

# Aphylophorales from Northern Thailand

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154 species of Aphylophorales, mostly Corticiaceae and Polyporaceae are reported from Thailand, 116 out of which are new to the country. *Aleurodiscus cremicolor* Hjortst. & Ryv., *Byssocorticium naviculare* Hjortst. & Ryv., *Grammothele ochraceus* Ryv., *Hyphoderma tuberculare* Hjortst. & Ryv., *Boletopsis atrata* Ryv., *Ceriporia subreticulata* Ryv. and *Oxyporus subulatus* Ryv. are described as new. A key to all known *Byssocorticium* species is given.

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## Introduction

The specimens on which this list is based, were collected by one of us (L.R.) during a visit to Northern Thailand from 15 to 24 Feb 1979. Furthermore, a fair number of specimens were collected by T. Schumacher during his stay in the area from June 1978 to March 1979. The collections are deposited in the Botanical Museum of Oslo (O) with duplicates in the Forest Herbarium, Bangkok (BKF). For the new species, isotypes were also sent to K and BPI.

A short description of the area, its climate and a survey of previous mycolgical work in Thailand are given in Schumacher's preceding paper in this journal (Schumacher 1982). The numbers after each species refer to the collecting localities, and a list of these are also given in Schumacher's paper. Species not previously recorded from Thailand are marked with an asterisk.

The knowledge of the distribution of Aphylophorales in Asia is very fragmentary and we have refrained from making detailed remarks about each species. The general distribution of the polypores can be found in Ryvarde & Johansen (1980). However, we have after this list commented upon the general composition of the flora.

The nomenclature is in accordance with Eriksson et al. (1974–81), Ryvarde (1976–78) and Ryvarde & Johansen (1980). Those interested in references to where the species were originally described and where combinations were published, will find the full references in the floras mentioned above.

Rostrup (1902) described new polypores from Thailand. The types of these have later been examined by Ryvarde (1976), and none of them have been accepted as they were either synonyms of previously described species or their names were homonyms.

## Coniophoraceae

*Coniophora hanoiensis* Pat. 11. Confirm. J. Ginns.  
*Serpula similis* (Berk. & Br.) Ginns 7.

## Corticiaceae s. lat.

\**Aleurodiscus cremicolor* Hjortst. & Ryv. sp. nov.

Fructificatio resupinata, arcte adnata, tenuis; hymenio plerumque cremicolori, primo pulverulento, postea ± ceraceo; contextus monomiticus; hyphae distinctis,

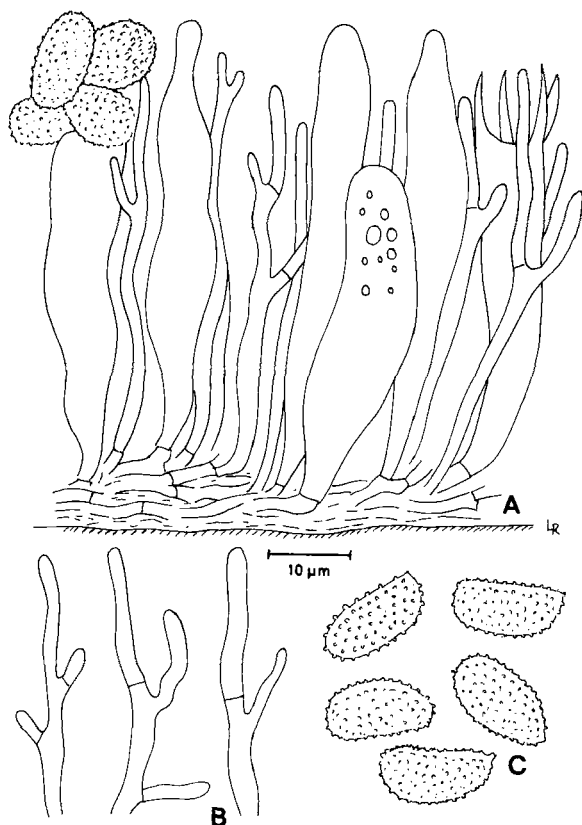


Fig. 1. *Aleurodiscus cremicolor*. A: section through the hymenium; B: upper part of paraphysoid hyphae from the hymenium; C: spores. — From the holotype.

tenuitunicatis vel crassiusculis, modice ramosis, 2.5–3 µm latis, sine fibulis; hyphae basales ± horizontales arcte contiguae; pseudocystidia abundantia, generatim ± clavata autem variabilia, appendicibus apicalibus instructis, materiam ut videtur sine sulphopositivan contentia, circiter 40–60 × 7–10 µm; acanthophyses et dendrohyphidia nulla; in hymenio hyphae paraphysoidae praesentes, 2.5–3 µm diametro; basidia ± clavata, 30–40 × 6–7 µm, plerumque 4 sterigmatibus; spores ellipsoidibus, verrucosis vel echinulatis, valde amyloidibus, 12–14 × 6–8 µm. — Fig 1.

Typus: Thailand, Cangwat Chiang Mai, Doi Suthep, 1300–1600 m. 18/24 Feb 1979 L. Ryvardeen 17749 (O holotypus, BPI, K, BKF isotypi).

Fruitbody resupinate, closely adnate, thin, composed of irregular ± confluent patches, hymenium cream-coloured, at first pulverulent, when fully developed ± ceraceous, margin indeterminable. Hyphal system monomitic, hyphae thin- to moderately thick-walled, sparsely branched, 2.5–3 µm diam. Basal hyphae ± horizontal, closely packed into a thin and subinconspicuous subiculum, all hyphae without clamps.

Pseudocystidia abundant, variable in shape, usually moniliform at apex (provided with schizopapillae), and with granular content, apparently not darkening in sulphovanilline, about 40–60 × 7–10 µm. Acanthophyses and dendrohyphidia lacking but with projecting paraphysoid hyphae between the basidia, simple septate, 2.5–3 µm diam. Basidia ± clavate, about 30–40 × 6–7 µm, usually with four sterigmata. Spores ellipsoid, verruculose to echinulate, strongly amyloid, 12–14 × 6–8 µm.

