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Ceratobasidium and *Oliveonia* (Basidiomycota, Aphyllophorales) in Finland

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Three species of *Ceratobasidium*, *C. bicorne* Eriksson & Ryvarden, *C. cornigerum* (Bourdot) D.P. Rogers and *C. pseudocornigerum* M.P. Christensen, and two species of *Oliveonia*, *O. fibrillosa* (Burt) Donk and *O. pauxilla* (H.S. Jacks.) Donk, are reported from Finland. *Ceratobasidium cornigerum* and *O. fibrillosa* are reported for the first time. The most widespread species seems to be *C. cornigerum*, whereas *C. pseudocornigerum* gives an impression of southern distribution and the *Oliveonia* species are very rare. The anamorph of *Ceratobasidium bicorne* Eriksson & Ryvarden is commonly isolated from conifer seedlings, but for the present no basidiocarps are observed. The substrates of the telemorphs are listed, the species are illustrated and a few reference collections from Russia were studied.

Key words: Aphyllophorales, *Ceratobasidium*, *Oliveonia*, taxonomy

Introduction

The family Ceratobasidiaceae has traditionally included, among others, the genera *Scotomyces*, *Sebacinella*, *Oliveonia*, *Ceratobasidium* and *Thanatephorus* (e.g., Hauerslev & Roberts 1997). Common for these genera is that they all possess holobasidia, resembling thus the "real Corticiaceae", and their spores germinate by repetition, showing relationship to Exidiaceae and Tulasnellaceae.

Eriksson *et al.* (1978) were of the opinion that practically the only difference between the genera *Oliveonia* and *Ceratobasidium*, is the presence of cystidia in *Oliveonia*. Roberts (1998), however, very elegantly showed that those genera do not belong to the same family and described a new family Oliveoniaceae within the Exidiales. The family comprises the species of *Oliveonia*, and he also combined in the new family the species of *Sebacinella* and *Monosporonella termitophila*.

For the traditional reasons, we treat the genera here in a single paper. Both of them have a wide distribution in the northern hemisphere (Jülich & Stalpers 1980), but the species of *Oliveonia* are far more rare, or may be overlooked, due to their inconspicuous basidiomata. The ecology is also strikingly similar: many of the species of the two genera fruit on living herbaceous seed plants or ferns, but also on dead wood and litter. The genus *Ceratobasidium* contains ca. 15 spe-

cies (Hjortstam 1998) and *Oliveonia* five species (Roberts 1998).

Material and methods

The material studied is preserved in the herbaria H, K, TUR and/or in the reference herbarium of Heikki Kotiranta (H.K.). Material was also requested from JOE, KUO and OULU, but those herbaria did not contain any specimens.

Thirty spores per specimen were measured, and the measurements were made in Cotton Blue (CB) or Melzer's reagent (IKI). CB– means that the walls of the cells were not stained by Cotton Blue, and CB+ that they were stained, and IKI– that there was no reaction to Melzer's reagent. The third mounting medium used was 5% potassium hydroxide (KOH).

The following abbreviations are used: L = spore length, L^* = mean spore length, W = spore width, W^* = mean spore width, Q = range of the variation in L/W ratio, Q^* = quotient of the mean spore length and width (L/W). The L and W values given in boldface include at least 90% of the spores. The measurements for each specimen are given in Table 1.

In the text the Q value shows the variation between all collections (in Table 1), Q^* value the mean of all Q^* values, and the spore length and width show the variation of mean sizes of each collection and L^* the mean size of all collections and W^* the mean width of all collections, respectively. None of the measurements derive from spore print.

Biological provinces and collection sites in Finland are indicated according to the Finnish national uniform grid system (27°E), as applied to biological material by Heikinheimo and Raatikainen (1981).

The nomenclature of Corticiaceae follows that of Hjortstam (1998), of polypores Niemelä (2003), and of vascular plants Hämet-Ahti *et al.* (1998). The authors of species names are found in those publications and are not repeated here. The epithets "*Picea*" and "spruce" refer to *Picea abies*, "*Pinus*" or "pine" to *Pinus sylvestris*, "larch" to *Larix sibirica*, "birch" to *Betula pendula* and *B. pubescens* and "aspen" to *Populus tremula*. The species are arranged in alphabetical order.

The authors names in chapters "Specimens examined" are abbreviated as H.K. (Heikki Kotiranta) and R.S. (Reima Saarenoksa).

Ceratobasidium D.P. Rogers

The genus is characterized by thin or very thin, strictly resupinate basidiocarp, monomitic hyphal system with relatively wide, unclamped hyphae. The basidia are subglobose or broadly ellipsoid, supported by hyphae which are much narrower than the basidia, which wear two or four sturdy sterigmata. Cystidia are absent, spores thin-walled, cyanophilous and germinating by repetition.

Many species have a *Rhizoctonia* anamorph, which parasitizes herbaceous plants and conifer seedlings (e.g., Hietala *et al.* 1994).

