

**Notes on the genus *Hysteroglyphium*
(Ascomycota, Hysteriaceae)
in southern South America**

by

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With 12 figures

Messuti, M.I. & L.E. Lorenzo (2003): Notes on the genus *Hysteroglyphium* (Ascomycota, Hysteriaceae) in southern South America. - Nova Hedwigia 76: 451–458.

Abstract: During a taxonomical survey of the family Hysteriaceae from the Patagonia region (Argentina and Chile), the species of *Hysteroglyphium* were revised, based on personal collections and Spegazzini's and Rehm's type material. Two cosmopolitan species, *H. flexuosum* and *H. subrugosum*, were recorded. Microscopic features are described, illustrated, and their taxonomic position and geographical distribution are commented. *H. magellanicum*, *H. fuegianum* and *H. fuegianum* f. *intermedium* are synonymized with *H. flexuosum*, and *H. cylindrosporium* with *H. subrugosum*.

Zusammenfassung: Im Laufe einer Revision der Hysteriaceae Patagoniens (Argentinien und Chile) wurden Vertreter der Gattung *Hysteroglyphium* revidiert auf Grund eigener Aufsammlungen und des Typenmaterials von Spegazzini und Rehm. Die zwei kosmopolitischen Arten *H. flexuosum* und *H. subrugosum* wurden registriert. Ihre mikroskopischen Merkmale werden illustriert und beschrieben, sowie ihre geographische Verbreitung kommentiert. *H. magellanicum*, *H. fuegianum* und *H. fuegianum* f. *intermedium* werden als Synonyme unter *H. flexuosum* gestellt und *H. cylindrosporium* unter *H. subrugosum*.

Key words: taxonomy, revision, Argentina, Chile

Introduction

During investigations of the fungal diversity in Patagonia and Tierra del Fuego (Argentina and Chile), numerous specimens belonging to the family Hysteriaceae were found in *Nothofagus* forests. Reports of the genera *Hysterium* Tode, *Glonium*

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DOI: 10.1127/0029-5035/2003/0076-0451

0029-5035/03/0076-0451 \$ 2.00
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Verlagsbuchhandlung, D-14129 Berlin D 70176 Stuttgart

Mühlenberg: Fr., *Gloniopsis* De Notaris and *Gloniella* Sacc. were published by Messuti & Lorenzo (1997) and Lorenzo & Messuti (1998). A revision of *Hysteroglyphium* Curda is the scope of this contribution.

Zogg (1962) and Kirk et al. (2001) recognized four species in the genus *Hysteroglyphium*, Van der Linde (1992) six. Species of the genus are widespread, mostly lignicolous and/or corticolous, saprobic or hemibiotrophic (Barr 1990). The genus differs from the other genera of the Hysteriaceae by its muriform, brown, reddish brown or yellowish brown ascospores.

Previous reports on the taxonomy and distribution of this genus in southern South America are found in Spegazzini (1887, 1910), Rehm (1899), and Mujica Richart & Vergara (1980). Some *Hysteroglyphium* species described from Argentina and Chile by Spegazzini and Rehm were listed as doubtful species in Zogg (1962). Nevertheless, we found that fertile type material of these doubtful species was available and well preserved at LPS and S. The purpose of this contribution is to provide a taxonomic treatment and new reports of the geographical distribution *Hysteroglyphium* species known from Patagonia and Tierra del Fuego.

Material and methods

The examined material from personal collections was deposited in BCRI herbarium (Centro Regional Universitario Bariloche) or was loaned from LPS and S. Thirty ascospores were measured of each specimen to assess the variation (Tables I and II).

Results and discussion

***Hysteroglyphium flexuosum* (Schwein.) Sacc., Syll. Fung. 2: 781 (1883)**

Figs 1-4, 7-10

= *Hysterium flexuosum* Schwein., Schriften Naturf. Ges. Leipzig 1 (1822).

= *Hysteroglyphium magellanicum* Speg., Bol. Acad. Nac. Cienc. Córdoba 11: 248 (1887).

