

## A CHECKLIST OF MACROFUNGI OF PAKISTAN PUBLISHED FROM 1998–2020

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### Abstract

A checklist of macrofungi of Pakistan published/cited in literature after 1997 is given. More than two hundred published articles were reviewed. In total 338 macrofungal species belonging to Ascomycetes and Basidiomycetes reported from Pakistan are given. Most of the species were collected from the Himalayan temperate forest of Pakistan which is one of the biodiversity hotspot in the world. Lichens are not included in this list.

**Key words:** Distribution, Himalayas, Hosts, Phylogeny, Systematics.

### Introduction

Macrofungi is a group that forms visible spore bearing structures often known as fruiting bodies or sporocarps. Ecologically, macrofungi can be grouped as saprobes, parasites, or symbionts and have great potential in the pharmaceutical industry for the production of various antibiotics. They remain an untapped resource with enormous potential because some of the best-known polysaccharides found in fungi show anticancer and immunological properties (Hyde *et al.*, 2019).

Studies on macrofungal diversity are still, nevertheless, understudied over the globe. Taxonomic obstacles, a paucity of trained mycologists and a relatively smaller number of rigorous, long term studies published prevent us from documenting the number of macrofungal species at any specific habitat (Zhang *et al.*, 2015, Hyde *et al.*, 2019).

Ahmad *et al.*, (1997) compiled all fungi described or recorded from Pakistan, which were more than 4500 species. Since then, several new macrofungal genera, species and new records have been added to the list of Fungi of Pakistan, thanks to more than two dozen researchers taking up fungal studies during the last two decades. They have employed molecular techniques and multigene phylogenetic analyses for the identification of these fungi. This updated checklist contains 114 genera of both Ascomycetes and Basidiomycetes comprising 338 macrofungal species. Many of the sites which have been extensively explored lie in a biodiverse hotspot of the Himalayan temperate forests. In most cases, association with the host trees is as “ectomycorrhizal symbionts” as the trees belong to family Pinaceae. We emphasize that this checklist is not supported by voucher collections, but we have made extensive efforts to correct nomenclatural synonyms and eliminated superfluous names. Hopefully this checklist will help to further stimulate taxonomic research in Pakistan. Index Fungorum (2020) was consulted for verification of authorities and synonyms.

1. **ABORTIPORUS BIENNIS (Bull.) Singer**, *Mycologia* **36**(1): 68 (1944) = *Heteroporus biennis* (Bull.) Lázaro Ibiza., on dead wood, Gilgit-Baltistan, Astore district, Dashikn. Razaq & Shahzad (2016) and Khyber Pakhtunkhwa, Swat district, Village Ingaro Dherai. Khan *et al.*, (2016a).
2. **AGARICUS BISPORITICUS Nawaz, Callac, Thongklang & Khalid**, in Thongklang *et al.*, Nawaz, Khalid, Chen, Zhao, Para, Hanif, Moinard & Callac, *Mycologia*, **106**(6): 1224 (2014)., Punjab, Botanical Garden, Quaid-e-Azam Campus, University of the Punjab, Lahore, Thongklang *et al.*, (2014).
3. **AGARICUS CAMPESTRIS L.** [as 'campester'], *Sp. pl.* **2**: 1173 (1753), on ground, Gilgit-Baltistan, Raheemabad. Razaq *et al.*, (2014).
4. **AGARICUS DULCIDULUS Schulzer**, in Kalchbrenner, *Icon. Sel. Hymenomyc. Hung.* (Budapest): 29 (1874), on moist soil, Gilgit-Baltistan, Raheemabad. Razaq *et al.*, (2014).
5. **AGARICUS GLABRIUSCULUS S. Hussain**, in Hussain & Sher, *Mycol. Progr.* **18**(6): 799 (2019), on loamy soil under *Acacia modesta* Qaldara, Malakand (Hussain & Sher 2019).
6. **AGARICUS LATIUMBONATUS S. Hussain**, in Hussain & Sher, *Mycol. Progr.* **18**(6): 802 (2019), on loamy soil under *Acacia modesta* Qaldara, Malakand (Hussain & Sher 2019).
7. **AGARICUS PAKISTANICUS Bashir, Khalid, Para & Callac**, in Bashir, Hussain, Khalid, Niazi, Para & Callac. *Phytotaxa* **357**(3): 172 (2018), on rich loamy soil under trees of *Dalbergia sissoo*, grounds University of the Punjab, Lahore. Bashir *et al.*, (2018).
8. **AGARICUS SPARSISQUAMOSUS H. Bashir, S. Hussain, Khalid & H. Ahmed**, in Bashir, Hussain, Khalid, Niazi, Para & Callac, *Phytotaxa* **357**(3): 173 (2018)., on loamy soil Khyber Pakhtunkhwa, Qaldra Dasagai, Punjab; on ground, University of the Punjab, Lahore. Bashir *et al.*, (2018).
9. **AGARICUS SYLVATICUS Schaeff.**, *Fung. bavar. palat. nasc.* (Ratisbonae) **4**: 62 (1774), on soil, Mansehra district, Malakandi Kaghan, Sultana *et al.*, (2011).
10. **AGROCYBE ARVALIS (Fr.) Singer**, *Beih. Botan. Centralbl.*, *Abt. B* **56**: 167 (1936), on ground, Mansehra district, Sharan valley. Sultana *et al.*, (2011).
11. **AGROCYBE VERVACTI (Fr.) Singer**, *Beih. Botan. Centralbl.*, *Abt. B* **56**: 167 (1936), on ground, Mansehra district, Naran. Sultana *et al.*, (2011).
12. **AHMADEA DALANENSIS Aman & Khalid**, in Aman, Khalid & Moncalvo, *Stud. Fung.* **5**(1): 454 (2020), on ground near *Acacia nilitoca*. Aman *et al.*, (2020).

13. **ALBATRELLOPSIS FLETTIOIDES** J. Khan. *Sydowia* **72**: 267 (2020), on soil under *Pinus wallichiana*, Swat district, Miandam, Khyber Pakhtunkhwa. Haelewaters *et al.*, (2020).
14. **ALBATRELLUS ROSEUS** J. Khan, Sher & Khalid, in Khan, Sher, Bussmann, Hart & Khalid. *Mycoscience*, **59**(1): 14 (2017), on ground, under *Picea smithiana*, Khyber Pakhtunkhwa, Swat district, Gabin Jabba valley. Khan *et al.*, (2018).
15. **AMANITA AHMADII** Jabeen, Ahmad, Kiran, Khan & Khalid, in Jabeen, Kiran, Khan, Ahmad, Sher & Khalid. *MycKeys*, **56**: 91 (2019), on soil under *Cedrus deodara*, Khyber Pakhtunkhwa, Swat district, Mashkun. Jabeen *et al.*, (2019).
16. **AMANITA BATTARRAE** (Boud.) Bon, *Docums Mycol.* **16**(61): 16 (1985) = *Amanita umbrinolutea* (Secr. ex Gillet.) Bataille, on ground with *Pinus* spp. Khyber Pakhtunkhwa. Hazara Ayubia-Khanspur. Tulloss *et al.*, (2001).
17. **AMANITA CINIS** S. Ullah, Wilson, Tulloss & Khalid, in Ullah, Wilson, Tullos, Fiaz, Mueller & Khalid, *Turkish Journal of Botany*, **43**: 839 (2019), in mixed forest under *Abies pindrow*, Khyber Pakhtunkhwa, Shangla district, Ajmir, Sham Takht Burj. Ullah *et al.*, (2019a).
18. **AMANITA EMODOTRYGON** Mehmood, Tulloss, Das, Hosen & Bhutt, in Tibpromma *et al.*, *Fungal Diversity* **83**:155 (2017), on sandy soil under *Pinus roxburghii* Sarg., Khyber Pakhtunkhwa, Shangla-Sandera, Manshera, Oghi Khabel plain. Ullah *et al.*, (2019b).
19. **AMANITA FLAVIPES** S. Imai. *Bot. Mag, Tokyo* **47**: 428 (1933), on ground, under coniferous trees vegetation Khyber Pakhtunkhwa, Abbottabad district, Natiagali. Tulloss *et al.*, (2001).
20. **AMANITA GLAREA** Jabeen, Kiran & Sadiqullah, in Jabeen, Kiran, Sadiqullah, Wilson, Mueller, Fiaz & Khalid, *Phytotaxa*, **306**(2): 139, on soil under *Cedrus deodara*, Khyber Pakhtunkhwa, Swat district, Mashkun. Jabeen *et al.*, (2017a).
21. **AMANITA GRISEOFUSCA** J. Khan & Kiran, in Kiran, Khan, Sher, Pfister & Khalid. *Phytotaxa*, **364**(2): 186 (2018), under *Quercus dilatata* in mixed coniferous forest Khyber Pakhtunkhwa, Swat district, Malam Jabba valley. Kiran *et al.*, (2018).
22. **AMANITA MANSEHSENSIS** Saba, Haelew & Khalid, in Saba, Haelew., Fiaz, Khalid & Pfister, *Phytotaxa* **409**(4): 196 (2019), under *Pinus roxburghii*. Khyber Pakhtunkhwa, Manshera-Chattar Plain, Saba *et al.*, (2019a).
23. **AMANITA OLIVOVAGINATA** S. Ullah, Tulloss & Khalid, in Ullah, Wilson, Tulloss, Fiaz, Mueller and Khalid, *Turkish Journal of Botany*, **43**: 842 (2019), on soil under *Pinus roxburghii*. Khyber Pakhtunkhwa, Shangla-Manshera, Battagram border. Ullah *et al.*, (2019).
24. **AMANITA ORSONII** Kumar & Lakhanpal, in Kumar *et al.*, *Amanitaceae of India* (Dehra Dun), **75**: 105 (1990), on ground associated with *Cedrus deodara*. Khyber Pakhtunkhwa, Hazara district, Kuzagali. Tulloss *et al.*, (2001).
25. **AMANITA PAKISTANICA** Tulloss, Iqbal & Khalid, in Tulloss, Iqbal, Khalid, Bhatt & Bhatt, *Mycotaxon* **77**: 458: (2001), on ground in association with *Abies Pindrow*, Khyber Pakhtunkhwa, Hazara, Nathiagali, Tulloss *et al.*, (2001).
26. **AMANITA PALLIDOROSEA** Zhang & Yang, in Zhang, Chen, Xiao, Bau, Bao & Yang, *Fungal Diversity* **42**: 125 (2010), on ground, under *Quercus oblongata*, Khyber Pakhtunkhwa, Swat district, Toa, Kiran *et al.*, (2017).
27. **AMANITA RUBESCENS** Pers., *Tent. disp. meth. fung. (Lipsiae)*: 71 (1797), on ground in association with *Picea smithiana*. Khyber Pakhtunkhwa, Mushkpuri top. Niazi *et al.*, (2009).
28. **AMANITA PSEUDOVAGINATA** Hongo. *Mem. Fac. Edu. Shinga Uni., Nat. Sci.* **33**: 39 (1983), on ground, under *Quercus incana* Roxb., Khyber Pakhtunkhwa, Swat, Shawar valley. Naseer & Khalid (2020a).
29. **AMANITA SUBJUNQUILLEA** S. Imai, *Bot. Mag, Tokyo* **47**: 424 (1933). Under *Quercus floribunda*, Khyber Pakhtunkhwa, Bunder GoKand valley, Bottle green Mountain. Ishaq *et al.*, (2019a).
30. **AUREOBOLETUS GENTILIS** (Qué.) Pouzar, *Česká Mykol.* **11**(1): 48. (1957), usually in small groups, on soil in old fire sites. Gilgit-Baltistan, Mushkin forest, Astore district, Razaq & Shahzad (2017).
31. **BJERKANDERA ADUSTA** (Willd.) P. Karst., *Meddn Soc. Fauna Flora fenn.* **5**: 38 (1879), on dead wood, Jalalabad, Gilgit-Baltistan. Razaq & Shahzad (2017).
32. **BOLETUS BARROWSII** Thiers & A.H. Sm., *Mycotaxon* **3**(2): 262. 1976. Under *Abies pindrow*, Khyber Pakhtunkhwa, Abbotabad district, Nathiagali. Niazi (2008).
33. **BOLETUS HIMALAYENSIS** Jabeen, Sarwar & Khalid, in Sarwar, Jabeen, Ahmad, Dentinger & Khalid. *Turkish Journal of Botany* **42**: 791 (2018), on soil under *Cedrus deodara*, Khyber Pakhtunkhwa, Swat district, Mashkun, Kagan valley, Sharhan under *Pinus wallichiana*. Sarwar *et al.*, (2018a).
34. **BOLETUS PAKISTANICUS** S. Sarwar & Khalid, *Int. J. Agric. Biol.* **16**: 664 (2014), on ground. Sarwar & Khalid (2014a).
35. **BOLETUS RETICULATUS** Schaeff., *Fung. bavar. palat. nasc. (Ratisbonae)* **4**: 78. (1774), under *Abies pindrow*, Khyber Pakhtunkhwa, Ayubia; Astore district, Dichal Nala, Niazi (2010).
36. **BOVISTA HIMALAICA** Yousaf, Krieisel & Khalid, *Mycol. Progr.* **12**(40):570 (2013), on ground moist soil, Khyber Pakhtunkhwa, Abbotabad district, Khanspur. Yousaf *et al.*, (2012a).
37. **BOVISTELLA JAPONICA** Lloyd, *Mycol. Writ.* **2**(23): 281 (1906), on ground under *Pinus wallichiana*. Khyber Pakhtunkhwa, Abbotabad district, Khanspur; Nathiagali. Yousaf *et al.*, (2014).
38. **BULGARIA INQUINANS** (Pers.) Fr., *Syst. Mycol. (Lundae)* **2**(1): 167 (1822), on stumps of *Aesculus indica*, Khyber Pakhtunkhwa, Abbottabad district, Kuzagali. Khalid *et al.*, (2000).

