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Struthanthus marginatus (Desr.) G.Don (Loranthaceae): a new record for the Santa Catarina State, Brazil[1]

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ABSTRACT – (*Struthanthus marginatus* (Desr.) G.Don (Loranthaceae): a new record for the Santa Catarina State, Brazil). While examining the Loranthaceae specimens in the HUFABC collection from the Universidade Federal do ABC in the São Paulo State, we discovered a new record for the Santa Catarina State. This work provides a diagnosis, a new identification key for *Struthanthus* in Southern Brazil, and updates our understanding of the geographic distribution of *S. marginatus*. This increases the number of *Struthanthus* species to Santa Catarina State and the Southern Region, while also enhancing our knowledge of the genus in Brazil.
Keywords: flora, hemiparasitic plants, mistletoe, taxonomy

RESUMO – (*Struthanthus marginatus* (Desr.) G.Don (Loranthaceae): uma nova ocorrência para o Estado de Santa Catarina, Brasil). Ao examinar os espécimes de Loranthaceae da coleção HUFABC da Universidade Federal do ABC no Estado de São Paulo, nós identificamos um novo registro para o Estado de Santa Catarina. Este estudo apresenta uma diagnose, uma chave de identificação inédita para *Struthanthus* na Região Sul do Brasil e aprimora a nossa compreensão sobre a distribuição geográfica de *S. marginatus*. Esta pesquisa amplia o número de espécies de *Struthanthus* documentadas no Estado de Santa Catarina e na Região Sul, ao mesmo tempo em que aprofunda o nosso conhecimento sobre o gênero no Brasil.
Palavras-chave: erva-de-passarinho, flora, plantas hemiparasitas, taxonomia

Introduction

Struthanthus Mart. comprises a diverse genus within the Loranthaceae, distributed across Latin America. It encompasses approximately 40 to 45 species ranging from Mexico to Bolivia and Argentina (Abbiatti 1946, Kuijt & Hansen 2015). In Brazil, there are records of 21 species, 11 of which are endemic, with distribution spanning all States and Regions (Caires & Dettke 2023).

Struthanthus is characterized by species that are generally climbing, glabrous, dioecious, with rarely absent sterile structures of the opposite sex, and small flowers (4-5)-6-merous, which range in color from white to cream or greenish (Kuijt & Hansen 2015).

Struthanthus marginatus (Desr.) G.Don was originally described as *Loranthus marginatus* Desr. by Louis Auguste Joseph Desrousseaux in the work of Lamarck (1792) and subsequently reclassified as *Struthanthus marginatus* by Don (1834). Since then, this species has received recognition and descriptions in various publications, including those by Eichler (1868), Rizzini (1960, 1995), Moreira & Rizzini (1997), Stannard (2004), Reif & Andreata (2011), Vasconcelos & Melo (2015), Caires (2018), Oliveira & Caires (2018), Araújo *et al.* (2020), Caires (2022), Menezes *et al.* (2022), and Caires & Dettke (2023). *Struthanthus marginatus* has a broad distribution, spanning from Costa Rica to Brazil (Rizzini 1960), with wide distribution, recorded up to São Paulo State (Caires & Dettke 2023), until now.

According to Dettke & Waechter (2014) and Caires & Dettke (2023), four species of *Struthanthus* are documented in the Santa Catarina State. This study presents the initial documentation of *S. marginatus* within this State, which increases the tally of *Struthanthus* species to five and expands the species' distribution to the Southern Region of Brazil.

Materials and methods

The specimen of the species was discovered during the research on Loranthaceae for the Flora Fanerogâmica do Estado de São Paulo at the Sinningia herbarium (HUFABC).

For the analysis and identification, we referenced specialized botanical literature, the knowledge of a Loranthaceae specialist, and specimens from the HUFABC and SP herbaria, in addition to the virtual herbaria: FLOR, HCF, MBM, P, and UNOP (acronyms according to Thiers

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2023). The geographic distribution map was generated utilizing the QGIS program (QGIS Development Team 2023).

Results and Discussion

Struthanthus marginatus (Desr.) G.Don, Gen. Hist. 3: 411 (1834).
Figure 1

Epicortical roots along the branches. Leaves decussate to subaltern, ovate, oval-lanceolate to lanceolate, 3-6(-8) x 2-4 cm, margin entire, yellowish (*in vivo*). Inflorescence racemiform to paniculiform, 1(-2) per axil, with 3-9 pairs of triads. Staminate bud cylindric to clavate; pistillate bud cylindrical; flower 5-6-merous. Fruit ellipsoid to ovoid, yellow to black.

