

## **ADDITIONS TO THE FERN FLORA OF NORTHEASTERN BRAZIL**

*Vinicius A. O. Dittrich<sup>1</sup> and Aline M. Souza<sup>2</sup>*

<sup>1</sup>Departamento de Botânica, Instituto de Ciências Biológicas, Universidade Federal de Juiz de Fora. MG. <sup>2</sup>Programa de Pós-Graduação em Botânica, Universidade Estadual de Feira de Santana. Brazil. [vinarc@gmail.com](mailto:vinarc@gmail.com)

### **ABSTRACT**

Based on collections made by the senior author and coworkers, from August 2008 to June 2010 in the municipalities of Abaíra, Itarantim, Jacaraci, Piatã, Rio de Contas, Rio do Pires, and Vitória da Conquista, six new records of ferns for Bahia State or for Northeastern Brazil are presented. Furthermore, three taxa previously cited for the State without vouchers are here included with correspondent voucher citations.

### **KEY WORDS**

Bahia, Chapada Diamantina, fern flora, Brazil.

### **ADICIÓN A LA FLORA DE HELECHOS DEL NORESTE DE BRASIL**

### **COMPENDIO**

Basado en colecciones hechas por el autor principal y colaboradores, desde agosto 2008 a junio 2010 en las municipalidades de Abaíra, Itarantim, Jacaraci, Piatã, Rio de Contas, Rio do Pires y Vitória da Conquista, se presentan seis nuevos registros de helechos para el estado Bahia o el noreste de Brasil. Se incluyen tres taxa citados antes para el estado, pero incluyendo en esta ocasión datos de muestras de referencia.

### **PALABRAS CLAVE**

Bahia, Chapada Diamantina, flora de helechos, Brasil.

## INTRODUCTION

Brazil is a megadiverse country, harboring more than 56,000 species of plants according to Giulietti *et al.* (2005). In Brazil, Bahia is one of the richest States concerning vascular plants, surpassed only by Minas Gerais State (Lista de Espécies da Flora do Brasil, 2013). In tiny areas (of 0.1ha) from southern Bahia, as much as 144 species of trees with DBH > 4.8 cm have been found (Martini *et al.* 2007) and, according to some authors (e.g. Thomas *et al.* 1998, Amorim *et al.* 2008), southern Bahia harbors the highest levels of endemism and species richness of the whole Atlantic Forest of South America.

According to Lista de Espécies da Flora do Brasil (2013), Bahia has 397 species of pteridophytes (ferns and lycophytes). In recent years, some works concerning these plants added many species not previously known for Bahia state or for Northeastern Brazil as a whole (Matos *et al.* 2010, Barros *et al.* 2005).

The aim of this work is to provide new records for Bahia state and Northeastern Brazil as a whole, contributing with the knowledge of the fern flora of Northeastern Brazil.

## MATERIALS AND METHODS

The collections were made by the senior author and coworkers, from August 2008 to June 2010 in the municipalities of Abaíra, Itarantim, Jacaraci, Piatã, Rio de Contas, Rio do Pires, and Vitória da Conquista. The main purpose of these field studies was to collect herbarium specimens for Brazilian herbaria and to enlarge our knowledge of the Bahian flora. The specimens are deposited at CESJ herbarium (acronym according to Thiers 2013), and they were identified using specialized literature and consultation with an expert.

## RESULTS

The following species are reported for the first time for Bahia and/or for Northeastern Brazil as a whole (some of which were previously cited for the state, but without voucher citations).

*Asplenium inaequilaterale* Willd. (Aspleniaceae) – BRAZIL: Itarantim, Pedra das Três Pontas, ca. 15°38'54"S, 40°06'00"W, ca. 770 masl, 29-VIII-2009, Dittrich *et al.* 1597. First record for Bahia. Previously known from Ceará, Pernambuco, Alagoas, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, Santa Catarina and Rio Grande do Sul (Sylvestre 2013).