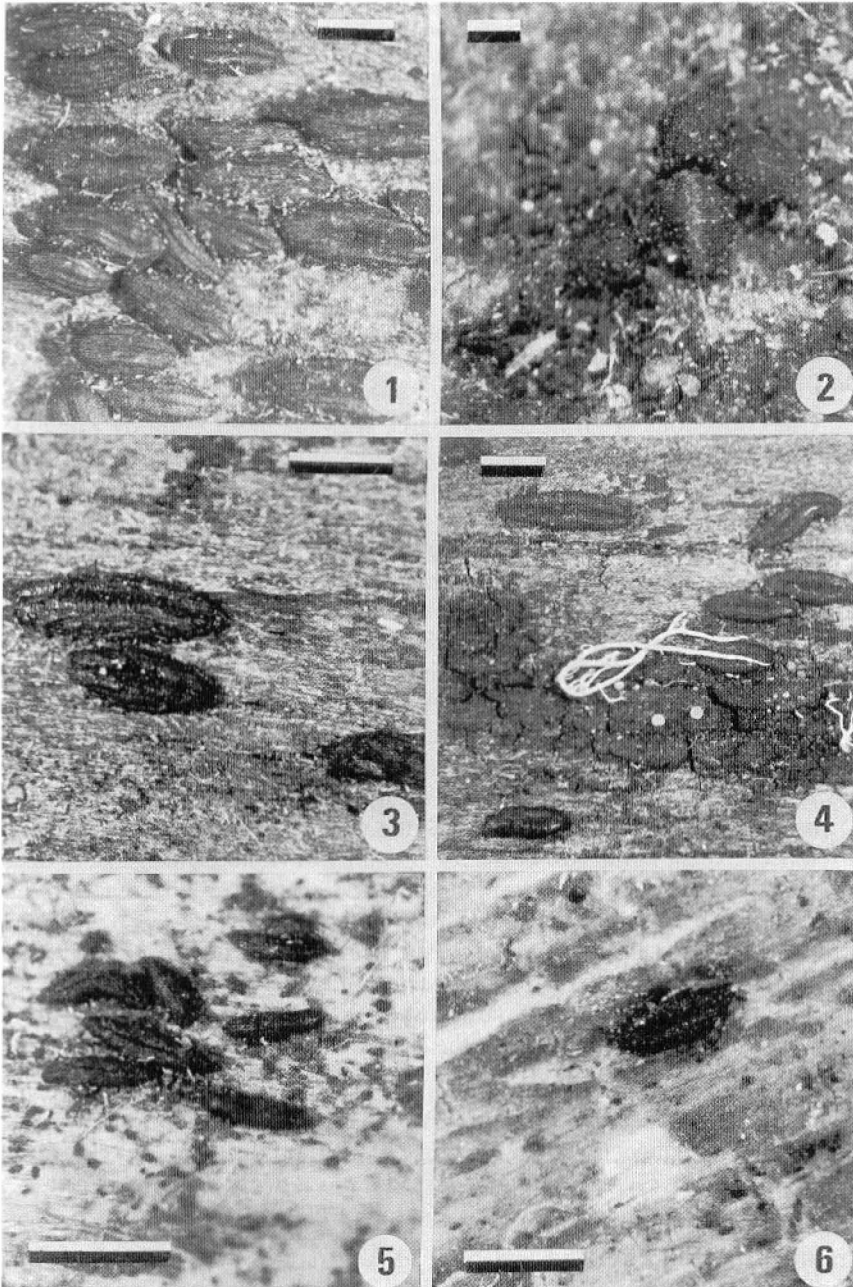
= *Hysteroglyphium fuegianum* Speg., Bol. Acad. Nac. Cienc. Córdoba 11: 247 (1887).

= *Hysteroglyphium fuegianum* f. *intermedium* Rehm, Bot. Kongl. Svenska Vetensk. - Akad. Handl. Stockholm 25, Afd. III, N° 6: 11 (1899).

For additional synonymy see Zogg (1962) and Barr (1990).

