

A. Methuen

ROYAL BOTANIC GARDENS, KEW

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THE GENUS LENTINUS:
A World Monograph

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

- Agaricus tigrinus* Bull.: Fr., Syst. Mycol. 1: 176 (1821); Bull., Champ. Fr.: pl. 70 (1781).
A. dunalii Fr., Syst. Mycol. 1: 176 (1821).
Omphalia tigrina (Bull.: Fr.) S.F. Gray, Nat. arrang. Br. Pl. 1: 613 (1821).
A. denticulatus Schwein. in Schr. naturf. Ges. Leipzig 1: 55 (1822), non Schum. : Fr. (1821).
L. dunalii (Fr.) Fr., Syst. Orb. Veg. : 78 (1825).
L. schweinitzii Fr., Elenchus Fung. : 1: 46 (1828).
L. contortus Fr., Syn. gen. Lent. : 7 (1836).
L. ravenelii Berk. & Curt in Hooker Lond. Journ. Bot. 1: 100 (1849).
L. fimbriatus Currey in Trans. Linn. Soc., Bot. 24: 151, pl. 25/2 (1863).
Lentodium squamulosum Morgan in Journ. Cincinn. Soc. Nat. Hist. 18: 36 (1895).
Lentinus ghattasensis P. Henn. in Hedwigia 37: 286 (1898).
Lentodium tigrinum (Bull. : Fr.) Earle in Bull. New York Bot. Gard. 5: 434 (1909).
Lentinus omphalopsis Reichert in Engl. Bot. Jahrb. 56: 702 (1921).
L. tigrinus var. *dunalii* (Fr.) Rea, Brit. Basid. : 537 (1922).
Panus tigrinus (Bull. : Fr.) Singer in Lilloa 22: 275 (1951).
P. tigrinus var. *squamulosus* (Morgan) Rosinsky & Robinson in Amer. Journ. Bot. 55: 245 (1968).

Pileus 1–10 cm diam., fleshy coriaceous, pliant, strongly convex then concave-umbilicate to deeply infundibuliform; surface at first greyish brown to blackish brown owing to crowded, appressed, innate, fibrillose squamules, radially arranged, then becoming pale ochraceous cream coloured to almost white on expansion with the squamules crowded at the centre but sparse towards the margin, dry, innately striate; margin entire then lobed, thin, non-striate, initially inrolled soon expanding. *Lamellae* decurrent, occasionally with slight interveining towards the stipe attachment but often not so, whitish soon yellowing, sometimes with a reddish tint, narrow, 2–5 mm broad, moderately crowded, with lamellulae of four lengths; edge soon dentate to lacerate. *Stipe* central or excentric, 1.5–5(–10) cm × 2–10 mm, cylindric, tapering below, solid; surface soon yellowish, covered with small, greyish brown, floccose squamules over the lower two-thirds, glabrescent. *Annulus* present as a fibrillose, cortinoid zone immediately below the lamellae attachment, creamy white, evanescent. *Context* fairly thin, 2–3 mm thick, firm, fibrous, white, consisting of a dimitic hyphal system with skeleto-ligative hyphae. *Generative hyphae* 2–15 µm diam., with conspicuous inflation, hyaline, thin-walled, frequently branching, with clamp-connexions. *Skeleto-ligative hyphae* 2–10 µm diam., hyaline, with a slightly to strongly thickened wall and a continuous lumen, usually comprising an elongate fusoid skeletal element up to 250 µm long, and two to several lateral, tapering branches, often with dichotomous branching. *Spores* 6–9.5 × 2.5–3.5(7.5 ± 0.5 × 3 ± 0.3) µm, Q = 2.5, narrowly cylindric, hyaline, thin-walled, with occasional guttulate contents. *Basidia* 24–30 × 4–6 µm, elongate clavate, bearing four slender sterigmata. *Lamella-edge* sterile, initially with a narrow zone of cheilocystidia, soon producing emergent skeleto-ligative branches, 3–7 µm diam., which eventually form fascicles. *Cheilocystidia* 20–28 × 3–6 µm, sinuous clavate, often constricted or nodulose, hyaline, thin-walled. *Hyphal pegs* sparse to moderately numerous, consisting of irregular, loose fascicles of 10–20 slightly inflated, at times nodulose generative hyphae, 3–5 µm diam., hyaline, thin-walled, projecting 40–60 µm beyond the basidia. *Hymenophoral trama* more or less

regular, hyaline, of descending construction, with the skeleto-ligative hyphae less thick-walled than in the context otherwise of similar structure. *Subhymenial layer* pseudoparenchymatous, 13–20 μm thick. *Pileipellis* on indefinite layer of radially parallel, agglutinated hyphae, 3–7 μm diam. *Pileal squamules* of fascicles of generative hyphae, 4–8 μm diam., slightly agglutinated, with thin, brown walls. Fig. 10.

