

SHORT COMMUNICATION

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***Erysiphe patagoniaca*: a new species of *Erysiphe* sect. *Uncinula*
from Patagonia, Argentina**

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Abstract A new species of *Erysiphe* sect. *Uncinula* is described and illustrated from Patagonia, Argentina. *Erysiphe patagoniaca* sp. nov., found on leaves of *Nothofagus xantarctica*, is similar to *E. nothofagi* and *E. kenjiana*, but differs in its appendages twisted throughout the length, and number of appendages, asci and ascospores. The two endemic species of *Erysiphe* sect. *Uncinula*, *E. magellanica* and *E. nothofagi*, coexisted on the same leaves together with *Erysiphe patagoniaca*.

Key words Erysiphaceae · *Erysiphe magellanica* · *Erysiphe nothofagi* · *Nothofagus* · Powdery mildew

In the andean-patagonian area from Argentina to Chile, there are two known endemic species of *Erysiphe* sect. *Uncinula* (formerly *Uncinula*) with uncinated appendages restricted to the family Nothofagaceae as host plants. They are *E. nothofagi* (Thaxt.) U. Braun & S. Takamatsu (Fig. 1) and *E. magellanica* (Thaxt.) U. Braun & S. Takamatsu (Fig. 2). Whilst *E. nothofagi* parasitizes four caducifolious *Nothofagus* species [*N. antarctica* (G. Forst.) Oersted, *N. nervosa* (Phil.) Dimitri & Milano, *N. obliqua* (Mirb.) Oersted, and *N. pumilio* (Poepp. & Endl.) Krasser], *E. magellanica* parasitizes only *N. antarctica* (Braun 1987; Havrylenko 1995). These two powdery mildew species differ from one another in conspicuous morphological characters such as the presence of spirally twisted appendages in *E. nothofagi* and flexuous not coiled appendages in *E. magellanica*.

In this paper, we describe and illustrate a new species, *Erysiphe patagoniaca* on *Nothofagus xantarctica* found in Patagonia, Argentina.

Erysiphe patagoniaca Havrylenko & S. Takamatsu, sp. nov.

Figs. 3, 4

Mycelium amphigenum, plerumque epiphyllum, tenue, hyalinum, 3-5 μm latum. Appressoria mammiformia vel lobulata, solitaria vel opposita. Conidiophora erecta, et cellula basali cylindraceis et 2 cellulis sequentibus aequilongis composita. Conidia solitaria, continua, ellipsoidea vel cylindrica, hyalina, (12-)18-29(-30) \times 8-11(-12) μm . Ascomata gregaria, globosa, 80-100(-120) μm diam, ad maturitatem fuscobrunnea. Cellulae peridii irregulariter angulatae, 11-25 μm diam. Appendices aequatoriales, hyalinae, ad basim uniseptatae, 8-16 per ascoma, dense helicoideae ex 15-25 convolutis, ad apicem dilatatae et uncinatae. Asci ovaes, curtistipitati, 8 in quoque ascomate, 60-69 \times 27-34 μm , 8-spori. Ascosporae ellipsoideae, hyalinae, 16-21 \times 9-12 μm .

Holotypus: In foliis vivis *Nothofagi xantarcticae*. Argentina, Provincia del Neuquén, Parque Nacional Lanin, near the east shore of Espejo Chico lake. Leg. M. Havrylenko & S. Takamatsu, 23-04-2001 (BCRU 4337).

Colonies: Mycelia on leaves amphigenous, mostly epiphyllous, hyaline, thin, evanescent. Vegetative hyphae 3-6 μm wide. Appressoria nipple shape or multilobed single or opposite in pairs.

Anamorph: *Oidium* subgen. *Pseudoidium* Jacz. Conidiophores erect. Foot cells straight cylindrical, followed by 2 cells of the same length. Conidia ellipsoidal to cylindrical, (12-)18-29(-30) \times 8-11(-12) μm . Germination: one apical germ tube with lobulated end.

Teleomorph: Ascomata gregarious, globose, 80-100(-120) μm diam. Peridial cells irregular in shape, mostly polygonal 11-25 μm diam. Appendages 8 to 16, equatorially inserted, 2.5-3.5 μm wide at the very base, flexuous, smooth, hyaline, spirally twisted, at least with 15-25 coils, tips enlarged and uncinata. Asci 8, shortly stalked, 60-69 \times 27-34 μm , 8-spored. Ascospores hyaline, ellipsoid, 16-21 \times 9-12 μm .