*Azolla microphylla* Kaulf. (Salviniaceae) – BRAZIL: Vitória da Conquista, 15°18'9.28"S, 40°59'39.43"W, 635 masl, 27-IV-2009, Dittrich 1589. First record for Bahia. Previously known from Amazonas, Pernambuco and Sergipe (Salino and Almeida 2013).

*Elaphoglossum gayanum* (Fée) T. Moore (Dryopteridaceae) – BRAZIL: Abaíra, Catolés de Cima, 13°17'28.20"S, 41°54'14.6"W, 1714 masl, 03-IV-2010, Dittrich *et al.* 1650. First record for Northeastern Brazil. Previously known from Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo, Santa Catarina and Rio Grande do Sul (Melo, unpublished thesis). Additionally, Windisch and Kieling-Rúbio (2013) include Paraná.

*Elaphoglossum langsdorffii* (Hook. & Grev.) T. Moore (Dryopteridaceae) – BRAZIL: Abaíra, Catolés de Cima, 13°17'28.2"S, 41°54'14.6"W, 1714 masl, 03-IV-2010, Dittrich *et al.* 1646. First record for Northeastern Brazil. Previously known from Minas Gerais, Espírito Santo, Rio de Janeiro and São Paulo (Melo, unpublished thesis). Additionally, Windisch and Kieling-Rúbio (2010) cite Paraná.

*Elaphoglossum tectum* (Willd.) T. Moore (Dryopteridaceae) – BRAZIL, Piatã, Serra de Santana, 13°09'18.8"S, 41° 45'54.6"W, 1264 masl, 02-IV-2010, Dittrich *et al.* 1609. Previously recorded for Mucugê (Chapada Diamantina) by Novelino (1998) but with no specimen cited.

*Lastreopsis acuta* (Hook.) Tindale (Dryopteridaceae) – BRAZIL: Itarantim, Pedra das Três Pontas, ca. 15°38'54"S, 40°06'00"W, ca. 770 masl, 29-VIII-2009, Dittrich *et al.* 1601. First record for Bahia State. Tindale (1965) cited it only for Paraíba State and Prado (2013) just for Minas Gerais and Espírito Santo.

*Lophosoria quadripinnata* (G.F. Gmel.) C. Chr. (Dicksoniaceae) – BRAZIL. Abaíra, Catolés de Cima, 13°17'28.4"S, 41° 54'03.3"W, 1615 masl, 03-IV-2010, Dittrich *et al.* 1653. Previously recorded for Chapada Diamantina region, Bahia State, by Salino and Almeida (2008) but with no specimen cited. Condack (2013) cites the species also, but with no specimen for Bahia.

*Melpomene pilosissima* (M. Martens & Galeotti) A.R.Sm. & R.C.Moran (Polypodiaceae) – BRAZIL, Jacaraci, Morro do Chapéu, 14°53'44"S, 42° 30'54"W, 1400 masl, 25-IV-2010, Dittrich and Novais 1685. Previously recorded for Chapada Diamantina region, Bahia State, by Salino and Almeida (2008) but with no specimen cited.

*Sticherus nigropaleaceus* (J.W. Sturm) Prado & Lellinger (Gleicheniaceae) – BRAZIL, Abaíra, Catolés de Cima, 13°17'28.20"S, 41°54'14.6"W, 1714 masl, 03-IV-2010, Dittrich *et al.* 1648. First record for Northeastern Brazil. Previously

known from Amazonas, Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo, Paraná and Santa Catarina (Matos 2013).

With these new additions, the pteridophyte flora from Bahia now accounts 404 species, and much more species are expected in the area.

### ACKNOWLEDGEMENTS

The authors acknowledge Alexandre Salino for determining and confirming some species cited in this account.

