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Nomenclatural adjustments in *Myriopus* (Heliotropiaceae)

José Iranildo Miranda de Melo

Universidade Estadual da Paraíba, Centro de Ciências Biológicas e da Saúde, Departamento de Biologia, Bairro Universitário, 58429-500 Campina Grande, Paraíba, Brazil
Email: tournefort@gmail.com

Abstract. Based on comparative morphological examinations of specimens available in both physical and digitized herbaria, a new combination is proposed in *Myriopus* (Heliotropiaceae): *Myriopus subulatus* (Gardner) J.I.M.Melo. Additionally, *Tournefortia lanceolata* Fresen. is synonymized under *M. subulatus*, with its effective lectotypification. Data on the distribution, habitat and reproductive phenology are provided for *M. subulatus*, as well as taxonomic notes based its morphological characters. *Myriopus breviflorus* (DC.) Luebert and *M. subulatus* are morphologically similar, and a key to their identifications is presented together with a list of the specimens examined.

Keywords: Boraginales, lectotype, nomenclature, Neotropics, *Tournefortia s.l.*

INTRODUCTION

Myriopus (Heliotropiaceae) was originally established by Small (1933) to encompass two species: *Myriopus poliochros* (Spreng.) Small and *Myriopus volubilis* Small. The genus is exclusively Neotropical and currently comprises approximately 40 species (Melo pers. obs.), with Brazil emerging as its main center of diversity with sixteen species (Cavalheiro et al. 2025 [continuously updated]).

Based on recommendations by Diane et al. (2002), *Myriopus* includes the species subordinated to *Tournefortia* L. sect. *Cyphocyema* I.M. Johnst. (Johnston 1930). The genus includes lianas or subscandent shrubs with supporting branches; leaves alternate to pseudo-opposite, elliptic, lanceolate to ovate or obovate; inflorescences axillary, lateral or terminal, generally with many-flowered secundiflorous branches, lax or congested; the fruits are fleshy and 4-lobed, with one seed per lobe that contains a curved embryo (Diane et al. 2016).

Recent contributions to the taxonomic diversity of *Myriopus* include: three proposed combinations (Melo 2019); a new Brazilian species (Melo et al. 2022); a new species and a new record from Colombia (Melo 2023); and the taxonomic treatments of *Myriopus* from Argentina (Simpson et al. 2022) and Brazil (Cavalheiro et al. 2025 [continuously updated]). Despite research

efforts focusing on *Myriopus* in South America, there are still nomenclatural issues and gaps regarding its representativeness.

Various species of *Tournefortia* were described for Brazil during the 19th century, including *T. lanceolata* (Fresenius 1857), which was synonymized under *T. breviflora* A.DC. (Johnston 1930).

During the preparation of the taxonomic revision of *Myriopus*, some synonymies were found to be associated with the taxonomically accepted concepts of the genera *Myriopus* and *Tournefortia*.

Morphological examinations indicated discontinuities between *Myriopus breviflorus* and *M. subulatus*, with the latter being combined here under *Myriopus*. The taxonomic limits of *M. subulatus*, an enigmatic species restricted to the Atlantic Forest of the southeastern region from Brazil, are elucidated here; additionally, the synonymization of *Tournefortia lanceolata* Fresen. under *M. subulatus* and a lectotype for *T. lanceolata* are proposed.

MATERIAL AND METHODS

Morphological analysis

During a visit to update the Heliotropiaceae collections of the Dimitri Sucre Herbarium (RB), Rio de Janeiro, Rio de Janeiro State, Brazil, comparative morphological analyses were undertaken of historical collections, including nomenclatural types and other important specimens. These analyses were complemented by studies at the Manuel de Arruda Câmara Herbarium (HACAM*), based on specimens available in the Reflora Virtual Herbarium and *SpeciesLink* databases. The acronyms of the herbaria follow Thiers (2025 [continuously updated]). *Herbarium not indexed.

