A SYNOPSIS OF THE WOOD-DECAY GENUS LAXITEXTUM (HERICIACEAE, RUSSULALES, BASIDIOMYCOTA) AND A NEW SPECIES FROM CAMEROON

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Descriptions of and a key to the globally known species of the genus Laxitextum are provided. A new species from Cameroon, Laxitextum globisporum, is described.

Keywords. Cameroon, new species, Russulales, tropical rain forest, wood-decay fungi.

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Introduction

Laxitextum Lentz (Hericiaceae, Russulales, Basidiomycota) is a small genus of steroid fungi originally erected by Lentz (1956 [1955]) to accommodate three species: L. bicolor (Pers.) Lentz, as the generic type, and L. crassum (Lév.) Lentz and L. roseocarneum (Schwein.) Lentz. The latter two species are currently excluded from Laxitextum and accepted as Phlebiopsis crassa (Lév.) Floudas & Hibbett and Corticium roseocarneum (Schwein.) Hjortstam, respectively. Two more species of Laxitextum were subsequently described from tropical Africa (Hjortstam & Ryvarden, 1981).

Laxitextum species can be differentiated from those of other steroid genera with resupinate to bracket-like basidiomata by their smooth, pale-coloured hymenophores, enclosed gloeocystidia, and echinulate amyloid basidiospores. Our recent fieldwork from 2014 to 2019 has focused on ectomycorrhizal fungi associated with monodominant forests of the ectomycorrhizal canopy tree Gilbertiodendron dewevrei (De Wild.) J.Léonard in Cameroon. Wood-decay fungi have also been collected during this time. Here, we provide a global synopsis of known species of Laxitextum and describe a new Cameroonian species as L. globisporum, based on its globose basidiospores.

Genus description

Laxitextum Lentz., U.S. Dept. Agric. Monogr. 24: 18 (1956 [1955]). – Type: Laxitextum bicolor (Pers.) Lentz.

Basidiomata resupinate or subpileate, rather soft and pliable, upper side brown, tomentose or when older with adpressed hairs, sometimes slightly zonate; hymenium white in fresh specimens; margin finely fibrillose in the resupinate state, smooth or somewhat tomentose

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in pileate ones; *hyphal system* monomitic; *hyphae* thin-walled; *cystidia* smooth; *basidia* clavate, tetrasterigmate, with a basal clamp connection; *basidiospores* thin-walled, ellipsoid to globose, echinulate, amyloid.

*Laxitextum*, although a species-poor genus as currently known, is well characterised by its combination of steroid basidiomata with brown trama and a white or pale-coloured subhymenial layer, enclosed or partly projecting gloecystidia, and amyloid, echinulate basidiospores.

**Key to the known species of *Laxitextum***

1a. Pileus dark brown and velutinate _____________________________ 1. *L. bicolor*
1b. Pileus absent, or if present, glabrous and cream to deep yellow __________________ 2

2a. Basidiospores 4–5 × 3–3.5 μm, hyphae encrusted, gloecystidia non-amyloid 3. *L. incrustans*
2b. Basidiospores smaller, hyphae smooth, gloecystidia amyloid ______________ __ 3

3a. Spores elliptic, 3.5–4 × 3–3.5 μm, pileus yellowish brown __________ 4. *L. lutescens*
3b. Spores globose, 3–3.5 μm in diameter, pileus ochraceous ________ 2. *L. globisporum*

**Species descriptions**

1. *Laxitextum bicolor* (Pers.) Lentz., U.S. Dept. Agric. Monogr. 24: 19 (1956 [1955]). *Thelephora bicolor* Pers., Syn. Meth. Fung. 2: 568 (1801); Mycol. Eur. I: 122 (1822), nom. sanct. (Fr., Syst. Mycol. I: 438 [1821]).

*Basidiomata* resupinate or subpileate, upper side brown, in young specimens finely tomentose, in old specimens with more adpressed hairs, often indistinctly zonate and radially striate; *hymenium* in young fresh basidiomata pure white, darkening slightly to cream, then pale brownish, glabrous, cracking when dried, in section about 1 mm thick, the upper part of the trama (i.e. the subiculum of resupinate specimens), brown, the subhymenial part whitish; *margin* white and finely fibrillose in young specimens.

*Hyphal system* monomitic; *hyphae* of the brown trama distinct, with thin or somewhat thickened walls, light brown in the microscope, usually 2.5–4 μm wide; *subhymenial hyphae* thin-walled, in old basidiomata partly collapsed and forming a hyphal net with irregular meshes, penetrated by very thin-walled, cytoplasm-filled generative hyphae, these 1–3 μm wide.

*Gloeocystidia* present, in the young state fusiform, subulate, often with a moniliform apical appendix, more or less projecting, in old specimens tube-like, mostly obtuse, of highly varying length, 40–100 μm or longer, 5–10 μm wide, consistently filled with a yellowish oily substance.
Figure 1. Microscopic features of *Laxitextum bicolor*. A, Section through the basidioma; B, tramal hyphae; C, subhymenium, cystidia, basidioles and basidia; D, basidiospores; E, mature basidium; F, young cystidia; G, older cystidium. Drawn from Eriksson 9318 (O) by J. Eriksson.
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*Basidia* narrowly clavate, 20–30 × 3.5–5 µm, tetrasterigmate.

*Basidiospores* oblong-ellipsoid, thin-walled, finely echinulate, 4.5–5 × 2.5 µm, amyloid.

*Substratum*. On decayed hardwoods.