Hysterothecia gregarious, closely associated, superficial, straight to flexuous, elliptical with blunt to pointed ends, longitudinally striated, 0.5-3.5 × 0.2-0.8 mm; pseudoparaphyses hyaline, septate, flexuous, branched near the tips to form an epithecium; asci clavate-cylindrical, 8-spored, 100-222 × 20-40 µm; ascospores yellowish to dark brown, biseriate, with 7-15 transverse and 1-4 longitudinal septa, muriform, ellipsoid to broadly ellipsoid, constricted at the median septum, 36-65(-70) × (8-)9-20 µm.

SPLAINTS EXAMINED: *Hysteroglyphium magellanicum*: ARGENTINA: Tierra del Fuego, Cabo Negro, on *Fagus* sp., iii.1882, C. Spegazzini (LPS 1295, holotype). *Hysteroglyphium fuegianum*: ibid., Isla de los Estados, on *Scalonia serrata* (= *Escalonia serrata*), iii.1882, C. Spegazzini (LPS 1296, holotype). *Hysteroglyphium fuegianum* f. *intermedium*: CHILE: Tierra del Fuego, Punta Arenas, on



Figs 1-6. General appearance of hysterothecia. 1-4. *Hysteroglyphium flexuosum*. 1. (BCRU 4163). 2. Holotype of *H. magellanicum* (LPS 1295). 3. Holotype of *H. fuegianum* (LPS 1296). 4. Holotype of *H. fuegianum* f. *intermedium* (S, reg. no. F 5851). 5-6. *Hysteroglyphium subrugosum*. 5. (BCRU 4155). 6. Holotype of *H. cylindrosporium* (S, reg. no. F 5853). All bars = 1 mm.

Nothofagus antarctica, 23.i.1896, P.K.H. Duseñ (S. reg.no. F5851, holotype). *Hysteroglyphium flexuosum*. ARGENTINA: Neuquén, Lamin National Park, Seccional Tromén, Río Malleo, on decomposed wood of *Nothofagus alpina* (= *N. nervosa*), 15.ii.1994, M. I. Messuti (BCRU 4164); *ibid.*, 8 km from the forest ranger's station, on *Nothofagus alpina* wood, 15.ii.1994, M.I. Messuti (BCRU 4158). Río Negro, Bariloche, Llaf Llaf Municipal Park, trail to Lago Escocido, on small branches of *Nothofagus dombeyi*, 28.vi.1996, P. Diehl (BCRU 4153); Nahuel Huapi National Park, Cerro Cathedral, "Los Eslovenos" trail to Frey mountain lodge, on decaying branch of *Nothofagus dombeyi*, 3.iii.2000, L.F. Lorenzo (BCRU 4154); *ibid.*, in burned forest of *Nothofagus dombeyi* and *Austrocedrus chilensis*, on a fallen branch without bark, 3.iii.2000, L.F. Lorenzo (BCRU 4172). Tierra del Fuego, Lago Fagnano, María Cristina Ranch, on wood of *Nothofagus antarctica*, 9.ii.1993, L.F. Lorenzo (BCRU 4159); Tierra del Fuego National Park, Laguna Negra, on wood of a fallen branch of *Nothofagus antarctica*, 18.ii.1996, L.F. Lorenzo (BCRU 4150); Route N° 311, between Rivadavia Ranch and Lago Fagnano, on bark of *Nothofagus antarctica*, 21.iii.1996, L.F. Lorenzo (BCRU 4156); *ibid.*, near Lago Yelmu, on wood of *Nothofagus antarctica*, 21.iii.1996, L.F. Lorenzo (BCRU 4163); Ushuaia, near Río Olivia, slope of Monte Olivia, on decorticated trunk of *Nothofagus pumilio*, 28.iii.1996, L.F. Lorenzo (BCRU 4162).