Ceratobasidium bicorne Eriksson & Ryvarden

Hietala *et al.* (1994) isolated an unknown, uninucleate *Rhizoctonia* species from seedlings of spruce and pine. The isolates produced in culture simple septate hyphae and basidia, bearing two stout sterigmata, showing thus characteristics of *Ceratobasidium bicorne*. Later on, Hietala *et al.* (2001) found out that their *Rhizoctonia* cultures are genetically identical with telemorphs of *C. bicorne*, collected in nature. According to Hietala *et al.* (2001) they were not able to find fruit bodies, "despite some effort". The isolation sites given by Hietala *et al.* (1994, 2001, 2003) show that at least the anamorph of *C. bicorne* is widely distributed in Finland and causes root dieback disease on nursery grown spruce, pine and larch seedlings.

Ceratobasidium cornigerum (Bourdot) D.P. Rogers (Fig. 1)

New to Finland.

Basidiocarp resupinate, thin or very thin, pale grayish–pale cream-coloured, pruinose, or more seldom somewhat ceraceous, margin thinning out, not differentiated.

Hyphal system monomitic, all hyphae without clamp connexions, cyanophilous. Subicular hyphae parallel to the substrate, sparsely branched at right angles, (5–)6–8(–9) μm wide, with somewhat thickened walls. Subhymenial hyphae thin-walled, 4–5 μm wide, sub-basidial hyphae thin-walled, about 3 μm wide. Cystidia none. Basidia obovate, seldom somewhat stalked, 10–17(–18) × (7–)8–10.5(–12) μm, with four stout, up to 12 μm long sterigmata, but generally shorter. Spores ellipsoid or broadly ellipsoid, widest usually at the basal end, ventral side mostly convex, seldom concave, often glued in pairs or tetrads, 5.9–9.1 × 4.1–5.7 μm, L^* = 7.9 μm, W^* = 5.2 μm, Q = 1–2.3, Q^* = 1.5, thin-walled, faintly CB+, IKI–.

The shape of the spores is very variable even within a single collection and naturally also

Table 1. Spore dimensions of the studied specimens. The values set in bold include at least 90% of the spores.

