

## NEW RECORDS OF *LACTARIUS* SPECIES FROM PAKISTAN

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### Abstract

*Lactarius pubescens* and *L. helvus* are being reported for first time from Pakistan whereas *L. obscuratus* and *L. piperatus* have been recorded for the first time from Gilgit-Baltistan Valley. These species are characterized by cap at first convex then flattened and depressed or funnel-shaped. Stem slender, equal or Gills narrow, crowded. Test mild. Smell faint when fresh, strong when dry. Exuding milky substance when cut. Spores ellipsoid, smooth or sub reticulate.

During a study on macrofungi of Gilgit valley, Pakistan, four species of *Lactarius* Pers., 1797 (order: Russulales; Family: Russulaceae) were collected in summer 2008. These species were identified as *L. helvus*, *L. obscuratus*, *L. piperatus* and *L. pubescens* after reference to Demoulin & Marriot (1981), Surcek (1988) and Buczacki (1989). Of these, *L. helvus* and *L. obscuratus* appeared to be new records from Pakistan, whereas, *L. pubescens* and *L. piperatus* were not hitherto reported from Gilgit-Baltistan (Mirza & Qureshi, 1978; Ahmed *et al.*, 1997; Sultana *et al.*, 2011).

*Lactarius* Pers., *Tent. disp. meth. fung.* (Lipsiae): 63 (1797)

### Synonyms:

*Agaricus* sect. *Lactifluus* Pers., *Comm. Schaeff. Icon. Pict.*: (x) (1800)

*Agaricus* subdiv. *galorrhheus* Fr., *Observ. mycol.* (Havniae) 2: 188 (1818)

*Galorrhheus* (Fr.) Fr., *Syst. Orb. Veg.* (Lundae) 1: 75 (1825)

*Gloeocybe* Earle, *Bulletin of the New York Botanical Garden* 5: 409 (1909)

*Hypophyllum* Earle, *Bulletin of the New York Botanical Garden* 5: 408 (1909)

*Lactaria* Pers., (1797)

*Lactariella* J. Schröt., in Cohn, *Krypt.-Fl. Schlesien* (Breslau) 3.1(33-40): 544 (1889)

*Lactariopsis* Henn., *Bot. Jb.* 30: 51 (1901)

*Lactifluus* (Pers.) Roussel, (1806)

*Pleurogala* Redhead & Norvell, *Mycotaxon* 48: 377 (1993)

Cap at first convex then flattened and depressed or funnel-shaped. Stem slender, equal or Gills narrow, crowded. Test mild. Smell faint when fresh, strong when dry. Exuding milky substance when cut. Spores ellipsoid, smooth or sub reticulate.

### Key to species of *Lactarius* collected during the present studies

1. Spores up to 5µm in breadth ..... 2
- Spores more than 5µm in breadth ..... 3
2. Cap 2-4cm in diameter ..... *L. obscuratus*
- Cap 8-12cm in diameter ..... *L. piperatus*
3. Cap 4-8cm in diameter, spores 6.5-8 µm in length ..... *L. pubescens*
- Cap 5-12cm in diameter, spores 5.5-9 µm in length ..... *L. helvus*

### Description of species

*Lactarius helvus* (Fr.) Fr., *Epicr. Syst. Mycol.* (Upsaliae): 347 (1838).

### Synonyms:

*Agaricus helvus* Fr., *Syst. Mycol.* (Lundae) 1: 72 (1821)

*Agaricus tomentosus* Krombh., *Naturgetr. Abbild. Beschr. Schwämme* (Prague) 6: 7 (1841)

*Galorrhheus helvus* (Fr.) P. Kumm., *Führ. Pilzk.* (Zwickau): 129 (1871)

*Lactarius aquifluus* Peck, *Ann. Rep. N.Y. St. Mus. nat. Hist.* 28: 50 (1876)

*Lactarius helvus* var. *aquifluus* (Peck) Peck, *Ann. Rep. N.Y. St. Mus. nat. Hist.* 38: 124 (1885)

*Lactarius tomentosus* (Krombh.) Cooke, *Forsch. PflKr., Tokyo*: 314 (1883)

*Lactifluus aquifluus* (Peck) Kuntze, *Revis. gen. pl.* (Leipzig) 2: 856 (1891)

*Lactifluus helvus* (Fr.) Kuntze, *Revis. gen. pl.* (Leipzig) 2: 857 (1891)

**Distinguishing characters:** Cap 5-12cm, at first convex then flattened and depressed, covered with small wooly scales, margin slightly in-rolled. Stem 5-12cm, slender, equal or spindle shaped, often very finally downy. Gills pale ochre, narrow, crowded. Smell faint when fresh, strong when dry. Flesh whitish. Spores broadly ellipsoid, sub reticulate, 5.5-9x5-7µm in size (Fig. 1A-C).