### BIBLIOGRAPHIC REFERENCES

- Amorim, A.M., W.W. Thomas, A.M.V. Carvalho and J.G. Jardim. 2008. Floristic of the una Biological Reserve, Bahia, Brazil. Mem. New York Bot. Gard. 100: 67-146.
- Barros, I.C.L., M.R. Pietrobon, A.C.P. Santiago, S.R.S. Xavier, C.P.L. Luna and J.I.M. Melo. 2005. Nuevos registros de pteridófitos para Pernambuco – IV. Ernstia 15: 13-26.
- Condack, J.P.S. 2013. Dicksoniaceae. *In*: Lista de espécies da flora do Brasil [online]. Rio de Janeiro: Jardim Botânico do Rio de Janeiro. Available from: <<http://floradobrasil.jbrj.gov.br/jabot/floradobrasil/FB90945>>.
- Giulietti, A.M., R.M. Harley, L.P. Queiroz, M.G.L. Wanderley and C. Van Den Berg. 2005. Biodiversity and conservation of plants in Brazil. Conservation Biol. 19: 632-639.
- Lista de espécies da flora do Brasil [online]. 2013. Rio de Janeiro: Jardim Botânico do Rio de Janeiro. Available from: <<http://floradobrasil.jbrj.gov.br/>>.
- Martini, A.M.Z., P. Fiaschi, A.M. Amorim and J.P. Paixão. 2007. A hot-point within a hot-spot: a high diversity site in Brazil's Atlantic Forest. Biodivers. Conserv. 16: 3111-3128.
- Matos, F.B., A.M. Amorim and P.H. Labiak. 2010. The ferns and lycophytes of a montane tropical forest in southern Bahia, Brazil. J. Bot. Res. Inst. 4: 333-346.
- Matos, F.B. 2013. Gleicheniaceae. *In*: Lista de espécies da flora do Brasil [online]. Rio de Janeiro: Jardim Botânico do Rio de Janeiro. Available from: <<http://floradobrasil.jbrj.gov.br/jabot/floradobrasil/FB91168>>.

- Novelino, R.F. 1998. Distribuição geográfica e ecologia das espécies de *Elaphoglossum* Schott ex J. Sm. (Pteridophyta) que ocorrem no Brasil. Bol. Herb. Ezechias Paulo Heringer 3: 5-26.
- Prado, J. 2013. *Lastreopsis*. In: Lista de espécies da flora do Brasil [online]. Rio de Janeiro: Jardim Botânico do Rio de Janeiro. Available from: <<http://floradobrasil.jbrj.gov.br/jabot/floradobrasil/FB105386>>.
- Salino, A and T.E. Almeida. 2008. Diversidade e conservação das pteridófitas na Cadeia do Espinhaço, Brasil. Megadiversidade 4: 196-216.
- Salino, A. and T.E. Almeida. 2013. Salviniaceae. In: Lista de espécies da flora do Brasil [online]. Rio de Janeiro: Jardim Botânico do Rio de Janeiro. Available from: <<http://floradobrasil.jbrj.gov.br/jabot/floradobrasil/FB92027>>.
- Sylvestre, L. 2013. Aspleniaceae. In: Lista de espécies da flora do Brasil [online]. Rio de Janeiro: Jardim Botânico do Rio de Janeiro. Available from: <<http://floradobrasil.jbrj.gov.br/jabot/floradobrasil/FB90671>>
- Thiers, B. 2013. (continuously updated) *Index Herbariorum*: A global directory of public herbaria and associated staff [online]. New York Botanical Garden's Virtual Herbarium. Available from: <<http://sweetgum.nybg.org/ih/>>.
- Thomas, W.W., A.M.V. Carvalho, A.M. Amorim, J. Garrison and A.L. Arbeláez. 1998. Plant endemism in two forests in southern Bahia, Brazil. Biodivers. Conserv. 7: 311-322.
- Tindale, M. 1965. A monograph of the genus *Lastreopsis* Ching. Contr. New South Wales Natl. Herb. 3: 249-339
- Windisch, P.G. and M.A. Kieling-Rúbio. 2010. *Elaphoglossum*. In: Lista de espécies da flora do Brasil [online]. Rio de Janeiro: Jardim Botânico do Rio de Janeiro. Available from: <<http://floradobrasil.jbrj.gov.br/2010/FB116374>>.