

## Three new species and one new record of spinose *Mycena* (sections *Longisetae* and *Spinosa*) from Taiwan

Chiung-Chih Chang<sup>1,3</sup>, Wen-Neng Chou<sup>2</sup>, Chi-Yu Chen<sup>3</sup>, Hsiao-Wei Kao<sup>4</sup>

<sup>1</sup>Biodiversity Research Center, Academia Sinica, Taiwan

<sup>2</sup>Department of Biology, National Museum of Natural Science, Taiwan

<sup>3</sup>Department of Plant Pathology, National Chung Hsing University, Taiwan

<sup>4</sup>Department of Life Sciences, National Chung Hsing University, Taiwan

**Purpose :** Species of the agaric genus *Mycena* (*Basidiomycota*) in sections *Longisetae* and *Spinosa* are characterized by having hairs or spines on their pileus, and usually grow on plant litters in tropical and subtropical forests. These two sections encompass around 18 and 7 species worldwide, respectively. However, the described species-level diversity in Taiwan may vastly underestimate their actual diversity due to limited field investigation. This study aims to discover species diversity of spinose *Mycena* in Taiwan.

**Methods:** Specimens were collected from tropical forests of Southern Taiwan and an arboretum of Central Taiwan. Micro- and macro- morphologies of specimens were examined. Phylogenetic analyses are inferred from both maximum likelihood and Bayesian methods, based on sequences of the nuc rDNA ITS1-5.8S-ITS2 (ITS).

**Results and conclusions:** Based on morphological and phylogenetic evidences, *Mycena fengguans*, *M. subcyanocephala* and *M. turandotiana*, assigned to section *Spinosa*, were proposed as new species. *M. brunneisetosa*, belonging to section *Longisetae*, is a new record from Taiwan. *M. fengguans*, growing on decaying branches, is characterized by having pubescent primordia and fruitbodies, clavate cheilocystidia with cylindrical excrescences, and thin-wall caulocystidia with narrowed apex. *M. turandotiana*, growing on decaying branches, is characterized by having dark gray to grayish-white pileus, pubescent stipe with radiating fibrils in base, capitate, cylindrical cheilocystidia, and abundant halocystidia on stipe, pileus, and the edge of lamellae. *M. subcyanocephala*, growing on rotted wood, is characterized by having tomentulose fruitbodies, white to blueish pileus, cylindrical to spindle shape pileocystidia and caulocystidia, and capitate cheilocystidia. A key to all *Mycena* species in section *Spinosa* is given.