ABSTRACT

In this investigation, a total of 87 specimens have been collected from different localities of Sangla Hill, Punjab, Pakistan. These collected specimens comprised 50 different species, belonging to 35 genera, 16 families and 5 orders. Among these, 2 taxa seem previously undescribed and 19 are new records from Pakistan.

Agaricales in this investigation are represented by 45 species which fall in 11 families i.e., Agaricaceae, Amanitaceae, Bolbitiaceae, Entolomataceae, Lyophyllaceae, Marasmiaceae, Pluteaceae, Psathyrellaceae, Schizophyllaceae, Strophariaceae and Tricholomataceae.

Agaricaceae includes 4 species of *Agaricus* (*A. bitorquis, A. campestris, A. flocculosipes* and *A. heterocystis*), 2 species each of genera *Bovista* (*B. concinna, B. plumbea*), *Lepiota* (*L. subincarnata, L. vellingana*), *Leucoagaricus* (*L. americanus, L. punjabiensis* nom. prov.), *Leucocoprinus* (*L. cepistipes, L. cretaceus*) and *Podaxis* (*P. beringamensis, P. pistillaris*) and 1 species each of genera *Chlorophyllum* (*C. molybdites*) and *Schizostoma* (*S. mundkurii*). Amanitaceae includes 1 species of *Amanita* (*A. nana*). Bolbitiaceae includes 1 species each of *Bolbitius* (*B. coprophilus*), and *Conocybe* (*C. macrospora*). Entolomataceae includes 1 species of *Entoloma* (*E. violaceovillosum*). *Incertae sedis* includes 1 species each of *Inflondibulicybe* (*I. gibba*) and *Panaeolus* (*P. papilionaceus*). Lyophyllaceae includes 1 species of *Termitomyces* (*T. heimii*). Marasmiaceae includes 3 species of *Lactocollybia* (*L. epia, L. subvariicystis, L. variicystis*), 2 of *Marasmiellus* (*M. candidus, M. tenerrimus*) and 1 of *Marasmius* (*M. albimycelioszus*). Pluteaceae includes 1 species each of genera *Pluteus* (*P. pulverulentus*) and *Volvopluteus* (*V. asiaticus*) and 2 species of *Volvariella* (*V. pussila, V. volvaceae*). Psathyrellaceae includes 1 species each of genera *Coprinellus* (*C. cinereopallidus*) and *Parasola* (*P. glabra*), 2 of *Coprinopsis* (*C. cinerea, C. nivea*). 2 of *Psathyrella* (*P. candolleana, P. sulcatotuberculosa*). Schizophyllaceae includes 1 species of *Schizophyllum* (*S. commune*). Strophariaceae includes 2 species of *Agrocybe* (*A. pediades, A. splendida*) and 1 of *Gymnopilus* (*G. junonius*). Tricholomataceae includes 1 species of *Clitocybe* [*C. nebularis*) and 1 of *Macrocybe* (*M. crassa*).

Order Boletales is represented by 2 families, i.e., Boletaceae and Sclerodermataceae. Boletaceae includes 1 species each of *Gyrodontium* (*G. ahmadii* nom. prov.) and *Pisolithus* (*P. albus*).

Order Phallales, Polyporales and Pucciniales are represented by families Phallaceae, Meripilaceae and Pucciniaceae, respectively.

Phallaceae, Meripilaceae, Pucciniaceae include 1 species of *Phallus* (*P. roseus*), 1 of *Rigidoporus* (*R. vinctus*) and 1 of *Uromyces* (*U. setariae-italicae*), respectively.

All of the collected specimens have been characterized, illustrated and discussed in detail. Identification of the taxa was based on morphological and molecular methods. ITS-nrDNA was used as a molecular marker for molecular phylogenetic studies. Phylograms have been constructed for some taxa which were sequenced successfully. Light mircrographs of microscopic features of all the fungal taxa have been given. Detailed morphological comparisons of collected fungal species with allied taxa have also been made in this study.

In this investigation, the taxa which seem previously undescribed are *Gyrodontium ahmadii* nom. prov. and *Leucoagaricus punjabiensis* nom. prov. New fungal records for Pakistan are (*Agaricus flocculosipes*, *A. heterocystis, Agrocybe splendida, Bolbitius coprophilus, Conocybe macrospora, Coprinellus cinereopallidus, Coprinopsis nivea, Entoloma violaceovillosum, Lactocollybia subvariicystis, L. variicystis, Leucoagaricus americanus, Macrocybe crassa, Marasmius albimyceliosus, Pisolithus albus, Podaxis beringamensis, Psathyrella sulcatotuberculosa, Termitomyces heimii, Volvariella pussila* and *Volvopluteus asiaticus*). *Echinochloa colona* is first time reported as a new host for rust fungus (*Uromyces setariae-italicae*) from Pakistan