ENGLAND. Northamptonshire, Kings Cliffe, Berkeley; Huntingdonshire, Tilbrook, 2 June 1962, Copland; Essex, Upminster, Running Water Wood, 27 Sept. 1981, Swellenham; Kent, Edenbridge, Aug. 1879, Renny; Sevenoaks, Knole Park, 16 Oct. 1966, Reid; Sussex, Lewes, 19 Sept. 1862, Currey (K, type of *L. fimbriatus*); Rewell Forest, 4 Oct. 1928, Rea; Dunston Hill, 21 June 1969, Reid; Bosham, 13 Sept. 1969, Reid, Lodsworth, 28 Aug. 1971, Reid; Surrey, Cobham Park, 9 Oct. 1964, Hawkes; Runnymede, 30 Aug. 1980, Holland; 15 June 1981, Legon; Hampshire, Sowley, 1 Aug. 1961, Bentley; New Forest, 29 July 1981, Dickson; Basingstoke, 16 Nov. 1981, Gobbit; Gloucestershire, Sandhurst Nat. Res., 17 Sept. 1976, Preston-Maffham; Badgeworth Nat. Res., 11 Oct. 1973, James; 23 Oct. 1977, Cave; Somerset, Bathampton, 12 July 1874, Broome; Catcott, 19 Oct. 1980, Keylock; Devon, Slapton Ley Nat. Res., 31 July 1973, Hawksworth 3426; 16 Aug. 1973, Hawksworth 3580; 1 Nov. 1973, Hawksworth 3629; 5 Apr. 1974, Hawksworth 3674.

AUSTRIA. Tyrol, near Eppan, Aug. 1868, ex-herb. Thümen.

BELGIUM. Brussels, May 1884, Bommer & Rousseau, Roumeg. Fung. Gall. Exs. 3001; Kalmthout, Sept. 1975, Leonard.

FRANCE. Saone-et-Loire, Galeries du Greusot, July 1882, Gillot & Quincy, Roumeg. Fung. Gall. Exs. 2203; Orsay, Oct. 1910, Bissier (PC); Loire, Preuilley-sur-Claise, 17 Oct. 1926, Bile (PC).

CORSICA. Forêt de Bonifato, 5 June 1965, Reid.

ITALY. Padua, 1873, Sacc. Mycoth. Ven. 3; Padua, 1875, Saccardo, Rabenh. Fung. Eur. 2002; Lombardy, Cavara, Fung. Longob. Exs. 71; Vercellis, Rabenh.—Klotzsch Herb. 3; Rovereto, 2 June 1910, Ex-Herb. Bres.

JUGOSLAVIA. Novi Sad, April 1974, Green.

BULGARIA. Vitrinia, 28 Aug. 1974, Reid.

GREECE. Western region, Prébeza, Nikopalis, April 1967, Green; northern region, Aug. 1975, Green.

IRAN. North-west region, Karadj, 1971, Soleymani 114.

U.S.S.R. Uzbekistan, Buhhara Reg., Navoi Distr., Sarmysh, 7 May 1976, Kalamees, Pihlik & Vaasma (TAA 94847, 94856, 94857); Tashkent Reg., 20 Apr. 1982, Kallom (TAA 104259); 22 Apr. 1982, Halikova (TAA 104275); Brich-mulla, 1900 m, 23 Apr. 1982, Halikova (TAA 104290); 23 Apr. 1982, Parmasto (TAA 104406); Debaland, 4 Apr. 1979, Kalamees (TAA 120600); Samarkand Reg., Laengar, 1500 m, 15 May 1980, Kalamees (TAA 121254); Tadzhikistan, Leninski Distr., Kondara, 1100 m, 7 Apr. 1977, Vaasma (TAA 95348); Ramit Res., 10 Apr. 1977, Vaasma (TAA 95383); Turkmenistan, Aidere, 18 May 1968, Raitviir (TAA 60067).

PAKISTAN. Naran, Kagon Valley, 31 July 1956, Ahmad 14387; Lahore, 18 Aug. 1962, Ahmad 15681; Khipro, 30 June 1973, Ahmad 24976; Lahore, Ravi Park, 28 July 1981, Ahmad 28201; Chichawatni, 6 Nov. 1981, Ahmad 28202.