Host: *Nothofagus xantarctica* (Nothofagaceae). Native tree growing in Argentina and Chile. Due to morphological characteristics of the host plant, such as un-conduplicated leaves with a broad lamina and smooth, light gray bark, the plant is likely to be a hybrid, probably *N. antarctica* × *N. pumilio*.

Material studied: Argentina, Provincia del Neuquén, Parque Nacional Lanin, near the east shore of Espejo Chico lake. Leg. J. Puntieri & C. Brion. 18-02-1996, BCRU 4338, MH 426; Leg. M. Havrylenko & S. Takamatsu, 23-04-2001, BCRU 4337 (Holotype), MH 790, MH 791; Leg. M. Havrylenko 12-03-2002, BCRU 4339, MH 794, MH 795.

Remarks: The known *Erysiphe* (*Uncinula*) species with spirally twisted appendages are *E. nothofagi* (Thaxt.) U. Braun & S. Takamatsu, from Argentina and Chile andean area (Thaxter 1910; Braun 1987; Dianese and Dianese 1995; Havrylenko 1995; Havrylenko and Lorenzo 1999; Braun and Takamatsu 2000) and *E. kenjiana* (Homma) U. Braun & S. Takamatsu on *Ulmus* spp. from Asia (Homma 1930; Braun 1987). *Erysiphe kenjiana* distinctly differs from *E. patagoniaca* in its appendages twisted only in the upper part, numbers of appendages, asci and ascospores, and its host plant (Table 1). *Erysiphe nothofagi* is most similar to *E. patagoniaca*, but differs in its appendages brown-colored at the base and twisted only in the upper part (Fig. 1). Appendages of *E. patagoniaca* are spirally twisted throughout the length and hyaline (Fig. 3).

E. patagoniaca shows a coexistence in the same leaves of *N. xantarctica* with the two *Erysiphe* species which are endemic to the andean-patagonian region, *E. magellanica* and *E. nothofagi*.

Acknowledgments The authors are grateful to Ms Seiko Niinomi for providing the microphotographs of ascomata of *Erysiphe* spp. on *Nothofagus*.

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Legends of Figures

Figs. 1-3. Ascomata of *Erysiphe* spp. (sect. *Uncinula*) reported on *Nothofagus*. **1** *E. nothofagi*. **2** *E. magellanica*. **3** *E. patagoniaca*. Bars **1,2** 200 µm; **3** 100 µm

Fig. 4. *Erysiphe patagoniaca* (holotype) **A** ascoma. **B** peridial cells. **C** ascus with ascospores. **D** ascospores. **E** appressoria. **F** conidiophore with an immatured conidium. **G** conidia. **H** germinating conidia. Bars **A** 50 µm; **B-H** 20 µm