	L (µm)	*L**	*W* (µm)	*W**	*Q*	*Q**
C. cornigerum						
Saarenoksa 04794	(7.2–)**7.4–8.7**(–10.7)	8	(4.4–)**4.6–5.6**	5	1.4–1.8	1.6
Saarenoksa 10394	(4.4–)**5.3–6.5**(–6.9)	5.9	**4.3–5.6**(–5.8)	5	1–1.5	1.2
Saarenoksa 01390	**7–9**(–9.4)	8	**3.6–4.3**(–4.9)	4.1	1.7–2.3	2
Saarenoksa 14496	(7.5–)**7.9–11.7**(–12.5)	9	(4.1–)**4.8–6.4**	5.4	1.4–2	1.7
Saarenoksa 12798	(6.9–)**7.1–10.4**(–11.9)	8.5	(4.2–)**4.4–5.7**(–6)	5.1	1.3–2.1	1.7
Saarenoksa 00599	**6.3–7.6**(–7.9)	6.9	**4.7–5.6**(–5.8)	5.2	1.2–1.6	1.3
Saarenoksa 11894	**7.3–9.1**(–10)	8.5	(4.2–)**4.8–6**(–6.2)	5.3	1.3–1.9	1.6
Saarenoksa 01297	**6.7–8.7**(10.2)	7.3	(3.8–)**4.1–5.6**(–6.1)	5	1.4–1.8	1.5
Saarenoksa 05897	(6.4–)**6.7–9.1**(–10.2)	7.8	(4.7–)**4.9–6.4**(–7.1)	5.5	1.2–1.6	1.4
Saarenoksa 08597	**7.8–9.7**(–10.3)	8.6	(4.4–)**4.6–5.8**(–6)	5.1	1.4–2	1.7
Saarenoksa 08597	**7.6–10.1**(–10.8)	8.6	**4.8–6**(–6.2)	5.5	1.3–1.8	1.6
Saarenoksa 08697	(7.5–)**8–10.3**(–10.7)	9.1	(4.3–)**5–6.4**(–7)	5.7	1.3–1.9	1.6
Saarenoksa 14900	(7.8–)**8–10.1**(–11)	9.1	(4.5–)**4.9–6**	5.5	1.4–2	1.7
Saarenoksa 00900	(7.2–)**7.5–9.4**(–10.2)	8.3	**4.9–6**	5.4	1.4–1.7	1.5
Saarenoksa 12789	(6.4–)**6.8–8**	7.3	**4.2–5.1**(–5.5)	4.7	1.4–1.8	1.6
Saarenoksa 18495	(7.4–)**8–10.3**(–11.6)	9	(4.9–)**5.1–6.8**	5.7	1.3–1.9	1.6
Kotiranta 20237	(6.1–)**6.3–8.2**(–9)	7.2	**4.6–6.1**(–7.2)	5.2	1.2–1.8	1.4
Miettinen L213	(6–)**6.5–7.5**(–8)	7.1	(4.2–)**4.4–5**(–5.5)	4.7	1.3–1.8	1.5
Penttilä 5978	(6–2)**6.5–9.9**	7.6	**4.2–5.3**(–5.7)	4.8	1.3–2.1	1.6
Penttilä 6511	(6.3–)**6.6–7.8**(–8.9)	7.2	(4.2–)**4.4–5.3**(–5.6)	4.9	1.3–1.7	1.5
Penttilä 6536	(6.8–)**7–8.7**(–9.8)	7.7	(4.8–)**5.1–6.6**(–7)	5.7	1.2–1.6	1.4
Penttilä 6538	(6.6–)**7.6–9.7**(–10.8)	8.3	(4.7–)**5–6.1**(6.9)	5.6	1.2–1.7	1.5
Kotiranta 16816	(6.8–)**7.1–9.8**(–10.2)	8.2	(4.4–)**4.9–6.4**(–6.9)	5.6	1.3–1.8	1.5
Kotiranta 10896	(6.7–)**7–8.4**(–8.6)	7.6	**4.5–5.6**(–5.8)	5.1	1.3–1.7	1.5
Kotiranta 10897a	**6.8–8.5**(–9)	7.5	**4.5–5.3**	4.9	1.4–1.7	1.5
Kotiranta 8520	**6.2–8.6**(–10.1)	7.4	**4.2–5.4**(–5.7)	4.9	1.2–1.9	1.5
Kotiranta 11855	**7–8.7**(–10.5)	7.9	**4.3–5.7**(–6.5)	4.9	1.4–2	1.6
Kotiranta 18378	**6–7.2**(–7.8)	6.8	(4.1–)**4.3–5**(–5.3)	4.7	1.3–1.6	1.4
C. pseudocornigerum						
Saarenoksa 04996	(8.3–)**8.7–11.9**(–13)	10.2	**3.2–3.9**(–4.2)	3.6	2.3–3.4	2.9
Saarenoksa 50989	(8.3–)**9–12.3**	10.5	**3.6–4.9**(–5.8)	4.3	1.9–3.3	2.4
Saarenoksa 14093	(8–)**8.4–11.4**(–13)	9.9	(2.9–)**3.3–4.2**(–4.6)	3.7	2.2–3.3	2.6
Saarenoksa 12093	(9.8–)**10.1–12.4**(–13.4)	11.2	**3.6–4.2**	3.9	2.6–3.6	2.9
Saarenoksa 20793	(7.7–)**8–9.3**(–9.6)	8.8	(3–)**3.2–3.8**	3.4	2.2–3.1	2.6
Saarenoksa 20893	(8.1–)**8.4–10**	9.1	(3–)**3.2–3.9**	3.5	2.2–2.9	2.6
O. fibrillosa						
Kotiranta 19959	(6.6–)**7–8.5**	7.5	**3.8–4.5**(–4.8)	4.1	1.7–2	1.8
Kotiranta 16712	**7–8.5**(–10)	7.8	**3.5–4.3**(–4.5)	3.9	1.7–2.2	2
Kotiranta 10586	(6.7–)**7–9**(–10)	7.8	**3.8–5.1**(–6.3**)**	4.5	1.5–2.1	1.7
O. pauxilla						
Kotiranta 19024	(7.4–)**8.7–11.8**(–13.5)	10.1	**3.5–4.6**(–5)	4.2	2–2.9	2.4

