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Article · May 2009

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A taxonomic survey of the Peniophoraceae

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Introduction

This work is a literature study of peniophoroid basidiomycetes, holding information about the genera *Peniophora*, *Duportella* and *Dendrophora* concerning species- and generic descriptions and distributions, all on a worldwide scale. Moreover, keys have been made to distinguish the different genera and species, and we have tried to get an overview over the molecular studies made on this group of fungi.
It is generally accepted that the genus *Peniophora* Cooke is a member of the *Corticiaceae* s.l. in its traditional sense (Wu 2003). Cortbase recognizes 78 species in *Peniophora*, 12 species in *Duportella* and 2 in *Dendrophora* (Cortbase 2008), but some species are little known and may just have been found once, while other ones are very closely related and difficult to distinguish even by use of the microscope. Nonetheless, the genus is well delimited and has strong support in phylogenetic studies based on molecular data. Future field studies around the world will undoubtly add still more species.
The family *Peniophoraceae* Boidin holds three genera (Boidin et al. 1991): *Peniophora*, *Duportella* and *Dendrophora* and these genera are closely related to each other, with only a few separating microscopical characters.
In this work we have tried to include all the species recognized by Cortbase. Detailed information on some species was, however, difficult to find, and a few old species names have been questioned and therefore neglected in this study. Therefore, this work includes 70 species of *Peniophora* but all the species of *Duportella* and *Dendrophora*. We have chosen not to use any molecular data as basis for our keys, and the eight subgroups of the genus *Peniophora* identified here are strictly distinguished by macroscopial and microscopical characters.

Taxonomy, nomenclature and molecular support of the genus Peniophora

In 1879 Cooke proposed the genus *Peniophora* as a genus of *Corticiaceae* characterized by presence of metuloids (here called lamprocystidia, or encrusted cystidia). Following the creation of the genus *Peniophora*, Burt (1926) monographed the genus in America but included also corticioid species with non-metuloid cystidia, and until the publication by Slysh (1960) more than 100 species had been added. In Europe a manual to the European species was made by Bourdot and Galzin (1928) where they used the same broad generic concept as in America, but they also distinguished the section *Coloratae* within the genus, a

section which later was to become *Peniophora sensu strico* in modern sense (Eriksson 1950). The general definition of the genus used by Burt (1926) and Bourdot & Galzin (1928) was very broad, including species with smooth resupinate fructifications, with encrusted or unencrusted cystidia in the hymenia, and cystidia could be either thin-walled or thick-walled. The presence of cystidia distinguished *Peniophora* from the genus *Corticium*. *Peniophora* was a gathering of a number of now known unrelated species into one big genus, sharing only a few distinct characters. John Eriksson points out that "The presence of cystidia in itself cannot be looked upon as a sign of natural relationship" and he suggests that these kind of cystidia is a protection structure for the basidia, and that the development of these structures has evolved from different parts, within the order and among other *Hymenomycetes* (Eriksson 1950).
John Eriksson published a taxonomical study with special reference to the Swedish species in 1950, where he established *Peniophora sensu-stricto*, in principle based on the section *Coloratae* proposed by Bourdot & Galzin. Jacques Boidin (1965) presented the French species, where he supported John Erikssons delimitation of the genus. The definition of the now standing *Peniophora* was established, but Boidin also distinguished the subgenera *Gloeopeniophora*, *Cryptochaete*, *Christodendrella*, *Duportella*, and *Peniophora*.
During the last 50 years, many of the earlier included species have been moved from the genus to other, newly created genera, and the overall definition of the genus has been furthermore specified.

Peniophora is presently a relatively well defined genus with a relatively strong support as a natural genus (Boidin et al. 1998). Studies using culture studies and crossing tests have been used extensively for species delimitations (Stalpers, 1978; Boidin & Lanquetin, 1984, 1990; Nakasone, 1990) and the few molecular studies on species counted to the genus, seem to conclude a convincingly close relationship between the species, and that the genus seems to be natural and closely related to genus *Duportella* (Boidin et. al 1998, Hallenberg et. al 1996). These studies, together with Boidin (1994), try to divide the genus into 4 different phylogenetic groups, but these groups are not easily distinguished from each other by morphology. The treatment dealt with here aims to be of practical value in the determination of species, why the traditional subdivision based on morphology has been used.