Though only known from but one collection, this species is easily recognized and seems to fit well in *Aleurodiscus* s. str. The distinguishing characteristics are the simple septate hyphae, numerous pseudocystidia, paraphysoid hyphae, and the strongly amyloid, verruculose spores. Microscopically the new species reminds of *A. aurantius* (Fr.) Schroet. but lacks dendrohyphidia and has much smaller spores. Besides, we have not been able to notice any positive reaction in sulphovanilline, which is easily seen in that species.

\**Amylocorticium canadense* (Burt.) Erikss. & Weresub 11.

\**A. cebennense* (Bourd.) Pouz. 11, on *Pinus kesiya*.

\**Botryohypochnus isabellinus* (Fr.) Erikss. 13, on *Pinus kesiya*.

\**Byssocorticium naviculare* Hjortst. & Ryv. sp. nov.

Ad *Byssocorticio neomexicano* affini sed sporis crassitunicatis et hymenio paene veneto vel viridulo. Sporae et hyphae distincte cyanophilae. — Fig 2.

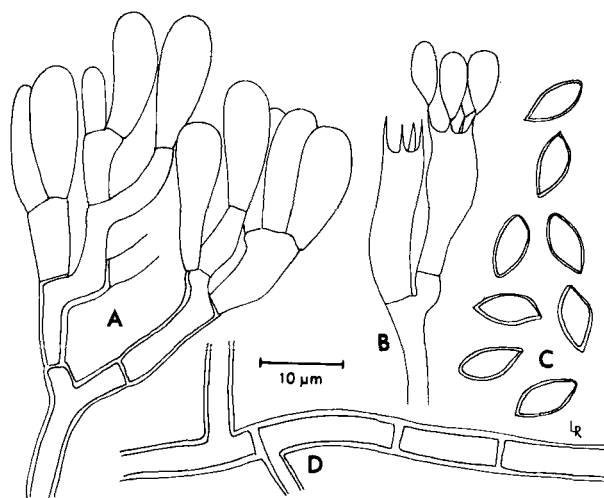


Fig. 2. *Byssocorticium naviculare*. A: section through the hymenium; B: basidia; C: spores; D: hypha from the subiculum. — From the holotype.

Typi: Thailand, Cangwat Lamphun, Doi Inthanond, 1600 m, 20 Feb 1979. L. Ryvarde 17814 (O holotypus, K, BPI, BKF isotypi). – Cangwat Chiang Mai, Doi Suthep, 1300–1600 m, 18/24 Feb 1979. L. Ryvarde 17777 (O paratypus).

Fruitbody resupinate, effuse, byssoid, loosely attached to the substrate, bluish-green or greenish. Hyphal system monomitic. Hyphae moderately narrow (basal ones somewhat thick-walled), (2.5–) 3–3.5  $\mu\text{m}$ , straight and uniform, with ramifications at right angles, sometimes anastomosing, all hyphae without clamps and becoming greyish in Melzer's reagent, with crystalline deposits easily observed in KOH, distinctly cyanophilous. Basidia clavate, (15–) 20–25  $\times$  4–5  $\mu\text{m}$ , with four sterigmata. Spores navicular or indistinctly biapiculate, thick-walled, smooth, (5.75–) 6–6.5 (–6.75)  $\times$  3–3.25  $\mu\text{m}$ , non-amyloid.

Though similar to *Byssocorticium neomexicanum* Gilb. & Bud. (1970: 673), this new species is recognized by its bluish-green colour already by the naked eye. Further, the spores are thick-walled and have a marked cyanophilous reaction. In *B. neomexicanum* the colour is described to be greyish-violaceous and the spores are thin-walled. We have seen one specimen of that species (Lindsey no. 369, 18 Aug 1974, deposited in herb. GB) which agrees with the original description by Gilbertson and Budington.

#### Key to species of *Byssocorticium*

1. Fruitbody poroid ..... *Byssocorticium terrestris* 2
1. Fruitbody smooth ..... 3
2. Fruitbody greyish-violaceous, blue or bluish-green .... 3
2. Fruitbody yellowish ..... 8
3. Hyphae with clamps ..... 4
3. Hyphae without clamps ..... 5
4. Spores 3–4  $\mu\text{m}$  in diam. .... *B. atrovirens*
4. Spores 5–6  $\mu\text{m}$  in diam. .... *B. pulchrum*
5. Spores globose – ellipsoid ..... 6
5. Spores  $\pm$  biapiculate ..... 7
6. Spores subglobose to ellipsoid, 3.5 – 4.2  $\times$  2.5–3.2  $\mu\text{m}$  ..  
*B. californicum*
6. Spores globose, 3.5–4  $\mu\text{m}$  in diam. .... *B. efibulatum*
7. Fruitbody greyish-violaceous, spores and hyphae  $\pm$  thin-walled, cyanophilous reaction weak or none .....  
*B. neomexicanum*
7. Fruitbody bluish-green, spores thick-walled hyphae and spores strongly cyanophilous ..... *B. naviculare*
8. Spores 2.5–3  $\mu\text{m}$ , with scattered clamps ..... *B. lutescens*
8. Spores 3–4  $\mu\text{m}$ , without clamps ..... *B. coprophilum*

\**Byssomerulius corium* (Fr.) Parm. 13.

\**Candelabrochaete africana* Boid. 11. New to Asia.

\**Climacodon pulcherrimus* (Berk. & Curt.) Nikol. 7.

\**Coralloderma acroleucum* (Pat.) Reid var. *fibulatum* Reid 7, Confirm. Reid.

\**Cystidiophorus castaneus* (Lloyd) Imaz. & Hongo 7, 17, on *Pinus kesiya*. Fig. 3. This is a rare species, previ-

ously known only from Siberia (Bondartsev & Ljubarsky 1963: 125 as *C. merulioideus*) and from Japan (Lloyd 1916: 555 as *Merulius castaneus*).

The species is seemingly restricted to conifers and known from *Pinus koraiensis*, *Picea jezoensis*, *Chamaecyparis* and *Pinus* sp. In macromorphology, hyphal septation and spores the species reminds much of *Ceriporia purpurea*, but is easily separated by its metuloid cystidia and the thick-walled hyphae with a reddish-brown encrustation.