39. *CALLISTOSPORIUM LUTEOLIVACEUM* (Berk. & M.A. Curtis) Singer, *Llodia* 89: 117 (1946), under *Pinus roxburghii*. Khyber Pakhtunkhwa, Abbottabad-Simla, Saba & Khalid (2014a).
40. *CALVATIA AHMADII* Khalid & Iqbal, *Pak. J. Bot.* 36(3): 669 (2004), on ground, Khyber Pakhtunkhwa, Swat district. Khalid & Iqbal (2004).
41. *CALVATIA LILACINA* (Mont. & Berk.) Henn., *Hedwigia* 43(3): 205 (1904), on soil. Haelewaters *et al.*, (2020).
42. *CANTHARELLUS CINEREUS* (Pers.) Fr., *Syst. mycol.* (Lundae) 1: 320 (1821) = *Craterellus cinereus* (Pers.) pers. *Mycol. eur. (E rlanga)* 2: 6 (1825), on ground, under *Querus incana*. Khyber Pakhtunkhwa, Swat district. Naseer & Khalid (2018).
43. *CHALCIPORUS PIPERATUS* (Bull.) Bataille, *Bull. Soc. Hist. nat. Doubs* 15: 39 (1908), on soil. Sultana *et al.*, (2011).
44. *CHLOROPHYLLUM MOLYBDITES* (G. Mey.) Masee, *Bull. Misc. Inf., Kew*: 136 (1898), on ground, Gilgit Airport. Razaq & Shahzad (2012).
45. *CHROOGOMPHUS PAKISTANICUS* M. Kiran & Khalid, in Kiran, Sattar, Zamir, Healewaters & Khalid, *MycKeys* 66:28 (2020), on forest floor, Khyber Pakhtunkhwa, Dir upper, Kumrat valley Kiran *et al.*, (2020).
46. *CHROOGOMPHUS PRUINOSUS* M. Kiran & Khalid, in Kiran, Sattar, Zamir, Haelewaters & Khalid, *MycKeys* 66: 31 (2020), on rich loamy soil, Kumrat valley, Khyber Pakhtunkhwa, Pakistan Kiran *et al.*, (2020).
47. *CLAVARIADELPHUS ELONGATUS* J. Khan, Sher & Khalid, *Phytotaxa* 365(2): 184 (2018), on ground, under *Abies pindrow*, Khyber Pakhtunkhwa, Swat district, Malam Jabba. Sher *et al.*, (2018).
48. *CLAVARIADELPHUS PAKISTANICUS* Hanif & Khalid, in Hanif, Khalid & Exeter, *Botany* 92(7): 475 (2014), on ground under *Pinus wallichiana*, Khyber Pakhtunkhwa, Abbottabad-Khanspur, Hanif *et al.*, (2014).
49. *CLITOCYLLA POPINALIS* (Fr.) Kluting, T.J. Baroni & Bergemann, *Mycologia* 106(6): 1138 (2014) = *Rhodocybe popinalis* (Fr.) Singer, on soil. Sultana *et al.*, (2011).
50. *CLITOCYBE FRAGRANS* (With.) P. Kumm., *Führ. Pilzk. (Zerbst)*: 121 (1871), on loamy soil in flowerbed. Sultana *et al.*, (2014).
51. *CLITOCYBE INFUNDIBULIFORMIS* (Schaeff.) Quél., *Mém. Soc. Émul. Montbéliard, Sér.* 25: 88 (1872), on loamy soil. Sultana *et al.*, (2011).
52. *CLITOCYBE METACHROA* (Fr.) P. Kumm., *Führ. Pilzk. (Zerbst)*: 120 (1871) = *Clitocybe mortuosa* (Fr.) Gillet, on ground. Sultana *et al.*, (2011).
53. *CLITOCYBE NEBULARIS* (Batsch) P. Kumm., *Führ. Pilzk. (Zerbst)*: 124 (1871), on loamy soil. Sultana *et al.*, (2011).
54. *CLITOCYBE SQUAMULOSA* (Pers.) P. Kumm., *Führ. Pilzk. (Zerbst)*: 123 (1871), on ground. Sultana *et al.*, (2011).
55. *CONOCYBE PUNJABENSIS* A. Izhar, H. Bashir & Khalid, *Phototaxa* 402(5): 254 (2019), on roadside, M2, Punjab, Sheikhupura. Izhar *et al.*, (2019).
56. *COPRINUS RADIANS* (DESM.) Fr., *Epicr. syst. mycol. (Upsaliae)*: 248 (1838) [1836-1838], growing in the flowering bed, around lilly plants, Punjab, Rawalpindi district, Shamsabad. Sultana *et al.*, (2014)
57. *COPRINELLUS CAMPANULATUS* S. Hussain & H. Ahmad, in Hussain, Usman, Afshan, Ahmad, Khan & Khalid, *MycKeys*, 39: 48 (2018), on wood chip, Khyber Pakhtunkhwa, Qaldara, Daragi, Malakand. Hussain *et al.*, (2018a).
58. *COPRINELLUS DISSEMINATUS* (Pers.) J.E. Lange [as 'disseminata'], *Dansk bot. Ark.* 9: 93 (1938). = *Coprinarius disseminates* (Pers.) P. Kumm., on edges of stream, Gilgit-Baltistan, Raheemabad. Razaq *et al.*, (2014).
59. *COPRINELLUS DISSEMINATISIMILIS* S. Hussain [as 'disseminatus-similis'], in Hussain, Usman, Afshan, Ahmad, Khan & Khalid, *MycKeys* 39:51 (2018), on leaf litter under *Populus alba* and *Morus alba*, Khyber Pakhtunkhwa, Malakand, Sarogai. Hussain *et al.*, (2018a).
60. *COPRINELLUS OVATUS* Kamran & Jabeen, *Mycotaxon* 135(2): 326 (2020), on soil under broadleaf trees, Islamabad. Kamran & Jabeen (2020).
61. *COPRINELLUS TENUIS* S. Hussain, in Hussain, Usman, Afshan, Ahmad, Khan & Khalid, *MycKeys* 39:55 (2018), on leaf litter, Khyber Pakhtunkhwa, Malakand, Qaldara. Hussain *et al.*, (2018a)
62. *COPRINOPSIS CINEREA* (Schaeff.) Redhead, Vilgalys & Moncalvo, in Redhead, Vilgalys, Moncalvo, Johnson & Hopple, *Taxon* 50(1): 227 (2001). = *Coprinus cinereus* (Schaeff.) Gray, on ground, Gilgit-Baltistan, Jalal Abad & Astore valley. Razaq & Shahzad (2016a).
63. *COPRINOPSIS LAGOPUS* (Fr.) Redhead, Vilgalys & Moncalvo, in Redhead, Vilgalys, Moncalvo, Johnson & Hopple, *Taxon* 50(1): 229 (2001), on ground. Sultana *et al.*, (2011).
64. *COPRINOPSIS PATOULLARDII* (Quél.) Gminder, in Krieglsteiner & Gminder, *Die Großpilze Baden-Württembergs (Stuttgart)* 5: 650 (2010) = *Coprinus patouillardii* Quél., on ground. Sultana *et al.*, (2011).
65. *CORTINARIUS ACETOSUS* (Velen.) Melot, *Docums Mycol.* 17(68): 65 (1987), among grasses, Gilgit-Baltistan, Raheemabad. Razaq *et al.*, (2014).
66. *CORTINARIUS BRUNNEOCARPUS* Razaq & Khalid, in Song *et al.*, *Sydowia* 71: 165 (2019), on ground under *Abies Pindrow-Pinus wallichiana*, vegetation, Khyber Pakhtunkhwa, Khanspur-Ayoubia. Song *et al.*, (2019).
67. *CORTINARIUS CLARICOLOR* (Fr.) Fr., *Epicr. Syst. Mycol. (Upsaliae)*: 257 (1838) [1836-1838], on ground. Sultana *et al.*, (2011).
68. *CORTINARIUS DELIBUTUS* Fr., *Epicr. Syst. Mycol. (Upsaliae)*: 276 (1838) [1836-1838], on ground. Sultana *et al.*, (2011).
69. *CORTINARIUS ELEGANTISSIMUS* Rob Henry, *Docums Mycol.* 20(77): 69 (1989), on soil. Sultana *et al.*, (2011).
70. *CORTINARIUS GENTILIS* (Fr.) Fr., *Epicr. Syst. Mycol. (Upsaliae)*: 297 (1838) [1836-1838], on soil. Sultana *et al.*, (2011).

