

## ***CHEIMONOPHYLLUM PONTEVEDRENSE*, A NEW SPECIES FOUND IN THE NORTHWEST OF THE IBERIAN PENINSULA**

JAIME B. BLANCO-DIOS

Centro de Formación e Experimentación Agroforestal de Lourizán. Consellería do Medio Rural e do Mar. Xunta de Galicia. P.O. Box 127. 36080 Pontevedra, Spain. jbbblancodios@gmail.com

**ABSTRACT.** A full description is given of *Cheimonophyllum pontevedrense*, a new species found in Galicia (NW of the Iberian Peninsula). After a review of the species currently included in this genus, we concluded that this taxon does not correspond to any of the species known so far and, consequently, we describe it as a new species. Morphological description and drawings of macro- and microscopic characters of the basidiomata are presented. A key, an amendment of original diagnose of *Cheimonophyllum* and a discussion about the taxa of this genus are provided.

**Key words:** Basidiomycota, Agaricales, Cyphellaceae, *Cheimonophyllum*, taxonomy, Spain.

**RESUMEN.** Se describe *Cheimonophyllum pontevedrense*, una nueva especie encontrada en Galicia (NW de la Península Ibérica). Tras una revisión de las otras especies de este género, hemos concluido que este taxón no se corresponde con ninguna de las especies conocidas, por lo que se describe aquí como una nueva especie. Se presenta una descripción morfológica e iconográfica de este taxón. Se adjunta una clave, una modificación de la diagnosis del género *Cheimonophyllum* y una discusión sobre los taxones encuadrados en este género.

**Palabras clave:** Basidiomycota, Agaricales, Cyphellaceae, *Cheimonophyllum*, taxonomía, España.

### INTRODUCTION

The genus *Cheimonophyllum* (type species *C. candidissimum* (Berk. & M.A.Curtis) Singer) was erected by SINGER (1955) to accommodate fungi which the main distinctive characters are: basidiocarps lignicolous, pleurotoid, small (<20 mm diam.), white, stipe absent or short, lateral and basidiospores hyaline, globose to subglobose, inamyloid (SINGER, 1986; SEGEDIN, 1994).

Today, only three well documented species of *Cheimonophyllum* are accepted: *C. candidissimum*, *C. roseum* Segedin and *C. stipticoides* (Speg.) Singer (SINGER, 1955, 1969, 1973; SENN-IRLET, 1991; SEGEDIN, 1994; DELIVORIAS & GONOU-ZAGOU, 2008; KAYA, 2009).

A remarkable *Cheimonophyllum* species found on a stump of gorse (*Ulex europaeus* L. subsp. *europaeus*) has been studied. Our collections, which do not fit the morphological concept of any of these taxa, are described here as a new species: *Cheimonophyllum pontevedrense*.

A key to the known species of *Cheimonophyllum* is provided.

### MATERIALS AND METHODS

The specimens were collected, documented and preserved using standard methods. Macro- and micromorphological descriptions are based on observations of both fresh

and dried specimens. Microscopic observations were recorded with standard methods, using sections mounted in a solution of 1% Congo Red in water, 3% KOH or Melzer's reagent. Spore sizes are given in approximation to  $0.5\ \mu\text{m}$ , with extreme values given in parentheses, followed by the length-width ratio of the spores (Q). Microscopic structures were drawn with help of a drawing tube. The collected material has been deposited in LOU-Fungi herbarium (Centro de Investigación Forestal de Lourizán, Pontevedra, Spain).



**Fig. 1.** *Cheimonophyllum pontevedrense* (holotypus, LOU-Fungi 19578). Photo by Jaime B. Blanco-Dios.

## RESULTS

### *Cheimonophyllum pontevedrense* Blanco-Dios, sp. nov.

MYCOBANK: MB 804152

*Cheimonophyllum candidissimum* similis sed differt pileus cremeus, albus et gossypinus in pars insertio stipes, hymenio sine lamellis circa insertio stipes vel lamellis longe decurrentibus, stipite semper praesentia, gossypinus, odor et sapor atque piscis, sporis  $4.5\text{--}6.5$  ( $-7$ )  $\mu\text{m}$ ,  $Q=1\text{--}1.11$ ,  $Q_m=1.01$ , generaliter globuliformis, cheilocystidiis  $12\text{--}81 \times 4.5\text{--}15.5\ \mu\text{m}$ , multiformis: claviformis, capitatus, fusiformis, lageniformis-septatus, mucronatus, sphaerostipitatus, septatus vel irregulariter formis et stipitipellis cum elementis terminalis  $12.5\text{--}51.5 \times 4\text{--}10\ \mu\text{m}$ , claviformis, subcylindratis, fusiformis, mucronatus, lageniformis, septatus, sphaerostipitatus vel irregulariter formis. Super lignum *Ulex putridum* crescens.