Ginns (1969: 362) has a description of the type specimen which is sterile. In another specimen Ginns found spores that measured 7  $\times$  3.5–4  $\mu\text{m}$ . Bondartsev & Ljubarsky (1963) reported the spores to be 4–5.5  $\times$  2.2–3.2  $\mu\text{m}$ . Those of the Thailand specimen were allantoid and 6–7  $\times$  2–3  $\mu\text{m}$  and observed attached to the basidia.

\**Dacryobolus sudans* Fr. 13, on *Pinus kesiya*.

\**Fibrodontia gossypina* Parm. 11, 6.

\**Gloeocystidiellum ochraceum* (Fr.) Donk 7.

\**G. porosum* (Berk. & Curt.) Donk 13.

\**Grammothele ochraceus* Ryv. sp. nov.

Fructificatio resupinata, pori facies ochracea, pori 4–5 per mm. Systema hypharum dimiticum, hyphae generatoriae hyalinae, tenuitunicatae et fibulatae, hyphae skeletales crassitunicatae, pallidus brunneae, leviter dextrinoideae, dendrohyphidia ramosa praesentia in pori margine, sporae cylindrica, hyalinae 7–10  $\times$  3–4  $\mu\text{m}$ , non amyloideae. – Fig. 4.

Typi: Thailand, Cangwat Lamphun, Doi Inthanond, 20 Feb 1979. L. Ryvarde 17825 (O holotypus, K, BPI, BKF isotypi).

Fruitbody resupinate, effuse, adnate, up to 3 mm thick, pore surface cork-coloured to wood-coloured, pores round, sinuous-elongated to veined, the latter on sloping parts of substrate, 4–5 per mm measured across elongated pores, pores up to 150  $\mu\text{m}$  deep, pale brown, context and trama pale cinnamon in section, very dense in structure. Pore edges sterile and finely floccose due to projecting dendrohyphidia, pore walls and bottom covered with hymenium consisting of basidia only. Hyphal system dimitic, generative hyphae hyaline, thin-walled and with clamps, 2–4  $\mu\text{m}$  wide, vegetative hyphae of an intermediate type, in parts dendroid with distinct main stem and side-branches, reminding of the typical binding in *Polyporus* s. str. but some hyphae up to 100  $\mu\text{m}$  without side-branches (latter hyphae may represent long sidebranches which had fallen off the more branched stems?). Vegetative hyphae weakly dextrinoid, thick-walled with distinct lumen, 2–3  $\mu\text{m}$  wide, in main stems occasionally up to 4.5  $\mu\text{m}$ . Dendrohyphidia richly present along the pore-edges, hyaline, finely branched in top, up to 60  $\mu\text{m}$  long from apex to the clamp from which they arise. Spores cylin-

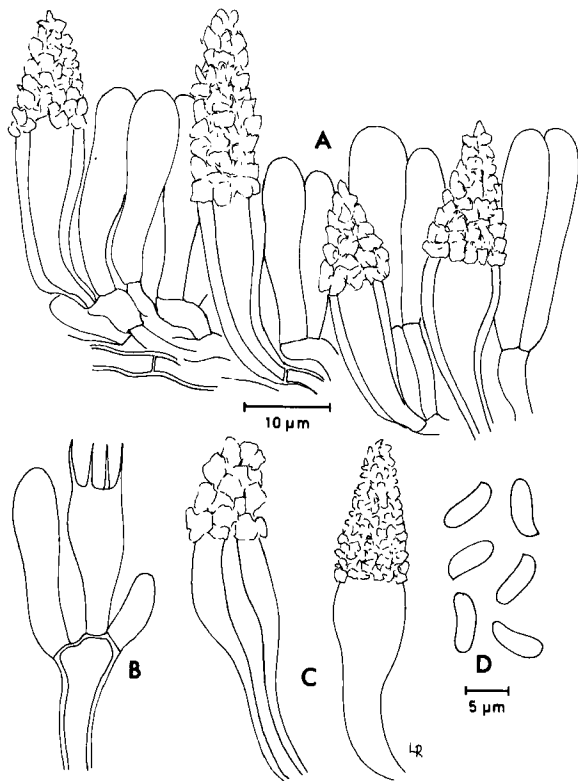


Fig. 3. *Cystidiophorus castaneus*. A: section through the hymenium; B: basidium; C: cystidia; D: spores. – Coll. Ryv. 17740.

drical, thin-walled, smooth and non-amyloid,  $7-10 \times 3-4 \mu\text{m}$ . Basidia clavate  $15-20 \times 5-7 \mu\text{m}$  with 4 sterigmata.

On deciduous wood, no distinct rot.

Known only from the type.

The new species reminds of *G. fuligo*, which, however, is bluish-grey to almost black and restricted to monocotyledons, has much smaller pores and more or less unbranched skeletal hyphae. However, the spores of the two species are more or less identical. The new species combines some characters from *G. fuligo*, viz. the type of spores and the dendrohyphidia and some from *G. delicatula* with its branched vegetative hyphae. The latter are classified as arboriform skeletal hyphae and are branched only in the upper part. However, the spores of *G. delicatula* are larger and this species lacks dendrohyphidia.

\**Hyphodontia alutaria* (Burt.) John Erikss. 11.

\**Hyphoderma rude* (Bres.) Hjortst. & Ryv. 10.

\**Hyphoderma tuberculare* Hjortst. & Ryv. sp. nov.

Fructificatio resupinata, effusa, adnata, albida vel cremicolor, distincte tuberculata; aculeis dispersis, circiter

$1-3/\text{mm}$ ; hyphae tenuitunicatae, fibulatae,  $2.5-4 \mu\text{m}$  latae; cystidia terminalibus, tenuitunicata,  $40-70 (-80) \times 6-7 (-9) \mu\text{m}$ , obtusa, constricta; basidia clavata vel suburniforma,  $30-40 \times 5-6 \mu\text{m}$ , 4 sterigmatibus; basibus angustis, circiter  $3 \mu\text{m}$ ; spores tenuitunicatae, ellipsoideae vel indistincte allantoideae,  $(10-12-13 \times 4.5-5 \mu\text{m})$ , leves, non-amyloideae. – Fig. 5.

