



## RECOGNITION OF THE GENUS *MYRIOPTERIS* (PTERIDACEAE, POLYPODIOPSIDA) IN BRAZIL

Vinícius Antonio de Oliveira Dittrich<sup>1</sup> & André Luís de Gasper<sup>2</sup>

<sup>1</sup> Universidade Federal de Juiz de Fora, ICB, Departamento de Botânica, Rua José Lourenço Kelmer, s.n. - CEP 36036-900, Juiz de Fora, MG, Brazil; [vinarc@gmail.com](mailto:vinarc@gmail.com) (author for correspondence).

<sup>2</sup> Universidade Regional de Blumenau, Departamento de Ciências Naturais, Rua Antônio da Veiga, 140, CEP 89030-903, Blumenau, SC, Brazil.

**Abstract.** Dittrich, V. A. O. & A. L. Gasper. 2019. Recognition of the genus *Myriopteris* (Pteridaceae, Polypodiopsida) in Brazil. *Darwiniana*, nueva serie 7(1): 137-140.

In the present work, the genus *Myriopteris* is mentioned for the first time for Brazil, represented by *M. myriophylla*, a species of wide distribution in the American continent, from Mexico to Argentina, but never before verified for this country. Furthermore, we provide a description of the sole species found, along with an image and notes.

**Keywords.** Brazil; *Cheilanthes*; cheilanthoid; ferns; taxonomy; *Tryonia*.

**Resumen.** Dittrich, V. A. O. & A. L. Gasper. 2019. Reconocimiento del género *Myriopteris* (Pteridaceae, Polypodiopsida) en Brasil. *Darwiniana*, nueva serie 7(1): 137-140.

En el presente trabajo se cita por primera vez al género *Myriopteris* para Brasil, representado por *M. myriophylla*, una especie de amplia distribución en el continente americano, desde México hasta la Argentina, pero nunca antes verificada para este país. Se proporciona también una descripción de la única especie representada en el país, además de una imagen y notas.

**Palabras clave.** Brasil; *Cheilanthes*; cheilanthoide; helechos; taxonomía; *Tryonia*.

### INTRODUCTION

Aiming to achieve target 1 of the Global Strategy for Plant Conservation for the year 2020, nearly 700 taxonomists are networking to prepare monographs for the Flora do Brasil (Flora of Brazil) online 2020. This network will make available webpages with descriptions, identification keys, and voucher specimens for all species of plants, algae, and fungi known to that country (BFG - The Brazil Flora Group, 2018).

A large number of changes in fern classification have occurred as a result of an avalanche of new phylogenetic information - making it possible to increasingly

pursue the recognition of monophyletic families and genera (e.g., PPG I, 2016). Basically, all fern family was revised in light of molecular evidence, and the suborder Pteridineae, in the family Pteridaceae, is one of this. Smith et al. (2006) recognize ca. 50 genera and 950 spp., but highlighted that some of the genera were notoriously polyphyletic or paraphyletic and in need of redefinition (e.g., *Cheilanthes* Sw.). Since then, cheilanthoid genera were investigated by several authors (Grusz & Windham, 2013; Link-Perez et al., 2011; Ponce & Scataglini, 2018). As a result of the impact of those molecular systematic studies of cheilanthoid ferns, the paraphyly of the globally distributed genus *Cheilanthes* was demonstrated,



and others cheilanthoid fern taxa were segregated or recircumscribed into several genera (e.g. *Gaga* Pryer, F.W. Li & Windham, *Lytoneuron* (Klotzsch) Yesilyurt, *Calciphlopteris* Yesilyurt & H. Schneid. and *Myriopteris* Fée). Basically, the specialists in this group of ferns agree that the arid to semi-arid conditions where these species grow create a series of adaptive convergences that difficult the genera delimitation.

In the subfamily Cheilanthesoideae, PPG 1 (2016) recognized 23 genera and an estimated 426 species. In that context, the resurrected genus *Myriopteris* stands out as a well-supported monophyletic group comprising approximately 10% of all cheilanthoid species diversity (Grusz & Windham, 2013).

Here we provide a new genus record for Brazil, as well as a description of the sole species found, along with an image and notes.