NEPAL. Chisaulea, 4 May 1954, Stainton, Sykes & Williams 5214.

GHANA. Tafo, June 1957, Holden 197.

NIGERIA. Ibadan, May 1963, Alasaodura.

SUDAN REPUBLIC. Soba For. Res. Stn., 1974, Apinis.



Fig. 10. *Lentinus tigrinus*. A, Habit and section (Kings Lynn, Berkeley), X1; B, spores; C, basidia; D, cheilocystidia, with emergent skeleto-ligative branches; E, hyphal peg; F, generative hyphae of context, X500; G, skeleto-ligative hyphae from context, X500. All X1000 unless otherwise stated.

CANADA. Ontario, London, 1903. Dearness, E. & Ev., Fung. Columb. 1935.

U.S.A. Massachusetts, Sprague (PC); Waverley, Nov. 1912, Lyman, Rel. Parl. 336; Michigan, Tahquamenon, 10 July 1961, Reid; New Jersey, Ellis 3990, Herb. Cooke; Ohio, Morgan 245 (K, type of *Lentodium squamulosum*); South Carolina, Santee River, Curtis 96B, Herb. Berk.; Santee Canal, April, Ravenel in Curtis 1706 (K, type of *L. ravenelii*); Georgia, Darieu, Ravenel 2452; Alabama, Beaumont in Curtis 4632, Herb. Berk.; Mississippi, Jackson, 1 Dec. 1914, Bartholomew, Fung. Columb. 4546; Louisiana, Batture, 17 Aug. 1968, Reid; Texas, Harris Co., Herb. Raverel; Wright 3148, Herb. Berk.

Lentinus tigrinus is usually found in caespitose clusters, sometimes developing a branching stipe, in damp situations on old branches, roots and logs. It occurs especially on *Populus* and *Salix* but is also recorded on *Acer*, *Alnus*, *Fagus*, *Fraxinus*, *Juglans*, *Ulmus*, *Acacia*, *Dalbergia*, and *Morus*. The fungus is very variable in form, and has been reported from most parts of the world, although it has been frequently confused with *L. concinnus*, *L. crinitus*, *L. sclerogenus*, and especially with *L. squarrosulus* in palaeotropical and Australasian regions. It is essentially a North temperate fungus. In Europe, the distribution radiates outwards from the Mediterranean region, occurring fairly frequently in Greece, Italy and Yugoslavia but less so in Spain and Portugal. It also extends to North Africa where it has been reported from Algeria and Morocco (Malençon & Bertault, 1975: 448), Tunisia (Patouillard, 1909: 247) and Egypt (Reichert, 1921: 702). The species also extends to the Sudan Republic, Iran and on to Pakistan and Nepal. On the other hand, it extends neither to the more boreal regions, for in the British Isles it is limited to southern England, nor to the far east, for Vassilieva (1973) does not list it in her account of *Lentinus* of the Primorsky region of the Soviet Union. In North America, it appears to be more frequent and more widely distributed, and Murrill (1915a: 296) reports it from throughout the subcontinent.

Lentinus tigrinus is characterized by the production of a partial veil, forming a cortinoid annulus in young specimens although this is soon eroded and is absent in older basidiomes. Kühner (1925: 137) reported the basidiome development to be pseudangiocarpic. In North America there occurs a gasteroid form for which Morgan (1895) proposed a new genus, *Lentodium*, with a single species, *L. squamulosum*. This is characterized by having a glebal hymenophore persistently covered by a membranous veil. Such forms have been found repeatedly and, although a relationship with *L. tigrinus* has always been recognized, there has been much discussion as to whether or not a specific and generic separation can be maintained. Rosinsky & Robinson (1968) crossed monokaryotic isolates of strains of *Lentodium squamulosum* and *Lentinus tigrinus* and showed complete intercompatibility existed. Further, normal basidiomes of *L. tigrinus* resulted from these crosses. They concluded that *L. squamulosum* was no more than a subtle genetic variant of *L. tigrinus* and a taxonomic separation between these two forms cannot be maintained even at a species level.

Lentinus tigrinus and related species represent a distinctive group of species within *Lentinus*, in producing generative hyphae in the context and trama which inflate to a degree comparable to that found in the Agaricales. This structure was first reported and illustrated by Corner (1981: 50, fig. 6), and these hyphae, together with the associated descending structure of the hymenophoral trama, offer a useful microcharacter for the separation of *L. tigrinus* from species of similar appearance, especially *L. squarrosulus*, in other sections.