Typi: Thailand, Cangwat Lamphun, Doi Inthanond, on deciduous wood, alt. ca. 2200–2590 m. 17 Feb 1979. L. Ryvar-den 17605 (O holotypus, GB, K, BPI, BKF isotypi). Africa, Kenya, Central Prov., Mount Elgon, Suam Forest sta., alt. ca. 2100 m. 23/24 Jan 1973. L. Ryvar-den 9228 (O paratypus). Concerning this specimen see below.

Fruitbody resupinate, effuse, adnate, whitish to cream-coloured, fairly thin, about 0.2–0.3 mm; hymenium distinctly warted, aculei relatively small and obtuse, scattered and about 1–3/mm. Hyphal system monomitic. Hyphae thin- or becoming slightly thick-walled,  $3-4 \mu\text{m}$  diam, subhymenial hyphae more short-celled but not isodiametric, of about the same width, all hyphae with clamps. Cystidia terminal, easily recognized, thin-walled, obtuse, more or less constricted, projecting above the basidia, with a homogeneous and light-refracting protoplasm in phase-contrast,  $40-70 (-80) \times 6-7 (-9) \mu\text{m}$ , slightly tapering. Basidia clavate or subclavate to suburniform, narrowing towards the base,  $30-40 \times 5-6 \mu\text{m}$ , with four sterigmata. Spores

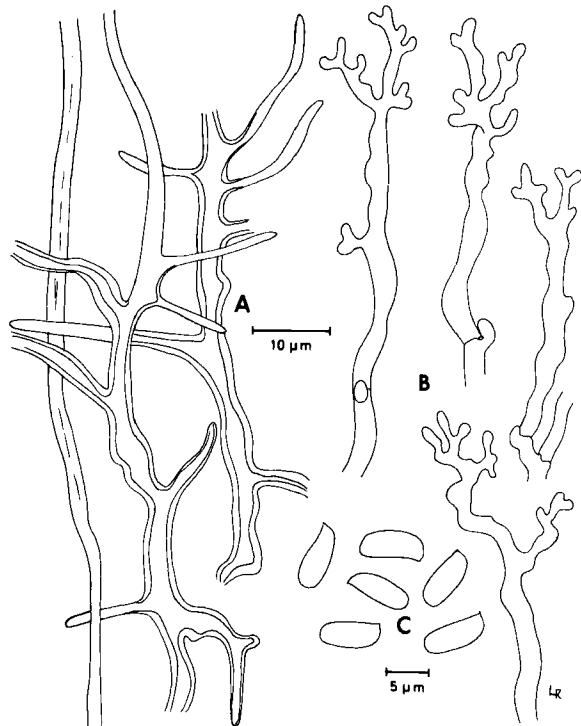


Fig. 4. *Grammothele ochraceus*. A: vegetative hyphae; B: dendrohyphidia; C: spores. – From the holotype.

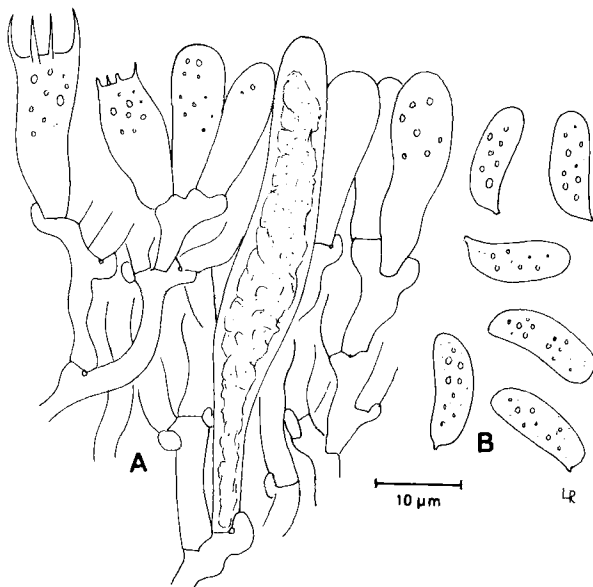


Fig. 5. *Hyphoderma tuberculare*. A: section through the hymenium; B: spores. – From the holotype.

smooth, thin-walled, ellipsoid or suballantoid, with oily content, (10–) 12–13 × 4.5–5 μm, non-amyloid.

This new species reminds of *Hyphoderma rude* (Bres.) Hjortst. & Ryv., but the latter species has two kinds of cystidia and shorter spores. The hyphae are also distinctly thick-walled. *Hyphoderma rude* is related to the widespread *Hyphoderma praetermissum* (Karst.) Erikss. & Strid, (see Hjortstam & Ryvarden 1980), but this is not the case with *H. tuberculare*.

In addition we also refer one specimen from Africa to the new species though it has cystidia and spores of somewhat different shape. The cystidia in the African specimen are indistinct, mostly embedded in the texture and are more narrow, about 4–5 μm wide. Furthermore, the spores are slightly smaller, in general 10 × 4 μm. Externally it is similar to the type of the *H. tuberculare* and at present we do not dare to describe it as a species of its own.

- \**Lopharia cinerascens* (Schw.) Cunn. 10, 6.
- L. papyracea* (Jungh.) Reid 11, 6.
- \**L. spadicea* (Fr.) Boid. 10, 13.
- Leucogyrophana romellii* Ginns 7, on *Pinus kesiya*.
- \**Mycoacia nothofagi* (Cunn.) Ryv. 6.
- \**Phanerochaete flabelliradiata* Erikss. & Hjortst. 11.
- \**P. sordida* (Karst.) Erikss. & Ryv. 7.
- Phlebia livida* (Fr.) Bres. 7.
- \**Podoschrypha nitidula* (Berk.) Pat. 3.
- \**Pulcherricium caeruleum* (Fr.) Parm. 6.
- \**Ramaricium polyporoideum* (Berk. & Curt.) Ginns 11, 6.
- \**Scopuloides hydnoides* (Mass.) Hjortst. & Ryv. 11, 13.