Material examined: BRAZIL. Santa Catarina: Bombinhas, 28-XII-2017, fl., *A.P. Moraes & F. Amorim 170* (HUFABC). Additional material examined: BRAZIL. Rio de Janeiro: Itatiaia, 17-XI-1994, fl., *R. Simão-Bianchini 570* (SP). São Paulo: Bananal, Estrada Sertão da Bocaina, SP-247, 22º43'17.4"S, 44º21'29.9"W, 07-I-2023, fr., *L.C. Vaz et al. 37* (SP); Ilha de São Sebastião, 27-III-1971, fl., *J.R. Mattos 15689* (SP); Ubatuba, restinga de Picinguaba, 23-V-1989, fl., fr., *M. Kirizawa & J.A. Correa 2191* (SP).

In the field, *Struthanthus marginatus* can be identified by the yellowish margin of its leaves, from which the specific epithet is derived. However, in dried specimens, confusion may arise with *Struthanthus rhynchophyllus* Eichler and *Tripodanthus acutifolius* (Ruiz & Pav.) Tiegh., both of which are found in the Santa Catarina State.

To distinguish *Struthanthus marginatus* from *S. rhynchophyllus*, one can look at several key features: In *S. rhynchophyllus* epicortical roots are present at the base of the plant (as opposed to along the branches in *S. marginatus*). Additionally, bracteoles are perennial in *S. marginatus* (deciduous in *S. rhynchophyllus*), and the flowers are sessile (as opposed to pedicellate in *S. rhynchophyllus*) (table 1).

As for the differentiation between *S. marginatus* and *T. acutifolius*, it can be achieved by examining the leaves and flowers. *Tripodanthus acutifolius* features circular lenticels on the abaxial side of its leaves (absent in *S. marginatus*), and its flowers are pedicellate and perfect (while *S. marginatus* flowers are sessile and either staminate or pistillate) (table 1).

Struthanthus marginatus occurs in Costa Rica, Panama, and Brazil (Rizzini 1960). This species is found in various regions, including the Amazon Rainforest, Caatinga, Cerrado, and Atlantic Forest, across the States of Alagoas, Amazonas, Bahia, Ceará, Espírito Santo, Goiás, Maranhão, Mato Grosso, Minas Gerais, Pará, Paraíba, Pernambuco, Piauí, Rio de Janeiro, Rio Grande do Norte, São Paulo, Sergipe, and Tocantins (Caires & Dettke 2023).

Figure 1: Material examined of the new record of *Struthanthus marginatus* (Desr.) G.Don for the Santa Catarina State, Brazil.

Table 1. Main characters distinguishing *Struthanthus marginatus* (Desr.) G.Don, *Struthanthus rhynchophyllus* Eichler, and *Tripodanthus acutifolius* (Ruiz & Pav.) Tiegh. (data from Dettke & Waechter 2014).

Character/Species	*S. marginatus*	*S. rhynchophyllus*	*T. acutifolius*
Epicortical roots	along the branches	at the base of the plant	along the branches
Leaf	ovate, oval-lanceolate to lanceolate, lenticels absent	elliptical, oblong to ovate, lenticels absent	elliptical, oblong to ovate, lenticellate
Inflorescence	racemiform (1.5-)2.5-7(-9) cm long	racemiform 0.7-1.5 cm long	racemiform 6-12(-15) cm long
Bracteole	perennial	deciduous	deciduous
Flowers	staminate or pistillate	staminate or pistillate	perfect
Pedicel	absent	present	present