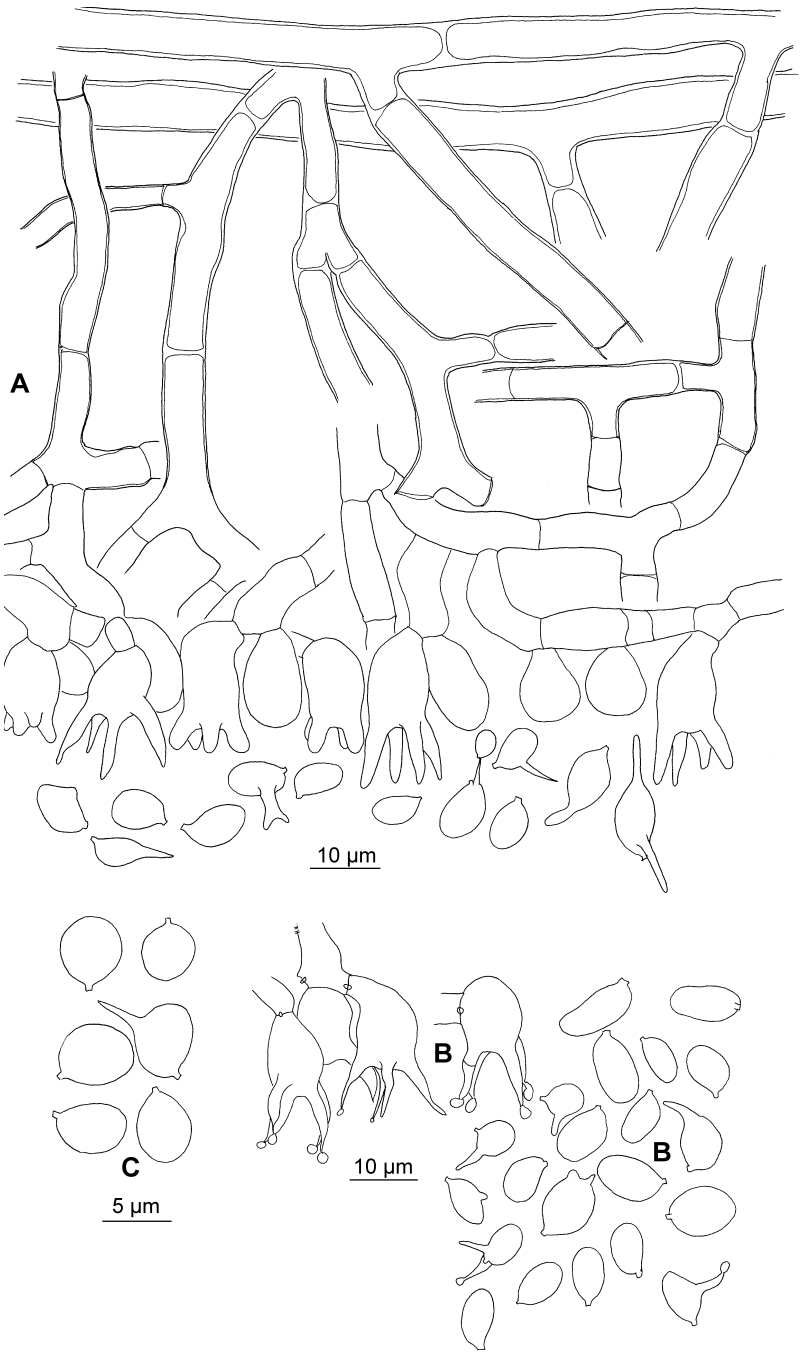

Fig. 1. *Ceratobasidium cornigerum*. — **A**: Section through basidiocarp and spores (from *Saarenoksa 11894*). — **B**: Basidia and spores (from *Saarenoksa 18495*). — **C**: Spores (from *Saarenoksa 10394*).

between the specimens, the Q^* being normally 1.4–1.7. In one specimen (*Saarenoksa 10394*, Fig. 1C), however, the Q^* value is only 1.2. *Ceratobasidium obscurum* has almost subglobose or ovoid spores, but the basidia are much larger, *viz.* 19–24 × 9–11 µm (Jülich & Stalpers 1980). *Ceratobasidium ramicola* has ovoid spores of about the same size as the specimen cited above, but Roberts (in litt. 2000) informed us that in his opinion there are no clear morphological differences between the type specimens of *C. cornigerum* and *C. ramicola*. One of the

specimens (*Saarenoksa 12789*) is collected from *Pteridium aquilinum*, which is a common host for *C. anceps* (e.g., Jackson 1949). The shape of the spores fits well with *C. anceps*, but they are too small. Moreover, the hyphae in our specimen are wider than those in *C. anceps* and there are no sclerotia.

The sterigmata of the spores develop, according to Eriksson and Ryvarden (1973), laterally. We mapped the starting points of sterigmata and counted the percentage of germinated spores. The percentage of germinated spores varied between 3% and 30%, the mean being 14%. The sterigmata of spores were dispersed fairly evenly: from ventral side 21.5%, from abaxial side 33.8%, from apicular region 7.5% and from apical part 37.2%, respectively (n = 390).

Ceratobasidium cornigerum is widespread in Finland and its substrates are very diverse: shrubs, large herbs and dead wood. Amazingly many collections were made from charred wood, only one year after the forest fire. The range of the habitats is wide as well, from luxuriant grass-herb forests to poor pine-dominated heath forests and rock outcrops.

