# 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.



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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* 

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(Berk.) Berk. from Darjeeling (West Bengal), Khasia Hills (Sikkim) and Manipur in India which accounts for its valid documentation. This is a valid species in MycoBank.

Lentinus lepideus (Fr.:Fr.) Fr. Syst. Orb. Veg. 78 (1825).

Its occurrence has been reported from Chakrata (Deoban, Kanam) in Uttar Pradesh (now Uttrakhand) and Kullu (Munaki and Bushahar Division) in Himachal Pradesh (Bakshi 1955; Pegler 1983). It exists as a legitimate species in MycoBank.

*Lentinus sajor-caju* (Fr.) Fr. *Epicrisis Syst. Mycol.* 393 (1838).

Pegler (1983) in his World monograph on *Lentinus* has listed its occurrence from seram in West Bengal and Assam. Bose (1920) documented it on dead wood from Hoogly District of West Bengal. Butler & Bisby (1960) in Fungi of India have also reported its occurrence from southern Andaman Islands (Cooke described it as *L. exilis* Klotzsch from Annamalai in Kerala) (Image 1).

Lentinus squarrosulus Mont. Ann. Sci. Nat. Bot. 18: 21 (1842).

It is one of the most widely distributed species in India which has been documented from a number of localities including Madras (Natarajan & Manjula 1978) (now Chennai), Khandala, Maharashtra by Theissen (1911) as *L. subnudus* Berk., Calcutta (Kolkatta) in West Bengal by Bose (1920) as *L. subnudus* Berk. and Banerjee (1947) as *Lentinus curreyanus* Sacc. & Cub.

*Lentinus subdulics* Berk. *Hooker Journ. Bot. and Kew Misc.*3: 46 (1851).

Pegler (1983) in his World monograph of *Lentinus* has listed its occurrence from Darjeeling (West Bengal). There is no record for this species in MycoBank, although



Image 1. Lentinus sajor-caju

it is a validly described species (Pegler 1983).

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

Lloyd (1904–1919) listed its occurrence from India. Other reports of its occurrence are by Watling & Gregory (1980) from Sarband & Abraham (1991) from Anant Nag and Srinagar in Jammu and Kashmir. 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 valid species in the 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 the 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* from Bihar and West Bengal, respectively. It exists as a valid 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. Pegler (1983) has also listed it from Cochin in Kerala (Image 2).

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.



Image 2. Lentinus cladopus

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 glabratus Mont. Ann. Sci. Nat. Bot. 17: 128 (1842).

This species was documented from Raj Mahal Hills (North Bengal) by Currey (1874). Although *L. glabratus* Mont. is a valid species but the collection assigned to *L. glabratus* 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 Kolkatta) (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. Sys. 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.4,

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Image 3. Lentinus torulosus

### 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 Tinnevelyin 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 Kolkatta) 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

synonym of *Panushookerianus* (Berk.) T.W. May & A.E. Wood. Hence it is excluded from the list.

*Lentinus blepharodes* Berk. *Jour. Lin. Soc. Bot.* 10: 301 (1869).

Lloyd (1904–1919) recorded it from Botanic Gardens of Saharnpur in Uttar Pradesh and Banerjee recorded it on dead trees of *Cocosnucifera* from Calcutta (now Kolkatta) in West Bengal. Pilát in Index of Fungi by Petrak (1950) made a new combination *L. velutinus* Fr. var. *blepharodes* (Berk. and Curtis) Pilát. Later Pegler (1983) treated *L. blepharodes* (Berk. and Curtis) Pilátas the synonym of *L. velutinus*Fr. in his World monograph of *Lentinus*. In view of this Manjula (1983) deleted *L. blepharodes* Berk. from the Indian records. Now this species exists as a synonym of *Lentinus velutinus* Fr.

*Lentinus molliceps* Fr. Nova Acta R. Soc. Sci. Upsal. 1: 38 (1851).

This species was enlisted from Nicobar Islands (Fries 1855). Although Manjula (1983) has recognized it as a valid species and listed it under Indian species of *Lentinus* Fr., however, Pegler (1983) in his World monograph on *Lentinus* Fr. treated *L. molliceps* Fr. as the synonym of *L. squarrosulus* Mont. In view of this *L. molliceps* Fr. has been excluded from the Indian records. This species exists as a synonym of *L. squarrosulus* Mont. in MycoBank's opinion.

*Lentinus nepalensis* Berk. *Hooker Journ. Bot. and Kew Misc.* 6: 131 (1854)

It was recorded by Berkeley (1856) from Nangki in East Nepal. It was not documented from any part of India. This is not a valid species and is a synonym of *L. velutinus*Fr. (Pegler1983; Manjula 1983). In view of its present status *L. nepalensis* Berk. stands deleted from the Indian records. In MycoBank's opinion it exists as a synonym of *L. velutinus* Fr.

*Lentinus nicobarensis* Reichardt. *ApaudFrenziReise der ÖsterreichFreg. Novara. Bot.*1 : 143 (1870).

It has been recorded to grow on rotten trunks in Nicobar Islands (Petch 1916). This is not a valid species. Pegler (1983) and Manjula (1983) treated *L. nicobarensis* Reichardt. as the synonym of *L. sajor-caju* (Fr.) Fr. In view of its present status *L. nicobarensis* Reichardt. stands deleted from the Indian records. It exists as a synonym of *L. sajor-caju* (Fr.) Fr. in MycoBank record.

*Lentinus pergameneus*Lév. *Ann. Sci. Nat. Bot.* 5 : 117 (1846).

It has been listed from India by Lèvèillè (1846). Its type at Paris has been marked as "Herb. De Candole, Indes" (Butler & Bisby 1960). Manjula (1983) treated *L. pergameneus* Lév as a valid species and recognized its type documented by Lèvèillè (1846) as an authentic record. Contrary to the treatment of Manjula (1983), 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. pergameneus* 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 Sone River in Bihar by Berkeley (1856), on logs of *Shorea robusta* Gaertn. by Banerjee (1947) from Calcutta (now Kolkatta) in West Bengal and on *Terminalia paniculata* Roth. and *Vateria indica* Linn. (Anonymous 1950). This is not a valid species. Pegler (1983) treated this species as the synonym of *Lentinus polychrous* Lév which has been documented from Chota Nagpur (Maharashtra); Bankwara and Calcutta (now Kolkatta) (West Bengal) and Nanda Hills (Andhra Pradesh) in India. Manjula (1983) recognized *L. polychrous* Lév instead of *L. praerigidus* Berk. In Mycobank's opinion this species is a synonym of *L. polychrous* 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 cochlentus* (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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