



THIS PAGE IS SECURE

[Home](#) / [Persoonia - Molecular Phylogeny and Evolution of Fungi](#), Volume 31, December 2013



Multi-gene phylogenetic analyses reveal species limits, phylogeographic patterns, and evolutionary histories of key morphological traits in *Entoloma* (*Agaricales*, *Basidiomycota*)

Download Article:



Download
(PDF 1,791.3 kb)

Authors: Morgado, L. N.; Noordeloos, M. E.; Lamoureux, Y.; Geml, J.

Source: Persoonia - Molecular Phylogeny and Evolution of Fungi, Volume 31, December 2013, pp. 159-178(20)

Publisher: Naturalis Biodiversity Center

DOI: <https://doi.org/10.3767/003158513X673521>



[previous article](#)



[view table of contents](#)

[next article](#)



[ADD TO FAVOURITES](#)



Abstract



[References](#)



[Citations](#)



[Supplementary Data](#)



[Article Media](#)



[Metrics](#)



[Suggestions](#)

Species from *Entoloma* subg. *Entoloma* are commonly recorded from both the Northern and Southern Hemispheres and, according to literature, most of them have at least Nearctic-Palearctic distributions. However, these records are based on morphological analysis, and studies relating morphology, molecular data and geographical distribution have not been reported. In this study, we used phylogenetic species recognition criteria through gene genealogical concordance (based on nuclear *ITS*, *LSU*, *rpb2* and mitochondrial *SSU*) to answer specific questions considering species limits in *Entoloma* subg. *Entoloma* and their geographic distribution in Europe, North America and Australasia. The studied morphotaxa belong to sect. *Entoloma*, namely species like the notorious poisonous *E. sinuatum* (*E. lividum* auct.), *E. prunuloides* (type-species of sect. *Entoloma*), *E. nitidum* and the red-listed *E. bloxamii*. With a few exceptions, our results reveal strong phylogeographical partitions that were previously not known. For example, no collection from Australasia proved to be conspecific with the Northern Hemisphere specimens. Almost all North American collections represent distinct and sister taxa to the European ones. And even within Europe, new lineages were uncovered for the red-listed *E. bloxamii*, which were previously unknown due to a broad morphological species concept. Our results clearly demonstrate the power of the phylogenetic species concept to reveal evolutionary units, to redefine the morphological limits of the species addressed and to provide insights into the evolutionary history of key morphological characters for *Entoloma* systematics. New taxa are described, and new combinations are made, including *E. fumosobrunneum*, *E. pseudoprunuloides*, *E. ochreoprunuloides* and *E. caesiolamellatum*. Epitypes are selected for *E. prunuloides* and *E. bloxamii*. In addition, complete descriptions are given of some other taxa used in this study for which modern descriptions are lacking, viz. *E. subsinuatum*, *E. whiteae*, *E. flavifolium*, *E. luridum*, *E. bloxamii*, *E. madidum*, *E. corneri*, *E. callidermum* and *E. coeruleoviride*.

Keywords: BIODIVERSITY; DNA BARCODING; ENTOMATACEAE; FUNGAL BIOGEOGRAPHY; MOLECULAR SYSTEMATICS; PHYLOGENETIC SPECIES

Document Type: Research Article

Publication date: 2013年12月31日

[More about this publication?](#)

We recommend

Multi-gene phylogenetic analyses reveal species limits, phylogeographic patterns, and evolutionary histories of key morphological traits in *Entoloma* (Agaricales, Basidiomycota)

L. N. Morgado et al., Persoonia - Molecular Phylogeny and Evolution of Fungi

Entoloma subgenus *Leptonia* in boreal-temperate Eurasia: towards a phylogenetic species concept

O.V. Morozova et al., Persoonia - Molecular Phylogeny and Evolution of Fungi

Taxonomy and evolutionary relationships within species of section *Rimosae* (*Inocybe*) based on ITS, LSU and mtSSU sequence data

E. Larsson et al., Persoonia - Molecular Phylogeny and Evolution of Fungi

Study in *Agaricus* subgenus *Minores* and allied clades reveals a new American subgenus and contrasting phylogenetic patterns in Europe and Greater Mekong Subregion

M. Moinard et al., Persoonia - Molecular Phylogeny and Evolution of Fungi

Cortinarius section *Bicolores* and section *Saturnini* (Basidiomycota, Agaricales), a morphogenetic overview of European and north American species

Liimatainen et al., Persoonia - Molecular Phylogeny and Evolution of Fungi

Sequential treatment with afatinib and osimertinib in patients with EGFR mutation-positive non-small-cell lung cancer: an observational study

Maximilian J Hochmair, Future Oncology

Phylogeographic population structure of Red-winged Blackbirds assessed by mitochondrial DNA.

R M Ball et al., Proc Natl Acad Sci U S A

Fossil History and Modern Distribution of the Genus *Abies* (Pinaceae)

XIANG Xiao-Guo; CAO Ming; ZHOU Zhe-Kun, Plant Diversity

Comparative phylogeography clarifies the complexity and problems of continental distribution that drove A. R. Wallace to favor islands

Brett R. Riddle et al., Proc Natl Acad Sci U S A

A new species of 'gigantic' mollusc has been discovered in the Antarctic waters

Plataforma SINC, ScienceDaily

Powered by **TREND MD**



Share Content



Access Key

- Free content
- Partial Free content
- New content
- Open access content
- Partial Open access content
- Subscribed content
- Partial Subscribed content
- Free trial content

<i>Browse by</i> Publication
<i>Browse by</i> Subject
<i>Browse by</i> Publisher
Advanced Search
About us
Researchers
Librarians

[Publishers](#)

[New featured titles](#)

[Help](#)

[Contact us](#)



ingenta



COUNTER
CONSISTENT CREDIBLE COMPARABLE

Website © 2018 Ingenta. Article copyright remains with the publisher, society or author(s) as specified within the article.

[Terms and Conditions](#)

[Privacy](#)

[Information for Advertisers](#)

[Cookie Policy](#)