



Inocybe griseorubida, a new species of Pseudosperma clade from tropical India

K. P. DEEPNA LATHA & PATINJAREVEETIL MANIMOHAN*

Department of Botany, University of Calicut, Kerala, 673 635, India

*Corresponding author: pmanimohan@gmail.com

Abstract

Inocybe griseorubida sp. nov. is described from Kerala State, India. A comprehensive description, photographs, and comparisons with phenetically similar species are provided. The nuclear ribosomal internal transcribed spacer region (ITS), a portion of the nuclear ribosomal large subunit (nLSU) and a portion of the nuclear second-largest subunit of RNA polymerase II (*rpb2*) gene of this species were sequenced and analyzed. Phylogenetic analysis of *rpb2* sequences confirmed both the novelty of the species and its placement within the Pseudosperma clade.

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

Introduction

Inocybe (Fries 1821: 254) Fries (1863: 346) (Inocybaceae, Agaricales, Basidiomycota, Fungi) is a large genus represented by about 500 species world-wide (Kirk *et al.* 2008; Ryberg *et al.* 2010). The genus is noted for both its ectomycorrhizal ecology and the toxicity of several of its species (Kosentka *et al.* 2013). The genus is macroscopically characterized by mostly brownish or rarely whitish basidiomata occasionally with a purplish or lilac hue and sometimes with characteristic odors, a fibrillose-rimose or squamulose pileus, brownish lamellae, a brown spore-print, and a fibrillose-pruinose stipe at times with a distinct marginate-bulbous base. Microscopically, this genus is characterized by smooth, warty, nodulose or spinulose basidiospores lacking a true germ pore. The lamellae of several species exhibit metuloidal cystidia often with a crystalloid deposit at the apex. Several species are devoid of metuloidal cystidia and they are characterized by copious, thin-walled cheilocystidia (Matheny 2005; Larsson *et al.* 2009). Molecular phylogenetic analyses of *Inocybe* using ribosomal and protein coding genes have confirmed that *Inocybe* is monophyletic with several divergent lineages existing within it (Matheny *et al.* 2002; Matheny 2005; Matheny *et al.* 2009).

Kerala State is located in the south-west corner of Peninsular India and has a tropical, maritime and monsoonal climate. Most of the forested areas of Kerala are parts of the Western Ghats, a mountain range, which is one of the biodiversity hotspots of the world that has been included in the World Heritage list. To date, nineteen species of *Inocybe* have been reported from this region (Farook *et al.* 2013). In the course of our studies on the genus *Inocybe* of Kerala, we came across a remarkable species of *Inocybe* that has a grayish red pileus with a well-developed velipellis and thin- to slightly thick-walled, versiform cheilocystidia often covered with a resinous substance towards the apex. It is described here as a new species belonging to the Pseudosperma clade.

Materials and Methods

Morphological studies

Conventional morphology-based taxonomic methods as well as molecular methods were employed. Light microscopic studies were made on thin sections of dried material stained with 1% aqueous solutions of Congo red and mounted in 3% aqueous KOH. For evaluation of the range of spore size, 20 basidiospores each from one specimen of each collection cited were measured. The hilar appendix is included in the basidiospore length. Basidiospore measurements include both the mean and the standard deviation for both the length and the width, together with the range of spore quotient (Q, the length/width ratio) and its mean value (Q_m). Alphanumeric color codes from both Kornerup & Wanscher