71. *CORTINARIUS LONGISTIPITATUS* M. Saba, Jabeen, Khalid & Dima. *Phytotaxa*, **328**(3): 257, on ground, under mixed vegetation of *Pinus wallichiana-Cedrus deodara*, Khyber Pakhtunkhwa, Manshera district, Khanian, Swat district, Mashkun. Saba *et al.*, (2017).
72. *CORTINARIUS OLIVACEOFUSCUS* Kühner, *Bull. mens. Soc. linn. Soc. Bot. Lyon* **24**(2): 39 (1955) = *Cortinarius schaefferi* Bres, on soil. Sultana *et al.*, (2011).
73. *CORTINARIUS PERCOMIS* Fr., *Epicr. syst. mycol.* (Upsaliae): 260 (1838) [1836-1838], on ground. Sultana *et al.*, (2011).
74. *CORTINARIUS PAKISTANICUS* A. Naseer & Khalid. *MycKeys*, **74**: 99 (2020), on ground under *Quercus oblongata*. Khyber Pakhtunkhwa, Swat, Toa. Naseer *et al.*, (2020b).
75. *CORTINARIUS PSEUDOTORVUS* A. Naseer, J. Khan & Khalid, *MycKeys*, **74**:99 (2020), on ground under *Quercus oblongata*. Khyber Pakhtunkhwa, Swat district, Toa. Naseer *et al.*, (2020b).
76. *CORTINARIUS SANGUINEUS* (Wulfen) Gray [*as 'Cortinaria sanguinea'*], *Nat. Arr. Brit. Pl.* (London) **1**: 629 (1821), on ground. Sultana *et al.*, (2011).
77. *CORTINARIUS SAPORATUS* Britzelm., *Zur Hymenomycetenkunde* **3**: 5 (1897). = *Cortinarius subturbinatus* Rob. Henry ex P.D. Orton, on loamy soil. Sultana *et al.*, (2011).
78. *CRINIPPELLIS SCABELLA* (Alb. & Schwein.) Murrill, *N. Amer. Fl.* (New York) **9**(4): 287 (1915) = *Crinipellis stipitaria* (Fr.) Pat., on soil. Sultana *et al.*, (2011).
79. *CYSTODERMELLA CINNABARINA* (Alb & Schwein.) Harmaja. *Karistenia* **42**(2): 45 (2002), near coniferous tree logs, Gilgit-Baltistan, Fairy Meadows. Razaq *et al.*, (2013a).
80. *DECONICA MERDARIA* (Fr.) Noordel., *Öst. Z. Pilzk.* **18**: 199 (2009) = *Psilocybe merdaria* (Fr.) Ricken., on soil. Sultana *et al.*, (2011).
81. *DESCOLEA FLAVOANNULATA* (Lj.N. Vassiljeva) E. Horak, [*as 'flavo-annulata'*], *Persoonia*, **6**: 246 (1971), on ground, under *Abies pindrow*, Khyber Pakhtunkhwa, Hazara, Ayoubia- Khanspur, Niazi *et al.*, (2007).
82. *DESCOLEA QUERCINA* J. Khan & Naseer, in Khan, Sher, Naseer & Khalid. *MycKeys*, **27**: 65-76 (2017), on ground, under *Quercus incana* shangla district, Toa valley, under *Q. dilatata*. Malam Jabba, Khan *et al.*, (2017a).
83. *ECHINODERMA ASPERUM* (Pers.) Bon, Docums, *Mycol.* **21**(82): 62 (1991) = *Lepiota acutesquamosa* Weinm. *Syll. Pl. Nov. Ratisb* **1**: 70 (1824), on moist soil under *Abies pindrow* Khyber Pakhtunkhwa, Abbottabad district, Khanspur. Razaq *et al.*, (2013b).
84. *ENTOLOMA CETRATUM* (Fr.) M.M. Moser, in Gams, *Kl. Krypt.-Fl.*, Bd II b/2, ed. 4 (Stuttgart) **2b/2**: 206 (1978), on soil. Sultana *et al.*, (2011).
85. *ENTOLOMA MOUGEOTII* (Fr.) Hesler, *Beih. Nova Hedwigia* **23**: 158 (1967), on soil. Sultana *et al.*, (2011).
86. *ENTOLOMA PAPILLATUM* (Bres.) Dennis, *Bull. trimest. Soc. mycol. Fr.* **69**: 162 (1953), on soil. Sultana *et al.*, (2011).
87. *ENTOLOMA SHANDONGENSE* T. Bau & J.R. Wang. *Mycotaxon* **124**: 165–171 (2013), on ground, Punjab, Lahore, Quiad-e-Azam Campus, University of the Punjab. Muzaffargarh. Haelewaters (2020).
88. *FOMES FOMENTARIUS* (L.) Fr., *Summa Veg. Scand.*, Sectio Post. (Stockholm): 321 (1849), on dead wood, Gilgit-Baltistan, Astore district, Dashkin. Razaq & Shahzad (2017).
89. *GANODERMA APPLANATUM* (Pers.) Pat., *Hyménomyc. Eur.* (Paris): 143 (1887), on wood of Broad-leaves trees, Gilgit-Baltistan, Astore district, Dushkin forest. Razaq & Shahzad (2017).
90. *GEASTRUM FIMBRIATUM* Fr., *Syst. mycol.* (Lundae) **3**(1): 16 (1829) = *Geastrum sessile* Pouzar, on ground, Gilgit-Baltistan, Naltar valley. Razaq & Shahzad (2017).
91. *GEOPORA AHMADII* Saba, T. Ashraf, Khalid & Pfister, in Saba, Haelewaters, Iturriaga, Ashraf, Khalid & Pfister. *Mycotaxon*, **134**(2): 382 (2019), on soil, Botanical Garden, University of the Punjab, Lahore. Saba *et al.*, (2019b).
92. *GEOPORA COOPERI* Harkn. *Bull. Calif. Acad. Sci.* **1**(3): 168 (1885). *F. cooperi*. on ground under *Pinus wallichiana*, Gilgit-Baltistan, Fairy Meadows. Ashraf & Khalid (2012a).
93. *GEOPYXIS ALPINA* Höhn., *Annl. mycol.* **3**(6): 556 (1906) [1905], on soil with *Viburnum nervosum* and *Pinus wallichiana*, Khyber Pakhtunkhwa, Kaghan valley, Sharhan, Hazara, Khanspur-Ayoubia, Khalid *et al.*, (2000). Gilgit-Baltistan, Astore district, Dashkin, Mushkin forests, Razaq *et al.*, (2017).
94. *GYMNOPILUS DUNENSIS* H. Bashir, Jabeen & Khalid, in Bashir, Jabeen, & Khalid. *Phytotaxa*, **428**(1), 52 (2020), on wood of *Eucalyptus comalduensis*, Punjab, Bahawalpur, Lal Sohaanra Park; Narowal. Bashir *et al.*, (2020a).
95. *GYMNOPILUS PENETRANS* (Fr.) Murrill. *Mycologia*, **4**(5): 254 (1912), on mulch rich soil under *Pinus wallichiana*, Khyber Pakhtunkhwa, Swat district, Madian. Khan *et al.*, (2017b).
96. *GYMNOPILUS SWATICUS* J. Khan, Sher & Khalid, in Khan, Kiran, Jabeen, Sher & Khalid. *Phytotaxa*, **312**(1): 63 (2017), on ground under *Picea smithiana*, Gabin Jabba valley, Lalkoo. Khan *et al.*, (2017b).
97. *GYMNOPUS ANDROSACEUS* (L.) Della Magg. & Trassin., *Index Fungorum* **171**: 1 (2014) = *Marasmius androsaceus* (L.) Fr., on soil. Sultana *et al.*, (2011).
98. *GYMNOPUS BARBIPES* R. H. Petersen & K.W. Hughes. *N. Amer. Fungi.* **9**(3): 2 (2014), under *Pinus wallichiana*, Khyber Pakhtunkhwa, Shangla, Yekh Tangi. Saba *et al.*, (2020).
99. *GYMNOPUS DYSODES* (Halling), Halling, in Antonín, Halling & Noordeloos, *Mycotaxon*, **63**: 364 (1997), on *Decaying wood* chips of deciduous trees, Khyber Pakhtunkhwa, Swat district, Ingaro, Dherai. Saba *et al.*, (2020).
100. *GYMNOPUS ERYTHROPUS* (Pers.) Antonín, Halling & Noordel. *Mycotaxon*, **63**: 364 (1997) = *Collybia kuehneriana* Singer., on soil. Sultana *et al.*, (2011).

