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Clitocybula sulcata—a new species from India

K. P. DEEPNA LATHA, K. N. ANIL RAJ, SHAHINA A. SHARAFUDHEEN & PATINJAREVEETTIL MANIMOHAN*
Department of Botany, University of Calicut, Kerala, 673 635, India
**Corresponding author: pmanimohan@gmail.com*

Abstract

Clitocybula sulcata sp. nov. is described from Kerala State, India. This species is characterized by a distinctly sulcate, finely granulose pileal surface, and a possible association with the bark of living *Hydnocarpus* (Flacourtiaceae) trees. A comprehensive description, photographs, and comparisons with phenetically similar species are provided. Molecular phylogenetic analyses based on ITS sequences coupled with morphology confirmed the placement of this species in *Clitocybula*. The present study is the first description of a species of this genus from India.

Key words: Agaricales, Basidiomycota, Marasmiaceae, phylogeny, taxonomy

Introduction

The genus *Clitocybula* (Singer 1943: 63) Métrod (1952: 74) (Marasmiaceae, Agaricales, Basidiomycota, Fungi) was erected for a few agarics originally placed either in *Collybia, Clitocybe* or *Omphalina* that appeared to represent a homogeneous group. Species of *Clitocybula* are characterized by a lignicolous habitat, smooth, mostly amyloid basidiospores, clamped hyphae, a lamella edge typically with numerous cheilocystidia, and a pileipellis sometimes showing dermatocystidioid hyphal ends (Singer 1986). Additional features include the presence of frequent broad, thick-walled hyphae and a caespitose habit in most species and the absence of both pleurocystidia and a cellular hypoderm (Bigelow 1973). This genus has mostly a restricted distribution in the temperate zones of both Northern and Southern Hemispheres (Singer 1986) but a few species are recorded from the tropics as well (e.g., *C. azurea* Singer (1973: 18) from the neotropics and *C. omphaliiformis* Pegler (1977: 255) from Tanzania). Twenty four species are currently listed (excluding synonyms) in the Index Fungorum website (www.indexfungorum.org; accessed on 1 March, 2015). No previous descriptions of *Clitocybula* species from India are available although Natarajan *et al.* (2005) mention a yet to be published species of *Clitocybula* in a list of agarics from the Nilgiri Biosphere Reserve of southern India. Here we describe a new species belonging to this genus based on two collections made from two different localities of Kerala State, India. Remarkably, both these collections were found growing on the bark of living *Hydnocarpus* Gaertn. (Flacourtiaceae) trees indicating a possible affinity of this fungus for this substratum.

Materials and Methods

Morphological studies

Conventional morphology-based taxonomic methods used in the study of agarics were employed and were supplemented with methods of molecular phylogeny. Microscopic structures were observed by using thin, free-hand sections stained with 1% aqueous solutions of both phloxine and Congo Red and mounted in 3% aqueous KOH. Melzer's reagent was used to observe whether the basidiospores and tissues were amyloid. For evaluation of the range of spore size, 20 basidiospores from one specimen of each collection cited were measured. Basidiospore measurements exclude the hilar appendix. All the basidiospore measurements include both the mean and the standard deviation for both the length

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