Holotypus – HISPANIA. Pontevedra: Pontevedra, Lérez, 23.XI.2012, in herbario LOU-Fungi 19578 conservatus est.



**Fig. 2.** *Cheimonophyllum pontevedrense* (holotypus, LOU-Fungi 19578). Photo by Amancio Castro.



**Fig. 3.** *Cheimonophyllum pontevedrense* (holotypus, LOU-Fungi 19578). Photo by Amancio Castro.

ETYMOLOGY. *Pontevedrense*: from the municipality of Pontevedra (Galicia, Spain). Pileus 2.5–19 mm diam., convex to plano-convex, cyphelloid, reniform, irregularly lobed to flabelliform, laterally attached to the substrate, with straight or incurved margin, surface minutely velutinate, glabrescent, smooth, creamy (white and cottony on and near the point of insertion of the stipe). Lamellae radiating from a lateral point, long decurrent or not extended up to insertion of the stipe, rather broad, moderately crowded to rather distant, ivory, furfuraceous, often cottony at the confluence with the stipe, with lamellulae. Stipe 1–5 × 0.5–4.5 mm, lateral, short or rudimentary but always present, solid, ivory, totally and densely cottony or, at least, in the base, with white basal mycelium. Context whitish, thin, soft. Smell and taste fishy. Spore print white (Figs. 1-3).

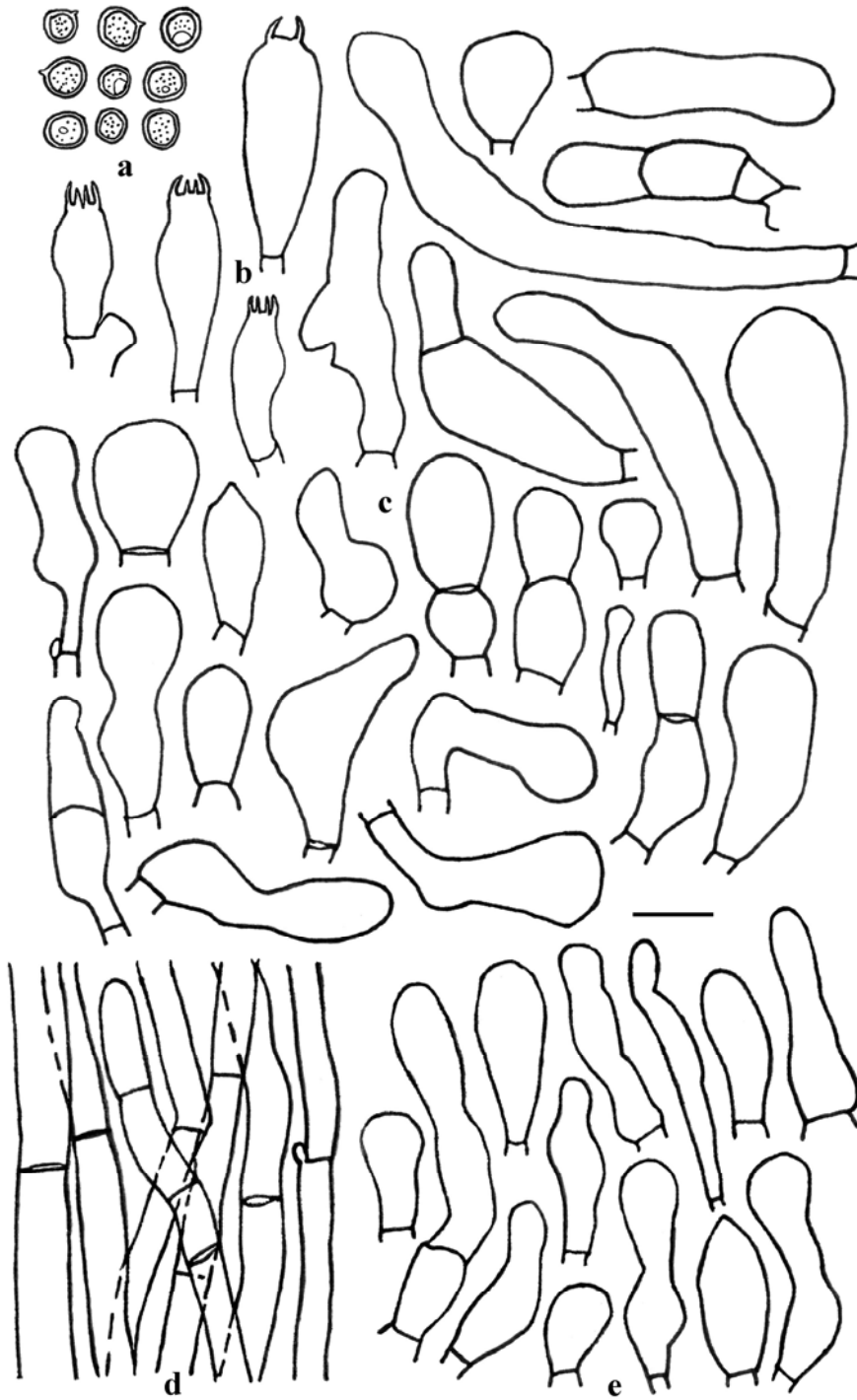
Basidiospores 4.5–6.5 (–7) µm, Q = 1–1.11, Q<sub>m</sub> = 1.01, (n=100), globose, sometimes subglobose, with a distinct apiculus, thin-walled, hyaline, smooth, inamyloid, with granular content or one or few oil droplets. Basidia 16–33.5 × 6–10 µm, 2-4-spored, sterigmata up to 5 µm long, clavate, hyaline, clamped. Lamellae edge sterile. Cheilocystidia 12–81 × 4.5–15.5 µm, clavate, capitate, fusiform, lageniform-septate, mucronate, sphaeropedunculate, septate or irregularly shaped, some of them clamped, hyaline, thin-walled, numerous. Pleurocystidia absent. Lamellar trama of hyphae 1.5–10 µm wide, parallel, subparallel or interwoven, slightly thick-walled. Pileipellis a trichoderm of hyphae 2.5–11.5 µm wide, parallel, subparallel or entangled, slightly thick-walled. Context of interwoven or subparallel hyphae, 2.5–10 µm wide, slightly thick-walled. Stipitipellis hyphae 2.5–8.5 µm in diameter, interwoven or subparallel, slightly thick-walled, end cells 12.5–51.5 × 4–10 µm, clavate, subcylindric, fusiform, mucronate, lageniform, septate, sphaeropedunculate or irregularly shaped. Clamp connections present in all tissues (Fig. 4).