- 101. GYMNOPUS FUSIPES (Bull.) Gray.** *Nat. Arr. Brit. Pl.* (London) **1**: 604 (1821) = *Collybia fusipes* (Bull.) Quél., on ground. Sultana *et al.*, (2011).
- 102. GYRODON LIVIDUS (Bull.) Sacc., Syll. Fung.** (Abellini) **6**: 52 (1888). Usually in groups, on soil among grasses. Gilgit-Baltistan, Astore district, Mushkin. Razaq *et al.*, (2017).
- 103. GYROMITRA KHANSPURENSIS, Jabeen & Khalid,** in Krisai-Greilhuber *et al.*, *Sydowia*, **69**: 236 (2017), on ground under *Cedrus deodera*, Khyber Pakhtunkhwa, Abbottabad district, Khanspur. Krisai-Greilhuber *et al.*, (2017).
- 104. HEBELOMA ANTHRACOPHILUM Maire,** *Bull. Soc. mycol. Fr.* **26**: 190 (1910), on ground. Sultana *et al.*, (2011).
- 105. HEBELOMA MESOPHAEUM (Pers.) Quél., Mém. Soc. Émul. Montbéliard, Sér. 25:** 128 (1872), on ground under coniferous vegetation, Gilgit-Baltistan. Fairy meadows, Razaq *et al.*, (2017).
- 106. HEBELOMA SINAPIZANS (Paulet) Gillet,** *Hyménomycètes* (Alençon): 527 (1876) [1878], on ground. Sultana *et al.*, (2011).
- 107. HEBELOMA THEOBROMINUM Quadr,** *Mycotaxon* **30**: 311 (1987), on ground humified soil, under *Abies pindrow*-*Pinus wallichiana* vegetation, Khyber Pakhtunkhwa, Khanpur-Ayoubia. Razaq *et al.*, (2017).
- 108. HERICIUM CIRRHATUM (Pers.) Nikol., Acta Inst. Bot. Acad. Sci. USSR Plant. Crypt., Ser. II 6:** 343 (1950), on ground. Khan *et al.*, (2020)
- 109. HELVELLA CUPULIFORMIS Dissing & Nannf., Svensk Bot. Tidskr. 60:** 326 (1966), among fallen leaves with *Prunus*. Khyber Pakhtunkhwa, Kaghan valley, Sharan. Sultana *et al.*, (2011).
- 110. HELVELLA MONACHELLA (Scop.) Fr., Syst. mycol. (Lundae) 2(1):** 18 (1822), on edges of stream, Gilgit-Baltistan, Raheemabad, Razaq *et al.*, (2014).
- 111. HETEROBASIDION AMYLOIDEOPSIS, Saba, C.L. Zaho, Khalid & Pfister,** in Zhao, Saba, Khalid, Song & Pfister. *Phytotaxa*, **317**(3): 206 (2017), on stumps of *Pinus wallichiana* Khyber Pakhtunkhwa, Manshera district, Chattar plains. Zaho *et al.*, (2017).
- 112. HETEROBASIDION LINZHINSE Y.C. Dai & Korhonen,** in Dai, Yu & Wang, *Ann. Bot. Fenn.* **44**(2): 141 (2007), on needles of *Pinus wallichiana* Khyber Pakhtunkhwa, Hazara. Saba *et al.*, (2018).
- 113. HETEROBASIDION ORIENTALE Tokuda, T. Hatt. & Y.C. Dai.** In Tokuda, Hattori, Dai, Ota & Buchanan, *Mycoscience* **50**(3): 193 (2019), on *Pinus wallichiana* needles, Khyber Pakhtunkhwa, Hazara, Saba *et al.*, (2018).
- 114. HORTIBOLETUS KOHISTANENSIS A. Naseer, S. Sarwar & Khalid,** in Naseer, Sarwar, Khalid, Healy & Smith, *Phytotaxa* **388**(3): 242 (2019), under *Quercus incana*, Khyber Pakhtunkhwa, Swat district, Toa. Naseer *et al.*, (2019a).
- 115. HORTIBOLETUS RUBELLUS (Krombh.) Simonini, Vizzini & Gelardi,** *Index Fungorum* **244**: 1 (2015), under *Quercus incana*, Khyber Pakhtunkhwa, Abbotabad district Khanspur; under *Pinus wallichiana* Khyber Pakhtunkhwa, Abbotabad district, Khaira gali, under *Cedrus deodara*, Khyber Pakhtunkhwa, Dir district, Shiringal. Sarwar *et al.*, (2016).
- 116. HYGROCYBE ACUTOCONICA (Clem.) Singer,** *Lilloa* **22**: 153 (1951) [1949] = *Hygrocybe persistens* (Britzelm.) Singer, on ground. Sultana *et al.*, (2011).
- 117. HYGROCYBE CONICA (Schaeff.) P. Kumm., Führ. Pilzk. (Zerbst):** 111 (1871) = *Hygrocybe nigrescens* var. *brevispora* (Dennis) Pegler. On ground. Sultana *et al.*, (2011).
- 118. HYGROCYBE SPADICEA (Scop.) P. Karst. [as 'Hydrocybe'], Bidr. Känn. Finl. Nat. Folk,** **32**: 237 (1879), on ground. Sultana *et al.*, (2011).
- 119. HYGROPHORUS ALBOFLAVESCENS A. Naseer & Khalid,** in Naseer, Khalid, Healy & Smith, *MycKeys* **56**:37 (2019). On soil under *Quercus incana*, Khyber Pakhtunkhwa, Swat, Shawar valley. Naseer *et al.*, (2019b).
- 120. HYGROPHORUS CHRYSODON (Batsch) Fr., Epicr. Syst. Mycol. (Upsaliae):** 320 (1838) [1836-1838], on humified soil under *Pinus wallichiana*, Khyber Pakhtunkhwa, Ayoubia-Khanspur, Razaq *et al.*, (2014a).
- 121. HYGROPHORUS MARZUOLUS (Fr.) Bres., Atti Acad. Agiato Rovereto 2:** 3 (1893), on ground, Gilgit-Baltistan, Haramoush district. Razaq & Shahzad (2017).
- 122. HYGROPHORUS SCABRELLUS A. Naseer & Khalid,** in Naseer, Khalid, Healy & Smith. *MycKeys* **56**:40 (2019), on soil under *Quercus incana*, Khyber Pakhtunkhwa, Swat district, Toa. Naseer *et al.*, (2019b).
- 123. HYPHOLOMA FASCICULARE (Huds.) P. Kumm., Führ. Pilzk. (Zerbst):** 72 (1871) = *Hypholoma subviride* (Berk. & M.A. Curtis) Dennis. On soil. Sultana *et al.*, (2011).
- 124. HYPHOLOMA MARGINATUM J. Schröt., in Cohn, Krypt.-Fl. Schlesien (Breslau) 31(33-40):** 571 (1889), on ground. Sultana *et al.*, (2011).
- 125. HYPHOLOMA RADICOSUM J.E. Lange, Dansk bot. Ark. 4(4):** 39 (1923), on ground. Sultana *et al.*, (2011).
- 126. INFUNDIBULICYBE MACROSPORA M. Ali, J. Khan, Niazi & Khalid,** in Ali, Khan, Naizi & Khalid. *Phytotaxa* **452**(4): 268-277 (2020), on soil, Abbottabad district, Ayubia National Park. Ali *et al.*, (2020).
- 127. INFUNDIBULICYBE KOTANENSIS M Ishaq, Fiaz & Khalid,** in Ishaq, Khan, Ullah, Fiaz & Khalid, *Phytotaxa*, **418**(2): 197 (2019), under *Pinus roxburghii*, Khyber Pakhtunkhwa, Buner, Gokand valley. Ishaq *et al.*, (2019b).
- 128. INOCYBE AHMADII Farooqi, Niazi & Khalid,** in Farooqi, Aqdu, Niazi, Jabeen & Khalid, *Mycotaxon*, **132**(2): 259 (2017), on ground under *Pinus wallichiana*, Khyber Pakhtunkhwa, Khanspur-Ayubia, Farooqi *et al.*, (2017).
- 129. INOCYBE AMICTA Kokkonen & Vauras,** *Mycol. Progr.* **11**(1): 323 (2012), on ground under *Pinus wallichiana*, Khyber Pakhtunkhwa, Shangla. Saba *et al.*, (2015).
- 130. INOCYBE CAROTICOLOR T. Bau & Y. G. Fan,** *Mycotaxa*, **123**: 170 (2013), on soil under *Quercus oblongata*, Khyber Pakhtunkhwa, Shangla-Toa. Naseer *et al.*, (2019c).

131. *INOCYBE FIBROSA* (Sowerby) Gillet, *Hyménomycètes* (Alençon): 517 (1876) [1878], on ground. Sultana *et al.*, (2011).
132. *INOCYBE FUSCIDULA* Velen., *České Houby* 2: 378 (1920), on soil. Sultana *et al.*, (2011).
133. *INOCYBE GEOPHYLLA* (Bull.) P. Kumm., *Führ. Pilzk.* (Zerbst): 78 (1871), on soil, Gilgit-Baltistan, Astore district, Hunza valley, Dachal Nala. Razaq & Shahzad (2017).
134. *INOCYBE GLABRIPES* Ricken, *Die Blätterpilze* 1: 107 (1915), on soil. Sultana *et al.*, (2011).
135. *INOCYBE HIRTELLA* Bres., *Fung. trident.* 1(4-5): 52 (1884), un soil. Sultana *et al.*, (2011).
136. *INOCYBE KOHISTANENSIS* Jabeen, I. Ahmad & Khalid, *Turkish Journal of Botany* 40: 313 (2016), under *Cedrus deodara*, Khyber Pakhtunkhwa, Swat district, Mashkun. Jabeen *et al.*, (2016a).
137. *INOCYBE LEPTOCYSTIS* G.F. Atk., *Am. J. Bot.* 5: 212 (1918), on ground under Conifers, Khyber Pakhtunkhwa, Swat district, Miandam. Farooqi *et al.*, (2017).
138. *INOCYBE NAPIPES* J.E. Lange, *Dansk bot. Ark.* 2(7): 44 (1917), on soil, Gilgit-Baltistan, Astore district. Hunza valley, Dachal Nala. Razaq & Shahzad (2017).
139. *INOCYBE NITIDIUSCULA* (Britzelm.) Lapl. *Dictionnaire inconographique de Champignons supérieures (Hyménomycètes)* (Paris): 523 (1894), on moist ground under *Alnus nitida*, Khyber Pakhtunkhwa, Ayubia-Khanspur. Ilyas *et al.*, (2013a).
140. *INOCYBE PRAETERVISA* Quél., in Bresadola, *Fung. trident.* 1(1): 35 (1883), on ground. Sultana *et al.*, (2011).
141. *INOCYBE SHAWARENSIS* A. Naseer & Khalid, in Naseer, Khalid & Smith. *Mycotaxon* 132(4): 912 (2017), on ground under *Quercus oblongata*, Khyber Pakhtunkhwa, Swat district, Shawar valley. Naseer *et al.*, (2017a).
142. *INOCYBE VACCINA* Kühner, *Bull. Soc. nat. Oyonnax* 9 (Suppl. (Mém. hors sér. 1)): 7 (1955), on ground. Sultana *et al.*, (2011).
143. *INOSPERMA ADAEQUATUM* (Britzelm.) Matheny & Esteve-Raventós, in Matheny, Hobbs & Esteve-Raventós, *Mycologia*: 10.1080/00275514.2019.1668906, 19(2019) = *Inocybe adaequata* (Britzelm.) Sacc., on ground. Sultana *et al.*, (2011).
144. *INOSPERMA ERUBESCENS* (A. Blytt) Matheny & Esteve-Raventós, in Matheny, Hobbs & Esteve-Raventós, *Mycologia*: 10.1080/00275514.2019.1668906, 20 (2019) = *Inocybe erubescens* A. Blytt., on ground. Sultana *et al.*, (2011).
145. *LACCARIA BICOLOR* (Maire) P.D. Orton, *Trans. Br. mycol. Soc.* 43(2): 280 (1960). Sultana *et al.*, (2011).
146. *LACCARIA OHIENSIS* (Mont.) Singer, *Mycologia* 38(6): 688 (1947) [1946], on ground. Sultana *et al.*, (2011).
147. *LACTARIUS ATLANTICUS* Bon, *Docums Mycol.* 5(17): 23 (1975), on ground. Sultana *et al.*, (2011).
148. *LACTARIUS CONTROVERSUS* Pers., *Observ. mycol.* (Lipsiae) 2: 39 (1800) [1799], on ground. Sultana *et al.*, (2011).
149. *LACTARIUS HATSUDAKE* Nobuj. Tanaka, *Bot. Mag., Tokyo* 4: 393 (1890). = *Lactarius akahatsu* Nobuj. Tanaka, on ground. Sultana *et al.*, (2011).
150. *LACTARIUS HELVUS* (Fr.) Fr., *Epicr. Syst. Mycol.* (Upsaliae): 347 (1838) [1836-1838], on ground. Gilgit-Baltistan, Naltar valley. Razaq & Shahzad (2012).
151. *LACTARIUS OBSCURATUS* (Lasch) Fr., *Epicr. Syst. Mycol.* (Upsaliae): 346 (1838) [1836-1838], on ground. Sultana *et al.*, (2011).
152. *LACTARIUS PUBESCENS* Fr., *Epicr. Syst. Mycol.* (Upsaliae): 335 (1838) [1836-1838], on ground Gilgit-Baltistan, Naltar valley. Razaq & Shahzad (2012).
153. *LACTARIUS QUIETUS* (Fr.) Fr., *Epicr. Syst. Mycol.* (Upsaliae): 343 (1838) [1836-1838], on ground. Sultana *et al.*, (2011).
154. *LACTARIUS SANGUIFLUUS* (Paulet) Fr., *Epicr. Syst. Mycol.* (Upsaliae): 341 (1838) [1836-1838], Growing near *Juglans regia* and *Quercus incana*, Khyber Pakhtunkhwa, Abbootabad, Khanspur, Ilyas *et al.*, (2013b).
155. *LACTARIUS SCROBICULATUS* (Scop.) Fr., *Epicr. Syst. Mycol.* (Upsaliae): 334 (1838) [1836-1838], on ground. Sultana *et al.*, (2011).
156. *LACTARIUS SEMISANGUIFLUUS* R. Heim & Leclair, *Revue Mycol.*, Paris 15: 79 (1950), on ground. Sultana *et al.*, (2011).
157. *LACTARIUS TORMINOSUS* (Schaeff.) Gray, *Nat. Arr. Brit. Pl.* (London) 1: 623 (1821), on ground. Sultana *et al.*, (2011).
158. *LACTARIUS VIETUS* (Fr.) Fr., *Epicr. Syst. Mycol.* (Upsaliae): 344 (1838) [1836-1838], on ground. Sultana *et al.*, (2011).
159. *LACTIFLUUS BRUNNEOVIOLASCENS* (Bon) Verbeken, *Mycotaxon* 120: 446 (2012). = *Lactarius brunneoviolascens* Bon, Sultana *et al.*, (2011).
160. *LACTIFLUUS GLAUDESCENS* (Crossl.) Verbeken, *Mycotaxon* 120: 449 (2012) = *Lactarius glaucescens* Crossl., *Naturalist*, London: 5 (1900). On ground Gilgit-Baltistan, Raheemabad. Razaq *et al.*, (2014).
161. *LACTIFLUUS RUGATUS* (Kühner & Romagn.) Verbeken, *Mycotaxon* 120: 448 (2012). = *Lactarius rugatus* Kühner & Romagn., on ground. Sultana *et al.*, (2011).
162. *LACTIFLUUS VELLEREUS* (Fr.) Kuntze, *Revis. gen. pl. (Leipzig)* 2: 857 (1891). = *Lactarius vellereus* (Fr.) Fr., on ground. Sultana *et al.*, (2011).
163. *LACTIFLUUS VOLEMUS* (Fr.) Kuntze, *Revis. gen. pl. (Leipzig)* 2: 857 (1891), on ground under *Abies pindrow* and *Pinus wallichiana*, Khyber Pakhtunkhwa, Swat district, Miandam valley. Khan & Sher (2016).
164. *LECCINUM AURANTIACUM* (Bull.) Gray, *Nat. Arr. Brit. Pl.* (London) 1: 646 (1821). = *Krombholziella aurantiaca* (Bull.) Maire, Solitary or in small groups, on soil under birch. Gilgit-Baltistan, Astore district, Dichal Nala (Dashkin). Razaq *et al.*, (2017).
165. *LECCINELLUM CROCIPODIUM* (Letell.) Della Magg. & Trassin., *Index Fungorum* 171: 1 (2014) = *Leccinum crocipodium* (Letell.) Watling, *Trans. Proc. Bot. Soc. Edinb.*, 39(2): 200, 1961. Usually in small groups, on soil under oaks. Gilgit-Baltistan, Astore district, Mushkin. Razaq *et al.*, (2017).
166. *LECCINELLUM PSEUDOSCABRUM* (Kallenb.) Mikšik, *Index Fungorum* 338: 1 (2017) = *Leccinum*