NOTES: Our collections of *H. flexuosum* agree with the description by Zogg (1962) and Van der Linde (1992). During a bibliographical inventory of the recorded species from the Patagonian region, we found two species described by Spegazzini (1887), viz. *H. magellanicum* and *H. fuegianum*, and the forma *intermedium* Rehm (1899) of the latter. On examining the type materials, we observed morphological and anatomical similarities between the taxa mentioned. Most of the morpho-anatomical characters of *H. fuegianum* and *H. magellanicum* are similar, with a broad overlap in ascocarp, ascus and ascospore sizes, but the taxa apparently differ in the number of spore septa. *H. magellanicum* shows mainly 10-11 transverse and 1-3 longitudinal septa, while *H. flexuosum* presents a wide variation in the number of transverse septa (Figs 7-10; Table 1). In the original description of *H. fuegianum* f. *intermedium*, Rehm (1899) mentioned that this form showed intermediate features between *H. flexuosum* and *H. magellanicum*. When the type material of *H. fuegianum* (LPS 1296) and *H. fuegianum* f. *intermedium* (S, reg.no. F5851) was examined, we found no differences except in the size of the asci (smaller in *H. fuegianum*). Both taxa and *H. flexuosum* did not show any morphological and anatomical differences to justify their distinction. As established by different authors (Bisby 1941, Zogg 1962, Van der Linde 1992, Messuti & Lorenzo 1997, Lorenzo & Messuti 1998), the main characteristics valid in differentiating species of the Hysteriaceae include shape, colour, size and number of septa of the ascospores. Because no significant differences in these features were found among the specimens, we regard the taxa listed as synonyms.

DISTRIBUTION: Cosmopolitan (Barr 1990). In Patagonian *Nothofagus* forests, *H. flexuosum* is very frequent; it has a wide range of distribution, from Neuquén Province (ca 39°S, 71°W) to Tierra del Fuego Province (ca 55°S, 68°W), and it is also recorded from in the Chilean region of Tierra del Fuego.

SUBSTRATE: Growing on wood and bark of *Acer* spp., *Andromeda* sp., *Arbutus menziesii*, *Betula* sp., *Ceanothus* sp., *Cornus* sp., *Corylus avellana*, *Fagus* spp., *Garrya* sp., *Gleditsia* sp., *Pinus* sp., *Prunus* sp., *Quercus* spp., *Salix* spp., and *Vitis* sp. (Zogg 1962, Barr 1990, Checa 1997). In the studied area, this species was collected on decorticated trunks or wood of *Nothofagus alpina* (= *N. nervosa*), *N. antarctica* and *N. pumilio* and on bark of *Escallonia serrata*, *N. antarctica* and *N. dombeyi*.

Table 1 *Hexagonophium flavosum* and its synonyms. Comparison based on bibliographic data and personal observations

	<i>H. flavosum</i>	<i>H. magellanicum</i>	<i>H. buettneri</i>	<i>H. buettneri</i> f. <i>intermedium</i>
Hysterothecia length x width (mm)	2 x 0.2-0.4 0.82-3.33 x 0.3-0.72	0.5-2 x 0.3-0.5 ^a 0.67-1.6 x 0.2-0.61	1 x 0.3-0.35 0.61-1.52 x 0.24-0.62	1.1-2.28 x 0.4-0.8
Asci (µm)	150-200 x 25-40 ^a 141-222 x 30-40	160-180 x 25-38	100-110 x 20 ^a 120 x 24	150-197 x 26-33
Ascospores shape	ellipsoidal with median constriction	ellipsoidal with median constriction	ellipsoidal with median constriction	ellipsoidal with median constriction
l/w	3.5	3.3	3.1	3.0
pigmentation	yellowish to	dark brown	dark brown	yellowish brown to reddish brown
dimensions (µm)	12-0-45-65(-70) x 7.8-19-20 36-56 x 12-20	50-55 x 18 46-50 x 12-18	38-45 x 12-15 56-48 x 12-15	36-48 x 12-16
sepia	9-15 transv./1-4 long. 10-12 transv./1-2 long	10-1 transv./1-3 long. ^b 10 transv./1-2 long	10-11 transv./1-3 long. ^b 9-10 transv./1-3 long	8-10 transv./2-3 long. ^c 7-12 transv./1-3 long.

Linde (1992) and Zogg (1962). Spezzini (1987).

Spezzini (1887).

Rehm (1989).