[短報] *Erysiphe patagoniaca*: アルゼンチン・パタゴニアで発見された
*Erysiphe*属*Uncinula*節の新種

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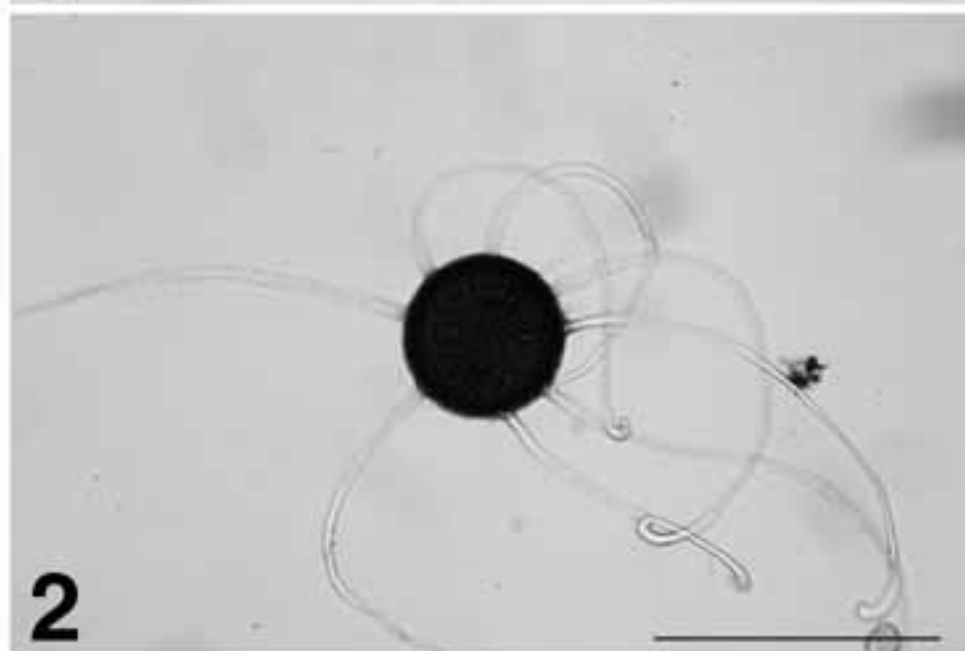
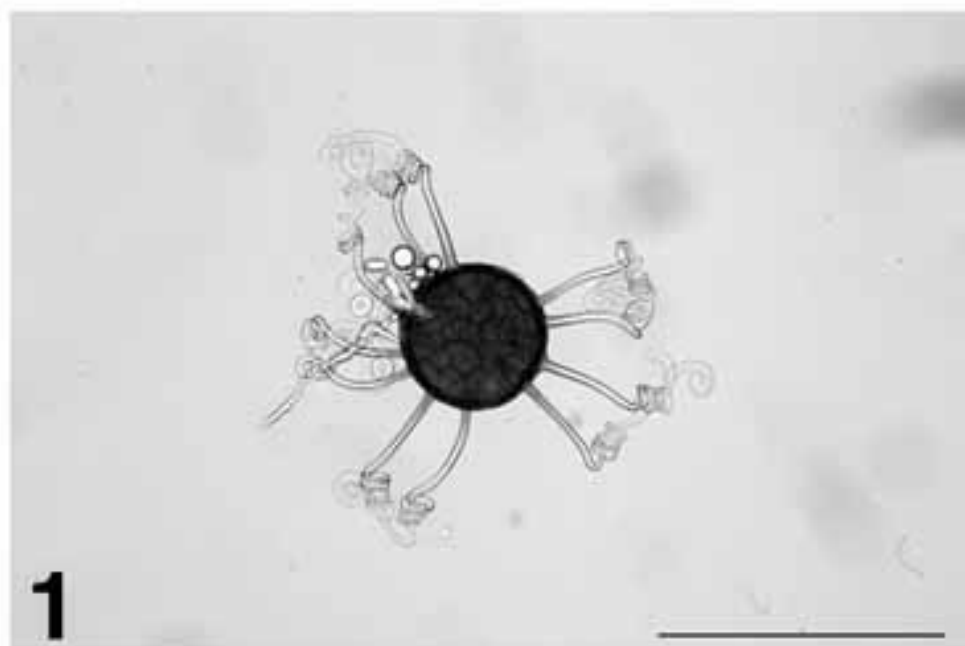
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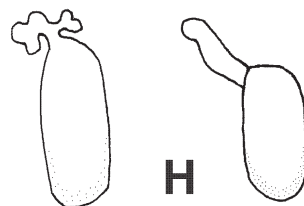
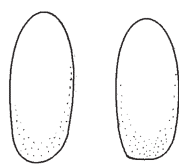
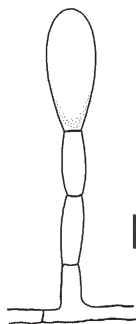
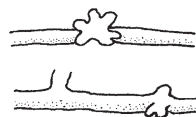
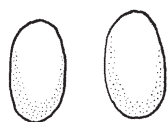
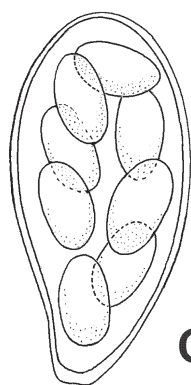
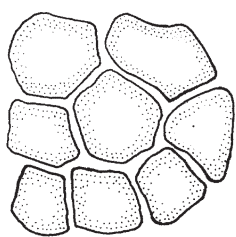
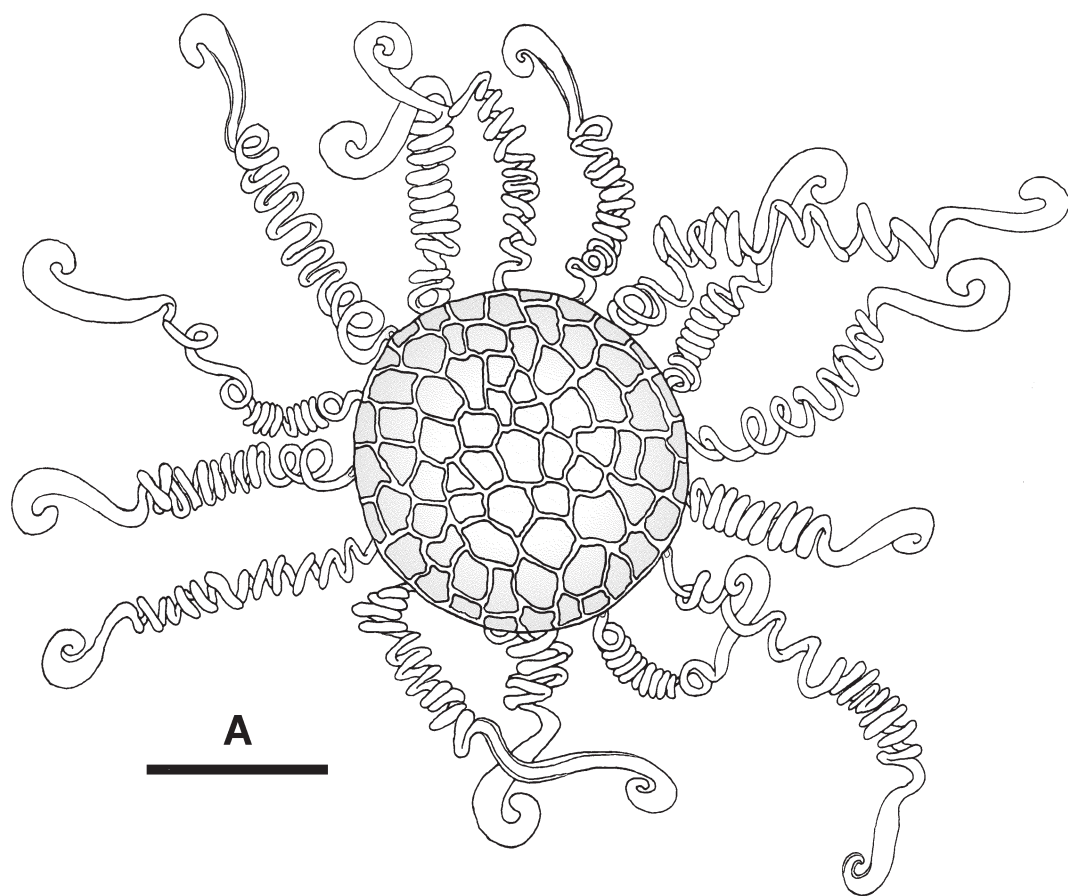
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アルゼンチン・パタゴニアで発見された*Erysiphe*属*Uncinula*節の新種を記載し
た。ナンキョクブナの一雑種*Nothofagus ×antarctica*の葉で発見された
Erysiphe patagoniaca sp. nov.は*E. nothofagi*と*E. kenjiana*に似てい
るが、付属糸全体がコイル状に巻く特徴および付属糸、子のう、子のう胞子の数が
異なる。パタゴニア固有の*Uncinula*節菌である*E. magellanica*と*E.*
*nothofagi*が*E. patagoniaca*の発生している同じ葉に共存しているのが認めら
れた。