- \**Sistotrema brinkmannii* (Bres.) Erikss. 11.
- \**Stecchericium scabre* (Lloyd) Maas Geest. 6.
- \**Steccherinum ciliolatum* (Berk. & Curt.) Bud. & Gilb. 10.
- \**S. fimbriatum* (Fr.) Erikss. 11.
- \**Stereopsis hiascens* (Berk. & Rav.) Reid 7.
- \**S. radicans* (Berk.) Reid 7.
- Stereum hirsutum* (Fr.) S. F. Gray, 11, 13.
- S. ostrea* (Blume & Nees ex Fr.) Fr. 10, 6, 13, 14.
- \**S. princeps* Jungh. 10.
- \**S. rameale* (Fr.) Fr. 13.
- \**S. subpileatum* Berk. & Curt. 11.
- Teleporus calcicolor* (Sacc. & Syd.) Ryv. 11.
- \**Trechispora farinacea* (Fr.) Liberta 11.
- \**Tubulicrinis subulatus* (Fr. Donk 13, on *Pinus kesiya*.
- \**Tubulicium dussii* (Pat.) Oberw. 11.
- \**Xylobolus ahmadii* (Boid.) Boid. 11.
- \**X. frustulatus* (Fr.) Karst. 7.

### Cyphellaceae

- \**Stromatoscypha fimbriata* (Fr.) Donk 11.

### Ganodermataceae

- Amauroderma rugosum* (Fr.) Torr. 7, 10.
- Ganoderma applanatum* (Fr.) Pat. 7.
- G. australe* (Fr.) Pat. 10, 11.
- G. lucidum* (Fr.) Karst. 7.

### Hymenochaetaceae

- \**Coltricia cinnamomea* (Fr.) Murr. 7, 2.
- \**Coltriciella dependens* (Berk.) Murr. 7, 13.
- \**Cyclomyces tabacinus* (Mont.) Pat. 6, 11.
- \**Inonotus sciurinus* Imaz. 11.
- \**Inonotus tenuicarnus* Pegler & Reid 7.
- \**Phellinus extensus* (Lév.) Pat. 11.
- \**P. ferreus* (Pers.) Bourd. & Galz. 11.
- P. gilvus* (Schw.) Pat. 2, 6, 7, 11.
- \**P. glaucescens* (Petch) Ryv. 7.
- \**P. lamaensis* (Murr.) Heim 6, 7.
- \**P. luctuosus* (Ces.) Ryv. 11.
- \**P. melanodermus* (Pat.) Fidalgo 6.
- \**P. noxius* (Corner) Cunn. 10.
- \**P. pachyphloeus* (Pat.) Pat. 11, 12.
- \**P. purpureo-gilvus* (Petch) Ryv. 7.

\**P. xeranticus* (Berk.) Pegler, 11.  
 Pegler (1967) gave a detailed description of this species and described the spores as subglobose to ellipsoid and 3.4–4.8 × 2.6–3.8 μm. The Thailand collection was fertile with spores 2.5–3 × 1–1.5 μm and these spores were seen attached to basidia. An examination of other specimens in the Oslo herbarium from Nepal and Sik-

kim revealed the same type of spores. As they are very tiny, they are easily overlooked. All these specimens are in accordance with the description given by Pegler and the type specimen. Thus, it is probable that the Nepalese collection cited by Pegler represents another taxon.

\**Phylloporia chrysitae* (Berk.) Ryv.

\**Pyrrhoderma sendaiense* (Yas.) Imaz. 11. This is seemingly the first report from outside Japan. The specimen is very typical.

### Polyporaceae

\**Amylonotus ochrocrocea* (Henn. & Nyman) Ryv. 6.

\**Antrodia lenis* (Karst.) Ryv. 6, 13, on *Pinus kesiya*.

\**A. sinuosa* (Fr.) Donk 13, on *Pinus kesiya*.

\**A. xantha* (Fr.) Ryv. 7, on *Pinus kesiya*.

\**Antrodiella liebmanni* (Fr.) Ryv. 6.

\**A. semisupina* (Berk. & Curt.) Ryv. 11.

*Bjerkandera adusta* (Fr.) Karst. 11, 13.

\**B. fumosa* (Fr.) Karst. 13.

\**Boletopsis atrata* Ryv. sp. nov.

Fructificatio stipitata, pileus et stipes atrati, glabratis cum cuticula crassa, pori facies brunnea, systema hypharum monomiticum, hyphae generatoriae hyalinae, fibulatae, sporae verruculosae, crassitunicatae 4.5–6 µm in diametro. – Fig. 6A–B, 7A.

Typus: Thailand, Chiang Mai, Doi Suthep, 500 m, 19 Jul 1978. T. Schumacher 36/78 (O holotypus).

Fruitbody laterally stipitate, soft and pliable when fresh, dense and brittle when dry, pileus tongue-shaped to semicircular with rear lobes bent backwards making the fruitbody look centrally stipitate with a centrally depressed and circular pileus. Pileus 2–5 cm wide, black, glabrous, azonate and finely radially wrinkled when dry. Stipe 2–3 cm long, 4–8 mm diam, black, glabrous and longitudinally wrinkled when dry, in one specimen branched in upper part with fused pilei, pore surface pale brown when fresh, darker when touched, cinnamon to dark brown when dry, pores angular and thin-walled, 2–3 per mm, very shallow on the upper part of the stipe, up to 3 mm deep in central parts of the fruitbody, context ochraceous both in pileus and stipe, very dense, about 1 mm thick in the pileus. Both pileus and stipe in section with a very hard, black cuticle, up to 1 mm thick. Hyphal system monomitic, generative hyphae with clamps, 2–5 µm diam, thin-walled in hymenium, more thick-walled in context, basidia both terminal and lateral with 4 sterigmata, 12–25 × 6–10 µm, spores thick-walled, non-amyloid, verruculose, 4.5–6 µm diam.

On the ground.

