The genus *Lentinus* (Basidiomycetes) from India - an annotated checklist

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Genus *Lentinus* Fr. belongs to class Agaricomycetes, family Polyporaceae and recognized by 40 species the world over (Kirk et al. 2008). Recent molecular studies have shown that many genera and families belonging to the Polyporales are poly- and/or paraphyletic (Hibbett & Vilgalys 1991; Justo & Hibbett 2011; Miettinen et al. 2011; Sjökvist et al. 2012; Binder et al. 2013). Genus *Lentinus* is characterized by xeromorphic tough carpophores having gills with serrated margins (Pegler 1977; Singer 1986). The fruit bodies of *Lentinus* are typically lignicolous and have a widespread distribution, especially in subtropical regions (Pegler 1977). The genus can be distinguished by its dimitichyphal system with either skeletal or binding hyphae along with generative hyphae and firm and persistent texture. Hyphal pegs, fascicles of sterile hyphae coming out from the hymenium surface, are some of the common features present in some genera of the Polyporaceae and in *Lentinus* subgenus. This genus also shares these features with other genera of the family Polyporaceae (Corner 1981; Pegler 1983; Singer 1986). From India 40 species have been documented from time to time (Butler & Bisby 1931; Vasudeva 1960; Bilgrami et al. 1979; 1991; Purkayastha & Chandra 1985; Manimohan & Leelavathy 1995; Sarbhoy et al. 1996; Jamaluddin et al. 2004; Manimohan et al. 2004; Kumar & Manimohan 2005; Natarajan et al. 2005). However, several species placed in the previous checklists are synonyms and do not exist as independent species. A revised checklist of valid species and species recommended for exclusion from the Indian record of *Lentinus* is given in this paper.

Materials and Methods: The present checklist has been prepared by consulting authenticated literature and monographs (Pegler 1983; Singer 1986), previous checklists (Manjula, 1983), MycoBank records and Index Fungorum.

Results and Discussion: List of included species:

- **Lentinus alopecinus** Fr. Systema Orbis Vegetabilis 1: 9 (1825). Fries (1838) documented its occurrence from India. As pointed out by Pegler (1983), it was the earliest species described from Oriental India with a very brief original description for which neither type nor any other material is available. It is a valid species in MycoBank.

- **Lentinus connatus** Berk. Hooker Journ. Bot. 1(3): 145 (1842). Bose (1920) documented this species on dead wood from Howrah (West Bengal). It is a valid species and was also documented from time to time from different localities including Dehradun in Uttar Pradesh (now Uttarakhand), Maharashtra and Assam by different workers (Manjula 1983; Pegler 1983).

- **Lentinus badius** Berk. Lon. Journ. Bot. 6: 491 (1847). Pegler (1983) has listed the collection of *L. badius*...
It is a validly described species (Pegler 1983).

*Lentinus tigrinus* (Bull.) Fr. *Syst. Orb. Veg.* 78 (1825).

Pegler (1983) in his World monograph on *Lentinus* reported its occurrence from Dehradun in Uttar Pradesh (now Uttarakhand) and Kodaikanal in Tamil Nadu. Berkeley (1851) described this species as *L. hookerianus* Berk. from Darjeeling in West Bengal, Banerjee (1943) described it as *L. blepharodes* Berk. from Calcutta (now Kolkatta) and Hennings (1900) as *L. melanophyllus* Lév from Bilaspur in Madhya Pradesh. It exists as a valid species in MycoBank.

*Lentinus velutinus* Fr. *Linn.* 5: 510 (1830).

Currey (1874) and Lloyd (1904–1919) documented the occurrence of this species from Bengal in India. Pegler (1983) in his World monograph on *Lentinus* reported its occurrence from Dehradun in Uttar Pradesh (now Uttarakhand) and Kodaikanal in Tamil Nadu. Berkeley (1851) described this species as *L. hookerianus* Berk. from Darjeeling in West Bengal, Banerjee (1943) described it as *L. blepharodes* Berk. from Calcutta (now Kolkatta) and Hennings (1900) as *L. melanophyllus* Lév from Bilaspur in Madhya Pradesh. It exists as a valid species in MycoBank.

*Lentinus villosus* Klotzsch *Linn.* 8: 479 (1833).