Key to genera in Peniophoraceae *Boidin*

1. Dendrohyphidia brown, thick-walled, not encrusted. Basidiocarp effused-reflexed when well developed. **Dendrophora (p. 44)**

1. Dendrohyphidia absent or if present; hyaline or brownish only at the base, thin- to slightly thick-walled, typically with crystals. Basidiocarp effused. **2.**

2. Lamprocystidia brown over the entire length. Skeletals or skeletoid hyphae often present. **Duportella (p. 38)**

2. Lamprocystidia hyaline or only brown at the basal part. Skeletals or skeletoid hyphae absent. **Peniophora**

Genus Peniophora *Cooke*

Syn.: *Leiostroma* Fr., *Cryptochaete* P. Karst., *Sterellum* P. Karst., *Gloeopeniophora* Höhn. & Litsch.

Basidiocarp annual or perennial, resupinate, effused, membranaceous, ceraceous or coriaceous, adnate to rarely more loosely attached, thin- to rather thick, in section stratified or not. Margin indistinct to fibrillose, evanescent, but sometimes rolled-in when dry and old. Hymenial surface even to tuberculate, rarely raduloid or merulioid, reddish, orange, pink, violaceous, geyish, cream-colored to yellowish, ochraceous, brown or with vinaceous or lilaceous or grey tinges. Hyphal system monomitic or rarely seemingly dimitic. Hyphae hyaline, yellowish or brown, thin- to thickwalled, with or without clamps, walls gelatinized or not. Dendrohyphidia present in some species. Gloeocystidia fusiform, SA+ (sulfocystidia) or SA-, present or not. Lamprocystidia present in most species, conical to ellipsoid, ovoid or subcylindrical, thick- to thin-walled, often encrusted, hyaline to brown in the basal part. Basidia narrowly clavate to subcylindrical, sometimes flexuous, thin- to slightly thick-walled, with (2-)4 sterigmata. Spores hyaline, ellipsoid, cylindrical, allantoid, ovoid in one species, thin-walled, smooth, not amyloid, spore print mostly pink.

Substrate: saprophytic on wood or bark og angiosperms or gymnosperms.
Type species: Thelephora quercina *Pers. ex Fr. 1821*

Key to main groups

1. Dendrohyphidia present, often hyaline and may be difficult to see **Lycii-group**
1. Dendrohyphidia absent **2**

2. Hymenia with bright red to orange colors **Incarnata-group**
2. Hymenia with nuances of cream, pinkish, yellowish, pale orange, purplish, brown, blackish or grey colors **3**

3. Spores ellipsoid or ovoid **Scintillans-group**
3. Spores cylindrical or allantoid **4**

4. Spores up to 6 µm long **Molesta-group**
4. Spores longer **5**

5. Gloeocystidia absent or indistinct **Cinerea-group**
5. Gloeocystidia present and easily identified **6**

6. Gloeocystidia, at least some 9(10)-15 µm wide **Nuda-group**
6. Gloeocystidia slender, narrower than 9-10 µm **7**

7. Lamprocystidia 12-25 µm wide, ***or*** spores from 4 µm and wider **Reidii-group**
7. Lamprocystidia 4-16 µm wide ***and*** spores narrower than 4 µm **Violaceolivida-group**

Grouping

This classification is made on basis of morphological characters and the groups, below, are based on the previous key. Each of the groups is further divided based on simple morphological characters.