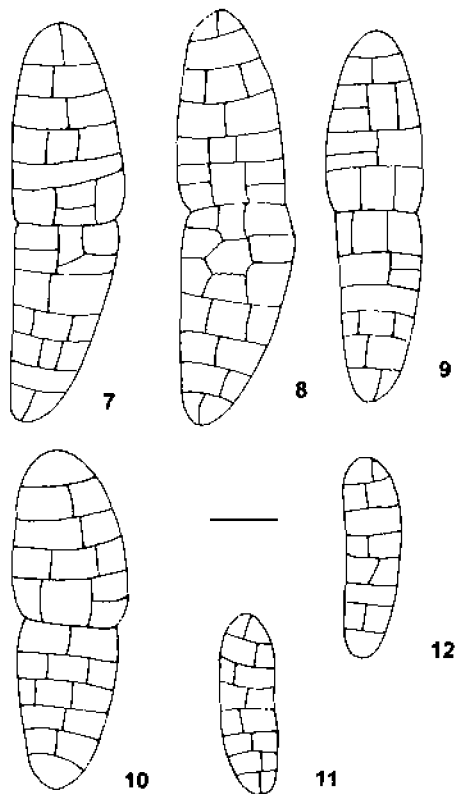
Hysterographium subrugosum (Cooke & Ellis) Sacc., Syll. Fung. 2: 780 (1883)
Figs 5, 6, 11, 12

= *Hysterium subrugosum* Cooke & Ellis, Grevillea 5: 249 (1876).

= *Hysterographium cylindrosporum* Rehm, Bih. Kongl. Svenska Vetensk.-Akad. Handl. Stockholm 25. Afd. 3. N° 6: 11 (1899).

For more synonymys see Zogg (1962).

Hysterothecia solitary to gregarious, superficial, straight to flexuous, elliptical with pointed ends, (0.17-)0.35-2.0 × 0.1-0.4 mm; pseudoparaphyses hyaline, septate, flexuous, branched near the tips to form an epithecium; asci clavate, 8-spored, 48-120 × 14-30 μm; ascospores yellowish brown to reddish brown, biserial, with 7-11 transverse and 1-2 longitudinal septa, ellipsoid to fusiform, with rounded ends, 22-



Figs 7-12. Ascospores. 7-10. *Hysterographium flexuosum*. 7 (BCRU 4163). 8. Holotype of *H. magellanicum* (LPS 1295). 9. Holotype of *H. fucianum* (LPS 1296). 10. Holotype of *H. fucianum* f. *intermedium* (S. reg. no. F 5851). 11-12. *Hysterographium subrugosum*. 11 (BCRU 4155). 12. Holotype of *H. cylindrosporum* (S. reg. no. F 5853). Bar = 10 μm.

Table II. *Hysteroglyphium subrugosum* and its synonym. Comparison based on bibliographic data and personal observations.

	<i>H. subrugosum</i>	<i>H. cylindrosporum</i>
Hysterothecia		
length × width (mm)	0.5-1.5 × 0.3 ^a (0.2-30.38-1.3 × 0.11-0.36)	1 × 0.2-0.3 ^b 0.35-0.88 × 0.2-0.4
Asci	clavate to cylindrical	clavate
(µm)	80-120 × 14-30 ^a 48-112 × 16-20	60-65 × 18-17 96 × 11
Ascospores		
shape	ellipsoid to fusiform	ellipsoid
l/w	2.9	1.8
pigmentation	yellowish brown to reddish brown	yellowish brown to brown
dimensions (µm)	(22-125-341-15) × (6-38-131-171) ^a 22-30 × 6-12	30-33 × 7 21-36 × 6-10
septa	7-11 transv./1-2 long. ^a 7 transv./1-2 long.	7 transv. ^b 7 transv./1 long

^aUnde (1992) and Zogg (1962); ^bRehm (1899)

36(-45) × 6-13(-17) µm.

SPECIMENS EXAMINED: *Hysteroglyphium cylindrosporum*. CHILE: Tierra del Fuego, Río Grande, on wood of *Nothofagus antarctica*, 22.i.1896, P.K.H. Dusén (S. reg. no. F5853, holotype). *Hysteroglyphium subrugosum*: ARGENTINA, Río Negro, Liao-Liao Municipal Park, Villa Tacul, campfire sites, on dead branches of *Nothofagus dombeyi*, 29.x.1995, M.J. Messuti (BCRU 4151). Tierra del Fuego, Ushuaia, near new cemetery, on dead branches of *Nothofagus antarctica*, 17.iii.1996, J. F. Lorenzo (BCRU 4157); Pampa del Indio, on dead branches of *Drinys wuelleri*, 25.iii.1996, L.E. Lorenzo (BCRU 4155).