## MATERIALS AND METHODS

Herbarium specimens were consulted at CESJ, RB, FURB, HBR, BHCB, LUSC, CRI, JOI, and MBM (herbarium codes follow Thiers, 2019), as well as the Virtual Herbaria Re flora and INCT, and high-resolution pictures of type collections available from RB (<http://jabot.jbrj.gov.br>), BR and P (JSTOR, 2018) were consulted. Records of *M. myriophylla* were obtained from GBIF (2018) and examined for identifications and geographic information.

## TAXONOMIC TREATMENT

**Myriopteris** Fée, Mém. Foug. 5: 148. 1852. emend. Grusz & Windham, Phytokeys: 54. 2013. TYPE: *Myriopteris marsupianthes* Fée, Mém. Foug. 5: 149. 1852.

The genus has its main distribution throughout the American continent, from southern Canada, through the Caribbean and Central America, to southern Chile and Argentina (Mickel & Smith, 2004; Grusz & Windham, 2013), and is represented in Africa by a single species endemic to Namibia and South Africa (Grusz & Windham, 2013). The center of diversity is Mexico, where 34 out of the 44 known species are found, seven of which are endemic (Grusz & Windham, 2013).

**Myriopteris myriophylla** (Desv.) Sm., Bot. Voy. Herald: 340. 1856. *Cheilanthes myriophylla* Desv., Mag. Neuesten Entdeck. Gesamten Naturk. Ges. Naturf. Freunde Berlin 5: 328. 1811. TYPE: Peru. Without date, *without collector*, (lectotype, inadvertently designated by Tryon & Stolze, 1989, P00584364!). Fig. 1.

*Cheilanthes paleacea* M. Martens & Galeotti, Nouv. Mém. Acad. Roy. Sci. Bruxelles 5(5): 76, t. 21, f. 2. 1842. TYPE: Mexico. Cuesta Blanca, H. Galeotti 6429 (holotype BR000000698439 photo!, isotypes BR0000006982201 photo!, P00584367 photo!).

Plants terrestrial or epipetric. Rhizomes short-creeping, 1.8-3.8 mm thick, scales linear-lanceolate, bicolorous, with a black to dark brown central stripe, margins entire, the apex attenuate, sinuous, with a gland. Fronds 24-28 cm long, stipes ca. 1-2/3 the frond length, tan, terete, covered with appressed pale hairs, laminae 4-pinnate, 9-18 × 7-9 cm, narrowly lanceolate to triangular, apex pinnatifid, base truncate, ultimate segments bead-like, 0.8-1.4 × 0.5-0.8 cm, adaxial surface glabrous or with white, simple hairs, abaxial surface densely covered by white to reddish brown triangular-lanceolate scales on the rachis, costae, and costules, flexuous hairs present on the abaxial side of the segments, margins strongly recurved, modified into wide false indusia. Sori marginal, sporangia clustered at the vein apices, without paraphyses, covered by false indusia. Spores tetrahedral-globose, surface rugulate.

**Distribution and habitat.** Mexico, Guatemala, Honduras, El Salvador, Nicaragua, Hispaniola, Colombia, Venezuela, Ecuador, Peru, Brazil, Bolivia, Chile, Argentina, and Uruguay (Mickel & Smith, 2004; Grusz & Windham, 2013; Ponce, 2016). The species is widely distributed throughout North, Central, and South America, occupying rather dry, rocky slopes (Mickel & Smith, 2004). In Brazil, it is currently known only from Santa Catarina State, but its otherwise wide distributed throughout the continent suggests a wider distribution in the country. Both Tryon & Stolze (1989) and Mickel & Smith (2004) cited this taxon for Brazil, but no voucher was indicated.