**Material examined:** SPAIN. Pontevedra: Pontevedra, Lerez, 29TNH3101, 160 m, on a stump of gorse (*Ulex europaeus* subsp. *europaeus*), 23-XI-2012, leg. pupils and teachers of the CEIP Lerez & J.B. Blanco-Dios, LOU-Fungi 19578 (*holotypus*); *ibidem*, 26-XI-2012, leg. J.B. Blanco-Dios, LOU-Fungi 19579; *ibidem*, 1-XII-2012, leg. J.B. Blanco-Dios, LOU-Fungi 19580; *ibidem*, 12-XII-2012, leg. J.B. Blanco-Dios, LOU-Fungi 19581.

## DISCUSSION

*Cheimonophyllum pontevedrense* is unique with respect to the other known *Cheimonophyllum* species —*C. candidissimum*, *C. roseum*, *C. stipticoides*— by the following combination of features: (i) pileus creamy (white and cottony in and near the point of insertion of the stipe), (ii) lamellae long decurrent or not extended up to insertion of the stipe, (iii) stipe always present, densely cottony throughout or, at least, at the base, (iv) smell and taste fishy, (v) small and generally globose basidiospores, (vi) versiform cheilocystidia, (vii) multiform end cells of stipitipellis and (viii) habitat on wood of a bush (gorse).

*Cheimonophyllum candidissimum* seems to be close to *C. pontevedrense*, from which it differs specially by having stipe rudimentary or absent, globose, subglobose to



**Fig. 4.** *Cheimonophyllum pontevedrense* (holotypus, LOU-Fungi 19578). **a.** basidiospores. **b.** basidia. **c.** cheilocystidia. **d.** pileipellis. **e.** end-cells of stipitipellis. Scale bar= 10  $\mu$ m.

broadly pyriform basidiospores, cheilocystidia filiform and habitat: in the literature, it is reported to grow always on dead branches of deciduous trees, such as *Populus*, *Alnus*, *Fraxinus*, *Corylus*, *Fagus*, *Sorbus*, *Tilia*, *Salix*, *Ilex*, *Quercus* and *Platanus*. This species covers a geographic range spanning through Europe, North Africa, North, Central and South America, Australia and New Zealand (DELIVORIAS & GONOU-ZAGOU, 2008). *Cheimonophyllum roseum*, currently only known from New Zealand, on dead twigs and branches of *Nothofagus fusca* and *N. menziesii*, presents pink basidiomes, globose to subglobose (occasionally broadly pyriform) bigger basidiospores, and cheilo- and pleurocystidia are absent (SEGEDIN, 1994). *Cheimonophyllum stipticoides*, known from Chile, is similar to *C. candidissimum*, but presents the larger basidiospores of the genus (SPEGAZZINI, 1921).