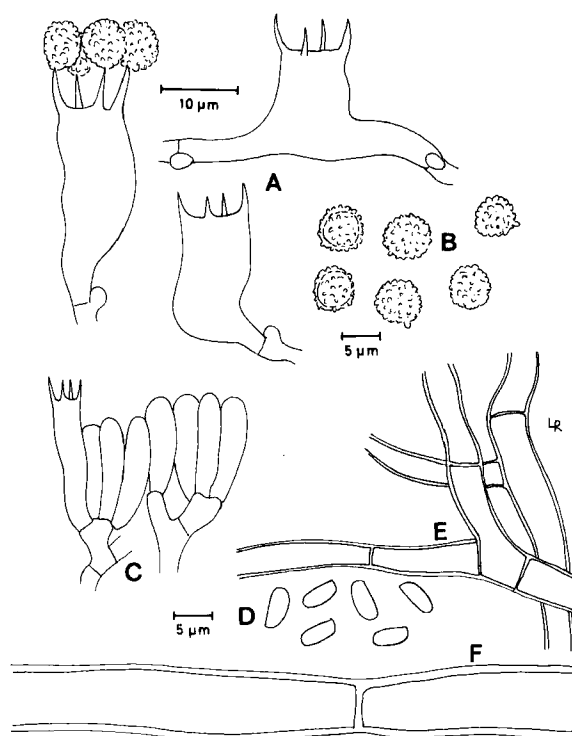


Fig. 6. A–B. *Boletopsis atrata*. A: basidia; B: spores. – C–F. *Ceriporia subreticulata*. C: section through the hymenium; D: spores; E: hyphae from the subhymenium; F: hyphae from the subiculum. – From the holotypes.

The new species belongs in *Boletopsis* with its stipitate and poroid fruitbody, a monomitic hyphal system and warted spores. From *B. subsquamosa* (Fr.) Kotl. & Pouz. the new species is separated by a different type of ornamentation on the spores (see a comparison on Fig. 7A–B) and a dense fruitbody with a black, resinous cuticle. *B. subsquamosa* is rather fragile when dry and there is no cuticle present.

\**Ceriporia viridans* (Berk. & Br.) Donk 6, 11.

\**Ceriporia subreticulata* Ryv. sp. nov.

Sporis minoribus; a *C. reticulata* differt spori 3.5–4.5 × 2 µm, in *C. reticulata* 6–10 × 2.5–3.5 µm. – Fig. 6C–F.

Typi: Thailand, Cangwat Lamphun, Doi Inthanond 17 Feb 1979. L. Ryvarden 17636 (O holotypus, K, BKF, BPI isotypi).

Fruitbody resupinate, 1–2 mm thick, soft to brittle, easily detached, hymenial surface cupulate to reticulate-poroid, subiculum very loose and cobwebby, in parts exposed between the individual pores, the latter white and shallow, 1–2 per mm, circular to angular. Hyphal system monomitic, generative hyphae with simple septa,

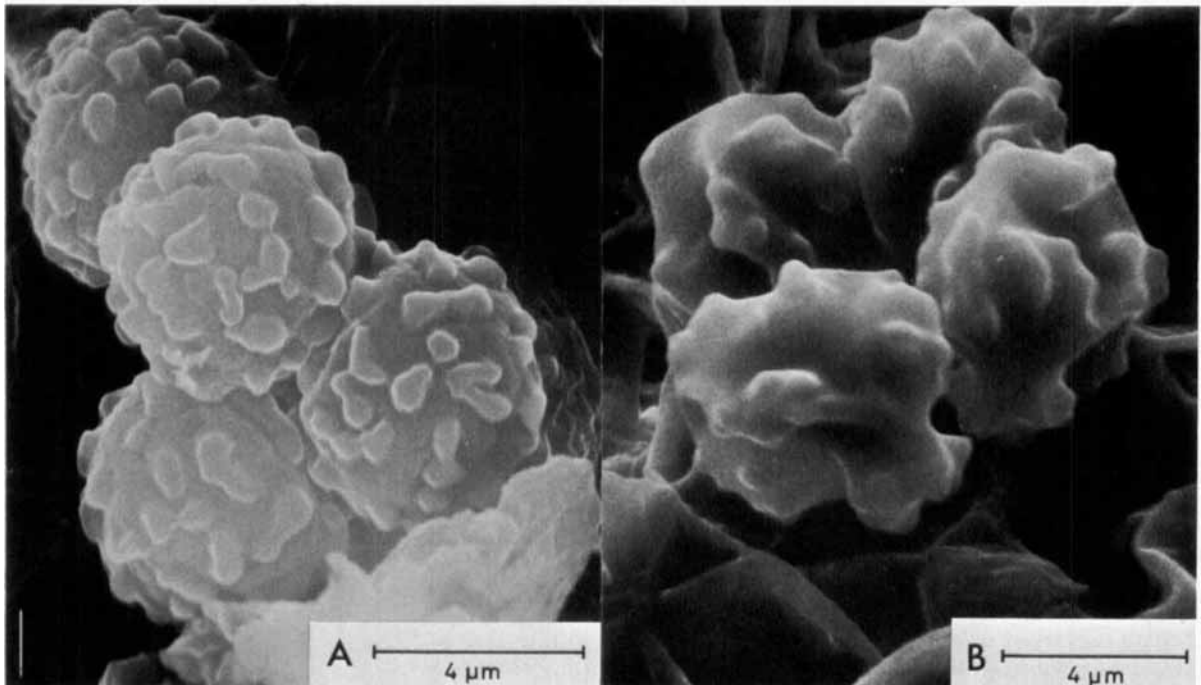


Fig. 7. Spores of A: *Boletopsis atrata*, – from the holotype; B: *B. sub. quamosa*. – Coll. Ryv. 12264, Oslo, Norway.

in subhymenium thin-walled and 2–5 µm wide, in subiculum up to 12 µm wide and distinctly thick-walled with a yellow tint, branching often in right angles. Cystidia none. Spores cylindrical to slightly allantoid, thin-walled, hyaline and non-amyloid 3.5–4.5 × 2 µm.