- pseudoscabrum* (Kallenb.) Šutara, *Česká Mykol.* **43**(1): 6. (1989). Usually in small groups, on soil in coniferous forests. Gilgit-Baltistan, Astore district, Dichal Nala., Razaq *et al.*, (2017).
- 167. LECCINUM SCABRUM** (Bull. Fr.) Gray, *Nat. Arr. Brit. Pl.* (London) **1**: 646. (1821) = *Krombholzia oxydabilis* Singer., Solitary or in small groups, under old birches and small trees. Gilgit-Baltistan, Astore district, Dichal Nala. Razaq *et al.*, (2017).
- 168. LECCINUM VERSIPELLE** (Fr. & Hök) Snell, *Lloydia* **7**(1): 58 (1944), on soil with Birch, Gilgit-Baltistan, Astore district, Dichal Nala. Razaq *et al.*, (2017).
- 169. LEPIOTA ALBOGRANULOSA** Qasim & Khalid, in Qasim, Khalid, Vellinga & Razaq, *Mycol. Progr.* **14**(5/24): 2 (2015), on rich loamy soil, University ground, Quaid-e-Azam Campus, University of the Punjab, Lahore. Qasim *et al.*, (2015a).
- 170. LEPIOTA BRUNNEOINCARNATA** Chodat & C. Martín, *Bull. Soc. Bot. Genève*, **2**(5): 222 (1889), on moist ground, under *Abies pindrow* Khyber Pakhtunkhwa, Khanspur. Razaq *et al.*, (2013c).
- 171. LEPIOTA CRISTATA** (Bolton) P. Kumm. *Führ. Pilzk.* (Zerbst): 137 (1871), on ground under *Abies pindrow*, Khyber Pakhtunkhwa, Ayubia- Khanspur. Razaq *et al.*, (2013b).
- 172. LEPIOTA CHOLISTANENSIS** H. Bashir, Usman & Khalid, *Phytotaxa* **455**(4): 273 (2020), on sandy soil. Bashir *et al.*, (2020b).
- 173. LEPIOTA HIMALAYENSIS** Khalid & Razaq, *Mycotaxon* **121**: 320 (2013) [2012], on moist soil, under *Abies pindrow* Khyber Pakhtunkhwa, Khanspur. Razaq *et al.*, (2012a).
- 174. LEPIOTA IGNIVOLVATA** Bousset & Joss. ex Joss., *Riv. Micol.* **33**(1): 30 (1990), on ground. Sultana *et al.*, (2011).
- 175. LEPIOTA MAGNISPORA** Murrill, *Mycologia* **4**(5): 237 (1912) = *Lepiota ventriosospora* D.A. Reid., on ground. Sultana *et al.*, (2011).
- 176. LEPIOTA OCHRACEOFULVA** P.D. Orton, *Trans. Br. Mycol. Soc.* **43**(2): 284 (1960), on ground. Sultana *et al.*, (2011).
- 177. LEPIOTA SUBINCARNATA** J.E. Lange, *Fl. Agaric, Danic.* **5** (taxon. Cons.): V (1940), on moist ground under *Abies pindrow*, Khyber Pakhtunkhwa, Khanspur. Razaq *et al.*, (2013c).
- 178. LEPIOTA VELLINGANA** Nawaz & Khalid, in Nawaz, Khalid, Hanif & Razaq, *Mycol. Progr.* **12**(4): 729 (2013), on ground, Botanical Garden, Quaid-e-Azam Campus, University of the Punjab, Lahore. Nawaz *et al.*, (2013).
- 179. LEPISTA NUDA** (Bull.) Cooke, *Handb. Brit. Fungi* **1**: 192 (1871), on ground. Sultana *et al.*, (2011).
- 180. LEUCOAGARICUS ASIATICUS** Qasim, Nawaz, & Khalid, in Ge, Yang & Vellinga, *Mycologia* **107**(5): 1034 (2015), on ground, Punjab, Quaid-e-Azam Campus, University of the Punjab. Lahore. Ge *et al.*, (2015).
- 181. LEUCOAGARICUS BADHAMII** (Berk. & Broome) Singer, *Lilloa* **22**: 419 (1951) [1949] = *Lepiota badhamii* (Berk. & Broome) Quél., on ground. Sultana *et al.*, (2011).
- 182. LEUCOAGARICUS BADIUS** S. Hussain, Pfister, Afshan & Khalid, in Hussain, Jabeen, Khalid, Ahmad, Afshan, Sher & Pfister, *Mycologia* **110**(2): 391 (2018), on soil under *Acacia* spp. Khyber Pakhtunkhwa, Qaldara, Malakand. Hussain *et al.*, (2018b).
- 183. LEUCOAGARICUS BRUNNEUS** Z. Ullah, Jabeen & Khalid, in Z. Ullah, Jabeen, Faisal, Ahmad & Khalid, *Mycotaxon* **134**(4): 605 (2019), under *Quercus oblongata*, Khyber Pakhtunkhwa, Swat district, Lower Shawar. Ullah *et al.*, (2019b).
- 184. LEUCOAGARICUS LAHORENSIFORMIS** S. Hussain, H. Ahmad, Afshan & Khalid, in Hussain, Jabeen, Khalid, Ahmad, Afshan, Sher & Pfister, *Mycologia* **110**(2): 394 (2018), on ground, Punjab, Lahore district, University of the Punjab, Quaid-e-Azam Campus, Hostel Area. Hussain *et al.*, (2018b).
- 185. LEUCOAGARICUS LAHORENSIS** Qasim, T. Amir & Nawaz, in Qasim, Amir, Nawaz, Niazi & Khalid, *Mycotaxon* **130**(2): 534 (2015), on ground, Punjab, Lahore district, University of the Punjab, Quaid-e-Azam Campus. Qasim *et al.*, (2015b).
- 186. LEUCOAGARICUS NIVALIS** (W.F. Chiu) Z.W. Ge & Zhu L. Yang, *Mycosystema* **36**(5): 548 (2017), on soil, Punjab, Lahore district, Changa Manga. Jabeen *et al.*, (2020a).
- 187. LEUCOAGARICUS PABBIENSIS** Usman & Khalid, *Mycotaxon* **133**(2): 358 (2018), on soil under leaf litter of *Acacia modesta*, Punjab, Pabbi forest Park. Usman & Khalid (2018).
- 188. LEUCOAGARICUS PAKISTANIENSIS** Jabeen & Khalid, in Hussain, Jabeen, Khalid, Ahmad, Afshan, Sher & Pfister, *Mycologia* **110**(2): 396 (2018), on soil under *Cedrus deodara*, Khyber Pakhtunkhwa, Swat district, Mankial. Hussain *et al.*, (2018b).
- 189. LEUCOAGARICUS SERENUS** (Fr.) Bon & Boiffard, *Bull. trimest. Soc. mycol. Fr.* **90**(4): 301 (1974), on ground. Sultana *et al.*, (2011).
- 190. LEUCOAGARICUS SULTANII** S. Hussain, Ahmad & Khalid, in Hussain, Jabeen, Khalid, Ahmad, Afshan, Sher & Pfister, *Mycologia* **110**(2): 397 (2018), on nutrient rich loamy soil under *Acacia* Spp, Khyber Pakhtunkhwa, Khardai Malakand. Hussain *et al.*, (2018b).
- 191. LEUCOPAXILLUS PARADOXUS** Costantin & L.M. Dufour Boursier [as 'paradoxa'], *Bull. Trimest. Soc. Mycol. Fr.* **41**(3): 393 (1925), on ground. Sultana *et al.*, (2011).
- 192. LYCOPERDON EXCIPULIFORME** (Scop.) Pers. *Syn. Meth. Fung.* (Göttingen) **1**: 143 (1801), on ground under Bamboos, Khyber Pakhtunkhwa, Nathiagali. Yousaf *et al.*, (2012c).
- 193. LYCOPERDON LAHORENSE** Yousaf & Khalid, in Hyde, Hongsonan, Jeewon *et al.* *Fungal Diversity*, **80**, 1–270 (2020), on ground, Punjab, Lahore, Quaid-e-Azam Campus, University of the Punjab. Hyde *et al.*, (2020).
- 194. LYCOPERDON LILACINA** (Mont & Berk) Henn., *Hedwigia* **43** (3): 205 (1904), on ground, Khyber Pakhtunkhwa, Oghi, Manshera. Deosai National Park, Gilgit-Baltistan. Razaq & Shahzad (2017).
- 195. LYCOPERDON MOLLE** Pers., *Syn. meth. fung.* (Göttingen) **1**: 150 (1801), on ground, Gilgit-Baltistan, Naltar valley. Razaq & Shahzad (2017).

