DIVERSITY OF BOLETACEAE IN PENINSULAR MALAYSIA

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ABSTRACT

The Boletaceae (Basidiomycetes) s.l. is a large family of putrescent mushrooms with pores. Members of this well-recognized family form one of the largest, critical fungal components of obligate, symbiotic mycorrhizal communities throughout the temperate and tropical forest ecosystems of the world. They are intimately involved with basic ecosystem processes such as nutrient cycling, nutrient uptake, and decomposition of organic matter. Favourable temperature and humidity conditions in Asian tropical forest support a wide diversity of boletes. However, the seasonality of fruiting, short-lived and often solitary fruiting bodies are major problems encountered when documenting their diversity in tropical forests. The diversity of macrofungi in Malaysia is poorly known with only 20 % of mushroom species so far discovered. The earlier records of boletes were by Chipp (1921). Corner (1972) described 140 species of boleti from Peninsular Malaysia of which 100 were new to science. Later, Corner (1974) recorded 20 species of boletes from Borneo among which six were undescribed. Further, Corner (1972) had expected existence of 300 bolete species in Malaysia. Recently, there were reports of new records and clarifications from Malaysia by Lee (2005), Lee and Chang (2003), Lee *et al* (1997, 2002), Watling and Hollands (1990), Watling and Lee (1995, 1998), Watling *et al* (1996, 2006) and Watling (1993, 1994, 2000, 2001). In this study, samples were collected at various selected sites in Peninsular Malaysia from 2003 to 2007. Macromorphological and micromorphological features were used to identify the samples to genus and species level. A total of 52 collections of boletes were identified to 30 species from Peninsular Malaysia. Four species are documented as new to science (*Afroboletus malaysiancus, Phylloporus megaporinus, Pulveroboletus claroflavus* and *Tylopilus favo-ballouii*). An additional three species are documented as new records for Peninsular Malaysia (*Tylopilus plumbeoviolaceus, Tylopilus rubrobrunneus* group and

Xanthoconium violaceofuscus). Twenty two species reported by other researchers were re-collected and one specimen is yet to be identified to species level.

ABSTRAK

Boletaceae (Basidiomycetes) s.l. merupakan satu famili yang besar dari cendawan yang berliang. Ahli-ahli di dalam famili yang amat dikenali ini membentuk salah satu komponen obligat yang terbesar dan kritikal serta komuniti mikoriza yang bersimbiotik di hutan bermusim dan hutan hujan tropika di seluruh dunia. Ia terlibat dalam proses asas ekosistem seperti kitaran nutrien, penyerapan nutrien dan pereputan bahan organik. Suhu yang sesuai dan keadaan yang lembap dalam hutan hujan tropika Asia menyokong pertumbuhan pelbagai spesies boletes. Walau bagamanapun, pembentukan janabuah yang bermusim, jangka hayat yang pendek dan janabuah yang tunggal merupakan masalah utama yang dihadapi semasa mendokumentasikan kepelbagaiannya dalam hutan hujan tropika. Kepelbagaian kulat makro di Malaysia masih kurang diketahui dengan hanya 20% spesies cendawan yang telah dijumpai setakat ini. Rekod yang paling awal ialah Chipp (1921). Kemudian Corner (1972) telah mendiskripsikan 140 boleti spesies daripada Semenenjung Malaysia. Daripada 140 spesies, 100 merupakan spesies baru. Selepas itu, Corner (1974) merekodkan 20 boletes spesies daripada Borneo yang mana enam spesies belum pernah dicamkan. Corner (1972) menjangkakan terdapat lebih daripada 300 kewujudan boletes spesies di Malaysia. Terdapat beberapa rekod baru daripada Malaysia yang dilaporkan oleh Lee (2005), Lee dan Chang (2003), Lee *et al* (1997, 2002), Watling dan Hollands (1990), Watling dan Lee (1995, 1998), Watling *et al* (1996, 2006) and Watling (1993, 1994, 2000, 2001). Dalam kajian ini, sampel cendawan telah dikumpul dari pelbagai tempat yang dipilih di Semenanjung Malaysia dari tahun 2003 ke 2007. Ciri-ciri makro dan mikro telah digunakan untuk mengcam sampel tersebut ke peringkat genus dan spesies. Sejumlah 52 koleksi boletes telah dicamkan kepada 30 spesies yang berlainan. Empat spesies didokumentasikan sebagai baru dalam sains (*Afroboletus malaysiancus, Phylloporus megaporinus, Pulveroboletus claroflavus*

and *Tylopilus favo-ballouii*). Penambahan sebanyak tiga spesies didokumentasikan sebagai rekod baru untuk Semenanjung Malaysia (*Tylopilus plumbeoviolaceus, Tylopilus rubrobrunneus* group and *Xanthoconium violaceofuscus*). Terdapat 22 spesies pernah dilaporkan oleh penyelidik lain telah dikumpul semula dan satu sampel masih belum dicamkan ke peringat spesies.

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF PLATES

LIST OF ABBREVIATIONS AND SYMBOLS

cm	centimeters
µm	micrometer
mm	millimeter
n	sample size
et al	et alia (~and others)
KLU	Herbarium code for University of Malaya Herbarium, Malaysia, Kuala Lumpur.
sp. nov. (Latin)	Species novum (new species)
nom. prov. (Latin)	Nomen provincialum (provisional name)
comb. prov. (Latin)	Combination provincialum