Lycii-group

- **Without lamprocystidia**

  Peniophora gilbertsonii
  Peniophora lilacea
  Peniophora polygonia
  Peniophora sphaerocystidiata
  Peniophora tamaricicola

- **With lamprocystidia**

  Peniophora decorticans
  Peniophora lycii
  Peniophora meridionalis

Incarnata-group

- **Spores ellipsoid to narrow ellipsoid**

  Peniophora aurantiaca
  Peniophora boidinii
  Peniophora erikssonii
  Peniophora proxima

- **Spores cylindrical to allantoid or pyriform**

  Peniophora incarnata
  Peniophora laeta
  Peniophora laurentii
  Peniophora pseudoversicolor
  Peniophora versicolor
  Peniophora subpirispora

Scintillans-group

Peniophora crustosa
Peniophora dipyrenosperma
Peniophora laxitexta
Peniophora pruinata
Peniophora scintillans
Peniophora ovalispora

Molesta-group

- **Lamprocystidia up to 35 µm long**

  Peniophora adjacens
  Peniophora bruneiensis
  Peniophora duplex
  Peniophora exima
  Peniophora farlowii
  Peniophora malaiensis
  Peniophora molesta
  Peniophora pithya

- **Lamprocystidia over 30 µm long**

  Peniophora fulvissima
  Peniophora parvocystidiata
  Peniophora taiwanensis

Cinerea-group

- **On angiosperms**

  Peniophora cinerea
  Peniophora colorea
  Peniophora limitata
  Peniophora manshurica
  Peniophora quercina
  Peniophora rufomarginata
  Peniophora seymouriana
  Peniophora spathulata

- **On gymnosperms**

  Peniophora junipericola
  Peniophora piceae

Nuda-group

- **Gloeocystidia thick-walled (1.5-3 µm)**

  Peniophora bonariensis
  Peniophora crassitunicata
  Peniophora fissilis

- **Gloeocystidia less thickwalled to thin-walled**

  Peniophora fasticata
  Peniophora nuda

Peniophora pini
Peniophora rhodocarpa
Peniophora rufa
Peniophora subsalmonea

Reidii-group

- **Spores narrower than 4 µm**

  Peniophora borbonica
  Peniophora elaeidis
  Peniophora reidii
  Peniophora suecica
  Peniophora taraguiensis

- **Spores 4 µm or wider**

  Peniophora coprosmae
  Peniophora multicystidiata

Violaceolivida-group

- **With clamps**

  Peniophora monticola
  Peniophora pilatiana
  Peniophora pseudonuda
  Peniophora pseudopini
  Peniophora septentrionalis
  Peniophora simulans
  Peniophora violaceolivida

- **Without clamps**
  Peniophora bicornis
  Peniophora borealis
  Peniophora confusa
  Peniophora gabonensis
  Peniophora guadelupensis

Key to Lycii-group

1. With lamprocystidia (lycii-subgroup) **2**
1. Without lamprocystidia (lilacea-subgroup) **4**

2. Hymenial surface ochraceous grey, yellowish brown, clay coloured, olivaceous brown or dark brown. Dendrohyphidia often brownish at the base **P. meridonalis**
2. Hymenial surface whitish grey, pinkish buff, pinkish lilac to greyish lilac to bluish violaceous. Dendrohyphidia hyaline **3**

3. Decorticant, bursting through cortex (Like *Vuilleminia comedens*) **P. decorticans**
3. Basidiome not decorticant **P. lycii**

4. Spores ellipsoid **5**
4. Spores cylindrical to allantoid **6**

5. Spores 5-6.5 x 3-3.5 µm. Tramal gloeocystidia globose, 25-50 x 25-40 µm **P. sphaerocystidiata**
5. Spores 11-15 x 7-9 µm. Tramal gloeocystidia cylindrical to fusiform, 50-100 x 9-18 µm **P. lilacea**

6. Gloeocystidia bladder-like, 60-100 x 15-25 µm. Spores 9-12 x 2.5-4 µm **P. polygonia**
6. Gloeocystidia cylindrical to fusiform, 25-70 x 7-12.5 µm. Spores 8.5-12 x 3.7-5 µm **7**

