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***Typii Petropolitanum Brasiliensium*—A CATALOG OF BRAZILIAN TYPES OF BRYOPHYTA DEPOSITED AT KOMAROV BOTANICAL INSTITUTE (LE) IN ST. PETERSBURG, RUSSIA**

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Summary: The herbarium LE of the Komarov Botanical Institute in Saint Petersburg (former Leningrad), Russia holds one of the least known Brazilian moss collections in the world. In this paper we provide a list the Brazilian types of mosses deposited in the type collection of LE. Totaling types for 41 species names from Brazil are listed.

Key words: Brazil, Leningrad, mosses, Müller Hallensis, Russia, Saint Petersburg, types.

Resumen: *Typii Petropolitanum brasiliensium* —Un catálogo de typus de musgos depositados en el Instituto Botánico Komarov (LE) en St. Petersburgo, Rusia. EL Instituto Botánico Komarov (Herbario de Leningrado—LE) ubicado en San Petersburgo, Rusia, contiene una de las menos conocidas colecciones de musgos Brasileiros en el mundo. En este trabajo listamos los typus de musgos depositados en la colección de typus de LE, en un total de 41 nombres para Brasil.

Palabras clave: Brasil, Leningrado, musgos, Müller Hallensis, Rusia, San Petersburgo, typus.

INTRODUCTION

The Herbarium LE of the Komarov Botanical Institute in Saint Petersburg (former Leningrad), hosts one of biggest plant collection in the world and the biggest plant collection in Russia with more than 7 million plants (Holmgren & Holmgren, 1998).

The foundation and the history of the Herbarium are connected with the Russian Academy of Sciences since 1725. In Russian Empire, the Herbarium was a division of the Saint Petersburg Imperial Botanical Garden, and was called “Herbario Horti Botanici Petropolitani” in scientific papers before 1932. At present time,

the Bryophyte Herbarium, a division of the Herbarium LE, is the largest one in Russia holding more than 300,000 bryophyte specimens. Due to the historical significance of the Herbarium, many bryologists from 1900 and 1800 (e.g. V.F. Brotherus, Müller Hallensis) usually sent to the herbarium the duplicates of its own important collections, of which some (like Müller Hallensis’ collections) were eventually destroyed during World War II (Hiepko, 1990; Merrill, 1943), and likely to exist only here.

The type collection of bryophytes at LE is kept separately from the general collection and compresses about 450 taxa. The identification and selection of type specimens started in the 60s of the last century carrying out usually in conjunction with taxonomic revisions.

Due to its geographical distance from Brazil and the political circumstances around Russia between 1917 and 1989, the Herbarium was not accessible for a generation of scientists, and even now, is still largely unknown to Brazilian botanists, especially bryologists.

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There are no records of previous Brazilian bryologists visiting LE and we strongly believe that the Brazilian authors were the first Brazilian bryologists to visit the moss collection, at least since the fall of Berlin wall.

The LE herbarium is probably one of the last to be remembered when it comes to Brazilian moss collections, but surprisingly enough, it hosts many collections from South America including many types. In this paper we list the Brazilian types for mosses found in the type collection of LE. We are aware that there are many types not identified as such and not housed in the type collection. Most types are probably still mixed among the general collections, so this list is far from being a complete list of moss types in LE, as we are presenting only the ones present in the type collection. However, we trust it represents an important contribution for taxonomists interested in Brazilian mosses and draws an attention for a potentially important collection for Brazil that has been neglected over the years.

METHODS

A visit to the LE herbarium allowed us to investigate its type collection (kept separately). The TROPICOS database (www.tropicos.org) was consulted for checking the literature for types. Also the papers by Câmara *et al.* (2016), Costa *et al.* (2016), Sayre (1977) and Thiers (1992) were consulted. This is not a taxonomic revision and consequently we do not provide any new combination, synonymization or lectotypification. Results are presented in alphabetical order of basionyms, and the combinations are presented in chronological order. Also, when pertinent, some taxonomic notes are provided.

RESULTS

A total of 48 types for 40 names. Also 22 are from Müller Hallensis names, what is of a high importance once his original herbarium in Berlin was destroyed during WWII (Merrill, 1943). This material may constitute good candidate specimens for lectotypifications. Also, a list of invalid names whose original materials were found, is provided. We decided also to present the names *in schedis* found.