In the original description of *Cheimonophyllum*, Singer lists this genus in the family *Paxillaceae* Lotsy and mentions the absence of cheilocystidia (SINGER, 1955). The current incorporation of this genus in the family *Cyphellaceae* Lotsy and the presence of filiform cheilocystidia in *C. candidissimum* (PEGLER & FIARD, 1983; DELIVORIAS & GONOU-ZAGOU, 2008) and multiform in *C. pontevedrense*, make it necessary to propose an amendment in the description of this genus:

***Cheimonophyllum* Singer, emend. Blanco-Dios**

Genus cyphellacearum, habitu pleurotoideo, carpophoris mollibus, pigmento destitutis, hyphis tenerrimis, fibulatis, inamyloideis, basidiis sporisque hyalinis, inamyloideis; hyphis tramatis hymeniophoralis tenuibus tenui-tunicatis, haud intertextis, regulariter vel subbilateraliter dispositis; sporis globosis vel subglobosis, hyalinis, tenuiter vel subtenuiter tunicatis, inamyloideis, levibus; cheilocystidiis nullis, filiformis vel multiformis, pleurocystidiis nullis. Typus generis: *Agaricus candidissimus* Berk. & M.A.Curtis.

**KEY TO THE KNOWN SPECIES OF *CHEIMONOPHYLLUM***

- 1a. Pink basidiomes, cheilocystidia absent..... ***C. roseum***
- 1b. White or creamy basidiomes, cheilocystidia present.....2
- 2a. Basidiospores 7–9 µm, globose..... ***C. stipticoides***
- 2b. Basidiospores < 7.5 µm.....3
- 3a. Basidiospores 5–7.5 × 4–6.5 (–7.5) µm, globose, subglobose to broadly pyriform, cheilocystidia filiform..... ***C. candidissimum***
- 3b. Basidiospores 4.5–6.5 (–7) µm, generally globose; cheilocystidia versiform.....***C. pontevedrense***

**ACKNOWLEDGEMENTS**

The author is grateful to pupils and teachers of the Centro de Ensinanza Infantil e Primaria (CEIP) of Lérez (Pontevedra) for collecting with us the first specimens, and to Dr. Marco Contu for yours comments and suggestions about this new species. Dr. Amancio Castro is gratefully acknowledged for providing part of the photographs and technical assistance, Dr. Helena Velayos is thanked for kindly sending relevant literature and Dr. Arthur de Cock for nomenclatural advice. Finally, we express the most sincere thanks to the director and members

of the Centro de Investigación Forestal de Lourizán (Consellería do Medio Rural e do Mar, Xunta de Galicia) for conserving the herbarium LOU-Fungi.

## REFERENCES

- DELIVORIAS, P. & Z. GONOU-ZAGOU (2008).- On *Cheimonophyllum candidissimum* from Greece with notes on its implied aphyllorphoid ancestry. *Mycotaxon* 104: 1-8.
- KAYA, A. (2009).- First record of *Cheimonophyllum* Singer from Turkey. *Intern. Journ. Bot.* 5 (3): 258-260.
- PEGLER, D. N. & J.P. FIARD (1983).- Agaric flora of the Lesser Antilles. *Kew Bull., add. ser.* 9. Kew, London, HMSO.698 pp.
- SEGEDIN, B.P. (1994).- Studies in the Agaricales of New Zealand: new records and new species of the genera *Cheimonophyllum*, *Mniopetalum* and *Anthrachophyllum* (Tricholomataceae, Collybieae). *New Zealand Journ. Bot.* 32:1, 61-72.
- SINGER, R. (1955) .- Type studies on Basidiomycetes 8. *Sydowia* 9: 367-431.
- SINGER, R. (1969).- Mycoflora Australis. *Beih. N. Hedwigia* 29: 1-405.
- SINGER, R. (1973).- Diagnoses fungorum novorum Agaricalium III. *Beihefte Sydowia annales mycologici* 7: 1-106.
- SINGER, R. (1986).- The Agaricales in modern taxonomy. 4th ed. Koenigstein, Koeltz.
- SENN-IRLET, B. (1991).- *Cheimonophyllum candidissimum* - ein Porträt. *Beitr. Kennt. Pilze Mitteleur.* 7: 23-28.
- SPEGAZZINI, C.L. (1921).- *Mycetes chilenses*. *Bol. Acad. Nac. Ciencias Córdoba* 25: 11-12.