



<http://dx.doi.org/10.11646/phytotaxa.177.2.5>

***Pseudosymbelpharis perlongifolia* (Bryophyta, Pottiaceae), a neglected species from Malaysia new for America**

MARTA ALONSO, MARÍA J. CANO & JUAN A. JIMÉNEZ

Departamento de Biología Vegetal, Facultad de Biología, Universidad de Murcia, Campus de Espinardo, 30100–Murcia, Spain.

E-mail: m.alonsogarcia@um.es

Abstract

The Asian moss *Pseudosymbelpharis perlongifolia*, previously known only from Malaysia, is reported for the first time for America on the basis of several collections from Maricao (Puerto Rico). The principal distinctive characters that separate it from the nearest species of *Pseudosymbelpharis* and related genera are discussed. The species is described and illustrated.

Resumen

El musgo asiático *Pseudosymbelpharis perlongifolia* es citado por primera vez en América, en base a varias colecciones de Maricao (Puerto Rico). Hasta ahora, la especie era conocida exclusivamente de Malasia. En este trabajo se discuten los principales caracteres que permiten diferenciarla de otras especies de *Pseudosymbelpharis*, así como de especies cercanas de otros géneros. La especie es descrita e ilustrada.

Key words: distribution, mosses, Puerto Rico, taxonomy

Introduction

In the context of a worldwide taxonomic revision of *Pseudosymbelpharis* Brotherus (1924: 261), we studied the type material of *Trichostomum perlongifolium* Fröhlich (1962: 92). This species was described based on a single collection made by W. Meijer on Mount Kinabalu, Borneo, in the East Malaysian state of Sabah. *Trichostomum perlongifolium* was transferred to *Pseudosymbelpharis* by Zander (1993). However, up to then, the species had been forgotten and was not even included in the Malesian moss flora (Eddy 1990). Sollman (2000), in his taxonomic revision of genus *Pseudosymbelpharis* in Asia, reduced *Pseudosymbelpharis perlongifolia* (J. Froehl.) Zander (1993: 80) to synonymy with *P. bombayensis* (Müller 1851: 628) Sollman & Een (1996: 2). In addition, he included under *P. bombayensis* the five species of *Pseudosymbelpharis* known from Asia: *P. angustata* (Mitten 1859: 28) Hilpert (1933: 670), *P. duriuscula* (Mitten 1859: 27) Chen (1941: 153), *P. indica* Dixon & P. de la Varde (1927: 166), *P. khasiana* (Mitten 1859: 29) Zander (1993: 80) and *P. perlongifolia*. Moreover, Sollman (2001) transferred *P. bombayensis* to *Chionoloma bombayense* (Müll.Hal.) Sollman (2001: 139), based on work carried out by Menzel (1992), so that, up to now, *P. perlongifolia* has been considered a synonym.

During the course of a revision of American *Pseudosymbelpharis* (Alonso *et al.* 2014), we had the opportunity to examine several collections of Puerto Rican mosses deposited at NY. Among these collections, we found some specimens belonging to *Pseudosymbelpharis* which did not match any previously known species of this genus in America. A detailed study of these specimens allowed us to identify them as *P. perlongifolia*.

This paper presents a complete description and LM photographs of this neglected species. Moreover, its distribution, habitat, and comparisons with closely related species are provided.

