



Nota Científica / Short Communication: Nomenclatural changes in Brazilian Lycopodiaceae

Mudanças nomenclaturais em Lycopodiaceae do Brasil

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Abstract

This paper presents new nomenclatural combinations in Brazilian Lycopodiaceae, necessary for an upcoming conspectus of the family: there are 39 new combinations in the genus *Phlegmariurus*, and one in *Pseudolycopodiella*. Two taxa, formerly treated as varieties of *Lycopodiella alopecuroides*, are raised to status of species.

Key-words: nomenclature, *Huperzia*, *Lycopodiella*, *Phlegmariurus*, *Pseudolycopodiella*.

Resumo

São apresentadas novas combinações nomenclaturais em Lycopodiaceae do Brasil, necessárias para publicação de um conspecto da família: 39 combinações no gênero *Phlegmariurus* e uma em *Pseudolycopodiella*. Dois taxa, antes tratados como variedades de *Lycopodiella alopecuroides*, são elevados ao status de espécies.

Palavras-chave: nomenclatura, *Huperzia*, *Lycopodiella*, *Phlegmariurus*, *Pseudolycopodiella*.

Introduction

This paper presents nomenclatural changes for the Brazilian species of the Lycopodiaceae. This family was the subject of studies of spore morphology (Wilce 1972), sporangium wall anatomy (Øllgaard 1975), leaf and sporophyll anatomy (Bruce 1976), branching patterns (Øllgaard 1979), and molecular data (Wikström & Kenrick 2000, 2001). The results of these and others were the basis for acceptance of several new genera, mainly by Holub (1964, 1975, 1983, 1985, 1991) and Haines (2003).

Tryon and Tryon (1982) maintained one genus *Lycopodium* L. for all species in the family (except *Phylloglossum*), while Øllgaard (1987, 1989, 1990, 1992) and Øllgaard & Windisch (1987) distinguished the genera *Huperzia* Bernh., *Lycopodium*, and *Lycopodiella* Holub in the Neotropics.

Holub (1964) separated *Phlegmariurus* Holub from *Huperzia*; both genera are reported in Brazil. He divided *Lycopodium sensu* Øllgaard (1987) into *Austrolycopodium* Holub, *Diphasiastrum* Holub, *Diphasium* Rothm., that occur in Brazil, in addition to *Lycopodium s. strictiss.* The genera *Lycopodiastrum* Holub,

Pseudodiphasium Holub, *Pseudolycopodium* Holub, formerly included in *Lycopodium s. str.*, occur only in the Old World.

Haines (2003) separated the genera *Spinulum* Haines and *Dendrolycopodium* Haines from *Lycopodium sensu* Øllgaard (1987). These two genera are Northern temperate in distribution.

The genus *Lycopodiella sensu* Øllgaard (1987) now includes four genera. Three of these occur in Brazil: *Lycopodiella s. str.*, *Palhinhaea* Vasc. & Franco, and *Pseudolycopodiella* Holub, while *Lateristachys* Holub is restricted to the Old World.

The new classification, with 16 genera, is now widely accepted; the genera correspond almost completely to the groups presented by Øllgaard (1987), and reflect ancient divergence of separate evolutionary lines in the family. The criteria for the new classification will be given in the first part of an upcoming conspectus of the Brazilian Lycopodiaceae.

Lycopodiella duseniana (B.Øllg. & P.G. Windisch) B.Øllg. *stat. nov.* Basionym: *Lycopodiella alopecuroides* (L.) Cranfill var. *duseniana* B.Øllg. & P.G. Windisch, *Bradea* 5: 29. 1987.

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Lycopodiella tupiana (B.Øllg. & P.G. Windisch) B.Øllg. *stat. nov.* Basionym: *Lycopodiella alopecuroides* (L.) Cranfill var. *tupiana* B.Øllg. & P.G. Windisch, *Bradea* 5: 30. 1987.

Phlegmariurus acerosus (Sw.) B.Øllg., *comb. nov.* Basionym: *Lycopodium acerosum* Sw., *Fl. Ind. Occid.* 3: 1575. 1806.

Phlegmariurus aqualupianus (Spring) B.Øllg., *comb. nov.* Basionym: *Lycopodium aqualupianum* Spring, *Bull. Acad. Roy. Sci. Bruxelles.* 8: 518. 1841.