The identification of *Tournefortia lanceolata* was based on Fresenius' monograph (1857); the identifications of *Myriopus breviflorus* and *M. subulatus* were based on the works of Miers (1868), Johnston (1930), and Cavalheiro et al. (2025 [continuously updated]). Protologues and nomenclatural types were consulted on the JSTOR Global Plants (2025 [continuously updated]) and Tropicos.org (2025 [continuously updated]) online databases.

The descriptive terminologies used follow Font Quer (1985) and Harris and Harris (2001). Regarding distribution of *Myriopus breviflorus*, one specimen was referred by federative unit within Brazil, and one specimen each indicated for Uruguay, Argentina, and Paraguay.

RESULTS AND DISCUSSION

Taxonomic notes

Myriopus subulatus (Gardner) J.I.M.Melo, **comb. nov.**

Bas.: *Messerschmidia subulata* Gardner, Lond. J. Bot. 1: 532. 1842.

Type: Brazil, Rio de Janeiro, Rio Comprido, September 1836, *G. Gardner 175* (holotype K000583440!; isotype BM001209045!).

(=) *Tournefortia gardneri* A.DC., Prodr. 9: 526. 1845. Type: Brazil, Rio de Janeiro, Rio Comprido, September 1836, *G. Gardner 175*.

(=) *Tournefortia lanceolata* Fresen., Fl. Bras. 8(1): 55-56. 1857, **syn. nov.**

Type: Brazil, Brasilia prov.: Rio de Janeiro ad rivum Tejuco, *C.F.P. von Martius 182*, s. dat. (lectotype M0188701!, here designated from *C.F.P. von Martius s.n.* [M]; isolectotypes M00188702!, M0188703!).

(=) *Myriopus gardneri* (A.DC.) J.I.M.Melo, Harv. Pap. Bot. 24(2): 245. 2019.

Distribution, habitat, and phenology

Myriopus subulatus is known only from conserved areas of Atlantic Forest in the state of Rio de Janeiro in southeastern Brazil (Fig. 1). The specimen *J.M. Braga 3632* (RB) was noted as growing in shaded environments of hillside forests. Based on the restricted geographic distribution of *M. subulatus*, it could soon be included in one of the threatened categories recognized by the International Union for Conservation Nature (IUCN). It was recorded flowering from August to December, and fruiting from October to December.

Notes

Messerschmidia subulata was originally described by Gardner (1842) based on a specimen he collected (*G. Gardner 175*). Two collections, however, were erroneously attributed to *G. Gardner 175* (Aspleniaceae [E01025639, E01025640, E01025641] and Myrsinaceae [NY495615, US1066290]).

Considering that George Gardner worked at the Edinburgh Botanic Garden Herbarium (E) at Edinburgh, his collections were searched for the original type specimen of *Messerschmidia subulata* that material, however, was not located. That same procedure was adopted

