



## ***Marasmius odoratus*—a new jasmine-scented species of *Marasmius* section *Globulares* from India**

V. ADNAN FAROOK & PATINJAREVEETIL MANIMOHAN\*

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

\*Corresponding author: [pmanimohan@gmail.com](mailto:pmanimohan@gmail.com)

### **Abstract**

*Marasmius odoratus* sp. nov. is described from Kerala State, India, based on morphological and molecular (ITS) phylogenetic data and is assigned to the section *Globulares*. Comprehensive description, photographs, and comparison with allied species are provided. It is characterized by a deeply sulcate pileus with grayish red grooves on a pale cream background, a long, pale cream to pale orange stipe, narrowly clavate basidiospores [ $17\text{--}23(-25) \times 4\text{--}5 \mu\text{m}$ ], a fragrant odor recalling jasmine flower, and a distinctive ITS sequence.

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

### **Introduction**

*Marasmius* Fries (1835: 339) (Marasmiaceae, Agaricales, Basidiomycota, Fungi) is a predominantly saprotrophic genus with worldwide distribution. Tropical regions show a remarkable diversity of this genus where they play an essential role in litter decomposition in forest ecosystems. Singer (1958, 1976, 1986) who had a major role in developing the generic and infrageneric circumscriptions of *Marasmius* recognized 12 sections within *Marasmius* and this classification system was widely accepted until the end of the last century. However, recent molecular phylogenetic studies indicate that the genus is polyphyletic and *Marasmius* s.str. includes only the sections *Globulares*, *Leveilleani*, *Marasmius*, *Neosessiles* and *Sicci* (Moncalvo *et al.* 2002; Wilson & Desjardin 2005; Matheny *et al.* 2006). A few studies (Wannathes *et al.* 2009b; Tan *et al.* 2009) also indicate that a pileipellis formed from *Siccus*-type broom cells versus *Globulares*-type cells that currently differentiates sect. *Sicci* from sect. *Globulares* is not a phylogenetically significant feature. Although Antonín & Noordeloos (2010) combined sect. *Sicci* in sect. *Globulares*, in this account we are following the morphological concept of Singer (1976, 1986) with regard to sect. *Globulares*. The section *Globulares* is characterized primarily by a hymeniform pileipellis with smooth elements, dextrinoid tramal hyphae, and a mycelium at the stipe base (Singer 1976, 1986).

During our studies on the agarics of the Silent Valley National Park in Kerala State, India, we came across a striking species of *Marasmius* section *Globulares* that was found to be distinct from all other previously reported species of the section. It is formally described here as new.

### **Material and Methods**

#### *Morphological studies*

Conventional morphology-based taxonomic methods were employed and were supported by the molecular (ITS sequences) data. Microscopic observations were made on material stained with 1% aqueous solutions of phloxine and Congo red and mounted in 3% aqueous KOH. Melzer's reagent was used for amyloidity test. For evaluation of the range of spore size, 20 basidiospores per collection were measured. Basidiospore measurements include the mean and the standard deviation for both the length and the width, along with the range of spore quotient (Q, the length/width ratio) and its mean value (Q<sub>m</sub>). Alphanumeric color codes used in the descriptions are from both Kornerup &