NOTE: Rehm (1899) described *H. cylindrosporum* as having hyaline and subcylindrical ascospores. However, we found that the ascospores in the type material were pigmented and ellipsoid. Perhaps the hyaline ascospores in Rehm's description were based on immature specimens. The two species *H. cylindrosporum* and *H. subrugosum* are similar in ascocarp, ascus and ascospore sizes (Figs 5, 6, 11, 12; Table II) and we therefore synonymize them.

DISTRIBUTION: BART (1990) reported a northern temperate distribution for this species. Apparently it is infrequent in contrast to other species of the genus. The southern material examined originated from two distant geographical areas within the region studied (ca 41°S, 71°W and 55°S, 68°W). We assume that this species may also occur in other areas of the Patagonian Andes forests.

SUBSTRATE: *H. subrugosum* was recorded on bark and wood of *Celtis* sp., *Cotinus* sp., *Crataegus* sp., *Populus* sp., *Quercus* sp., and *Rosa* sp. (Zogg 1962). In southern

Argentina and Chile it was collected from wood of *Nothofagus antarctica*, *N. dombeyi*, and *Drinys winteri*.

Acknowledgements

We are grateful to the curators of the herbaria mentioned in the text for the loan of valuable material. Funds for this research were provided by grant B090 from Secretaria de Investigación, Universidad Nacional del Comahue and to Dr. I. J. Gamundí for reviewing the manuscript.

References

- BARR, M.B. (1990): Some dictyosporous genera and species of Pleosporales in North America. - Mem. New York Bot. Gard. **62**: 1-92.
- BISBY, G.R. (1941): British species of *Hysterium*, *Gloniopsis*, *Dichaena* and *Mutidilium*. - Trans. Brit. Mycol. Soc. **25**: 127-141.
- CHECA, J. (1997): Annotated list of the Hysteriaceae (Dothidiales, Ascomycotina) reported from the Iberian Peninsula and Balearic Islands. - Mycotaxon **62**: 349-374.
- KIRK, P.M., P.F. CANNON, J.C. DAVID & J.A. STALPERS. (2001). Ainsworth & Bisby's Dictionary of the Fungi, 9th ed. - CABInternational, Wallingford.
- LINDE, E.J. van der (1992): Notes on the South African Hysteriaceae (Ascomycetes: Mycotina). S. Afr. J. Bot. **58**: 491-499.
- LORENZO, L.E. & M.I. MESSUTI (1998): Noteworthy Hysteriaceae from southern South America. - Mycol. Res. **102**: 1101-1107.
- MESSUTI, M.I. & L.E. LORENZO (1997): A new species of *Hysterium* from Patagonia, Argentina. - Mycol. Res. **101**: 302-304.
- MUJICA RICHATT, F. & C. VERGARA CASTILLO (1980): Flora fungosa chilena. 2^a ed. - Facultad de Agronomía, Universidad de Chile Editorial Universitaria, Ciencias Agrícolas N° 5, Santiago de Chile.
- REHM, H. (1899): Ascomycetes Fuegiani a P. Dusén collecti. - Bih. Kongl. Svenska Vetensk.-Akad. Handl. Stockholm, 25 Afrl. 3, N° 6: 3-21.
- SPEGAZZINI, C. (1887): Fungi Fuegiani. - Bol. Acad. Nac. Cienc. Córdoba **11**: 135-311.
- SPEGAZZINI, C. (1910): Fungi Chilenses. - Rev. Fac. Agron. Veterin. La Plata **6**: 1-205.
- ZÖGG, H. (1962): Die Hysteriaceae s. str. und Lophiaceae unter besonderer Berücksichtigung der mitteleuropäischen Formen. - Beitr. Kryptog. Fl. Schweiz **11**: 1-190.

Received 17 July 2002, accepted in revised form 18 October 2002.