The substrates of *C. cornigerum* (n = 29)

Picea abies	8
Pinus sylvestris	5
Populus tremula	2
Symphoricarpus sp.	2
Syringa vulgaris	2
Athyrium sp.	1
Betula sp.	1
Calluna vulgaris	1
Filipendula ulmaria	1
Lupinus angustifolius	1
Malus × *domestica*	1
Pteridium aquilinum	1
Rubus idaeus	1
Salix caprea	1
Tanacetum vulgare	1

SPECIMENS EXAMINED: **Finland**. Uusimaa: Helsinki, Kaisaniemi, Botanical garden, on *Picea* bark on the ground, Grid 27°E 6675:386, 28.VI.1994 *R.S. 04794* (H). Helsinki, Mustavuori, grass–herb forest, at base of living *Filipendula ulmaria*, Grid 27°E 6681:397, 24.VIII.1994 *R.S. 10394* (H). Helsinki, Myllypuro–Puotinharju, grass–herb forest, on small fallen corticated *Populus*, Grid 27°E 6680:392, *R.S. 01390* (H). Helsinki, Toukola, ruderate grass–herb forest, on dead erect, thin, corticated *Salix caprea*, Grid 27°E 6679:387, 12.VII.1996 *R.S. 14496* (H). Helsinki, Toukola, Arabia, ruderate field, on dead *Tanacetum vulgare*, Grid 27°E 6679:388, 11.VIII.1998 *R.S. 12798* (H) and same place on dead *Lupinus angustifolius*, 12.IX.1999 *R.S. 00599* (H). Helsinki, Toukola, Syyriankatu 10, garden, on small living *Populus* shoots, Grid 27°E 6679:387, 27.VIII.1994 *R.S. 11894* (H), same place, at bases of living *Syringa vulgaris*, 16.VIII.1997 *R.S. 01297* (H), same place, at bases of living *Symphoricarpus* sp. (cult.), 3.X.1997 *R.S.* 05897 (H) and 10.X.1997 *R.S. 08597* (H) and on living *Rubus idaeus*, *R.S. 08597* (H) and young living *Syringa vulgaris* (cult.), *R.S. 08697* (H) and on corticated *Malus* × *domestica* (cult.) branch on the ground, 16.XII.2000, *R.S. 14900* (H). Helsinki, Vanhakaupunki, Annala, dry grass–herb forest, on *Pinus* board, Grid 27°E 6679:387, 3.VII.2000 *R.S. 00900* (H). Helsinki, Viikki, Hakala, grass–herb forest, on living petioles of *Pteridium aquilinum*, Grid 27°E 6680:389, 19.VIII.1989 *R.S. 12789* (H), same place, on fairly hard fallen decorticated *Pinus*, 8.X.1995 *R.S. 18495* (H). Porvoo, Sannainen, Stortärnan SW, poor pine-dominated rock outcrop, on dead *Calluna vulgaris*, Grid 27°E 67030:4337, 14.XI.2003 *H.K. 20237 & R.S.* (H, H.K.). Etelä-Häme: Lammi, Pappilankylä, Biol. stat., grass–herb forest, on newly fallen corticated spruce together with *Heterobasidion parviporum*, Grid 27°E 67733:3950, 4.VII.2003 *Miettinen L213* (H). Lammi, Evo, Tuohimetsä, burned forest, on charred spruces, Grid 27°E 6789:402, XI.1993 *Penttilä 5978, 6511 & H.K.* (H) and corticated spruces, *Penttilä 6536, 6538 & H.K.* (H). Pohjois-Karjala: Kesälahti, Totkunniemi, mixed young forest, on decorticated *Pinus*, Grid 27°E 68634:6512, 12.VIII.2000 *H.K. 16816* (H.K.). Koillismaa: Salla, Oulanka Nat. Park, Uudenniitynlampi, burned old-growth forest, on charred corticated *Betula* sp., Grid 27°E 7373:607, 16.IX.1992 *H.K. 10881* (H.K.) and on charred spruces, *H.K. 10896, 10897a* (H.K.). Inarin-Lappi: Inari, Nellim S, Haapakuru, dry clear-cut area, on *Pinus* twigs, Grid 27°E 7638:552, 26.VIII.1990 *H.K. 8520* (H.K.). **Russia**. Moscow obl., Moscow, old pine-dominated forest, on dead *Athyrium*, 27.IX.1994 *H.K. 11855* (H.K.). Altay Rep.: Gorno-Altay, young pine-dominated forest, on *Pinus* twigs, 3.VIII.2001 *H.K. 18378 & Romanova* (H, H.K.)

Ceratobasidium pseudocornigerum M.P. Christiansen (Fig. 2)

Reported earlier by Kotiranta and Saarenoksa (1990).

Basidiocarp like in *C. cornigerum.*

Hyphal system like in *C. cornigerum* and hyphae cyanophilous. Basal hyphae thin- or slightly thick-walled (walls up to 0.6 μm), rarely brownish, up to 8–10 μm wide, but normally 5–6 μm. Subhymenial hyphae fairly richly branched, thin-walled, 4–5 μm wide. Cystidia