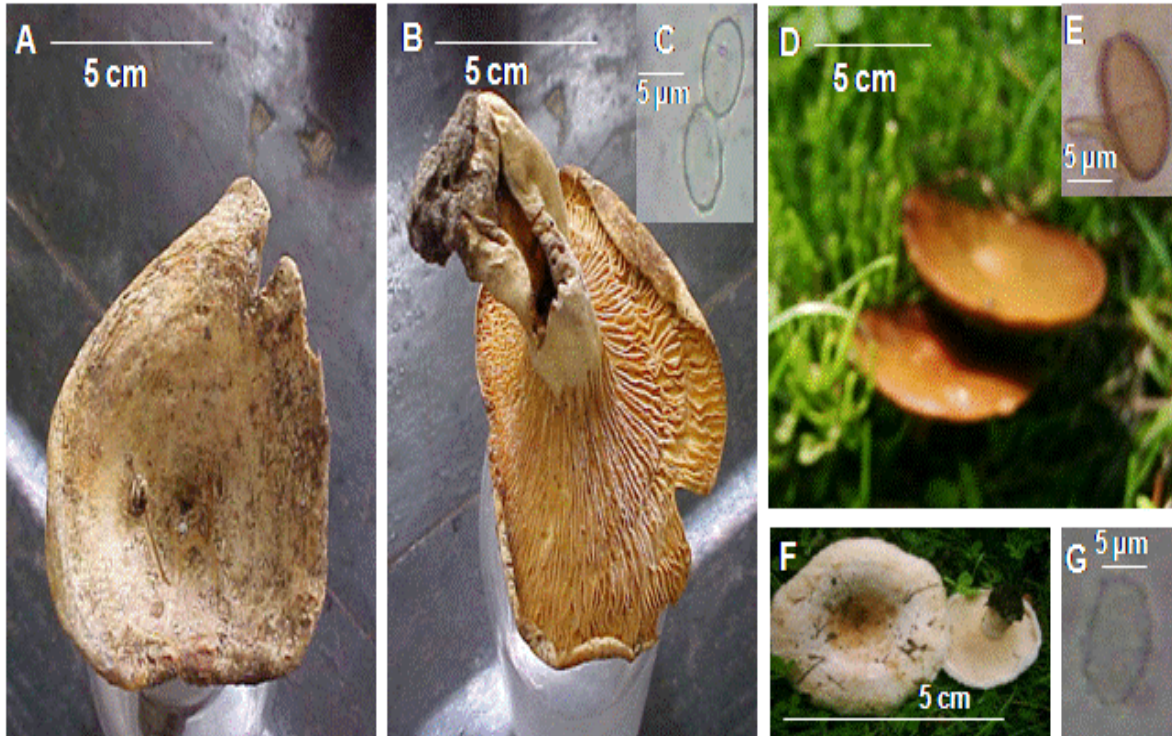


Fig. 1. *Lactarius* species: A-C: *L. helvus*, D-E: *L. obscuratus*, F-G: *L. pubescens*

**Season:** July- August.

**Occurrence:** The specimens were collected from Naltar, District Gilgit, alt 2486m, N=35°28, E=74°46.

**Ethnic uses/Importance:** Inedible

**Habit/Habitat:** Usually in small groups in conifer woods.

**Previous report from Pakistan:** None.

*Lactarius obscuratus* (Lasch) Fr., *Epicr. Syst. Mycol.* (Upsaliae): 346 (1838)

**Synonyms:**

*Agaricus obnubilus* Lasch, *Linnaea* 3: 161 (1828)

*Agaricus obscuratus* Lasch, *Linnaea* 3: 430 (1828)

