas Mus. Paraense Emilio Goeldi 20: 203–219.
- De Roon, A. C. 1994. Icacinaceae. Pp. 82–109, plates 17–23 in A. R. A. Görts-Van Rijn (editor), Flora of the Guianas. Koeltz Scientific Books, Koenigstein.
- Engler, G. A. 1897. Icacinaceae. Pp. 41–61 in C. F. P. von Martius (editor), Flora Brasiliensis, Vol. 12, Pt. 2.
- Grisebach, A. 1860. Plantae Wrightianae e Cuba orientali (Polypetalae et Apetalae). Mem. Amer. Acad. Arts, n.s. 8: 191.
- Howard, R. A. 1942a. Studies of the Icacinaceae, II. *Humirianthera*, *Leretia*, *Mappia* and *Nothapodythes*, valid genera of the Icacinaceae. J. Arnold Arbor. 23: 55–78.
- . 1942b. Studies of the Icacinaceae, III. A Revision of *Emmotum*. J. Arnold Arbor. 23: 479–493.
- & R. Duno de Stefano. 1999. *Icacinaceae*. Pp. 646–658 in P. E. Berry, K. Yatskievych & B. K. Holst (editors), Flora of the Venezuelan Guayana, Vol. 5: Eriocaulaceae–Lentibulariaceae. Missouri Botanical Garden Press, St. Louis.
- McNeil, J., F. R. Barrie, H. M. Burdet, V. Demoulin, D. L. Hawksworth, K. Marhold, D. H. Nicolson, J. Prado, P. C. Silva, J. E. Skog, J. H. Wiersema & N. J. Turland (editors). 2006. International Code of Botanical Nomenclature (Vienna Code). Regnum Veg. 146.
- IUCN. 2001. Red List Categories and Criteria Version 3.1. Prepared by the IUCN Species Survival Commission. IUCN, Gland, Switzerland.