Phlegmariurus badinianus (B.Øllg. & P.G. Windisch) B.Øllg., *comb. nov.* Basionym: *Huperzia badiniana* B. Øllg. & P.G. Windisch, *Bradea* 5: 7. 1987.

Phlegmariurus biformis (Hook.) B.Øllg., *comb. nov.* Basionym: *Lycopodium biforme* Hook., *Icon. Pl.* 3: t. 228. 1839 [1840].

Phlegmariurus capillaris (Sodiolo) B.Øllg., *comb. nov.* Basionym: *Lycopodium capillare* Sodiolo, *Recens. Crypt. Vasc. Quit.* 90. 1883.

Phlegmariurus christii (Silveira) B.Øllg., *comb. nov.* Basionym: *Lycopodium christii* Silveira, *Bol. Comm. Geog. Geol. Est. Minas Geraes* 2, n. 5: 117. 1898.

Phlegmariurus comans (Herter ex Nessel) B.Øllg., *comb. nov.* Basionym: *Urostachys comans* Herter ex Nessel, *Arch. Bot. São Paulo* 1(4): 400. 1927.

Phlegmariurus deminuens (Herter) B.Øllg., *comb. nov.* Basionym: *Lycopodium deminuens* Herter, *Bot. Jahrb. Syst.* 43(Beibl. 98): 44. 1909.

Phlegmariurus erythrocaulon (Fée) B.Øllg., *comb. nov.* Basionym: *Lycopodium erythrocaulon* Fée, *Crypt. Vasc. Brésil* 2: 95. 1872-73.

Phlegmariurus flexibilis (Fée) B.Øllg., *comb. nov.* Basionym: *Lycopodium flexibile* Fée, *Crypt. Vasc. Brésil* 2: 94. 1872-73.

Phlegmariurus fontinaloides (Spring) B.Øllg., *comb. nov.* Basionym: *Lycopodium fontinaloides* Spring in Martius, *Fl. bras.* 1(2): 112, pl. 5, fig. 2. 1840.

Phlegmariurus friburgensis (Nessel) B.Øllg., *comb. nov.* Basionym: *Urostachys friburgensis* Nessel, *Arch. Bot. São Paulo* 1(4): 391. 1927.

Phlegmariurus hemleri (Nessel) B.Øllg., *comb. nov.* Basionym: *Urostachys hemleri* Nessel, *Arch. Bot. São Paulo* 1(4): 389, t. 9. 1927.

Phlegmariurus heterocarpon (Fée) B.Øllg., *comb. nov.* Basionym: *Lycopodium heterocarpon* Fée, *Crypt. Vasc. Brésil* 2: 93, 1872-73.

Phlegmariurus hexastichus (B.Øllg. & P.G. Windisch) B.Øllg., *comb. nov.* Basionym: *Huperzia hexasticha* B.Øllg. & P.G. Windisch, *Bradea* 5: 11. 1987.

Phlegmariurus hippurideus (Christ) B.Øllg., *comb. nov.* Basionym: *Lycopodium hippurideum* Christ, *Prim. Fl. Costaric.* 3(1): 56. 1901.

Phlegmariurus intermedius (Trevisan) B.Øllg., *comb. nov.* Basionym: *Huperzia intermedia* Trevisan de Saint-Leon, *Atti Soc. Ital. Sci. Nat.* 17: 248. 1874.

Phlegmariurus itambensis (B.Øllg. & P.G. Windisch) B.Øllg., *comb. nov.* Basionym: *Huperzia itambensis* B.Øllg. & P.G. Windisch, *Bradea* 5: 12. 1987.

Phlegmariurus killipii (Herter) B.Øllg., *comb. nov.* Basionym: *Urostachys killipii* Herter, *Revista Sudamer. Bot.* 10: 128. 1953 [Jan. 1954].

Phlegmariurus linifolius (L.) B.Øllg., *comb. nov.* Basionym: *Lycopodium linifolium* Linnaeus, *Sp. Pl.* 2: 1100. 1753.

Phlegmariurus linifolius (L.) B.Øllg. var. *jenmanii* (Underw. & F.E. Lloyd) B.Øllg., *comb. nov.* Basionym: *Lycopodium jenmanii* Underw. & F.E. Lloyd, *Bull. Torrey Bot. Club* 33: 112. 1906.

