

# NEW RECORDS FOR NORTHEASTERN BRAZIL AND LECTOTYPIFICATIONS IN *DYSCHORISTE* (ACANTHACEAE)

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**Abstract.** This work presents two new records of *Dyschoriste* (Acanthaceae) for northeastern Brazil, *D. erythrorhiza* and *D. maranhonis*. Both species are endemic to Brazil. Additionally, lectotypes are proposed for *D. maranhonis* and *D. pulegium*. Geographic distribution and flowering and fruiting data are also presented.

**Keywords:** Brazil, Lamiales, lectotype, Ruellieae

*Dyschoriste* Nees (Acanthaceae) is placed in the tribe Ruellieae of subfamily Acanthoideae (Mabberley, 2008) and comprises approximately 60–80 species distributed in tropical and subtropical areas of America, Africa, and Asia (Ezcurra, 2014; Chumchim et al., 2015). Southern South America (southern Brazil, Paraguay, Bolivia and northern Argentina) is one of the main centers of diversity of this genus (Kobuski, 1928; Daniel, 1995; Wasshausen and Wood, 2003). According to Monteiro (2020), thirteen species of *Dyschoriste* are recognized in Brazil, associated with dry and humid habitats in Caatingas in the Northeast, Midwest, South and Southeast regions.

*Dyschoriste* species are characterized by the lobes of the calyx fused by translucent parts, generally small flowers, anthers mostly appended at the base, triaperturate pollen with sexine lips and 0–48 pseudocolpi, and capsules with 2–4 seeds covered with hygroscopic hairs (Furness, 1995; Daniel, 1995, 2004; Tripp et al., 2013).

According to Scotland and Vollesen (2000), the genus is placed in tribe Ruellieae, subtribe Ruellieae. More recently, Tripp et al. (2013) published a phylogeny of Ruellieae

based on molecular data that places *Dyschoriste* in subtribe Petalidiineae. Species of this genus have features that help characterize this subtribe, such as four or fewer ovules per ovary, seeds with hygroscopic trichomes that cover their entire surface (in all species), and the presence of anthers with basal appendages.

*Dyschoriste* is one of the most difficult genera to place within Acanthaceae, because the species have few distinguishing characters (Ezcurra, 2013; Chumchim et al., 2015), often have restricted distribution, are poorly collected, and are morphologically variable and difficult to differentiate from related species (Ezcurra, 2014). Furthermore, taxonomic treatments of this genus are scarce: there is only one monograph of American *Dyschoriste* (Kobuski, 1928), although most of its species have been included in floristic and taxonomic surveys, mainly in Brazil.

We propose herein lectotypes for *Dyschoriste maranhonis* (Nees) Kuntze and *D. pulegium* (Nees) Kuntze, and present two new records for *Dyschoriste* for northeastern Brazil. Geographic distribution and notes on flowering and fruiting habits of these species are also provided.

## MATERIALS AND METHODS

Type analyses were based on high-resolution photographs from BR, GZU, LE, M, and W (acronyms according to Thiers, 2022, continuously updated), from the JSTOR Global Plants website, or from herbaria websites. Specimens from Brazil were examined at BHCN, CEPEC, HST, HUEFS, IPA, MBM, PEUFR, RB, and UB. Protologues were

consulted for all names.

SpeciesLink, Reflora Virtual Herbarium, and Plants of the World Online (POWO, 2022) were consulted for geographic distributions. Typification follows the International Code of Nomenclature for algae, fungi and plants (ICN) (Turland et al., 2018).

## RESULTS AND DISCUSSION

Lectotypes for *Dyschoriste maranhonis* (Nees) Kuntze and *D. pulegium* (Nees) Kuntze are proposed herein (see rationale for each proposal below). In addition, the species *Dyschoriste erythrorhiza* (Nees) Lindau and *D. maranhonis* (Nees) Kuntze are newly reported for the northeastern region of Brazil.

***Dyschoriste erythrorhiza*** (Nees) Lindau, Nat. Pflanzenfam. [Engler & Prantl] 4, Abt. 3b: 302. 1895. *Homotropium erythrorhizum* Nees, Fl. Bras. (Martius) 9: 47, t. 48. 1847. TYPE: BRAZIL. In sylvis Catingas ad Formigas, prov. Minarum, Augusto, et in deserto Bahiensi, C. F. P. Martius s.n. (Lectotype, proposed by Monteiro et al. 2020, M [0186270]).