This species was reported by Lloyd (1904–1919) for the first time from India. Manjula (1983) listed it as synonym of *L. crinitus* Berk. and recommended the exclusion of *L. vellosus* Klotzsch from the Indian records. However, *L. crinitus* Berk. has been listed as synonym of *L. swartzii* Berk. by Pegler (1983). *L. vellosus* Klotzsch being a valid species stands restored to the list of Indian species of *Lentinus* Fr. It exists as a legitimate species in MycoBank.

*Lentinus polychrous* Lév. *Ann. Sci. Nat. Bot.* 2 : 175 (1844).

Pegler (1983) in his World monograph on *Lentinus* listed the occurrence of this species from Bihar, West Bengal and Andhra Pradesh. Natarajan & Manjula (1978) and Manimohan et al. (2004) described it from Tamil Nadu. Berkeley (1854) and Banerjee (1947) described it as *L. praerigidus* Berk. by Pegler (1983). *L. vellosus* Klotzsch being a valid species stands restored to the list of Indian species of *Lentinus* Fr. It exists as a legitimate species in MycoBank.

*Lentinus cladopus* Lév. *Ann. des Sci. Nat. Bot.* 2: 174 (1844).

This species was reported by Natarajan (1978) and Natarajan & Raman (1980) from Madras (now Chennai) in Tamil Nadu. Berkeley (1854) and Banerjee (1947) described it as *L. praerigidus* from Bihar and West Bengal, respectively. It exists as a valid species in MycoBank.

*Lentinus tuber-regium* (Fr.) *Fr. Syn. gen. Lent.* :10 (1836).

This species was reported to occur in Trichur (Kerela) by Pegler (1983) and Pathak & Gupta (1982) from Uttar Pradesh. It exists as a legitimate species in the World Monograph of *Lentinus* by Pegler (1983). It exists as a valid species in MycoBank.
Lentinus prolifer (Pát. & Har.) Pegler Kew Bull. Addit. Ser. 6: 40 (1977).
Natarajan & Raman (1981) documented this species from Madras (now Chennai) in Tamil Nadu. It exists as a valid species in MycoBank.

Lentinus giganteus Berk. Hooker Journ. Bot. 6: 493 (1847).
Joseph et al. (1995) and Manimohan et al. (2004) documented this species for the first time from India. It exists as a valid species in MycoBank.

Lentinus dicholamellatus Manim. Mycotaxon 90(2): 312 (2004).
This species was documented from Tamil Nadu by Manimohan et al. (2004). It exists as a valid species in MycoBank.

Lentinus alpacas Senthil. & S.K. Singh. Mycotaxon 121(6): 69–74 (2012).
Senthilarasu & Singh (2012) documented this species for the first time from Maharashtra (Pune). This species exists as a legitimate species in MycoBank. Hence it is an included species.

Lentinus candidus Graff. Philipp. Journ. of Sci. Bot. 8: 302 (1913).
Lloyd (1898–1925) documented it from India. *L. candidus* Graff. has been treated as the synonym of *L. conatus* Berk. by Pegler (1983). In view of this Manjula (1983) deleted it from Indian record. However, in MycoBank’s opinion this species is currently in use and is a valid species.

Lentinus glabratuus Mont. Ann. Sci. Nat. Bot. 17: 128 (1842).
This species was documented from Raj Mahal Hills (North Bengal) by Currey (1874). Although *L. glabatus* Mont. is a valid species but the collection assigned to *L. glabatus* Mont. from India has been assigned to *L. squarrosulus* Mont. (Pegler 1983; Manjula 1983). However, in MycoBank’s opinion, this species is currently in use and hence is a valid species for inclusion in Indian records.

Lentinus coadunnatus Hook. Hooker Journ. Bot. 3: 45 (1851).
Berkeley (1856) documented it from Darjeeling on dead wood. Lloyd (1904–1919) equated this species with *L. subnudus*. Pegler (1983) relegated it to the level of synonym of *L. squarrosulus* Mont. However, this species exists as a legitimate species in MycoBank records and Index Fungorum hence it is a valid species.

List of excluded species from Indian records:

Lentinus curreyanus Sacc. & Cub. Syll. Fung. 5: 586 (1887).
Banerjee (1947) reported it from Calcutta (now Kolkata) (West Bengal) on dead wood. Pegler (1983) recognized this species as a synonym of *L. squarrosulus* Mont. as a consequence of which Manjula (1983) recommended this species for exclusion from the Indian record. In MycoBank’s opinion it exists as the synonym of *L. squarrosulus*.