- 196.LYCOPERDON PSEUDOCURTISII** Yousaf & Khalid, in Yuan *et al.*, *Fungal Diversity.*, 10.1007/s13225-020-00461-7, [103] (2020), on soil, associated with Poaceae, Punjab. Yuan *et al.*, (2020).
- 197.LYSURUS PAKISTANICUS** S.H. Iqbal, Kasuya, Khalid & Niazi, *Mycotaxon*, **98**: 164 (2006), on ground in a grassy lawn, Punjab, Lahore, Quaid-e-Azam Campus, University of the Punjab. Iqbal *et al.*, (2006).
- 198.MACROLEPIOTA DOLICHAULA** (Berk & Broome) Pegler & R.W. Rayner, *Kew Bull.* **23**(2): 365 (1969), on soil under *Pinus wallichiana*, Khyber Pakhtunkhwa, Manshera district, Khabal. Fiaz *et al.*, (2014).
- 199.MACROLEPIOTA EXCORIATA** (Schaeff.) Wasser, *Ukr. bot. Zh.* **35**(5): 516 (1978), on soil under *Cedrus deodara*, Khyber Pakhtunkhwa, Swat district, Kalam. Fiaz *et al.*, (2014).
- 200.MACROLEPIOTA VENENATA** Bon, *Docums Mycol.* **9**(35): 13 (1979), on soil. Sultana *et al.*, (2011).
- 201.MALLOCYBE AGARDHII** (N. Lund) Matheny & Esteve-Raventós, in Matheny, Hobbs & Esteve-Raventós, *Mycologia*: 10.1080/00275514.2019.1668906, **23** (2019) = *Inocybe agardhii* (N. Lund) P.D. Orton, on soil, Gilgit-Baltistan, Astore district. Hunza valley, Dachal Nala. Razaq & Shahzad (2017).
- 202.MALLOCYBE VELUTINA** Saba & Khalid. *Mycoscience*, **61**: 335-348 (2020), on ground, under *Pinus wallichiana*, Abbottabad district, Thandiani, Khyber Pakhtunkhwa. Saba & Khalid (2020).
- 203.MARASMIELLUS BIFORMIS** (Peck) J.S. Oliveira, in Oliveira, Vargas-Isla, Cabral, Rodrigues & Ishikawa, *Mycological Progress* **18**(5): 734 (2019), on plant material dominated by Pine needles Khyber Pakhtunkhwa, Abbottabad, Ayubia National Park. Oliveira *et al.*, (2019).
- 204.MARASMIELLUS LONGISTIPES** M. Ali, Niazi & Khalid, in Haelewaters, *et al.*, *Sydowia* **72**: 287 (2020). Growing in small groups on leaf litter. Ayubia National Park, Khyber Pakhtunkhwa. Haelewaters *et al.*, (2020).
- 205.MARASMIELLUS LUXURIANS** (Peck) J.S. Oliveira, in Oliveira, Vargas-Isla, Cabral, Rodrigues & Ishikawa, *Mycol. Progr.* **18**(5): 735 (2019). = *Gymnopus luxurians* (Peck) Murrill, *N. Amer. Fl. (New York)* **9**(5): 362 (1916), under *Pinus roxburghii*, Khyber Abbottabad, Simla, Saba & Khalid (2014b).
- 206.MARASMIELLUS MENEHUNE** (Desjardin, Halling & Hemmes) J.S. Oliveira, in Oliveira, Vargas-Isla, Cabral, Rodrigues & Ishikawa, *Mycological Progress* **18**(5): 735 (2019) = *Gymnopus Menehune* Desjardin, Halling & Hemmes, *Mycologia* **91**(1): 173 (1999). Under *Pinus roxburghii*, Khyber Pakhtunkhwa, Manshera, Dader. Saba & Khalid (2014b).
- 207.MARASMIELLUS OMPHALOIDES** G. Stev., *Kew Bull.* **19**(1): 33 (1964), on ground. Sultana *et al.*, (2011).
- 208.MARASMIELLUS RAMEALIS** (Bull.) Singer, *Pap. Mich. Acad. Sci.* **32**: 130 (1948) [1946], on ground. Sultana *et al.*, (2011).
- 209.MARASMIELLUS SUBNUDUS** (Ellis ex Peck) J.S. Oliveira, in Oliveira Vargas-Isla, Cabral, Rodrigues & Ishikawa, *Mycological Progress* **18**(5): 735 (2019), growing in small groups on leaf litter, Ayubia National Park, Khyber Pakhtunkhwa. Oliveira *et al.*, (2019).
- 210.MEGACOLLYBIA PLATYPHYLLA** (Pers.) Kotl. & Pouzar, *Česká Mykol.* **26**(4): 220 (1972), on ground. Sultana *et al.*, (2011).
- 211.MELANOLEUCA CINEREIFOLIA** (Bon) Bon, *Docums Mycol.* **9**(33): 71 (1978), under *Pinus wallichiana*, Khyber Pakhtunkhwa, Shangla, Yakh tangy. Saba & Khalid (2014c).
- 212.MELANOLEUCA DIRENSIS** F. Nawaz, Jabeen & Khalid, *Phytotaxa* **311**(2): 177 (2017), on rich loamy soil near Panj Kora River, Upper Dir, Kumrat valley. Nawaz *et al.*, (2017).
- 213.MELANOLEUCA GRAMINICOLA** Kühner & Maire, *Bull. trimest. Soci. Mycol. Fr.* **50**: 18 (1934), on soil under *Cedrus deodera*, Khyber Pakhtunkhwa, Dir upper, Kumrat valley. Nawaz *et al.*, (2017).
- 214.MELANOLEUCA KASHMIRENSIS** Z. Ullah, Khurshed, Binyamin, Jabeen & Khalid, in Ullah, Khurshed, Khan, Ahmad, Jabeen, Faisal, Ahmad, Fiaz & Khalid, *Phytotaxa*, **439**(1): 93, on soil under conifers AJK, Bagh Salian; on soil under *Quercus oblongata*, Khyber Pakhtunkhwa, Swat district, Shawar valley; under *Pinus wallichiana*, Hazara-Battagram. Ullah *et al.*, (2020).
- 215.MENSULARIA RADIATA** (Sowerby) Lázaro Ibiza, *Revta R. Acad. Cienc. exact. fis. nat. Madr.* **14**(11): 736 (1916) = *Inonotus radiates* (Sowerby) P. Karst., on wood of Borad-leaves trees, Gilgit-Baltistan, Astore District, Dashkin Forest. Razaq & Shahzad (2017).
- 216.MORCHELLA ELATA** Fr., *Syst. mycol. (Lundae)* **2**(1): 8 (1822), on ground, Gilgit-Baltistan, Astore district, Mushkin forest. Razaq & Shahzad (2015).
- 217.MORCHELLA PAKISTANICA** Jabeen & Khalid, *Sydowia* **68**: 211 (2016), on loamy soil, Khyber Pakhtunkhwa, Khanspur. Hernández-Restrepo *et al.*, (2016).
- 218.MORCHELLA PULCHELLA** Clowez & Franç. Petit, in Clowez, *Bull. Soc. mycol. Fr.* **126**(3-4): 314 (2012), on ground. Badshah *et al.*, (2018).
- 219.MYCENA INCLINATA** (Fr.) Qué., *Mém. Soc. Émul. Montbéliard, Sér.* **25**: 105 (1872), on soil. Sultana *et al.*, (2011).
- 220.MYCENA PURA** (Pers.) P. Kumm., *Führ. Pilzk.* (Zerbst): 107 (1871), on edges of stream, Gilgit-Baltistan, Raheemabad. Razaq *et al.*, (2014).
- 221.MYCETINIS SCORODONIUS** (Fr.) A.W. Wilson & Desjardin, *Mycologia* **97**(3): 678 (2005). = *Marasmius scorodonius* (Fr.) Fr., on ground. Sultana *et al.*, (2011).
- 222.MYRIOSTOMA COLIFORME** (Dicks.) Corda, *Anleit Stud. Mykol. Prag*: 131 (1842), on ground, Khyber Pakhtunkhwa. Yousaf *et al.*, (2013).
- 223.NAUCORIA BOHEMICA** Velen., *České Houby* **3**: 527 (1921), on ground. Sultana *et al.*, (2011).
- 224.NEOALBATRELLUS CAERULEOPORUS** (Peck) Audet, *Mycotaxon* **111**: 443 (2010) = *Albatrellus*