*Distribution*. Cosmopolitan to 70°N in Norway.

*Laxitextum bicolor* is rather easy to recognise because of the contrasting brown upper and white lower colours and soft consistency.

2. *Laxitextum globisporum* T.W.Henkel & Ryvarden, sp. nov.

Differs from all other *Laxitextum* species in its combination of ochraceous pileus and small, globose basidiospores. – Type: Cameroon, Region 3 East, Dja Biosphere Reserve, 3 km S of Somaloma village, 26 viii 2018, on stump of unknown hardwood tree, leg. T. Henkel 10753 (holotype YA; isotype HSC, O). Index Fungorum 556984. Figures 2, 3.

*Basidiomata* flabelliform, semicircular, 20 × 30 mm, about 0.5 mm thick, flexible; *pileus* ochraceous, subzonate, smooth when fresh, when dry slightly radially wrinkled, bent, and curled; *hymenial surface* smooth, pale wood-coloured; *hymenium* in section dense, about 30 µm deep; *subhymenium* distinct, pale ochraceous, 50–80 µm thick; *trama* rather loose and cottony, c.400 µm thick.

*Hyphal system* monomitic; *hyphae* with clamps; *tramal hyphae* loosely interwoven, pale yellow, 3–5 µm wide; *oleiferous hyphae* abundant in subhymenium and trama, yellow, distinctly amyloid, 4–6 µm wide.

*Gloeocystidia* present, 60–120 × 4–8 µm, yellow, acuminate, distinctly amyloid.

*Basidia* 18–25 × 4–6 µm, narrowly clavate, tetrasterigmate.

*Basidiospores* globose, 3–3.5 µm in diameter, a few subglobose, thin-walled, finely echinulate, amyloid.

*Substratum*. On decayed tropical hardwood stump.

*Distribution*. Known only from the type locality in the Dja Biosphere Reserve, Cameroon.

The ochraceous pileus and the small, globose basidiospores make *Laxitextum globisporum* a distinct species in the genus.

3. *Laxitextum incrustans* Hjortstam & Ryvarden, Mycotaxon 13: 35 (1981). Figure 4.

*Basidiomata* resupinate, widely effused, often loosening from substratum along the margin; *hymenial surface* smooth, cream to ochraceous, more or less cracked in dry condition.

*Hyphal system* monomitic; *hyphae* with clamps, loosely interwoven, golden yellow, encrusted, 3–6 µm wide with thickened walls; *oleiferous hyphae* scattered to common, slightly amyloid.
Figure 2. Microscopic features of *Laxitextum globisporum* T.W.Henkel & Ryvarden, sp. nov. A, Basidia and gloeocystidia; B, mature gloeocystidium; C, basidiospores. Drawn from the holotype, *Henkel* 10753, by L. Ryvarden.
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**Figure 3.** *Laxitextum globisporum* T.W.Henkel & Ryvarden, sp. nov. Photograph of the holotype, *Henkel* 10753. Scale bar, 10 mm. Photograph by T. W. Henkel.

Gloeocystidia present, in the young state fusiform, subulate, often with a moniliform apical appendix, more or less projecting, in old specimens cylindrical, mostly obtuse, 70–80 × 4–6 μm.

**Basidia** narrowly clavate, 15–25 × 4–5 μm, tetrasterigmate.

**Basidiospores** 4–5 × 3–3.3 μm, subglobose to ellipsoid, echinulate, strongly amyloid.

**Substratum.** On decayed hardwoods.

**Distribution.** Brazil, Cameroon, Ethiopia, Kenya, Tanzania, USA.

The resupinate basidioma shape and encrusted hyphae characterise this species.

**4. Laxitextum lutescens** Hjortstam & Ryvarden, Mycotaxon 13: 40 (1981). **Figure 5.**

**Basidiomata** resupinate to pileate, 0.4–0.6 mm thick, pileus deep yellow to pale brown,
Figure 4. Microscopic features of *Laxitextum incrustans*. A, Section of the hymenium; B, basidioles and basidium; C, gloeocystidium; D, encrusted, clamped trama1 hyphae; E, basidiospores. Drawn from the holotype, *Ryvarden* 10108 (O), by L. Ryvarden.
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**Figure 5.** Microscopic features of *Laxitextum lutescens*. A, Section through the basidioma; B, section of the hymenium; C, basidiole and basidium; D, clamped subicular hyphae; E, basidiospores. Drawn from the holotype, *Ryvarden* 12875 (O), by L. Ryvarden.
velutinate, azonate; *hymenial surface* cream-yellow to straw-coloured with a notably pale purplish brown tint; *trama* well developed, pale yellowish brown.

*Hyphal system* monomitic; hyphae with clamps; *tramal hyphae* loosely interwoven, pale yellow, 3–5 μm wide; *oleiferous hyphae* abundant in subhymenium and trama, distinctly amyloid, 4–6 μm wide.

*Gloeocystidia* present, 90–120(–200) × 6–9 μm, in the young state fusiform, subulate, often with a moniliform apical appendix, occasionally up to 200 μm long, distinctly amyloid.

*Basidia* narrowly clavate, 20–25 × 4–5 μm, tetrasterigmate.

*Basidiospores* 4 × 3–3.3 μm, subglobose to broadly ellipsoid, thin-walled, finely echinulate, amyloid.

*Substratum*. On decayed hardwood.

*Distribution*. Cameroon, Ghana.

The species is similar to *Laxitextum bicolor* but differs in its deep yellow upper surface, amyloid gloeocystidia, and smaller basidiospores.

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