References

- Aiba, S. & Kitayama, K. (1999) Structure, composition and species diversity in an altitude-substrate matrix of rain forest tree communities on Mount Kinabalu, Borneo. *Plant Ecology* 140: 139–157.
- Allen, B. (1994) Moss flora of Central America, Part 1. Sphagnaceae-Calymporaceae. *Monographs in Systematic Botany from the Missouri Botanical Garden* 42: 1–242.
- Allen, B. (2002) Moss flora of Central America, Part 2. Encalyptaceae-Orthotrichaceae. *Monographs in Systematic Botany from the Missouri Botanical Garden* 90: 1–699.
- Alonso, M., Cano, M.J. & Jiménez, J.A. (2014). A new combination in *Pseudosymbelpharis* (Pottiaceae) from Central and South America. *Journal of Bryology* 36: 27–33.
<http://dx.doi.org/10.1179/1743282013Y.0000000084>
- Andrews, A.L. (1920) *Tortula caroliniana*, new species. *The Bryologist* 23: 72–76.
- Bardunov, L.V. (1969) *Handbook of mosses of the Central Siberia*. Hayka, Nauka, Leningrad, 329 pp.
- Bartram, E.B. (1946) New species and new combinations of Guatemalan mosses. *The Bryologist* 49: 109–125.
<http://dx.doi.org/10.2307/3239484>
- Brongniart, M. & Gris, A. (1863) Notes sur deux genres nouveaux de Myrtacées de la Nouvelle-Calédonie. *Bulletin de la Société Botanique de France* 10: 369–374.
<http://dx.doi.org/10.1080/00378941.1863.10827261>
- Brotherus, V.F. (1924) Musci (Laubmoose). 1 Hälften. 10. In: Engler, H.G.A. & Prantl, K.A.E. (Eds.) *Die Natürlichen Pflanzenfamilien*, ed. 2. Duncker & Humblot, Berlin, 478 pp.
- Chen, P.C. (1941) Studien über die ostasiatischen Arten der Pottiaceae, II. *Hedwigia* 80: 141–322.
- Chiang, T.Y. & Lin, S. (2001) Taxonomic revision and cladistic analysis of *Diphyscium* (family Diphysciaceae) of Taiwan. *Botanical Bulletin of Academia Sinica* 42: 215–222.
- Crum, H.A. (1952) *Pseudosymbelpharis* in Middle America. *The Bryologist* 55: 137–142.
- Crum, H.A. & Steere, W.C. (1956) Puerto Rican Musci. New species and new combinations. *The Bryologist* 59: 246–255.
- Deguchi, H. (1984) *Diphyscium unipapillosum*, sp. nov. (Diphysciaceae, Musci) from Japan. *Journal of Japanese Botany* 59: 97–103.
- Dixon, H. & Potier de la Varde, R. (1927) Contribution à la flore bryologique de l'Inde méridionales. *Archives de Botanique, Bulletin Mensuel* 1: 161–184.
- Eddy, A. (1990) *A Handbook of Malesian Mosses. Vol. 2. Leucobryaceae to Buxbaumiaceae*. Natural History Museum Publications, London, 256 pp.
- Endlicher, S. (1847) *Synopsis Coniferarum*. Sangalli, apud Scheitlin & Zollikofer, Cracoviae, 368 pp.
<http://dx.doi.org/10.5962/bhl.title.15336>
- Forster, J.R. & Forster, J.G. (1775) *Characteres generum plantarum: quas in itinere ad insulas Maris Australis*. B. White, T. Candell, & P. Elmsly, London, 150 pp.
<http://dx.doi.org/10.5962/bhl.title.4448>
- Fröhlich, J. (1962) Musci novi malesiani collecti a Dre. Guil. Meijer. *Revue Bryologique et Lichénologique* 31: 91–94.
- Gaertner, C. (1805) *Supplementum carpologiae seu continuati operis Josephi Gaertner de fructibus et seminibus plantarum*. Sumtibus Carol. Frid. Enoch Richter bibliopolae Lipsiensis, Leipzig, 128 pp.
<http://dx.doi.org/10.5962/bhl.title.59684>
- Gaertner, J. (1788) *De fructibus et seminibus plantarum Vol. 1. Typis Academiae Carolinae*, Stutgardiae, 384 pp.
- Grout, A.J. (1938) *The moss Flora of North America North of Mexico*. Grout, A.J., Newfane, Vermont, 264 pp.
- Hilpert, F. (1933) Studien zur systematik der Trichostomaceen. *Beihefte zum Botanischen Centralblatt* 50: 585–706.
- Jacquin, N.J. (1760) *Enumeratio systematica plantarum, quas in insulis Caribaeis*. Inter Documentation Company AG, Zug, Switzerland, 41 pp.
<http://dx.doi.org/10.5962/bhl.title.737>
- Kiaerskov, H.F.C. (1890) Myrtaceae ex India occidentali a dominis Eggers, Krug, Sintenis, Stahl. *Botanisk Tidsskrift* 17: 248–492.
- Kitayama, K. (1992) An altitudinal transect study of the vegetation on Mount Kinabalu, Borneo. *Vegetatio* 102: 149–171.
<http://dx.doi.org/10.1007/bf00044731>
- Knoblauch, E.F. (1895) Wissenschaftliche Original-Mittheilungen. Zur Kenntniss einiger Oleaceen-Genera. *Botanisches Centralblatt* 61: 81–87.
- Krug, C.W.L. & Urban, I. (1895) Additamental ad cognitionem Indiae occidentalis. II. *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 19: 577–681.
- Lamarck, J.B. (1791) *Tableau encyclopédique et méthodique des trois règnes de la nature, Botanique 1*. Panckoucke, Paris & Liège, 496