List of Brazilian types found at LE:

1. *Astomum lonchophyllum* G. Roth, Ausserer. Laubm. 182. pl. 18: f. 4. 1911. *Trachycarpidium lonchophyllum* (G. Roth) R.H. Zander, Bull. Buffalo Soc. Nat. Sci. 32: 213. 1993. —TYPE: Santa Catarina, Tubarão, *Ule* 7.
2. *Campylopus restingae* Müll. Hal. ex Broth., *Ergebn. Bot. Exped. Südbras., Musci* 1901 260. 1924. —TYPE: Rio de Janeiro, Mauá, *Ule* 212.
3. *Campylopus sprucei* Mitt., *J. Linn. Soc., Bot.* 12: 81. 1869. —TYPE: Rio Negro, *Spruce* 59.
4. *Dicranum alto-filifolium* Müll. Hal., *Hedwigia* 39: 253. 1900. *Campylopus alto-filifolius* (Müll. Hal.) Paris, *Index Bryol.*, ed. 2, 1: 297. 1904. —TYPE: Santa Catarina, Serra Geral, *Ule* 835, 1032.
5. *Dicranum araucarieti* Müll. Hal., *Hedwigia* 39: 254. 1900. *Campylopus araucarieti* (Müll. Hal.) Paris, *Index Bryol. Suppl.* 1, 88. 1900.—TYPE: Santa Catarina, Serra Geral, *Ule* 661.
6. *Dicranum brasiliense* Müll. Hal., *Bull. Herb. Boissier* 6: 39. 1898. *Metzleria brasiliensis* (Müll. Hal.) Paris, *Index Bryol. Suppl.* 1, 244. 1900. *Metzlerella brasiliense* (Müll. Hal.) Broth., *Nat. Pflanzenfam.*, ed. 2, 10: 191, 192. 1924. *Atractylocarpus brasiliensis* (Müll. Hal.) R.S. Williams, *Bryologist* 31: 110. 1928. —TYPE: Itatiaia, *Ule* 1795.
7. *Dicranum subarctocarpum* Hampe, *Vidensk. Meddel. Dansk Naturhist. Foren. Kjøbenhavn ser.* 3, 10: 255. 1878. *Campylopus subarctocarpus* (Hampe) A. Jaeger, *Gen. Sp. Musc.* 2: 760. 1880. —TYPE: Rio de Janeiro, *Glaziou* 9078.
8. *Dicranum subgriseum* Hampe, *Vidensk. Meddel. Dansk Naturhist. Foren. Kjøbenhavn* 4: 47. 1872. *Campylopus subgriseus* (Hampe) A. Jaeger, *Gen. Sp. Musc.* 2: 648. 1880. —TYPE: Rio de Janeiro, *Glaziou* 4543.
9. *Entodon polysetus* Müll. Hal., *Bull. Herb. Boissier* 6: 118. 1898. *Cylindrothecium polysetum* (Müll. Hal.) Paris, *Index Bryol. Suppl.* 1, 109. 1900. —TYPE: Santa Catarina, Serra Geral, *Ule* 1033.
10. *Ephemerum aequinoctiale* Spruce, *J. Linn. Soc., Bot.* 12: 239. 1869. *Nanomitrium aequinoctiale* (Spruce) E. Britton, *Bull. Torrey Bot. Club* 20: 304. 1893. —TYPE: Rio Negro, São Gabriel, *Spruce* 443.
11. *Ephemerum pachyneuron* Müll. Hal., *Bull. Herb. Boissier* 6: 20. 1898. —TYPE: Itatiaia, *Ule* 1901.