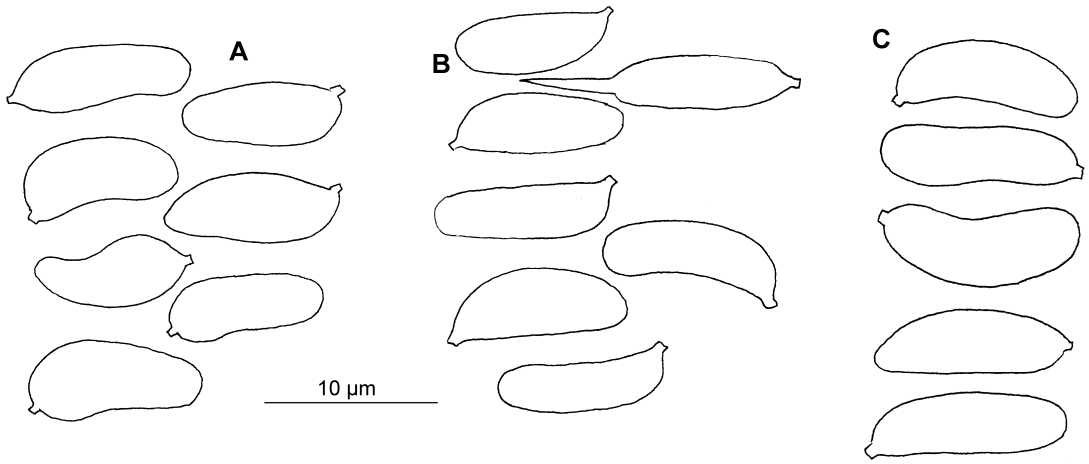

Fig. 2. *Ceratobasidium pseudocornigerum* spores. (**A** from *Saarenoksa 50989*, **B** from *Saarenoksa 14093*, **C** from *Saarenoksa 12093*.)

none. Basidia obovate, 11–15 × 8–10 µm, with four stout, up to 15 µm long sterigmata, but usually 10–12 µm long. Spores cylindrical, slightly curved or subfusiform, 8.8–11.2 × 3.4–4.3 µm, L^* = 10 µm, W^* = 3.8 µm, Q = 2.4–2.9, Q^* = 2.7, thin-walled, cyanophilous, IKI–.

The spores of *C. pseudocornigerum* are much less often germinated than in *C. cornigerum* and the variation is between 0 to 10 per cent only, the mean value being 4 per cent. Germinated spores are often glued together and the freely floating are mainly without sterigmata. The starting point of sporal sterigmata in our material is somewhat different from that seen in *C. cornigerum*: none from ventral side, 17% from abaxial side, 24% from apicular region and 59% from apical part, respectively (n = 37).

The size of the spores given by Christiansen (1959), 8–11.5 × 3.5–4 µm, is very close to that of our material.

Ceratobasidium pseudocornigerum was collected only by the co-author R.S., and all the collections are made in grass–herb forests in southern Finland, where the species seems to be, at least locally, fairly common. Measurements of all specimens were not made, but the list of substrates includes all the collections.

The substrates of *C. pseudocornigerum* (n = 15)

Alnus incana	4
Alnus glutinosa	1
Urtica dioica	3
Populus tremula	2
Salix caprea	2
Salix pentandra	1
Scirpus sylvaticus	1
Aegopodium podagraria	1

SPECIMENS EXAMINED: **Finland**. Uusimaa: Helsinki, Myllypuro–Puotinharju, on dead leaves of *Scirpus sylvaticus*, Grid 27°E 6680:392, 4.XI.1989 *R.S. 50989* (H). Helsinki, Puotinharju, Matokallio, on corticated *Alnus incana* branch, Grid 27°E 6679:393, 30.VI.1993 *R.S. 14093* (H). Helsinki, Toukola, Syyriankatu 10, garden, on bases of living *Urtica dioica*, Grid 27°E 6679:387, *R.S. 04996* (H). Helsinki, Viikki, Säynäslahti, on corticated *Alnus glutinosa* branch, Grid 27°E 6680:388, 20.VI.1993 *R.S. 12093* (H). Tuusula, Lahela, on *Alnus incana* branch, Grid 27°E 6698:388, 15.VII.1993 *R.S. 20793, 20893* (H).

Oliveonia Donk

The genus is characterized by strictly resupinate basidiomata, monomitic hyphal system with clamped or unclamped hyphae, clavate cystidia in three species, clavate or somewhat conical basidia, which may be pleural, at least in young stages, and repetitive spores.

Oliveonia fibrillosa (Burt) Donk (Fig. 3)

Sebacina fibrillosa Burt
Peniophora heterobasidioides Rogers
Oliveonia subfibrillosa Hallenberg