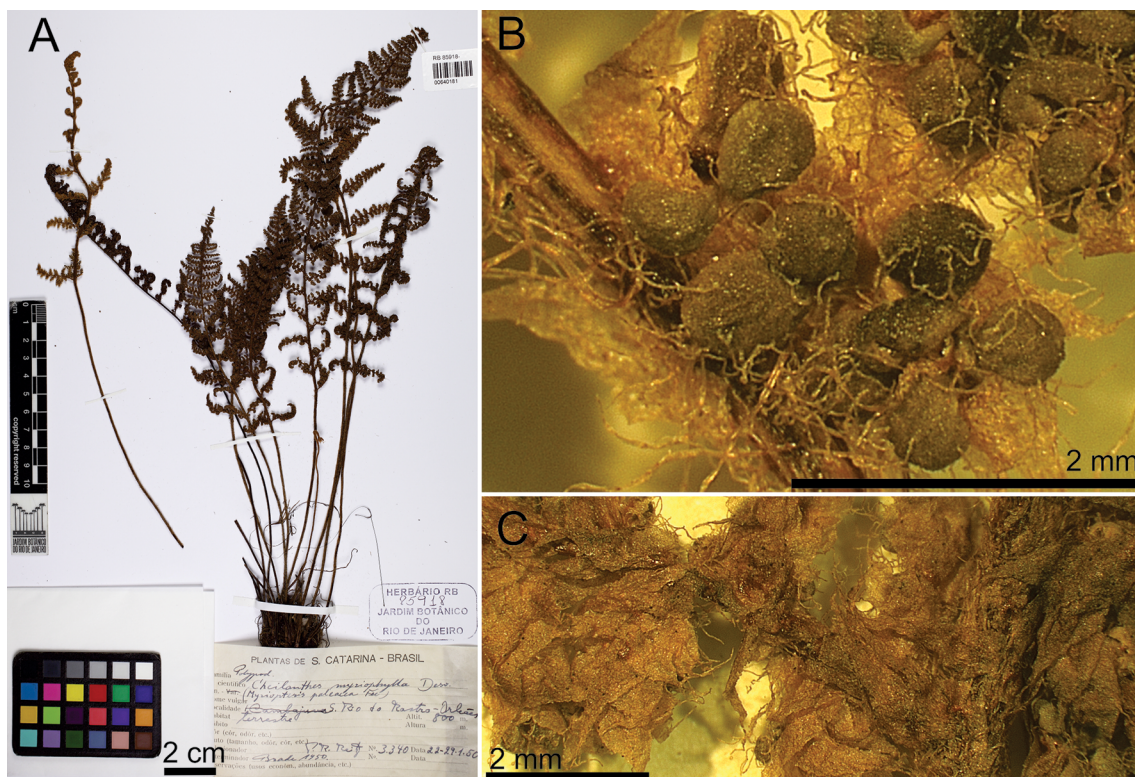


Fig. 1. *Myriopteris myriophylla*. Reitz 3340 (CESJ, RB). A, habit. B, indusia. C, rachis indument. A from RB. B-C from CESJ. Color version at <http://www.ojs.darwin.edu.ar/index.php/darwiniana/article/view/832/1152>

**Observations.** This species can be readily recognized by having a dense covering of scales on the rachis and costae, the ultimate segments bead-like, and by its strongly recurved blade margins, forming wide false indusia.

It is important to note that *Myriopteris myriophylla* was not cited by Sehnem (1972). Instead he cited *Gymnogramma myriophylla* Sw. [= *Tryonia myriophylla* (Sw.) Schuettp., J. Prado & A.T. Cochran], specie with which *M. myriophylla* can be confused, but it is a completely different species, since *Myriopteris* is clearly distinguishable by its laminar recurved margins and marginal punctual sori, while *Tryonia* has segments with planar margins, and sori along the veins, among other differences. Also *Myriopteris myriophylla* can be differentiated from other Cheilantheoideae and *Tryonia* species in Brazil by its 4-pinnate lamina with bead-like ultimate segments.

Furthermore, *Myriopteris* produce 64 small or 32 large spores, distinguishing it from *Cheilanthes s.s.* with 32 small spores (Grusz & Windham, 2013).

Though many materials were examined in herbaria from south and southeastern Brazil we have failed to find any other specimen of the genus in Brazil. Furthermore, recent collection field trips were done in the same area where R. Reitz collected the plant many years ago, but due to the high anthropogenic effects verified in the area since then, no other specimen was found.

Despite the fact that the authors visited many herbaria - and work in two important ones for Brazilian ferns - only one, old record of the species was found to the country.

#### Specimens examined

BRAZIL. **Santa Catarina.** Orleans, Serra do Rio do Rastro, 800 m, 29-I-1950, R. Reitz 3340 (CESJ, RB, US).



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