- pp.
<http://dx.doi.org/10.5962/bhl.title.218>
- Lambert, A.B. (1807) *A description of the genus Pinus I.* J. White, Horace's Head, Fleet John, London, 98 pp.
- Laubefels de, D.J. (1969) A revision of the Malesian and Pacific rainforest conifers, I. Podocarpaceae. *Journal of the Arnold Arboretum* 50: 315–369.
- Mitten, W. (1859) Musci Indiae orientalis, an enumeration of the mosses of the East Indies. *Journal of the Proceedings of the Linnean Society, Botany, Supplement* 1: 1–96.
<http://dx.doi.org/10.1111/j.1095-8339.1859.tb02466.x>
- Mitten, W. (1869) Musci Austro-American. *Journal of the Linnean Society, Botany* 12: 1–659.
<http://dx.doi.org/10.1111/j.1095-8339.1871.tb00633.x>
- Mitten, W. (1891) An enumeration of all the species of musci and hepaticae recorded from Japan. *Transactions of the Linnean Society of London, Botany* 3: 153–206.
<http://dx.doi.org/10.1111/j.1095-8339.1891.tb00626.x>
- Menzel, M. (1992) Nomenklatorische notizen zu Eddys “Handbook of Malesian Mosses” (Band 2). *Willdenowia* 22: 197–199.
- Müller, C. (1851) *Synopsis muscorum frondosorum omnium hucusque cognitorum*, 2. A. Foerstner, Berlin, 772 pp.
<http://dx.doi.org/10.5962/bhl.title.31>
- Müller, C. (1857) Manipulus muscorum e Flora Novae Granadae. *Botanische Zeitung (Berlin)* 15: 577–583.
- Müller, C. (1874) Novitates bryothecae Müllerianae. 3. Musci Mexicani praesertim a Cl. C. Mohr et Sartorius collecti. *Linnaea* 38: 620–660.
- Müller, F.A. (1829) Erstes Verzeichnis sardinischer Laubmose, wie auch derjenigen welche von meinem Freunde Herrn Fleischer bei Smyrna aufgefunden worden sind, nebst Beschreibungen und Abbildungen einiger neuer Arten. *Flora* 12: 385–396.
- Norris, D.H. (1981) *Diphyscium chiapense*, a new species from southern Mexico. *The Bryologist* 84: 375–378.
<http://dx.doi.org/10.2307/3242856>
- O’Shea, B.J. (2006) Checklist of the mosses of sub-Saharan Africa. *Tropical Bryology Research Reports* 6: 1–252.
- Paris, É.G. (1894–1898) *Index bryologicus sive enumeratio muscorum hucusque cognitorum adjunctis synonyma distributioneque geographica locupletissimis quem conscripsit E. G. Paris*. Paul Klincksieck, Paris.
<http://dx.doi.org/10.5962/bhl.title.643>
- Pierre, J.B.L. (1891) *Notes botaniques: Sapotacées*, 2. Paul Klincksieck, Paris.
<http://dx.doi.org/10.5962/bhl.title.10315>
- Silander, S., Gil de Rubio, H., Miranda, M. & Vazquez, M. (1986) *Compendio enciclopédico de los recursos naturales de Puerto Rico. Tomo II*. Departamento de Recursos Naturales, San Juan, Puerto Rico.
- Sollman, P. (2000) A taxonomic revision of *Pseudosymblepharis* Broth. (Musci: Pottiaceae) in Asia. *Tropical Bryology* 18: 129–145.
- Sollman, P. (2001) A new combination in *Chionoloma* Dix. (Musci, Pottiaceae). *Tropical Bryology* 20: 139.
- Sollman, P. & Een, G. (1996) Mosses from the Mascarenes - 5. *Tropical Bryology* 12: 1–4.
- Sprague, T.A. (1932) Miscellaneous notes. *Bulletin of Miscellaneous Information Kew* 1932: 350–352.
- Tan, B.C. (1998) Noteworthy disjunctive patterns of Malesian mosses. In: Hall, R. & Holloway, J.D. (Eds.) *Biogeography and Geological Evolution of Southeast Asia*. Backhuys, Leiden, pp. 235–241.
- Urban, I. (1899) *Symbolae Antillanae seu fundamenta Flora Indiae Occidentalis*. Fratres Borntraeger, Lipsiae, 536 pp.
<http://dx.doi.org/10.5962/bhl.title.144>
- Vahl, M. (1796) *Eclogae Americanae seu descriptiones plantarum praesertim Americae meridionalis, nondum cognitarum I.* Impensis auctoris, Copenhagen, 58 pp.
<http://dx.doi.org/10.5962/bhl.title.69096>
- Zander, R.H. (1993) Genera of the Pottiaceae: mosses of harsh environments. *Bulletin of the Buffalo Society of Natural Sciences* 32: 1–378.