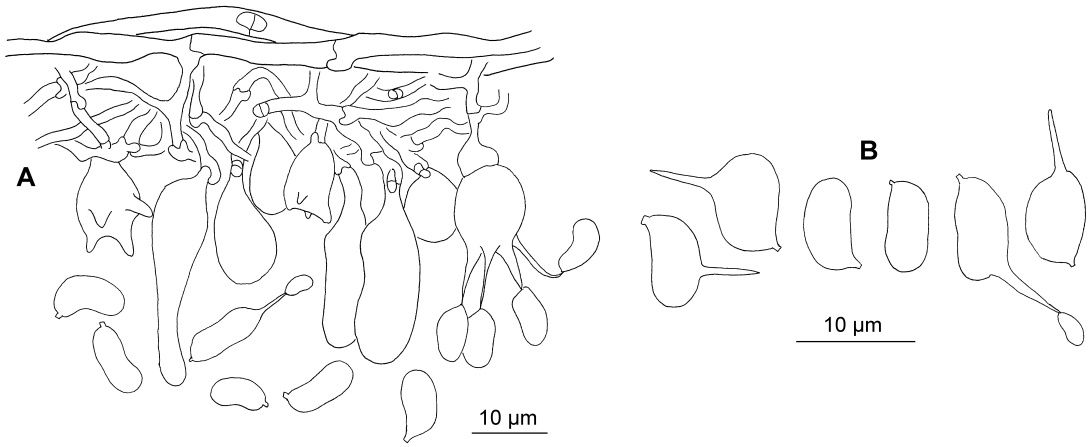

Fig. 3. *Oliveonia fibrillosa*. — **A**: Section through basidiocarp showing basidioles, basidia, cystidia and spores (from *Kotiranta 16712 & Saarenoksa 20398*). — **B**: Spores (from *Kotiranta 10586*).

New to Finland.

Basidiocarp resupinate, very thin, appearing as almost invisible whitish bloom, under the lens (×50) reticulate–porulose, margin not differentiated, thinning out.

Hyphal system monomitic, hyphae clamped, with walls thickened in KOH, practically invisible in IKI, 1.5–2.5(–4) µm wide. Subhymenial hyphae richly branched, embedded in gelatinous matter, thin-walled, 1–2 µm wide. Cystidia basally clamped, subcylindrical, (22–)25–32 × 6–8 µm, with contents pale yellowish in IKI, very thin-walled and difficult to observe. Basidia basally clamped, at first ovoid, later broadly clavate, sometimes almost pleural, (11–)13–17 × 7–8(–9) µm. Spores very variable in size and shape, but most commonly subcylindrical with concave ventral side and often also slightly concave abaxial side, or clearly ellipsoid with convex ventral side especially in large spores, 7.5–7.8 × 3.9–4.5 µm, L^* = 7.7 µm, W^* = 4.2 µm, Q = 1.5–2.2, Q^* = 1.8, very thin-walled, CB–, IKI–, germinating by repetition.

The sterigmata of the spores are mostly situated on abaxial side, but also on apical part. According to Burt (1926) the size of the spores is 7–8 × 3.5–4 µm, which is very close to what we saw, as well as that given by Rogers (1935), *viz.*, 7.7–9 × 4–4.5 µm, whereas Olive (1957) found them to be slightly larger, mostly 8.4–11.8 × 3.8–4.9 µm. *Oliveonia fibrillosa* is seldom collected in Europe, but found at least in Germany (Grosse-Brauckmann 2002) and Great Britain (UK Species Checklist 2003). The very thin fruit bodies are easily overlooked, and we think that the species is not as rare as the present number of collections imply.

Specimens examined: **Finland**. Varsinais-Suomi: Karjalohja, Maila Nat. Res., dry grass–herb forest, on decorticated large piece of *Ulmus glabra* together with *Hyphodontia pruni*, Grid 27°E 66842:3240, 28.VIII.2003 *H.K. 19959 & R.S.* (H, H.K.). Uusimaa: Helsinki, Annala, fairly luxuriant semiurban mixed forest, on corticated, felled, hard *Acer platanoides*, Grid 27°E 66796:3877, 1.X.1998 *H.K. 16712 & R.S. 20398* (H, K, H.K.). **Russia**. Yamal Nenets Autonomous District: Tazovskij Peninsula, Khadutte river, open larch forest, on fallen *Alnus fruticosa*/dead *Phellinus* sp., 67°28´N, 77°14´E, 30.VII.1992 *H.K. 10586* (H.K.).

Oliveonia pauxilla (H.S. Jacks.) Donk (Fig. 4)

Reported earlier from Finland by Hjortstam and Larsson (1997) from Etelä-Häme, Lammi, where it grew on a dead fern.

Basidiocarp thin, resupinate, at first whitish, farinaceous, later silvery grayish, ceraceous, margin not differentiated, more or less distinct.