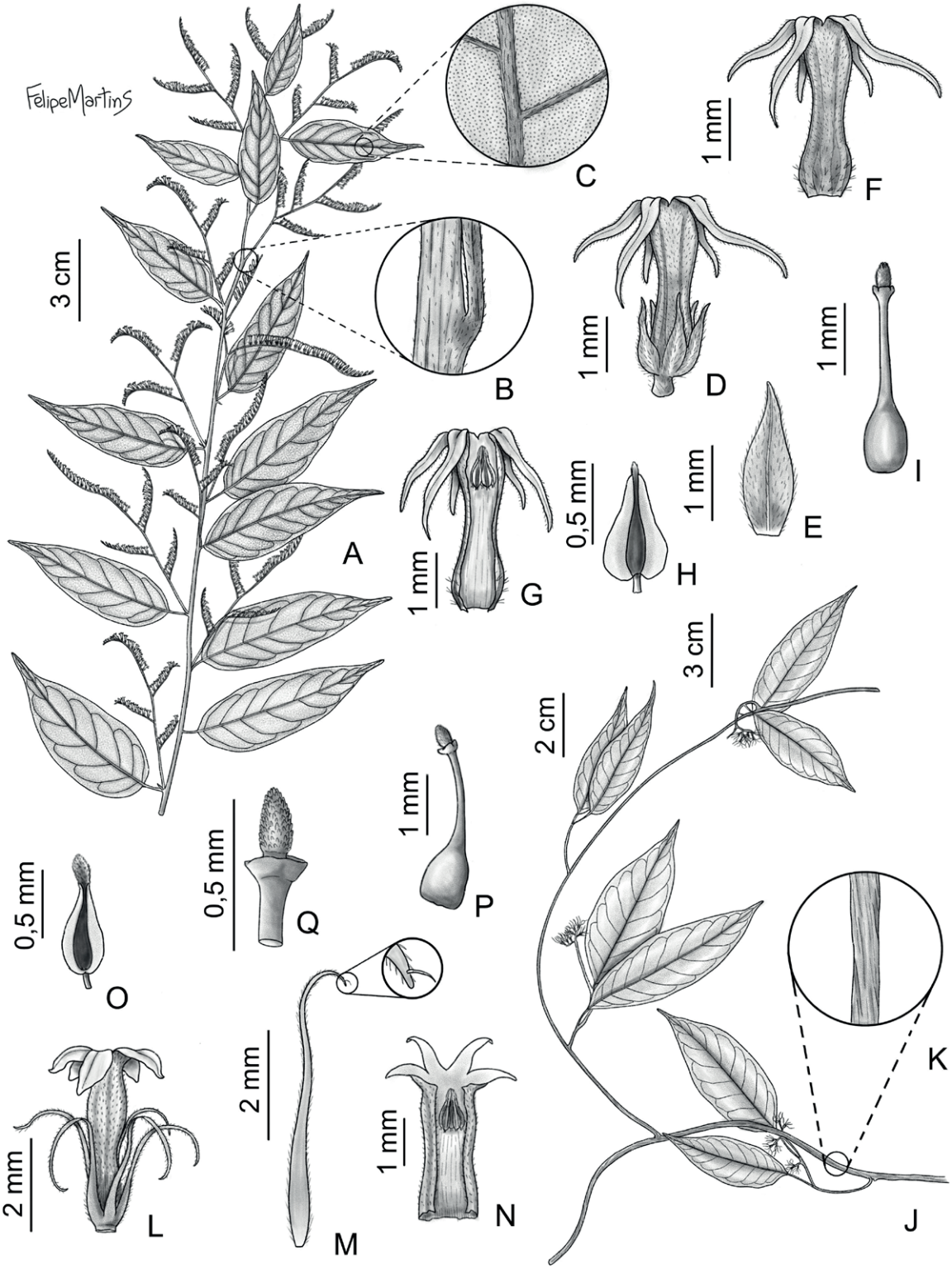

Figure 1. A–I. *Myriopus breviflorus* (A.DC.) Luebert. A. Reproductive branch. B. Detail of the stem. C. Detail of the leaf blade (adaxial face). D. Flower. E. Lacinia of the calyx. F. Corolla. G. Open corolla, showing the androecium. H. Stamen. I. Gynoecium (Drawn by F. Martins from *L.T. Dombrowski 14475* (MBM) and *A.A. Santos et al. 749* (SJRP)). J–Q: *Myriopus subulatus* (A.DC.) J.I.M. Melo. J. Reproductive branch. K. Detail of the stem. L. Flower. M. Lacinia of the calyx, uncinate trichome detached. N. Open corolla, showing the androecium. O. Stamen. P. Gynoecium. Q. Stigma, including part of the style (Drawn by F. Martins from *J.M.A. Braga 3632*).

in relation to *Tournefortia gardneri*, with the examination of collections in the G-DC Herbarium, Geneva Conservatory and Botanic Gardens. As the specimen that could have been used to propose *T. gardneri* was not located, De Candolle (1845) probably relied on the same basionym specimen to propose the replacement name in *Tournefortia*, based on the existence of *Tournefortia subulata* Hochst. ex DC. For these reasons, the specimens deposited in the K and BM herbaria are considered here as the holotype and isotype of *Messerschmidtia subulata* respectively.