12. *Hymenostomum fasciculatum* Hampe, Vidensk. Meddel. Dansk Naturhist. Foren. Kjøbenhavn 4: 39. 1872. —TYPE: Rio de Janeiro, *Glaziou 5149*.
13. *Hypnum chlorosum* Hampe, Flora 64: 414. 1881. *Isopterygium chlorosum* (Hampe) Paris, Index Bryol. 706. 1897. —TYPE: Rio de Janeiro, *Glaziou 11733*.
14. *Hypnum restitutum* Hampe, Vidensk. Meddel. Dansk Naturhist. Foren. Kjøbenhavn ser. 4, 1: 141. 1879. *Isopterygium restitutum* (Hampe) Kindb., Enum. Bryin. Exot., suppl. 2, 100. 1891. *Sematophyllum restitutum* (Hampe) Paris, Index Bryol. 1169. 1898. —TYPE: Rio de Janeiro, *Glaziou 7455*.
15. *Isopterygium affusum* Mitt., J. Linn. Soc., Bot. 12: 499. 1869. —TYPE: Rio Negro, *Spruce 1059*.
16. *Meteorium filicis* Müll. Hal., Hedwigia 40: 97. 1901. *Meteoriopsis filicis* (Müll. Hal.) Broth., Nat. Pflanzenfam. I(3): 825. 1906. —TYPE: Santa Catarina, Pedras Grandes, *Ule 1026*.
17. *Meteorium piligerum* Müll. Hal., Hedwigia 40: 98. 1901. *Meteoriopsis piligera* (Müll. Hal.) Broth., Nat. Pflanzenfam. I(3): 825. 1906. —TYPE: Santa Catarina, Nova Veneza, *Ule 1028*.
18. *Phascum lilliputanum* Müll. Hal. ex G. Roth, Aussereur. Laubm. 212. pl. 20: 3. 1911. *Tetrapterum lilliputanum* (Müll. Hal. ex G. Roth) Broth., Nat. Pflanzenfam. (ed. 2). 10: 253. 1924. *Tortella lilliputana* (Müll. Hal. ex G. Roth) R.H. Zander, Bull. Buffalo Soc. Nat. Sci. 32: 104. 1993. —TYPE: Santa Catarina, Tubarão, *Ule 133*.
19. *Phascum vernicosum* Müll. Hal. ex G. Roth, Aussereur. Laubm. 212. 1911. *Tetrapterum vernicosum* (Müll. Hal. ex G. Roth) Broth., Nat. Pflanzenfam. (ed. 2). 10: 253. 1924. *Trichostomum exulatum* R.H. Zander, Bull. Buffalo Soc. Nat. Sci. 32: 92. 1993. —TYPE: Santa Catarina, Tubarão, *Ule 8*.
20. *Plagiothecium flaviusculum* Müll. Hal., Hedwigia 40: 59. 1901. *Isopterygium flaviusculum* (Müll. Hal.) Broth., Nat. Pflanzenfam. I(3): 1082. 1908. —TYPE: Rio de Janeiro, Mauá, *Ule 1941*.
21. *Physcomitrium serricola* Müll. Hal., Hedwigia 39: 246. 1900. *Funaria serricola* (Müll. Hal.) Broth., Nat. Pflanzenfam. I(3): 524. 1903. *Entosthodon serricola* (Müll. Hal.) Paris, Index Bryol. ed. 2: 146. 1904. —TYPE: Santa Catarina, Campo de Capivara, *Ule 1006*.
22. *Plagiothecium flaviusculum* Müll. Hal., Hedwigia 40: 59. 1901. *Isopterygium flaviusculum* (Müll. Hal.) Broth., Nat. Pflanzenfam. I(3): 1082. 1908. —TYPE: Rio de Janeiro, Restinga de Mauá, *Ule 1941*. Comment: In TROPICOS (www.tropicos.org) the type is presented as *Ule 234*, in contradiction with the protologue.
23. *Psilopilum ulei* Broth. Ex Müll. Hal., Bull. Herb. Boissier 6: 26. 1898. *Itatiella ulei* (Broth. ex Müll. Hal.) G.L. Sm., Mem. New York Bot. Gard. 21(3): 52. 1971. —TYPE: Itatiaia, *Ule 1905*.
24. *Sematophyllum inundatum* Mitt., J. Linn. Soc. Bot. 12: 494. 1869. *Trichosteleum inundatum* (Mitt.) A. Jaeger, Ber. Thätigk. St. Gallischen Naturwiss. Ges. 1876–77: 419. 1878. —TYPE: Rio Negro, *Spruce 925*.
25. *Sphagnum amoenum* Warnst., Bot. Jahrb. Syst. 27: 252. 1899. —TYPE: Rio de Janeiro, *Ule 1892, 1930*.
26. *Sphagnum brachybolax* Müll. Hal. ex Warnst., Hedwigia 30: 150. 1891. —TYPE: Santa Catarina, Laguna, *Ule s.n.*
27. *Sphagnum brevirameum* Hampe, Vidensk. Meddel. Dansk Naturhist. Foren. Kjøbenhavn ser. 3, 6: 129. 1874. —TYPE: Rio de Janeiro, *Glaziou 6389*.
28. *Sphagnum heterophyllum* Warnst., Bot. Jahrb. Syst. 27: 254. 1899. —TYPE: Rio de Janeiro, *Ule 1931*.
29. *Sphagnum itatiaiae* Müll. Hal. & Warnst., Hedwigia 36: 146. 1897. —TYPE: Itatiaia, *Ule 1742*.
30. *Sphagnum mirabile* Müll. Hal. & Warnst., Hedwigia 36: 161. 1897. —TYPE: Minas Gerais, Caraça, *Ule 1287*.
31. *Sphagnum ovalifolium* var. *robustius* Warnst. & Müll. Hal., Hedwigia 36: 168. 1897. —TYPE: Minas Gerais, Caraça, *Ule 1295*.
32. *Sphagnum puiggari* Müll. Hal., Flora 70: 409. 1887. —TYPE: São Paulo, Apiahi, *Puiggari s.n.*
33. *Sphagnum ramulinum* Warnst., Bot. Centralbl. 76: 5. 1898. —TYPE: Minas Gerais, Serra de Ouro Preto, *E. Ule 1304*.
34. *Sphagnum rotundatum* Müll. Hal. & Warnst., Hedwigia 36: 162. 1897. —TYPE: Itatiaia, *Ule 1760*.
35. *Sphagnum subovalifolium* Müll. Hal. & Warnst., Hedwigia 36: 162. 1897. —TYPE: Itatiaia, *Ule 1754*.