Hyphal system monomitic, all hyphae simple septate, CB–. Subiculum consists of a few straight, thin- or thick-walled (walls up to 1 µm), 4–6 µm wide hyphae, branched mostly at right angles. Subhymenial hyphae richly branched, thin-walled, short-celled, 2.5–3 µm wide, forming a compact layer. Cystidia basally simple sep-

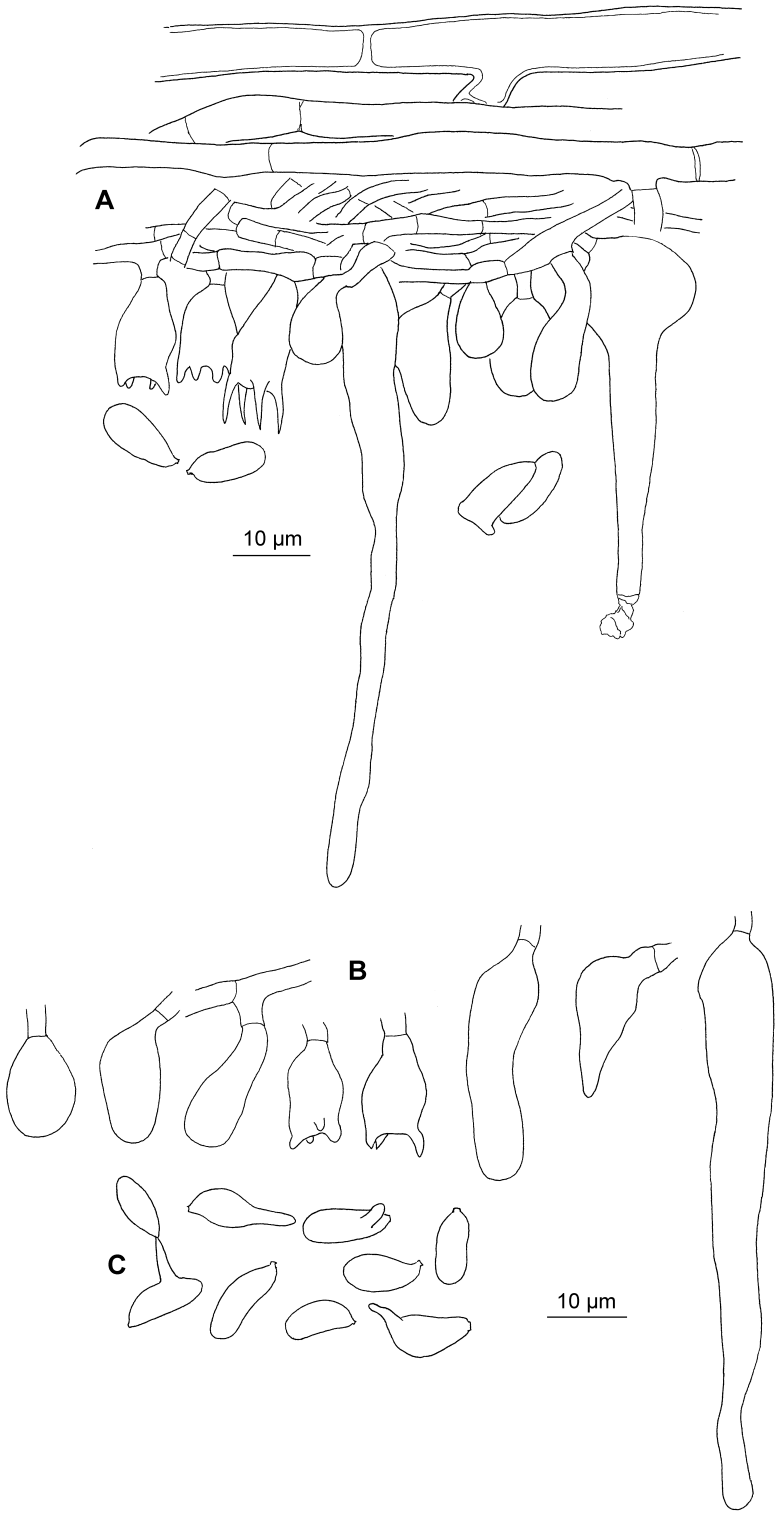

Fig. 4. *Oliveonia pauxilla* (from *Kotiranta 19024 & Saarenoksa*). — **A**: Section through basidiocarp showing basidioles, basidia, cystidia and spores. — **B**: Basidia and cystidia. — **C**: Spores.

tate, subcylindrical, basally often widened, apically obtuse, thin-walled, 44–75(–80) × (7–)9–11 μm. Basidia basally simple septate, at the beginning subglobose or ovoid, later subclavate or subcylindrical, sometimes with a short stalk, 15–18 × 6.5–8 μm, with four, basally relatively wide, up to 8 μm long sterigmata. Spores cylindrical, ventral side straight or concave, fairly often glued in pairs, (7.4–)8.7–11.8(–13.5) × 3.5–4.6(–5) μm, L^* = 10.1 μm, W^* = 4.2 μm, Q = 2–2.9, Q^* = 2.4, thin-walled, CB–, IKI–, germinating by repetition.

SPECIMENS EXAMINED: **Finland**. Åland: Jomala, Ramsholm Nat. Res., dryish grass–herb forest, on twigs of fallen *Juniperus communis*, Grid 27°E 6687:104-5, 23.X.2001 *H.K. 19024 & R.S.* (H, H.K.).

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