Lentinus decaisneanus Lév. Bull. Ann. Sci. Nat. Bot. 5: 120 (1846).
Banerjee (1947) recorded its occurrence from Calcutta (West Bengal). This is not a valid species as Pegler (1983) in his World monograph of the genus treated *L. decaisneanus* Lév as the synonym of *L. conatus* Berk. Hence *L. decaisneanus* Lév stands deleted from the Indian records. It exists as a synonym of *L. conatus* Berk. in MycoBank record.

Lentinus exilis Klotzsch ex Fr. Syn. Gen. Lent. 10 (1836).
Cooke (1881) recorded it from Andaman Islands for the first time from India. Pegler (1983) treated *L. exilis* Klotzsch ex Fr. as the synonym of *L. sajor-caju* (Fr.) Fr. because of which Manjula (1983) deleted this species from the Indian records. In MycoBank’s opinion, this species is listed as synonym of *L. sajor-caju* (Fr.) Fr.

Lentinus hepaticus Berk. Hooker Journ. Bot. and Kew Misc. 3: 45 (1851).
This species was recorded by Berkeley (1856) from Darjeeling (West Bengal) on tree trunks. Pegler (1983) assigned the collection of this species to *Collybia* (Fr.) Kumm., hence being a dubious name *L. hepaticus* Berk. has been excluded as it does not belong to *Lentinus* Fr.
In view of this the species stands deleted from the Indian records (Manjula 1983).

**Lentinus inquinans** Berk. *Hooker Journ. Bot. and Kew Misc.* 6: 132 (1854).

From India Pegler (1983) has listed its occurrence from Changa-Chellingin Sikkim; Manipur; Khasi hills of Assam; Tistabridge in Hora and Darjeeling in West Bengal. It is a synonym of *L. badius* (Pegler, 1983) which was described by Berkeley (1854) as *L. inquinans* Berk. because of which it stands excluded from the Indian list of *Lentinus* species (Manjula 1983). In MycoBank records this species exists as a synonym of *L. badius* (Berk.) Berk.

**Lentinus javanicus** Lév. *Ann. Sci. Nat. Bot.* 5: 118 (1846).

Its occurrence has been documented from Dehradun in Uttar Pradesh (now Uttarakhand), Assam and Bombay (now Mumbai) in Maharashtra by Pegler (1983) in his World monograph. *L. javanicus* Lév. is an invalid species which is listed as the synonym of *L. conatus* Berk. In view of its present status *L. javanicus* Lév. has been excluded from the Indian records (Manjula 1983). This species exists as the synonym of *L. conatus* Berk. in MycoBank record.

**Lentinus lecomtei** Fr. *Syst. Orb. Veg.* 77 (1825).

Berkeley (1851, 1876) reported it from Tonglo in Sikkim Himalaya and Gulmarg in Kashmir, Darjeeling in West Bengal. It is also reported from Ootacamund in Tamil Nadu (Pegler 1983). All the above collections of *L. lecomtei* Fr. have been identified to be those of *L. strigosus* Fr., in view of which *L. lecomtei* Fr. stands excluded from Indian records (Manjula 1983). In MycoBank, this species is recognized as a synonym of *L. strigosus* Fr.

**Lentinus melanophyllus** Lév. *Ann. Sci. Nat. Bot.* 2: 175 (1844).

Its occurrence has been listed from India on *Shorea rubusta* Gaertn. from Bilaspur in Madhya Pradesh by Hennings (1901). Manjula (1983) recognized it to be a synonym of *L. velutinus* Fr. however, Pegler (1983) in his world monograph on *Lentinus* listed it in the list of synonym of *L. ciliates* Lév.

**Lentinus strigosus** Fr. *Syst. Orb. Veg.* 77 (1825).

Murrill (1924) and Watling & Gregory (1980) documented it from Sonamarg (Kashmir). Abraham (1991) reported it from Kashmir. It is also known from number of other localities in India (Pegler 1983). Berkeley (1851) described it as *L. lecomtei* Fr. from Tonglo in Sikkim. Now this species exists as the synonym of *Panus neostrigosus* Drechsler-Santos et al. (2012). Therefore it is excluded from the list.

