



Cantharellus sikkimensis sp.nov. (Cantharellales, Agaricomycetes) from the Indian Himalayas

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Abstract

This paper describes and illustrates *Cantharellus sikkimensis* sp.nov. from *Abies densa* vegetation in the mountains of Sikkim, India. The new species is phylogenetically placed in subgenus *Parvocantharellus* and differs from the other species of the same subgenus in the strong contrast between the dark brown, convex pileus and the yellowish color of all other parts of the fruiting bodies. It is furthermore characterized by its very long, partly hollowing and downward broadening stipe and by the size of its spores measuring 8–9–11 × 5–5.5–7 μm (n= 20, Q = 1.33–1.64–2.2 μm). *Cantharellus umbonatus* Deepika, Upadhyay & Reddy 2013 non Pers.: Fr. 1821, nom. inval. is shown to be unrelated and suggested to be a later synonym of *C. pseudoformosus*. The systematic position of this species is here corrected as being member of *Cantharellus* subg. *Cantharellus* sect. *Amethystini*.

Key words: *Cantharellus umbonatus*, LSU, Macrofungi, *Parvocantharellus*, Phylogeny Sikkim, Taxonomy

Introduction

The genus *Cantharellus* is part of one of the most basal clades of ectomycorrhizal, mushroom-forming fungi. Most species are usually recognized by their infundibuliform to trumpet-shaped, mostly fleshy pileus with a shallow to deep central depression that is produced on an often short, central stipe and develops underneath a mostly decurrent, veined to gill-like, forking or anastomosing hymenophore. Under the microscope, their monomitic hyphal system is composed of either clampless or clamp-bearing, generative hyphae, they lack typical cystidia in the hymenium and have short to very long basidia producing each (2–)5–6(–8) smooth spores (Buyck *et al.* 2014).

Some of these features are shared with other mushroom-forming genera and *Cantharellus* has frequently be confused with a large number of other Agaricomycetes of very different affinities (Buyck *et al.* 2014). Several, recent multigene phylogenetic studies (Montcalvo *et al.* 2007; Buyck *et al.* 2014), however, have now stabilized generic concepts within family Cantharellaceae which is now composed of only two genera, *Craterellus* and *Cantharellus*, although with slightly modified concepts. Also the recently described genus *Afrocantharellus* (Tibuhwa *et al.* 2012) is now considered a more recent synonym of *Cantharellus* (Shao *et al.* 2014, Buyck *et al.* 2014). Hibbett *et al.* (2014) place *Cantharellus* in a larger concept of Hydnaceae, englobing all genera previously placed in Clavulinaceae, Cantharellaceae and Sistotremataceae.

Species diversity in *Cantharellus* has been strongly underestimated as evidenced by recent molecular work demonstrating the existence of many cryptic species, but also as evidenced by the discovery of many undescribed species in underexplored areas (Buyck 2014, Buyck *et al.* 2015, Shao *et al.* 2014). As far as India is concerned, a