Fresenius (1857) established *Tournefortia lanceolata* based on a collection made by Martius in the municipality of Rio de Janeiro, Brazil. However, Johnston (1930) synonymized *T. lanceolata* under *T. breviflora* (= *Myriopus breviflorus* (DC.) Luebert) without presenting the reasoning behind that decision.

Based on morphological examinations, *T. lanceolata* can be distinguished from *Myriopus breviflorus*, although the latter is very similar to *M. subulatus*, especially in terms of their general appearances (Fig. 1: J-Q). *Myriopus subulatus* is, however, an herbaceous vine, with inflorescences having villous peduncles and, due to its resupinate flowers, the calyx shows linear lacinia surpassing the corolla, corolla (ca. 4 mm long), villous, with narrow-elliptic lobes (ca. 1 mm long), style ca. 2 mm long, and an annular stigmatic disc, thickened, while *M. breviflorus* has exclusively lax inflorescences, with peduncles glabrescent, flowers elongated and pendulous, calyx approximately one-third of the corolla length, with ovate-elliptic lacinia, corolla (ca. 3 mm long), sericeous, with linear lobes (ca. 2 mm long), bifid trichomes on the basal portion, gynoecium erect, style ca. 1.3 mm long, and an obtriangular stigmatic disc. Table 1 lists the morphological differences between *Myriopus subulatus* and *M. breviflorus*, and their respective geographical distributions.

Table 1. Morphological differences between *Myriopus subulatus* and *M. breviflorus* and their geographical distributions.

Morphological features	Species	
	Myriopus subulatus	*Myriopus breviflorus*
Branches		
Vestiture	Glabrous	Pillous
Inflorescences		
Peduncles	Villous, ferruginous	Glabrescent
Flowers	Erect	Pendulous
Calyx		
Length	Surpassing the corolla length	Approximately one third of the corolla length
Lacinia shape	Linear	Ovate-elliptic
Corolla		
Length	Ca. 4 mm long	Ca. 3 mm long
Vestiture	Villous	Sericeous
Lobe shape	Narrow-elliptic	Lanceolate
Lobe length	Ca. 1 mm long	Ca. 2 mm long
Style		
Length	Ca. 2 mm long	Ca. 1.3 mm long
Stigmatic disc		
Shape	Annular	Obtriangular
Geographical distribution	Brazil (Rio de Janeiro State)	Brazil, Uruguay, Argentina, and Paraguay

Selected material examined

Myriopus breviflorus

BRAZIL: Distrito Federal: Brasília, 28 September 2000 (fl., fr.), *A.A. Santos et al. 749* (CEN, HACAM). **Paraná:** Colombo, 12 April 1980 (fl.), *L.T. Dombrowski 13475* (MBM). **Rio de Janeiro State:** Ex sylvis montanis Brasiliae prope Petropolis, 10-12 July 1882 (fl.), *J. Ball s.n.* (NY02398756). **Rio Grande do Sul:** Camaquã, 31 October 1989 (fl.), *J.A. Jarenkow & J.L. Waechter 1376* (CRI). **Santa Catarina:** Pirão Frio, 11 July 1959 (fl.), *R. Reitz & M. Klein 8923* (NY). **São Paulo State:** São Simão, Fazenda Bocaína, 29 September 1960 (fl.), *J. Mattos 8670* (SP). **Tocantins:** São Salvador do Tocantins, margem esquerda do rio Tocantins, próximo à ponte sobre o rio do mesmo nome, rodovia TO-387, 12º44'51"S, 48º15'15"W, 29 September 2007 (fl.), *G. Pereira-Silva et al. 12157* (CEN, HACAM). URUGUAY: **Cerro Largo:** Sarandí de Barceló, 9 January 1980 (fl., fr.), *R. Brescia et al. 26* (MVFA). ARGENTINA. **Misiones:** Departamento Guaraní, Prédio Guaraní, 26º54'59"S, 54º12'18"W, Camino al ayo. Soberbio, borde de selva, 17 September 1998 (fl.), *S. Tressens et al. 6081* (CTES, MBM). PARAGUAY. **Departamento Cordillera:** Itacurubí de la Cordillera, 28 March 1978 (fl., fr.), *T. Pedersen 1090* (L).