- caeruleoporus* (Peck) Pouzar, on loamy soil. Sultana *et al.*, (2011).
- 225. NEOBOLETUS LURIDIFORMIS (Rostk.) Gelardi, Simonini & Vizzini, *Index Fungorum* 192:** 1 (2014), under *Pinus wallichiana*, Punjab, Murree, under *Abies pindrow*, Khyber Pakhtunkhwa, Kaghan valley, under *Cedrus deodara*, Khyber Pakhtunkhwa, Swat district, Mashkun. Sarwar *et al.*, (2016).
- 226. NEOLENTINUS LEPIDEUS (Fr.) Road head & Ginns, *Trans. Mycol. Soc. Japan* 26(3):** 257 (1985), under *Pinus wallichiana*, Khyber Pakhtunkhwa, Abbottabad, Ayubia. Razaq *et al.*, (2018).
- 227. OTIDEA ALUTACEA (Pers.) Masee, *Brit. Fung.-Fl.* (London) 4:** 446 (1895), on soil under *Quercus* spp. Khyber Pakhtunkhwa; Swat district, Toa; Abbottabad district, Ayubia-Khanspur; AJK, Bagh under conifers. Naseer *et al.*, (2019d).
- 228. PANAEOLUS RICKENII Hora, *Trans. Br. Mycol. Soc.* 43(2):** 454 (1960), on ground. Sultana *et al.*, (2011).
- 229. PARAGALACTINIA MICHELII (Boud.) Van Vooren, *Ascomycete.org* 12(4):** 189 (2020) = *Peziza michelii* (Boud.) Dennis, *British Cup Fungi & their Allies* 15: (1960), on ground among mosses, Khyber Pakhtunkhwa, Ayubia-Khanspur. Ashraf *et al.*, (2012b).
- 230. PARAGALACTINIA SUCCOSA (Berk.) Van Vooren, *Ascomycete.org* 12(4):** 189 (2020). = *Peziza succosa* Berk, *Ann. Mag. nat. Hist.*, Ser.1 6: 358 (1841), on ground among mosses, Khyber Pakhtunkhwa, Abbotabad district, Khanspur. Ashraf & Khalid (2012a).
- 231. PARAGALACTINIA SUCCOSELLA (Le Gal & Romagn.) Van Vooren, *Ascomycete.org* 12(4):** 189 (2020) = *Peziza succosella* (Le Gal & Romagn) M.M Moser ex Aviz.-Hersh & Nemlich. *Israel J. Bot* 23(3): 156 (1974), on ground with *Cedrus deodara*, Khyber Pakhtunkhwa, Abbotabad district, Khanspur. Jabeen *et al.*, (2015b).
- 232. PARALEPISTA FLACCIDA (Sowerby) Vizzini. In Vizzini & Ercole, *Mycotaxon* 120:** 262 (2012) = *Lepista inversa* (Scop.) Pat., on ground under trees, Gilgit-Baltistan, Raheemabad. Razaq *et al.*, (2014).
- 233. PARASOLA AURICOMA (Pat.) Redhead Vilgalys & Hopples, in Redhead, Vilgalys, Moncalvo, Johnson & Hopples, *Taxon* 50(1):** 235 (2001) = *Coprinus auricomus* Pat. *Tab. analyt. Fung* 5: 200 (1886), under herbaceous plants, Khyber Pakhtunkhwa; Malakand, Qaldara. Hussain *et al.*, (2018c).
- 234. PARASOLA GLABRA S. Hussain, Afshan, H. Ahmad & Khalid, in Hussain, Ahmad, Ullah, Afshan, Pfister, Sher, Ali & Khalid, *MycKeys* 30:** 48 (2018), under Herbaceous plants. Khyber Pakhtunkhwa; Malakand Qaldra Hussain *et al.*, (2018c).
- 235. PARASOLA LILATINCTA (Bender & Uljé), Redhead, & Hopples, in Redhead, Vilgalys, Moncalvo, Johnson & Hopples, *Taxon* 50(1):** 236 (2001). = *Coprinus lilatinctus* Bender & Uljé, *Persoonia* 16: 373 (1997). Khyber Pakhtunkhwa, Swat district, Kanju, Township. Hussain *et al.*, (2018c).
- 236. PARASOLA MALAKANDENSIS S. Hussain, Afshan & H. Ahmad, in Hussain, Afshan, Ahmad, Khalid & Niazi, *Mycoscience* 58:** 72 (2017), on leaf litter of *Acacia modesta* Willd, Khyber Pakhtunkhwa, Qaldara Dargai, Swat-Malakand, Highway. Hussain *et al.*, (2017).
- 237. PARASOLA PSEUDOLACTEA Sadiqullah, S. Hussain & Khalid, in Hussain, Ahmad, Ullah, Afshan, Pfister, Sher, Ali & Khalid, *MycKeys* 30:** 52 (2018), under *Quercus incana*, Khyber Pakhtunkhwa, Shangla. Hussain *et al.*, (2018c).
- 238. PARASOLA SETULOSA (Berk. & Broome) Redhead, Vilgalys & Hopples, in Redhead, Vilgalys, Moncalvo, Johnson & Hopples, *Taxon*, 50 (1):** 236 (2001). = *Coprinus setulosus* Berk. & Broome, on grassy soil. Sultana *et al.*, (2011).
- 239. PHAEOLYBIA PAKISTANICA J. Khan, Sher & Khalid, in Khan, Sher, & Khalid, *Mycotaxon*, 131(4):** 892 (2017) [2016], in small groups on forest soil near *Abies pindrow* and *Pinus wallichiana*. Khan *et al.*, (2016b).
- 240. PHAEOLEPIOTA AUREA (Matt.) Maire, *Icones selectae Fungorum*, 6:** 111 (1928), Among grasses, Gilgit-Baltistan, Raheemabad. Razaq *et al.*, (2014).
- 241. PHAEOLUS SCHWEINITZII (Fr.) Pat., *Essai Tax. Hyménomyc.* (Lons-le-Saunier):** 86 (1900), on soil, Gilgit-Baltistan, Astore district, Harcho. Razaq & Shahzad (2016).
- 242. PHALLUS CALONGEI G. Moreno & Khalid, *Mycotaxon*, 108:** 458 (2009), on ground way to Khanspur stream, Khyber Pakhtunkhwa, Khanspur. Moreno *et al.*, (2009).
- 243. PHLOEOMANA SPEIREA (Fr.) Redhead, *Index Fungorum* 15:** 2 (2013) = *Mycena speirea* (Fr.) Gillet, on ground. Sultana *et al.*, (2011).
- 244. PHOLIOTA TUBERCULOSA (Schaeff.) P. Kumm., *Führ. Pilzk.* (Zerbst):** 83 (1871), on ground. Sultana *et al.*, (2011).
- 245. PHYLLOPORUS BRUNNEICEPS N.K. Zang, Zhu L. Yang & L.P. Tang, in Zeng, Tang, Li, Bau, Zhu, Zhao & yang, *Fung. Div.* 58:** 82 (2012) [2013], on ground under *Quercus incana* Roxb, Khyber Pakhtunkhwa, Swat district, Shangla, Toa. Naseer *et al.*, (2017b).
- 246. PHYLLOPORUS RHODOXANTHUS (Schwein.) Bres., *Fung. trident.* 2(14):** 95. (1900), on soil, under broad-leaved trees. Khyber Pakhtunkhwa, Sharhan. Sultana *et al.*, (2011).
- 247. PICIPES BADIUS (Pers.) Zmitr. & Kovalenko, *International Journal of Medicinal Mushrooms* (Redding) 18(1):** 35 (2016) = *Royoporus badius* (Pers.) A.B. De., on dead broad leaf trees, Gilgit-Baltistan, Astore district, Rama. Razaq & Shahzad (2016).
- 248. PISOLITHUS TINCTORIUS (Mont.) E. Fisch., *Nat. Pflanzenfam.* 1(1):** 338 (1900), near *Eucalyptus* sp. Karachi. Razaq & Shahzad (2014).
- 249. PLEUROTUS CYSTIDIOSUS O.K. Mill. *Mycologia* 61:** 889 (1969), on stamps of *Morus alba*, Khyber Pakhtunkhwa, Hazar Nao Malakand. Hussain *et al.*, (2015a).
- 250. PORPHYRELLUS PORPHYROSPORUS (Fr. & Hök) E.-J. Gilbert, *Les Livres du Mycologue Tome I-IV*, Tom. III: Les Bolets:** 99 (1931) = *Porphyrellus pseudoscaber* Secr. ex Singer, in confers forest, Gilgit-Baltistan, Hunza valley. Razaq & Shahzad (2017).

- 251.PSATHYRELLA AMMOPHILA (Durieu & Lév.) P.D. Orton**, *Trans. Br. mycol. Soc.* **43**(2): 180 (1960), on ground. Sultana *et al.*, (2011).
- 252.PSATHYRELLA ARTEMISIAE (Pass.) Konrad & Maubl.**, *Encyclop. Mycol.* (Paris) **14**: 127 (1949) [1948], on ground. Sultana *et al.*, (2011)
- 253.PSATHYRELLA BIPELLIS (Quél.) A.H. Sm., J. Elisha Mitchell scient. Soc.** **62**: 187 (1946). Sultana *et al.*, (2011).
- 254.PSATHYRELLA HIRTA Peck**, *Ann. Rep. Reg. N.Y. St. Mus.* **50**: 107 (1898) [1897], on ground. Sultana *et al.*, (2011).
- 255.PSEUDOSPERMA FLAVORIMOSUM Jabeen & Khalid**, *Mycotaxon* **135**: 187 (2020), on soil under *Pinus wallichiana*, Khyber Pakhtunkhwa, Manshera district, Kaghan valley, on soil under *Cedrus deodora*, Swat district, Mashkun. Jabeen & Khalid (2020).
- 256.PSEUDOSPERMA HIMALAYENSE (Razaq, Khalid & Kobayashi) Matheny & Esteve-Rav.**, in Matheny, Hobbs & Esteve-Raventós, *Mycologia*: 29 (2019) = *Inocybe himalayensis* Razaq, Khalid & Kobayashi, *Sydowia* **70**: 238 (2018), on ground near *Pinus wallichiana*, Khyber Pakhtunkhwa, Abbottabad district, Khanspur. Liu *et al.*, (2018).
- 257.PSEUDOSPERMA MIMICUM (Masse) Matheny & Esteve-Rav.**, in Matheny, Hobbs & Esteve-Raventós, *Mycologia*: 30 (2019) = *Inocybe mimica* Masse., *Ann. Bot.* **18**: 492 (1904), under *Pinus wallichiana* Khyber Pakhtunkhwa, Shangla., Saba *et al.*, (2015a).
- 258.PSEUDOSPERMA PAKISTANENSE (Z. Ullah, Jabeen, H. Ahmad & Khalid) Matheny & Esteve-Rav.**, in Matheny, Hobbs & Esteve-Raventós, *Mycologia*: 31 (2019) = *Inocybe pakistanensis* Ziaullah, Jabeen, H. Ahmad & AN Khalid, *Phytotaxa* **348**(4): 282 (2018), on soil under *Quercus incana*, Khyber Pakhtunkhwa, Swat district, Lower Shawar valley. Ullah *et al.*, (2018).
- 259.PSILOCYBE SEMILANCEATA (Fr.) P. Kumm.**, *Führ. Pilzk.* (Zerbst): 71 (1871), on ground. Sultana *et al.*, (2011).
- 260.PUNJABIA PAKISTANICA (Usman & Khalid) Wächter & A. Melzer** [as '*Coprinellus pakistanicus*'], in Hussain, Usman, Afshan, Ahmad, Khan & Khalid, *MycKeys* **39**: 53 (2018), on ground, Punjab, Pabbi forest park. Hussain *et al.*, (2018a).
- 261.RAMARIA ABIETINA (Pers.) Quél.**, *Fl. mycol. France (Paris)*: 467 (1888). Partial fairy rings under conifers. Nasim *et al.*, (2008)
- 262.RAMARIA AUREA (schaeff.) Quél.**, *Fl. mycol. France (Paris)*: 467 (1888), on ground, Gilgit. Razaq & Shahzad (2017).
- 263.RAMARIA APICULATA (Fr.) Donk**, *Bibliotheca Mycol.* **21**: 105 (1933), on wood or on the ground in association with rotting coniferous debris. Nasim *et al.*, (2008).
- 264.RAMARIA FORMOSA (Pers.) Quél.**, *Fl. mycol. France (Paris)*: 466 (1888), on ground. Nasim *et al.*, (2008).
- 265.RAMARIA FLAVESCENTOIDES Hanif & Khalid**, in Hanif, Khalid & Exeter, *Mycotaxon* **134**: 402 (2019), under *Abies pindrow*, Khyber Pakhtunkhwa, Abbottabad district, Ayubia-Khanspur. Hanif *et al.*, (2019)
- 266.RHODOCOLLYBIA MACULATA (Alb. & Schwein.) Singer**, *Schweiz. Z. Pilzk.* **17**: 71 (1939) = *Collybia maculate* (Alb. & Schwein.) P. Kumm., on ground. Sultana *et al.*, (2011).
- 267.RHODOCOLLYBIA PROLIXA (Fr.) Antonín & Noordel.**, in Antonín, Halling & Noordeloos, *Mycotaxon* **63**: 365 (1997) = *Collybia distorta* (Fr.) Quél., on ground. Sultana *et al.*, (2011).
- 268.RHODOCOLLYBIA UTRORENSIS A. Sattar, M. Kiran & Khalid**, in Sattar, Kiran & Khalid, *Phytotaxa* **369**(4): 271 (2018), on forest floor, Khyber Pakhtunkhwa., Upper Dir Utror valley, Sattar *et al.*, (2018).
- 269.RHODOCYBE TRUNCATA (Schaeff.) Singer**, *Mycologia* **38**(6): 687 (1947) [1946]. = *Hebeloma truncatum* (Schaeff.) P. Kumm., on soil. Sultana *et al.*, (2011).
- 270.RIGIDOPORUS ULMARIUS (Sowerby) Imazeki**, *Bull. Gov. Forest Exp. Stn Tokyo*, **57**: 119 (1952), on wood, Gilgit-Baltistan, Sultanabad. Razaq & Shahzad (2016).
- 271.RUBROBOLETUS LUPINUS (Fr.) Costanzo, Gelardi, Simonini & Vizzini**, in Vizzini, *Index Fungorum* **233**: 1 (2015) = *Boletus lupinus* Fr., *Epicr. Syst. Mycol.* **418** (1838), on soil, Kamalban. Sultana *et al.*, (2011).
- 272.RUSSULA ABBOTTABADENSIS Saba & Adamčík**, in Caboň, Li, Saba, Kolařík, Jančovičová, Khalid, Moreau, Wen, Pfister & Adamčík, *IMA Fungus*, **1**(5): 11 (2019), under *Pinus roxburghii*, Khyber Pakhtunkhwa, Abbottabad, Simla. Adamčík *et al.*, (2019).
- 273.RUSSULA AHMADII Jabeen, Razaq, Niazi, I. Ahmad & Khalid**, in Jabeen, Razaq, Niazi, Ahmad, Grebenc & Khalid, *Phytotaxa*, **321**(3): 246 (2017b), on ground, under *Cedrus deodera* Khyber Pakhtunkhwa, Abbottabad, Kuzah gali. Jabeen *et al.*, (2017b).
- 274.RUSSULA AMOENICOLOR Romagn.**, *Bull. mens. Soc. linn. Lyon*, **31**(1): 175 (1962), on ground. Sultana *et al.*, (2011)
- 275.RUSSULA AURANTIOFLAVA Kiran & Khalid**, in Adamčík, Looney, Caboň, Jančovičová, Adamčíková, Avis, Barajas, Bhatt, Corrales, Das, Hampe, Ghosh, Gates, Kälviäinen, Khalid, Kiran, De Lange, Lee, Lim, Kong, Manz, Ovrebø, Saba, Taipale, Verbeken, Wisitrassameewong & Buyck, *Fungal Diversity*, **99**: 396 (2019), in mixed coniferous forest with *Abies pindrow* and *Picea smithiana*, Khyber Pakhtunkhwa, Dir Uppar district, Kumrat. Adamcik *et al.*, (2019).
- 276.RUSSULA ANTHRACINA Romagn.**, *Bull. mens. Soc. linn. Lyon* **31**(1): 173 (1962), on soil under *Cedrus deodara*, Khyber Pakhtunkhwa, Swat district, Kalam and Mashkun. Jabeen *et al.*, (2016b).
- 277.RUSSULA BREVIPEPECK**, *Ann. Rep. Reg. N. Y. St. Mus.* **43**: 66 (1890), on ground, in association with *Pinus wallichiana*, Khyber Pakhtunkhwa, Abbottabad district, Ayubia-Khanspur, Kuzagali, Niazi *et al.*, (2006).