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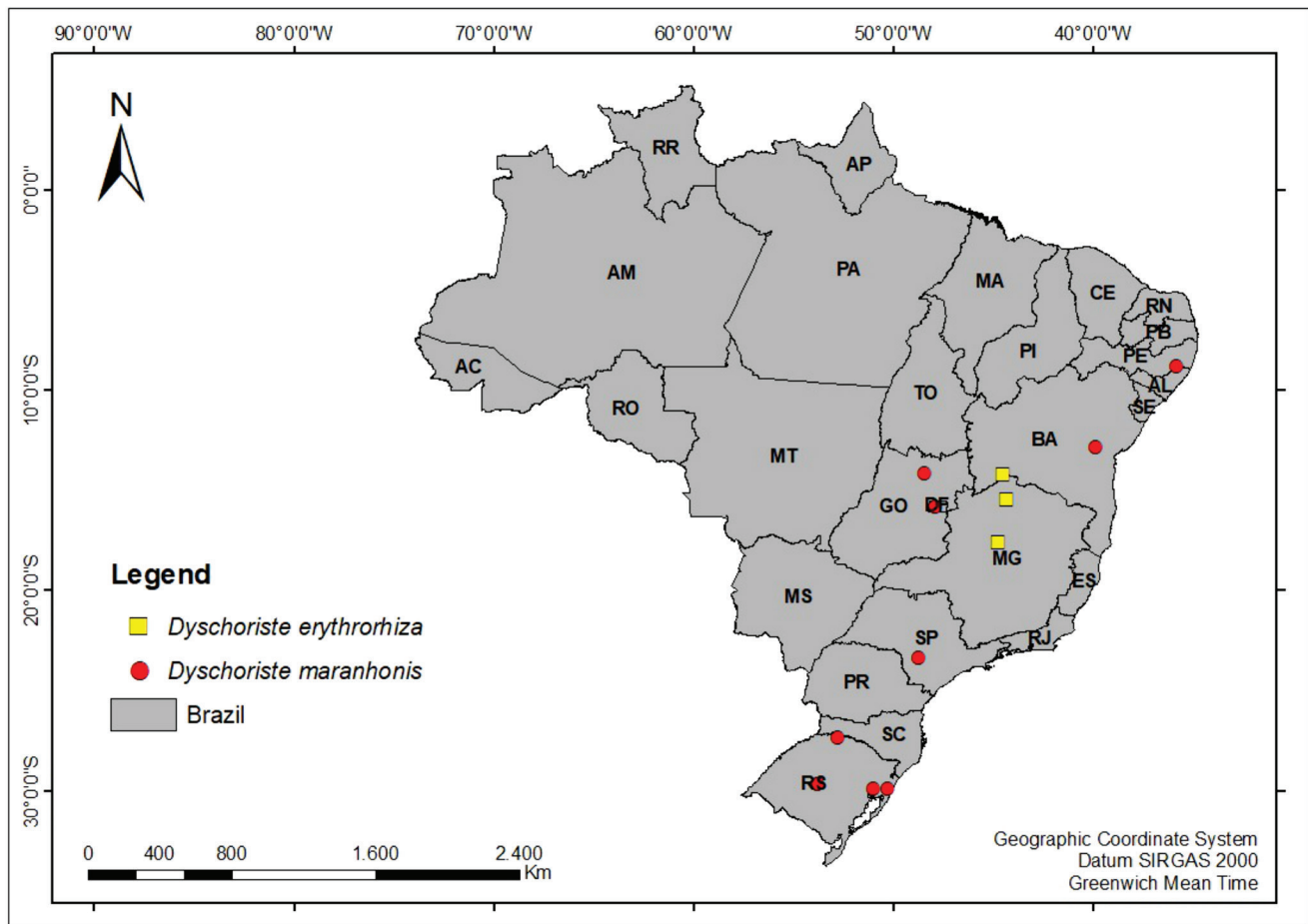


FIGURE 1. Distribution map of *Dyschoriste erythrorhiza* (Nees) Kuntze and *D. maranhonis* (Nees) Kuntze.

Heterotypic synonym: *Homotropium erythrorhizum* var. *latifolium* Nees. Fl. Bras. (Martius) 9: 48. 1847. TYPE: BRAZIL. *J. B. E. Pohl s.n.* (Lectotype, proposed by Monteiro et al. (2020), W [0056792]; Isolectotypes: M [0186271], W [0056791], W [0056793].

This species is endemic to Brazil, occurring only in the Cerrado phytogeographic domain from Minas Gerais state (Monteiro, 2020). In this work, *Dyschoriste erythrorhiza* is being reported as a new record for northeastern Brazil in Bahia state (Fig. 1). It was found with flowers from March to July and with fruits in April and July. *Dyschoriste erythrorhiza* can be distinguished by its red corollas, a rare feature in this genus.

**Additional material examined:** BRAZIL. Bahia: Cocos, Espigão Mestre, ca. 13 km Sul de Cocos e 3 km Sul do Rio Itaguari, 15 March 1972 (fl.), 560 m, *W. Anderson, M. Stieber & J. H. Kirkbride-Junior* 36976 (NY, US); Minas Gerais: Januária, Distrito de Fabião, 23 May 1997 (fl.), *J. A. Lombardi & A. Salino* 1719 (BHCB, US); Vale do rio Peruaçu, Cerrado do Judas, 21 September 1997 (fl., fr.), *A. Salino & J. R. Stehmann* 3302 (US); Montalvânia, 18 March 1972 (fl.), 550 m, *W. R. Anderson, M. Sieber & J. H. Kirkbride-Junior* 37157 (UB); Várzea da Palma, Fazenda Mãe d'Água, 26 April 1963 (fl., fr.), *A. P. Duarte* 7713 (NY, US).