Material examined

Myriopus subulatus

BRAZIL: Rio de Janeiro State: Rio de Janeiro, Corcovado, s. dat. (fl.), *A.F.M. Glaziou 19682* (P03525468, P03525469); idem, September-October 1832, fl., *L. Riedel & B. Luschnath 890* (NY); idem, Environs de Rio de Janeiro, 1843 (fl.), *H.A. Weddell 237* (P); idem, Botafogo, Mundo Novo, 19 September 1920 (fl.), *J.G. Kuhlmann 16266* (RB); idem, Represa Camorim, 1933 (fl.), *A.C. Brade 12781* (RB); idem, Sumaré, October 1933 (fl.), *A.C.*

Figure 2. Lectotype of *Tournefortia lanceolata*. Reproduced with permission [*C.F.P. von Martius s.n.* (M0188701)].

Brade 12805 (RB); idem, Corcovado, 13 August 1946 (fl.), *A.P. Duarte & P. Occhioni 209* (RB); idem, Botafogo, 3 September 1967 (fl.), *D. Sucre 1609* (RB); idem, Parque Laje, 11 October 1967 (fl.), *D. Sucre 1665* (NY, RB); idem, Matas do Corcovado, 22 October 1969 (fl., fr.), *D. Sucre 6110* (RB, SJRP); idem, Parque Nacional da Tijuca, Trilha para o Morro da Cocanha (Alto da Boa Vista), 1 November 1996 (fl., fr.), *J.M. Braga 3632* (RB); idem, Parque Municipal Ecológico da Prainha, entre o mirante do Cruzeiro do Sul e o Morro dos Caetés, 13 November 2003 (fl., fr.), *J.M.A. Braga et al. 7277* (NY, RB). Niterói, Parque Estadual da Serra da Tiririca, Morro do Telégrafo, Trilha da Barreira, 30 October 2005 (fl., fr.), *A.A.M. Barros et al. 2411* (RB, RFFP); idem, Parque Natural Municipal de Niterói, 22°55'18,17"S, 43°04'39.54"W, 223 m.s.m., 21 December 2016 (fl., fr.), *D.N.S. Machado et al. 1109* (RB, RFFP).

Key for *Myriopus breviflorus* and *M. subulatus*

1. Branches glabrous; inflorescences with peduncles villous, ferruginous; flowers erect; calyx surpassing the corolla length, lacinia linear; corolla ca. 4 mm long, villous, narrow-elliptic lobes ca. 1 mm long; style ca. 2 mm long; annular stigmatic disk ..... ***M. subulatus***

1. Branches pillous; inflorescences with peduncle glabrescent; flowers pendulous; calyx approximately one third of the corolla length, lacyniae ovate-elliptic; corolla ca. 3 mm long, sericeous, lanceolate lobes ca. 2 mm long; style ca. 1.3 mm long; obtriangular stigmatic disc ..... ***M. breviflorus***

Lectotypification

In his original publication, Fresenius (1857) designated the specimen '*Ad rivum Tejuco; prov. Rio de Janeiro, M.*' as the basis for establishing *Tournefortia lanceolata*. That author did not, however, mention the collector number – and there are three sheets in the Munich Herbarium, Munich, Germany belonging to the same collection series (*C.F.P. von Martius 182*). Examinations of these materials revealed that the sheets labeled M0188701, M0188702, and M0188703 served as the basis for the original description, and that the material M0188701 was used to prepare the Indian ink drawing (Plate t.12) in the "*Flora Brasiliensis*" (Fresenius 1857). Based on these facts, sheet M0188701 is designated here as the lectotype for *T. lanceolata* (Fig. 2).

Material examined

Tournefortia lanceolata

BRAZIL: Rio de Janeiro State. Brasilia Provinc. Rio de Janeiro ad rivum Tejuco, s. dat. (fl.), *C.F.P. von Martius 182* (M0188701, M0188702, M0188703).

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