36. *Sphagnum trigonum* Müll. Hal. & Warnst., Hedwigia 36: 158. 1897. —TYPE: *Sine loco*, *Ule 1635*.
37. *Sphagnum trigonum* var. *laxifolium* Warnst., Hedwigia 36: 159. 1897. —TYPE: *Sine loco*, *Ule 1632*.
38. *Trematodon brevifolius* Broth. ex Müll. Hal., Bull. Herb. Boissier 6: 44. 1898. —TYPE: [Minas Gerais], Ouro Preto, *Ule 1059*.
39. *Trematodon serrae* Müll. Hal. ex G. Roth, Ausserer. Laubm. 256. 1911. —TYPE: Santa Catarina, *Ule 105*.
40. *Weissia termitarum* Müll. Hal., Hedwigia 39: 267. 1900. *Hymenostomum termitarum* (Müll. Hal.) Broth., Nat. Pflanzenfam. I(3): 386. 1902. *Trichostomum termitarum* (Müll. Hal.) R.H. Zander, Bull. Buffalo Soc. Nat. Sci. 32: 92. 1993. —TYPE: Goyaz, close to Mossamedes, *Ule 1065*.

Also original materials of the following invalid names were found:

Campylopus procerus Broth., Index Bryol. Suppl. 89. 1900; *Campylopus tijucae* Broth., Index Bryol. Suppl. 98. 1900; *Conomitrium platybryoides* Müll. Hal., Hedwigia 1: 58. 1899; *Fissidens calochlorus* Broth., Hedwigia 39: 59. 1899; *Fissidens rubentiloma* Müll. Hal., Hedwigia 59. 1899; *Fissidens spectabilis* Müll. Hal., Hedwigia 38: 59. 1899; *Fissidens tijucae* Broth., Hedwigia 38:59. 1899; *Holomitrium subtorquescens* Müll. Hal., Hedwigia 38: 57. 1899; *Hypnum fontinaleum* Müll. Hal., Hedwigia 38:59. 1899; *Hypnum tenuipinnatum* Müll. Hal., Hedwigia 38: 59. 1899; *Leucoloma catharinae* Müll. Hal., Index Bryol. 759. 1897; *Meteorium brevicuspis* Müll. Hal., Hedwigia 38: 59. 1899; *Oreoweisia anomala* Broth., Hedwigia 38: 38. 1899; *Physcomitrium convolutaceum* Müll. Hal., Hedwigia 39: 245. 1900; *Trichostomum carassense* Broth., Index Bryol. 1320. 1898.

Names *in schedis*: *Dicranum fragilissimum* Müll. Hal., *Entodon apiahyensis* Müll. Hal., *Fissidens subcircinatus* Müll. Hal., *Meteorium inteonigrum* Müll. Hal., *Phylonotis polyclada* Müll. Hal.

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