*Dyschoriste maranhonis* (Nees) Kuntze, Revis. Gen. Pl. 2: 486. 1891.

Basionym: *Calophanes maranhonis* Nees, Fl. Bras. (Martius) 9: 25. 1847. TYPE: BRAZIL. Ad Maranhão flumen, *J. B. E. Pohl* 1765 (Lectotype, designated here, W [0049974], image seen; Isolectotype: GZU [000249902], image seen).

In the protologue of *Calophanes maranhonis*, Nees (1847a) noted an unpublished name ("*Ruellia viscosa* Pavon in Herb. Moricand."), "*Ruellia quitensis* (?) Schlechtendal in Linn. V. 1. p. 96. n. 122.?" (referring to a name published by Kunth from Ecuador and a synonym of *D. quitensis* (Kunth) O. Kuntze), and an unpublished illustration ("*Zahlbrucknera maranhonis* Pohl ic."). He also cited collections from Brazil and Peru ("*ad Maranhão flumen: Pohl; ad praedium S. Ignacio in prov. Rio Grande do Sul: Sellow; in Peruvia: Pavon!*"). In a subsequent account of the species (Nees, 1847b), he noted these same collections and indicated the herbaria in which he saw them. Thus, *Pohl* 1765 from the Rio Maranhão in Brazil (W [0049974] [image seen]); *Sellow* 59 and 185 collected at San Ignacio, Brazil (B [destroyed]); and Pavon's collection labeled as "*Ruellia viscosa* Pavon" from Peru in herbarium Moricand are syntypes. Kobuski (1928) indicated that the

type was Sellow's collection from "St. Ignacio" housed at B (destroyed, as indicated above).

A duplicate of *Pohl 1765* at GZU was chosen as an isoelectotype, in order to stabilize the name associated to the species. In addition, the selected material has well-preserved vegetative and reproductive structures and can be compared with the original description of the species.

*Dyschoriste maranhonis* is endemic to Brazil and grows in the phytogeographic domains of the Atlantic Forest and Pampa from Distrito Federal, São Paulo and Rio Grande do Sul states (Monteiro et al., 2020). It is being reported for the first time from Pernambuco and Bahia states (Fig. 1), with flowers in November, January, and March. *D. maranhonis* can be characterized by its purple, tetragonal, and highly branch stems.

**Additional material examined:** BRAZIL. Bahia: Milagres, 22 February 1993 (fl., fr.), 350 m, *G. Hatschbach 42454* (CEPEC, HUEFS, MBM, US); Rod. BA-046, 22 February 1993 (fl., fr.), *G. Hatschbach 45130* (CEPEC, MBM); Pernambuco: Maraiá, Engenho Curtume, 22 September 2006 (fl.), 248 m, *M. S. Leite 196* (HST, IPA); Rio Grande do Sul: Gravataí, Cachoeirinha, 7 January 1949 (fl.), *B. Rambo s.n.* (PACA-AGP 39625); Nonoai, March 1945 (fl.), *B. Rambo s.n.* (PACA-AGP 28115); Osório, Fazenda do Arroio, 23 January 1958 (fl.), *B. Rambom s.n.* (PACA-AGP 63522); Santa Maria, 1943 (fl.), *A. Heidler s.n.* (PACA-AGP 11367); São Paulo: Paranapanema, Campo

Capivary, 26 November 1899 (fl.), *A. C. G. G. Loefgren 4494* (SP).

*Dyschoriste pulegium* (Nees) Kuntze, Revis. Gen. Pl. 2: 486. 1891.

Basionym: *Calophanes pulegium* Nees, Fl. Bras. (Martius) 9: 25 (1847). TYPE: BRAZIL. In prov. S. Pauli, *L. Riedel 70* (Lectotype: designated here: LE [00007839], image seen).

Nees (1847a), in the protologue of *C. pulegium*, cited two collections for this species in prov. S. Pauli: *Sellow, Riedel*, which are currently treated as syntypes. Kobuski (1928) in his monograph of American *Dyschoriste* mentioned only a photograph of a Sellow's collection, deposited in the Berlin herbarium (possibly destroyed), but he did not mention the existence of Riedel's collection. Kobuski also ignored "*Sellow 173* (FMNH-B-Types 5900)" as a possible lectotype of *D. pulegium*. After analyzing these collections, we propose *Riedel 70* (LE 00007839) as a lectotype of *D. pulegium* in order to bring nomenclatural stability to this species. The proposed lectotype has reproductive structures and conforms to the original description.

**Additional material examined:** BRAZIL. Paraná: Lapa, Engenho Bley, 26 September 1948 (fl.), *G. Hatschbach 1014* (PACA-AGP). São Paulo: without additional locality data (fl., fr.), without additional locality data (fl.), *F. Sellow* (B 173, GZU H-72).

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