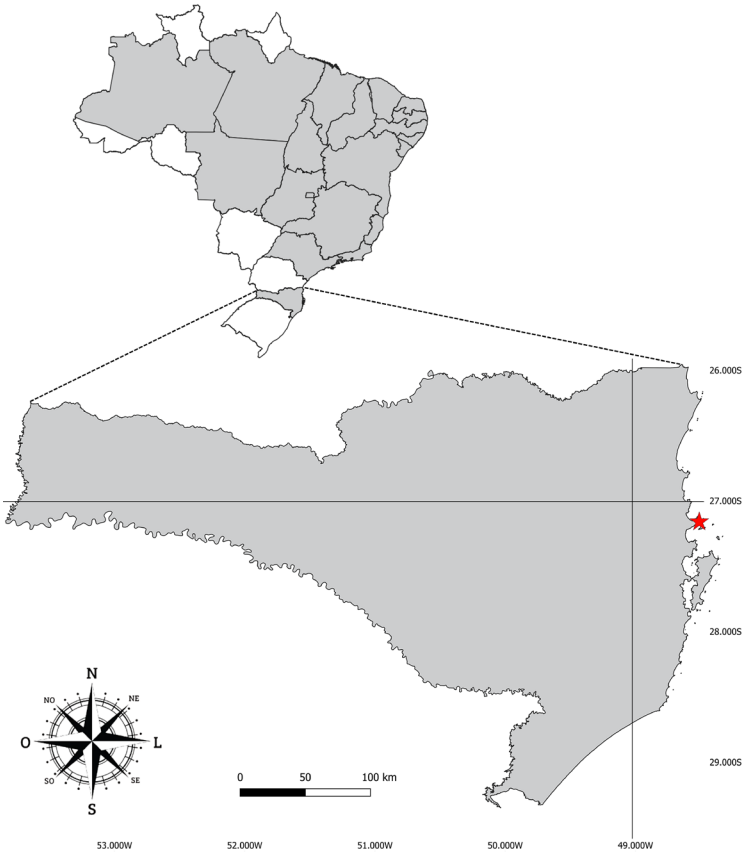

Figure 2. Distribution of *Struthanthus marginatus* (Desr.) G.Don in Brazil (represented by States painted in light gray) and location of the specimen (★) in Bombinhas Municipality, Santa Catarina State, Brazil.

In Santa Catarina State, a single specimen of this species has been located, specifically within Bombinhas Municipality (figure 2). This discovery establishes the southernmost distribution range for the species in South America.

Unfortunately, the single collection discovered in the Santa Catarina lacks crucial information, including the approximate location, the type of vegetation (whether it belongs to native forest or urbanized areas), and any data regarding the host species. The region encompassing Bombinhas and Balneário Camboriú are in the coastal region of the Atlantic Forest (vegetation of Dense Ombrophilous Forest) and has been significantly affected by real estate speculation and a surge in tourism along the coastline. The collected specimen exhibits pistillate flowers and was collected in December.

All materials previously mentioned as *S. marginatus* for the States of Santa Catarina and Paraná were corrected to *Struthanthus martianus* Dettke & Waechter (synonym of *S. rhynchophyllus*) in the Dettke & Waechter (2014) appendix, except for three recent misidentified collections for the Paraná, which also belong to *S. rhynchophyllus*: *G. Felitto et al. 935* (MBM), *J.M. Silva et al. 9719* (MBM), and *J.M. Silva et al. 9869* (FLOR, HCF, MBM, UNOP).

To improve our comprehension of *Struthanthus* species in the southern region, as previously documented by Dettke & Waechter (2014), a new identification key for the species in this area is presented below:

Identification key for *Struthanthus* in the Southern Brazil

1. Epicortical roots at the base of the plant; flowers of the triad pedunculate, bracteoles deciduous and bracteoles perennial ……..... *Struthanthus rhynchophyllus*
1. Epicortical roots along the branches; flowers of the triad sessile, perennial bracteoles.
   2. Leaves coriaceous to chartaceous; pistillode present in the staminate flower ……... *Struthanthus marginatus*
   2. Leaves carnose; pistillode absent in the staminate flower.
      3. Inflorescences sessile …….....….....…..... *Struthanthus spathulatus*
      3. Inflorescences pedunculate
         4. Inflorescences multiple per axil, racemiform, rare corymbiform; fruits bicolor, rare black ……
         …… *Struthanthus uraguensis*
         4. Inflorescences 1 per axil, corymbiform; fruits black …...……..……..…..…… *Struthanthus andrastylus*

Conclusions

The present study increases the known species of *Struthanthus* in the Santa Catarina State and Southern Brazil to five. These species are as follows: *Struthanthus andrastylus* Eichler (as *Struthanthus polyrrhizus* (Mart.) Mart. in Dettke & Waechter 2014), *Struthanthus marginatus* (Desr.) G.Don, *Struthanthus rhynchophyllus* Eichler (as *Struthanthus martianus* Dettke & Waechter in Dettke & Waechter 2014), *Struthanthus spathulatus* Rizzini (as *Struthanthus sessiliflorus* Kuijt in Dettke & Waechter 2014), and *Struthanthus uraguensis* (Hook. & Arn.) G.Don. This contribution enhances our understanding of the *Struthanthus* genus in Brazil. Therefore, we emphasize the importance of updating the geographical distribution of the species in the Flora e Funga do Brasil (Caires & Dettke 2023).

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Conflicts of interest

There is no conflict of interest.

Author contributions

Leandro Matheus de Carvalho Vaz: Contribution in the concept and design of the study; Contribution in identifications of the studied species; Contribution to data analysis and interpretation; Contribution to manuscript preparation.
Greta Aline Dettke: Contribution in the concept and design of the study; Contribution in identifications of the studied species; Contribution to data analysis and interpretation; Contribution to critical revision.
Rosângela Simão-Bianchini: Contribution in the concept and design of the study; Contribution to data analysis and interpretation; Contribution to critical revision.

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