On dead wood.

The new species is closely related to *C. reticulata*, but is distinctly separated by its much smaller spores. In *C. reticulata* they are from 6–10 µm long (Lowe 1966), although Domanski (1962) reports 5.5–8 µm with 11 µm as the longest dimension recorded. Agerer (1978) reports the spores to vary from 7–9.5 µm.

- \**Cerrena meyenii* (Klotz.) Hansen 6, 10.
- \**Corioloopsis caperata* (Berk.) Murr. 6,10.
- \**C. polyzona* (Pers.) Ryv. 2.
- \**C. sanguinaria* (Klotz.) Teng. 6,11.
- \**C. telfarii* (Klotz.) Ryv. 7, 11.
- Daedaleopsis confragosa* (Fr.) Schroet. 12, 13.
- Favolus brasiliensis* (Fr.) Fr. 8.
- F. spathulatus* (Jungh.) Lev. 7.
- \**Fibuloporia donkii* Dom. 6.
- Flavodon flavus* (Klotz.) Ryv. 10.
- \**Fomitopsis dochmii* (Berk.) Ryv. 11.
- F. pinicola* (Fr.) Karst. 11, 13, on *Pinus kesiya*.
- \**F. pseudopetchii* (Lloyd) Ryv. 6.
- \**F. rhodophaeus* (Lév.) Imaz. 6, 7, 11.
- \**Gloeophyllum subferrugineum* (Berk.) Bond. & Sing.

2, 11, 13, on *Pinus kesiya*.

\**Gloeoporus croceo-pallens* Bres. 6.

\**Hapalopilus salmonicolor* (Berk. & Curt.) Pouz. 13, on *Pinus kesiya*.

*Hexagonia tenuis* (Hook.) Fr. 2, 10.

\**Incrustoporia carneola* (Bres.) Ryv. 11.

\**Junghuhnia crustacea* (Jungh.) Ryv. 10.

\**J. nitida* (Pers.) Ryv. 11.

*Lenzites acuta* Berk. 2, 6.

\**L. betulina* (Fr.) Fr. 11.

*L. elegans* (Fr.) Pat. 6, 9.

\**L. stereoides* (Fr.) Ryv.

\**L. vespacea* (Pers.) Ryv. 10.

*Lenzites* sp. Loc. 13 R. 17980.

The collection consists of several pileate specimens, semicircular to elongated along the wood as narrow shelves, 2–8 cm long, 1–4 cm wide, 3–10 mm thick at the base, tough and hard when dry. Pileus glabrous, sulcate to tuberculate, white, with a reddish to bay cuticle spreading from the base. Pore surface chalky white with a greyish tint, pores sinuous to daedaleoid, 3–4 per mm, wider and semilamellate in elder fruitbodies, tubes concolorous with the pore surface, up to 7 mm deep. Context dense and white, 1–2 mm thick.

Hyphal system trimitic, generative hyphae with clamps, 2–3 µm wide, skeletal hyphae dominating, solid to thick-walled 2–4 µm wide, binding hyphae present, twisted and irregularly branched, 2–3 µm wide. Cys-

tidia present in hymenium as pointed hyaline organs, probably arising from generative hyphae and not representing a cathymenium as in many other *Lenzites* spp. Spores cylindrical, smooth, thin-walled,  $3.5\text{--}4 \times 2.2 \mu\text{m}$  IKI – (from sporeprint).

This species may be related to *L. elegans*, but nowhere in the literature has it been indicated that it has a reddish-brown cuticle spreading from the base as in *Trametes scabrosa*. Furthermore, the pale ashy white colour of the pore surface is also different from the more cream-coloured *L. elegans*. The pores in R. 17980 are smaller than those of *L. elegans* and the same goes for the spores. Being a conspicuous species it is probably described before, but no name has been found.

*Microporus affinis* (Blume & Nees ex Fr.) Kunt. 7, 10, 12.

\**M. vernicipes* (Berk.) Kunt. 11, 13, 14.

*M. xanthopus* (Fr.) Kunt. 7, 10, 11.

\**Nigrofomes melanodermus* (Mont.) Murr. 11.

\**Nigroporus durus* (Jungh.) Ryv. 6, 11.

*N. vinosus* (Berk.) Murr. 10, 11.

\**Oxyporus cervino-gilvus* (Jungh.) Ryv. 10.

\**O. laetmarginata* (Mont. & Durieu) Donk 11.

\**O. pellicula* (Jungh.) Ryv. 10.

*O. populinus* (Fr.) Donk 11.

***Oxyporus subulatus* Ryv. sp. nov.**

Fructificatio resupinata, cremea, pori angulati, lacerati 1–2 mm in diametro, systema hypharum monomiticum, hyphae generatoriae afibulatae, cystidia subulata, abundantia, incrustata, sporae ellipsoideae, leves,  $4\text{--}5 \times 2\text{--}2.5 \mu\text{m}$ . – Fig. 7B, 8.

Typi: Thailand, Cangwat Lamphum, Doi Inthanond, 1600 m. 20 Feb 1979. L. Ryvardeen 17843. (O holotypus, BPI, BKF, K isotypi).

Fruitbody resupinate, adnate, effuse, in the type up to 15 cm long and 6 cm wide, pore surface cream, pores angular to irregular 1–2 mm wide, in parts even larger, pore mouths even to incised and lacerate, tubes up to 2 mm deep, context very thin, pale cream. Hyphal system monomitic, hyphae with simple septa, in subhymenium mostly  $2\text{--}4 \mu\text{m}$  wide and with slightly thickened walls, in the trama and context up to  $6 \mu\text{m}$  wide and thick-walled, frequently branched, mostly in acute angles, cystidia abundant both in hymenium, subhymenium and trama, subulate and slightly thick-walled (in Melzer), somewhat swollen in KOH, upper part covered with a finely grained encrusted layer,  $30\text{--}60 \times 5\text{--}7 \mu\text{m}$ , in a few cases with a single septum, basidia  $15\text{--}20 \times 4\text{--}6 \mu\text{m}$  with 4 sterigmata, spores ellipsoid, smooth, thin-walled and non-amyloid,  $4\text{--}5 \times 2\text{--}2.5 \mu\text{m}$ .