Table 1. Comparative morphological characters and host range of three *Erysiphe* species.

Character	<i>E. nothofagi</i>	<i>E. kenjiana</i>	<i>E. patagoniaca</i>
Ascoma size (µm)	62–116	55–110	80–110
Appendage			
Number	8–20	7–15	15–25
Morphology	3–8 times spirally twisted only in the upper part.	1–2 times spirally twisted only in the upper part.	15–25 times spirally twisted throughout the length.
Color	Brown at the base, hyaline at the twisted part.	Hyaline	Hyaline
Ascus			
Number	4–9	3–6	8
Size (µm)	35–65 × 30–45	35–60 × 25–55	60–69 × 27–34
Ascospore			
Number	4–8	2(–4)	8
Size (µm)	17–25 × 10–14.5	18–39 × 12–23	16–21 × 9–12
Conidium size (µm)	24–27 × 10–16	23–32 × 12–15	18–29 × 8–11
Host	<i>Nothofagus antarctica</i> , <i>N. ×antarctica</i> , <i>N. nervosa</i> , <i>N. obliqua</i> & <i>N. pumilio</i> (Nothofagaceae)	<i>Ulmus pinnato-ramosa</i> & <i>U. pumila</i> (Ulmaceae)	<i>Nothofagus ×antarctica</i> (Nothofagaceae)





B-H