



Russula nigrovirens sp. nov. (Russulaceae) from southwestern China

QI ZHAO^{1,2,3#}, YANG-KUN LI^{4#}, XUE-TAI ZHU³, YONG-CHANG ZHAO¹ & JUN-FENG LIANG^{4*}

¹Biotechnology and Germplasm Resources Institute, Yunnan Academy of Agricultural Science, Kunming, Yunnan, 650223, People's Republic of China

²School of Science, Mae Fah Luang University, Chiang Rai, 57100, Thailand

³Key Laboratory for Plant Diversity and Biogeography of East Asia, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming 650201, People's Republic of China

⁴Research Institute of Tropical Forestry, Chinese Academy of Forestry, Guangzhou 510520, Guangdong, People's Republic of China

contributed equally to this work

*e-mail: jfliang2000@163.com

Abstract

A new species, *Russula nigrovirens*, with phenotypic similarities to *R. virescens* is proposed based on morphological and molecular data. Morphologically, *R. nigrovirens* is characterized by the combination of non-striate pileus with dull green patches, incurved margin, non-discolouring context, globose to subellipsoid basidiospores with bluntly conical to subcylindrical warts isolated or connected with irregular lines or ridges, and large, clavate basidia. *Russula nigrovirens* is placed in subgenus *Heterophyllidia*, subsection *Cyanoxanthinae*.

Key words: New taxon·Phylogeny·Russulales·Taxonomy

Introduction

The genus *Russula* Pers. (Russulaceae, Russulales, Basidiomycota) is a widely distributed genus containing about 750 species (Kirk *et al.* 2008) worldwide including 160 species in China (Song *et al.* 2007).

The Hengduan Mountains, situated in southwestern China, is one of the twenty five hotspots for biodiversity (Myers *et al.* 2000), and proves to be an area highly rich in macrofungi (Yang 2005). More than 70 species of *Russula* have been recorded from the region (Song *et al.* 2007, Wang *et al.* 2009). During a previous investigation of fungal resources of western Yunnan (Zhang *et al.* 2010), it was noticed that four particular collections were frequently mislabeled as *R. virescens* (Schaeff.) Fr. which was described and illustrated as a new species. To get an insight into the phylogenetic position of these morphologically similar species, sequences of the internal transcribed spacer (ITS) were analyzed jointly with sequences of closely related taxa within *Russula* subgenus *Heterophyllidia* Romagnesi emend. Sarnari.

Materials & methods

Sampling

Collections were obtained and photographed in the field during 2008–2010. Notes and photographs were taken for macro-morphological features and specimens were dried at 50 °C. Materials examined were deposited in the Herbarium of Cryptogams, Kunming Institute of Botany, Chinese Academy of Sciences (HKAS).

Morphological studies

Macromorphological characters were determined based on detailed field notes and photographs of fresh basidiomata. Descriptive terminology followed Vellinga (1988). Color designations were from Kornerup & Wanscher (1981). Ten percent FeSO₄ solution was used to test for chemical reactions on fresh specimens. For microscopic observations