Phlegmariurus loefgrenianus (Silveira) B.Øllg., *comb. nov.* Basionym: *Lycopodium loefgrenianum* Silveira, *Fl. Serr. Min.* 78, t. 30. 1908.

Phlegmariurus mandiocanus (Raddi) B.Øllg., *comb. nov.* Basionym: *Lycopodium mandiocanum* Raddi, *Opusc. sci. Bol.* 3: 280. 1819.

Phlegmariurus martii (Wawra) B.Øllg., *comb. nov.*
Basionym: *Lycopodium martii* Wawra, Oesterr.
Bot. Z. 13: 218. 1863.

Phlegmariurus mollicomus (Spring) B.Øllg., *comb. nov.*
Basionym: *Lycopodium dichotomum* Jacq. ssp.
mollicomum Spring, Flora 21(1): 162. 1838.

Phlegmariurus mooreanus (Baker) B.Øllg., *comb. nov.*
Basionym: *Lycopodium mooreanum* Baker,
Gard., Chron., ser.3, 12: 582. 1892.

Phlegmariurus nudus (Nessel) B.Øllg., *comb. nov.*
Basionym: *Urostachys nudus* Nessel, Arch. Bot.
São Paulo 1(4): 396, t. 14. 1927.

Phlegmariurus pungentifolius (Silveira) B.Øllg.,
comb. nov. Basionym: *Lycopodium pungentifolium*
Silveira, Bol. Comm. Geog. Geol. Est. Minas
Geraes 2, n. 5. 119. 1898.

Phlegmariurus quadrifariatus (Bory) B.Øllg.,
comb. nov. Basionym: *Lycopodium quadrifarium*
Bory in Duperrey, Voy. Monde 245. 1829.

Phlegmariurus recurvifolius (Rolleri) B.Øllg.,
comb. nov. Basionym: *Huperzia recurvifolia*
Rolleri, Notas Mus. La Plata, Bot. 21(103): 210.
1989.

Phlegmariurus reflexus (Lam.) B.Øllg., *comb. nov.*
Basionym: *Lycopodium reflexum* Lam.,
Encycl. 3: 653. 1792.

Phlegmariurus reflexus (Lam.) B.Øllg. var.
minus (Spring) B.Øllg., *comb. nov.* Basionym:
Lycopodium reflexum Lam. var. *minus* Spring,
Nouv. Mém. Acad. Roy. Sci. Bruxelles 15: 26.
1842.

Phlegmariurus regnellii (Maxon) B.Øllg., *comb. nov.*
Basionym: *Lycopodium regnellii* Maxon,
Contr. U.S. Natl. Herb. 17(4): 424, t. 23. 1914.

Phlegmariurus rostrifolius (Silveira) B.Øllg.,
comb. nov. Basionym: *Lycopodium rostrifolium*
Silveira, Bol. Comm. Geog. Geol. Est. Minas
Geraes 2, n. 5: 118, pl. 2.. 1898.

Phlegmariurus ruber (Cham. & Schlecht.) B.Øllg.,
comb. nov. Basionym: *Lycopodium rubrum* Cham.,
Linnaea 8(4): 389. 1833.

Phlegmariurus sellowianus (Herter) B.Øllg.,
comb. nov. Basionym: *Lycopodium sellowianum*
Herter, Bot. Jahrb. Syst. 43(Beibl. 98): 44. 1909.

Phlegmariurus silveirae (Nessel) B.Øllg., *comb. nov.*
Basionym: *Urostachys silveirae* Nessel, Arch.
Bot. São Paulo 1(4): 386. 1927.

Phlegmariurus treitubensis (Silveira) B.Øllg.,
comb. nov. Basionym: *Lycopodium treitubense*
Silveira, Bol. Comm. Geog. Geol. Est. Minas
Geraes 2, n. 5: 118, t. 3.. 1898.

Phlegmariurus wilsonii (Underw. & F.E. Lloyd)
B.Øllg., *comb. nov.* Basionym: *Lycopodium wilsonii*
Underw. & F.E. Lloyd, Bull. Torrey Bot.
Club 33: 111. 1906.

Pseudolycopodiella benjaminiana (P.G.
Windisch) B.Øllg., *comb. nov.* Basionym:
Lycopodiella benjaminiana P.G. Windisch, Bradea
6: 22. 1991.

Acknowledgements

I am indebted to Paulo Windisch and Jefferson Prado for constructive suggestions for this manuscript.

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