- 278. RUSSULA BRUNNEOPURPUREA** Jabeen & Khalid, in Jabeen, Niazi & Khalid, *Mycosphere*, **8**(8): 1061 (2017), on soil under *Cedrus deodara*, Khyber Pakhtunkhwa, Swat district, Kalam. Jabeen *et al.*, (2017c).
- 279. RUSSULA RUBRICOLOR** Jabeen & Khalid, in Jabeen, Naseer and Khalid, *Mycotaxon*, **135**:4 (2020), on soil under *Cedrus deodara* and *Quercus* sp., Khyber Pakhtunkhwa, Swat district, Kalam. Jabeen *et al.*, (2020b).
- 280. RUSSULA CAERULEA** Fr., *Epicr. syst. mycol.* (Upsaliae): 353 (1838) [1836-1838] = *Russula amara* Kučera., on ground. Sultana *et al.*, (2011).
- 281. RUSSULA CONSOBRINA** (Fr.) Fr., *Epicr. syst. mycol.* (Upsaliae): 359 (1838) [1836-1838], on ground. Sultana *et al.*, (2011).
- 282. RUSSULA DECIPIENS** (Singer) Bon, *Docums Mycol.* **15**(60): 42 (1985), on ground. Sultana *et al.*, (2011).
- 283. RUSSULA FOETENTOIDES** Razaq, Khalid & Niazi, *Sydowia*, **66**(2): 291 (2014), on ground near *Abies pindrow*, Khyber Pakhtunkhwa, Khanspur Ayoubia. Razaq *et al.*, (2014b).
- 284. RUSSULA GRATA** Britzelm., *Botan. Centralbl.* **54**(4): 100 (1893), under conifers forest, Gilgit-Baltista, Astore district. Dashkin Forest, Dachal Nala. Razaq *et al.*, (2019).
- 285. RUSSULA LIVESCENS** (Batsch). Bataille, *Fl. Mongor. Astérosporales*: 76, (1908), on ground under *Pinus wallichiana*. Oгри, Khyber Pakhtunkhwa, Mansehra., Jabeen *et al.*, (2015b).
- 286. RUSSULA MACULATA** Quél., *Bull. Soc. bot. Fr.* **24**: 323 (1878) [1877], on soil in mixed forest, Gilgit-Baltistan, Astore district. Lashtang Forest. Razaq *et al.*, (2019).
- 287. RUSSULA NITIDA** (Pers.) Fr., *Epicr. Syst. Mycol.* (Upsaliae): 361 (1838) [1836-1838], on soil in mixed forest, Gilgit-Baltistan, Astore District, Lashtang Forest. Razaq *et al.*, (2019).
- 288. RUSSULA OLIVACEA** (Schaeff.) Fr., *Epicr. Syst. Mycol.* (Upsaliae): 356 (1838) [1836-1838], on soil under Beech Trees, Dashkin Forest, Gilgit-Baltistan, Astore district. Razaq *et al.*, (2019).
- 289. RUSSULA PALUDOSA** Britzelm., *Hymenomyc. Südbayern* **10**: 11 (1891). Gilgit-Baltistan. Razaq *et al.*, (2019).
- 290. RUSSULA PARAZUREA** Jul. Schäff., *Z. Pilzk.* **10**(4): 105 (1931). Gilgit-Baltistan. Razaq *et al.*, (2019).
- 291. RUSSULA PELARGONIA** Niolle, *Annl. mycol.* **39**(1): 66 (1941). Gilgit-Baltistan. Razaq *et al.*, (2019).
- 292. RUSSULA QUERCUS-FLORIBUNDAR** M. Kiran & Adamčík, in Crous *et al.*, *Persoonia* **43**: 399 (2019), on the floor of *Quercus floribunda* dominated forest mixed with pines, Khyber Pakhtunkhwa, Swat district, Shawar valley. Crous *et al.*, (2019).
- 293. RUSSULA ROMELLII** Maire, *Bull. Soc. mycol. Fr.* **26**: 57 (1910). Gilgit-Baltistan. Razaq *et al.*, (2019).
- 294. RUSSULA ROSEA** Pers., *Observ. mycol.* (Lipsiae) **1**: 100 (1796) = *Russula lepida* Fr., Gilgit-Baltistan. Razaq *et al.*, (2019).
- 295. RUSSULA SHANGLAENSIS** S. Ullah, Khalid & Fiaz, in Ullah, Wilson, Fiaz, Hussain, Mueller & Khalid, *Turk. J. Bot.* **44**(1): 87 (2020), on soil under *Junglans regia* and *Abies pindrow*, Khyber Pakhtunkhwa, Shangla, Ajmer forest, Chakosar banda. Ullah *et al.*, (2020b).
- 296. RUSSULA SICHUANENSIS** G.J. Li & H.A. Wen, *Mycotaxon* **124**: 179 (2013), on ground under *Pinus Wallichiana*. Saba & Khalid (2015).
- 297. RUSSULA TORULOSA** Bres., *Iconogr. Mycol.* **9**: 433 (1929), on ground. Sultana *et al.*, (2011)
- 298. RUSSULA VINOSA** Lindblad, *Svampbok*: 67 (1901), on ground. Sultana *et al.*, (2011).
- 299. RUSSULA VIOLACEA** Quél., *C.r. Assoc. Franç. Avancem. Sci.* **11**: 397 (1883) [1882], on ground. Sultana *et al.*, (2011).
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- 302. SCLERODERMA CITRINUM** Pers., *Syn. Meth. Fung. (Göttingen)* **1**: 153 (1801), on soil among moss, in damp places, Gilgit-Baltistan, Astore district, Lashtang forest. Razaq *et al.*, (2017).
- 303. SCLERODERMA DICTYOSPORUM** Pat., *Bull. Soc mycol. Fr.* **12**(3): 135 (1896), on sandy soil, Khyber Pakhtunkhwa, Kaghan valley, Naran. Yousaf *et al.*, (2012b).
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- 305. STROBILOMYCES LONGISTIPITATUS** D. Chakr. K. Das & S. Adhikari, in Tibpromma *et al.*, *Fungal Diversity*, **83**: 200 (2017), on soil under *Abies pindrow*, Khyber Pakhtunkhwa, Shangla, Takhat-Manshera, Kand Banga. Ullah *et al.*, (2019c).
- 306. STROPHARIA ATROFERRUGINEA** M.B. Khan, Fiaz & Khalid, in Khan, Ishaq, Kiran, Fiaz & Khalid, *Phytotaxa* **409**(2): 88 (2019), under *Pinus roxaburghii* and *Quercus incanca* vegetation, Khyber Pakhtunkhwa, Battagram. Khan *et al.*, (2019).
- 307. SUILLUS BOVINUS** (L.) Roussel, *Fl. Calvados*: 34 (1806), on soil under to coniferous trees, Shogran, Naran. Sultana *et al.*, (2011).
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- 309. SUILLUS FLAVIDUS** (Fr.) J. Presl, *Wšohecný, rostl.* (Praha) **2**: 1917 (1846), under *Pinus wallichiana*. Khyber Pakhtunkhwa, Ayoubia, Sarwar *et al.*, (2012).
- 310. SUILLUS HIMALAYENSIS** B. Verma & M.S. Ready, *Nova Hedwigia*, **99**(3-4): 543(2014), on ground under *Pinus wallichiana* –*Abies pindrow* vegetation, Khyber Pakhtunkhwa, Manshera, Chattar Plain sharan, Ayoubia-Khanspur, Sarwar *et al.*, (2018b).
- 311. SUILLUS LUTEUS** (L.) Roussel, *Fl. Calvados*: 34 (1806), On soil. Sultana *et al.*, (2011).
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- 315. TERMITOMYCES ACRUMBONATUS** Usman & Khalid, *Phytotaxa* **477**(2): 221 (2020), on moist soil, associated with *Acacia modesta*: Pabbi Forest Park, Pakistan (Usman & Khalid 2020a)
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- 322. TRICHOLOMA USTALE** (Fr.) P. Kumm., *Führ. Pilzk.* (Zerbst): 130 (1871), on margins of stream, Gilgit-Baltistan, Raheemabad. Razaq *et al.*, (2014).
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