*Lactarius obnubilus* (Lasch) Fr., *Hymenomyc. Eur.* (Upsaliae): 438 (1874)

*Lactifluus obnubilus* (Lasch) Kuntze, *Revis. Gen. Pl.* (Leipzig) 2: 857 (1891)

**Distinguishing characters:** Cap 2-4cm, at first slightly convex then flattened and slightly depressed, smooth at center and lines at margin. Stem 2.5-3cm long and 1-2cm thick tapering upwards, very finely velvety. Gills creamy at first then brownish, crowded, attached with stem. Smell indistinct. Flesh reddish. Spores ellipsoid, smooth 8-9.5 x 6.5-7 μm in size (Fig. 1D-E).

**Season:** August- September.

**Occurrence:** It was collected from Mushkin, District Astore, alt 2508m, N=35°28, E=74°46.

**Ethnic uses/Importance:** Inedible.

**Habit/Habitat:** Usually in groups on wet soil or side of the canals.

**Previous report from Pakistan:** On soil, Shogran (Sultana *et al.*, 2011).

*Lactarius piperatus* (L.) Pers., *Tent. Disp. Meth. Fung.* (Lipsiae): 64 (1797)

**Synonyms:**

*Agaricus piperatus* L., *Sp. pl.* 2: 1173 (1753)

*Agaricus piperatus* Scop., *Fl. carniol.*, Edn 2 (Wien) 2: 449 (1772)

*Lactifluus piperatus* (L.) Kuntze, *Revis. Gen. Pl.* (Leipzig) 2: 857 (1891)

*Lactifluus piperatus* (L.) Roussel, (1806)

**Distinguishing characters:** Cap 8-12cm, at first convex then more flattened and the funnel-shaped, margin markedly in-rolled. Stem 2-3cm long and 1cm thick, equal, very fine bloom at first, then smooth. Gills white then turning cream, narrow, crowded. Spore print white. Smell indistinct. Flesh white. Spore ellipsoid; smooth colourless, 6-8x4-5μm in size.

**Season:** July- August.

**Occurrence:** It was collected from Mushkin forest, District Astore, alt 2532m, N= 35°33, E=74°22.

**Ethnic uses/Importance:** Inedible.

**Habit/Habitat:** Usually in small groups on soil in broad-leaved woods.

**Previous report from Pakistan:** On ground in Naran and Shogran (Ahmed *et al.*, 1997).

*Lactarius pubescens* (Fr.) Fr., *Epicr. Syst. Mycol.* (Upsaliae): 335 (1838)

**Synonyms:**

*Agaricus pubescens* Fr., *Observ. Mycol.* (Havniae) 1: 56 (1815)

*Lactarius controversus* var. *pubescens* (Fr.) Gillet, *Hyménomycètes* (Alençon): 210 (1876)

*Lactarius pubescens* var. *pubescens* (Fr.) Fr., *Epicr. Syst. Mycol.* (Upsaliae): 335 (1838)

*Lactarius torminosus* subsp. *pubescens* (Fr.) Konrad & Maubl., *Bull. trimest. Soc. mycol. Fr.* 51: 129 (1935)

*Lactarius torminosus* var. *pubescens* (Fr.) S. Lundell, *Fungi Exsiccati Suecici* 47-48: Schedae p. 19 (1956)

*Lactifluus pubescens* (Fr.) Kuntze, *Revis. Gen. Pl.* (Leipzig) 2: 857 (1891)

**Distinguishing characters:** Cap 4-8cm, at first convex, then more flattened and depressed, with some darker irregular patches, dry fibrous margin markedly in-rolled. Stem 2-5cm, equal or tapering slightly downwards, smooth. Gills whitish, narrow, crowded. Spore print pale cream. Smell faint. Flesh white. Spores ellipsoid, 6.5-8x5.5-6.5µm in size (Fig. 1F-G).

**Season:** May- June.

**Occurrence:** Specimen were collected from Hunza, District Gilgit, alt 1925m, N=36°02, E=74°12.

**Ethnic uses/Importance:** Poisonous.

**Habit/Habitat:** Solitary or in small groups on acid soil, usually with birch, healthy woods.

**Previous report from Pakistan:** None.

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