**Lentinus torulosus** Fr. (Pers.:Fr.) Llyod. *Mycol. Writ.* A 4, Lett. 47: 13 (1913).

Atri et al. (2010) documented this species for the first time from Bhadrol (Palampur) in Himachal Pradesh. Pegler (1983) in his World monograph has treated it as a legitimate species. It exists as a valid species in MycoBank. This species is treated as the synonym of *Panus conchatus* (Bull.) Fr. in MycoBank and Index Fungorum, hence excluded from Indian records (Image 3).

**Lentinus similis** Berk. & Broome. *Journ. Linn. Soc. Bot.* 14: 43 (1873)

Pegler (1983) in his World monograph reported the occurrence of this species from Khasia Hills West Bengal, Game Sanctuary (Coorg District) in Karnataka, Nilgiri Hills, Ootacamund and Tinnevellyin Tamil Nadu. It exists as a synonym of *Panus similis* (Berk. & Broome) T.W. May & A.E. Wood, hence stands deleted from Indian records.

**Lentinus caespiticola** var. *asiaticus* Manim. & Leelav. *Mycol. Res.* 99(4): 451 (1995).

Manimohan & Leelavathy (1995) documented it for the first time from Kerala. Now this species exists as a synonym of *Panuscaespiticola* (Pat. & Har.) Drechsler-Santos et al. (2012). Hence it is included in the excluded species.

**Lentinus hookerianus** Berk. *Hook. Journ. Bot. and Kew Misc.* 3: 45 (1851).

Berkeley (1856) documented this species from Darjeeling (West Bengal) on dead wood. Pegler (1983) has also listed a collection from Calcutta (now Kolkata) in his World monograph. Although a validly described species, Manjula (1983) listed *L. hookerianus* as synonym of *L. velutinus* Fr. and recommended its exclusion from the Indian record. This species is now exists as a
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Genus Lentinus exists as a synonym of blepharodes in his World monograph L. velutinus Fr. (Pers.:Fr.) Fr. in his World monograph of Lentinus. Pegler (1983) relegated it to the status of a synonym of L. squarrosulus Mont. In view of this L. pergamenæus Lév. stands excluded from the Indian records. This species exists as a synonym of L. squarrosulus Mont. in Mycobank record.

Lentinus praerigidus Berk. Hooker Journ. Bot. and Kew Garden Misc. 6: 132 (1854).

It has been reported from the West Bengal and on Termitornia procera L. and on stumps of dead trees. Lloyd (1898–1925) and Banerjee (1947) reported it from Calcutta (now Kolkatta) in West Bengal. Pegler (1983) treated this species as the synonym of Lentinus polychrösus Lév which has been documented from Chota Nagpur (Maharashtra); Bankwara and Calcutta (now Kolkatta) (West Bengal) and on Nanda Hills (Andhra Pradesh) in India. Manjula (1983) recognized L. polychrösus Lév instead of L. praerigidus Berk. In Mycobank’s opinion this species is a synonym of L. polychrösus Lév.

Lentinus revelatus Berk. Hooker Lon. Journ. Bot. 6: 492 (1847).

Cooke (1881) recorded it from Andaman Islands on fallen stumps of Cocos nucifera L. and on stumps of dead trees. Lloyd (1898–1925) and Banerjee (1947) reported it from Calcutta (now Kolkatta) in West Bengal. Pegler (1983) enlisted Lentinus revelatus as the synonym of L. conatus Berk. In view of the above L. revelatus stands excluded from the Indian records (Manjula 1983). It exists as a synonym of L. conatus in Mycobank record.

Lentinus cochleatus (Pers.:Fr.) Fr. Syst. Orb. Veg. 78 (1825).

Trivedi (1972) documented it from Nagpur. Pegler (1983) has excluded it from World monograph of Lentinus and instead has recognized it as Lentinellus cochleatus (Pers.:Fr.) Karst. Hence this species stands deleted from Indian records. In Mycobank records, this species exists as a synonym of Lentinellus cochleatus (Pers.) P. Karst.

Conclusions: Upon scrutiny, there are a total of 20 valid species of genus Lentinus encountered from India and 21 species are synonyms of these valid species as described as legitimate species in previous checklists.

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