On dead, deciduous wood.

The species is related to *O. pellicula* (Jungh.) Ryv. and

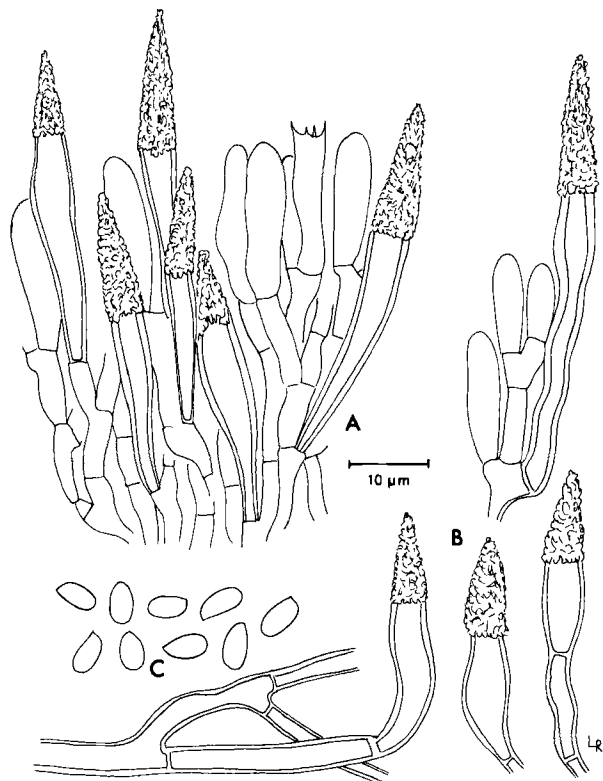


Fig. 8. *Oxyporus subulatus*. A: section through the hymenium; B: cystidia, C: spores. – From the holotype.

*O. similis* (Bres.) Ryv., but easily separated from both by its subulate and abundant cystidia. Further, the spores are smaller than those of *O. pellicula* and the pores are much larger than in *O. similis*.

\**Perenniporia detritus* (Berk.) Ryv. 11.

\**P. tephroporus* (Mont.) Ryv. 6.

\**Piptoporus soloniensis* (Fr.) Pil. 10.

\**Polyporus arcularius* Fr. 2.

*P. brumalis* Fr. 11.

\**P. grammacephalus* Berk. 7.

*P. varius* Fr. 3, 11.

*Pycnoporus sanguineus* (Fr.) Murr. 3, 7, 10, 11.

\**Pyrofomes albomarginatus* (Lév.) Ryv. 6.

\**P. tricolor* (Murr.) Ryv. 6.

\**Rigidoporus dextrinoideus* Johan. & Ryv. 6, 7, 11.

*R. lineatus* (Pers.) Ryv. 2.

\**R. microporus* (Fr.) Overeem 6.

\**R. ulmarius* (Fr.) Imaz. 11.

\**R. vinctus* (Berk.) Ryv. 6.

\**Skeletocutis alutacea* (Lowe) Keller 11.

\**Schizopora thichilae* (Byl) Ryv. 6, 7, 11, 13.

\**Tinctoporellus epimiltinus* (Berk.) Ryv. 6, 11.

*Trametes cotonea* (Pat. & Har.) Ryv. 6, 11.

\**T. ectypus* Berk. 13.

*T. feei* (Fr.) Ryv. 6.



*T. hirsuta* (Fr.) Pil. 10.  
*T. lactinea* Berk. 7, 10, 13.  
 \**T. ljubarskyi* Pil. 2.  
*T. menziesii* (Berk.) Ryv. 6.  
*T. modesta* (Fr.) Ryv. 10, 13.  
*T. scabrosa* (Pers.) Cunn. 6, 10.  
 \**T. tephroleuca* Berk. 11.  
*Trichaptum bififormis* (Fr.) Ryv. 11.  
 \**T. byssogenus* (Jungh.) Ryv. 10.  
 \**Tyromyces hyalinus* (Berk.) Ryv. 7.  
 \**T. hypolateritius* (Cooke) Ryv. 7, 10.  
 \**T. kmetii* (Bres.) Bond. & Sing. 7.

## Discussion

It is apparent from the list that the mycoflora of Aphyllophorales in Thailand is composed of rather diverse elements. Somewhat surprisingly, there is a high number of boreal species, otherwise mainly are known from the Northern temperate-boreal zone, *Amylocorticium canadense*, *A. cebennense*, *Botryohypochnus isabellinus*, *Dacryobolus sudans*, *Phanerochaete sordida*, *Tubulicrinis subulatus*, *Anrodia lenis*, *A. xantha*, *A. sinuosa*, *Fomitopsis pinicola*, *Hapalopilus salmonicolor*, *Lenzites betulina* and *Polyporus brumalis*. All these species are known so far north as 71°N in Norway, and their ecological amplitude is tremendous. Many of them are mainly found on coniferous wood and they are seemingly following some of their hosts, such as *Pinus* spp., everywhere.

The second element consists of species with a temperate-subtropical distribution, many of them rare in Southern Europe, more common in North America. Examples from this group are *Fibrodontia gossypina*, *Phlebia livida*, *Stereum subpileatum*, *Tubulicium dussii*, *Coltricia cinnamomea*, *Phellinus ferreus*, *Rigidoporus ulmarius* and *Piptoporus soloniensis*. Very few of the species in this group reach Scandinavia, and those that do are very rare there. When more intensive collections have been undertaken in Thailand, this group will certainly be extended considerably.

The third and last element is the truly tropical species,

and examples are the following: *Serpula similis*, *Lopharia papyracea*, *Stecchericium scabre*, *Theleporus calcicolor*, most of the *Phellinus*, *Microporus* and *Corioloopsis* species mentioned in the list, *Hexagonia tenuis* and *Pyrofomes tricolor*.

The results indicate that the mycoflora of Thailand must be very rich and that the present list must be regarded as only a frame for a checklist of the true mycoflora.

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