7. European sp. Hymenial surface even, strongly cracked when dry, pinkish when fresh, becoming pale purplish grey to grey. On *Tamarix* **P. tamaricicola**
7. North American species. Hymenial surface even to tuberculate, not rimose, ochraceous pink to pink to reddish when fresh, becoming violaceous or brown to grey when dry **P. gilbertsonii**

Species descriptions Lycii-group

Peniophora decorticans Burt *(1926) Ann. Missouri Bot. Gard. 12: 344.*
Basidiocarp effused, membranaceous, up to 1.2 mm thick. Hymenial surface even, pinkish buff or pinkish lilac to whitish grey. Margin indistinct. Decorticant, bursting through cortex (like *Vuilleminia comedens*).
Hyphal system. Hyphae hyaline to brownish, thin- to thick-walled, 2.5-5 µm wide. Basal layer hardly present. With clamps.
Cystidia. *Gloeocystidia* fusiform, 40 x 5-7 µm, weakly SA+. *Dendrohyphidia* hyaline, thin-walled, terminal branches with crystals. *Lamprocystidia* tramal, subglobose to ovoid, thick-walled, 22-42 x 14-25 µm.
Basidia subclavate, 30-35 x 4.5-5.5 µm.
Spores (7)8-10(-11) x (2-)2.5-3(-3.5) µm.
Habitat. On angiosperms.
Distribution. Canada, USA (Ginns and Lefebvre 1993).
Distinguishing characters. Dendrohyphidia present, hyaline. Hymenial surface even, pinkish buff or pinkish lilac to whitish grey. Decorticant, bursting through cortex.

Peniophora gilbertsonii *Boidin (1994) Bull. Mens. Soc. Linn. Lyon 63 (9): 324.*
Basidiocarp effused, ceraceous to crustaceous, up to 0,2 mm thick. Hymenial surface even to tuberculate, not rimose, ochraceous pink to pink to reddish when fresh, becoming violaceous or brown to grey when dry. Margin indistinct.
Hyphal system. Hyphae hyaline to yellowish, thin- to thick-walled, 3-4(-5) µm wide. With clamps.
Cystidia. *Gloeocystidia* cylindrical to fusiform, 25-70 x 7-12.5 µm, SA+. *Dendrohyphidia* hyaline to yellowish, encrusted, 2-5 µm wide.
Basidia narrowly clavate, 35-60 x 6-8 µm.
Spores cylindrical to slightly allantoid, 8.5-12(-13) x 3.7-5 µm.
Habitat. On angiosperms
Distribution. North America (loc. cit.).
Distinguishing characters. With dendrohyphidia. Hymenial surface even to tuberculate, not rimose. Lamprocystidia absent. Gloeocystidia cylindrical to fusiform.

Peniophora lilacea *Bourdot & Galzin (1912) Bull. Soc. Mycol. France 28 (4): 403.*
Basidiocarp effused, rounded at first, becoming confluent, up to 0.2 mm thick. Hymenial surface even to tuberculate, pinkish grey to ochraceous, sometimes with lilac or orange tinge when fresh.
Hyphal system. Hyphae hyaline, thin- to somewhat thick-walled, 2-5 µm wide. Basal layer very thin. With clamps.
Cystidia. Hymenial *gloeocystidia* cylindrical to fusiform, thin-walled. Tramal *gloeocystidia* cylindrical to fusiform, often thick-walled, 50-100 x 9-18 µm. *Dendrohyphidia* hyaline to yellowish, apically encrusted, 3-5 µm wide.
Basidia subcylindrical, 40-60 x 7-10 µm.
Spores ellipsoid, (9-)11-15(-16) x (6,5-)7-9(-10) µm.
Habitat. On angiosperms, preferably *Ulmus*
Distribution. Europe and USSR (Jülich & Stalpers 1980), France (Boidin 1965), Denmark (Svampefund 2008), Sweden (Hansen & Knudsen 1997).
Distinguishing characters. Hyaline dendrohyphidia present. Lamprocystidia absent. Spores big, ellipsoid. On *Ulmus*.

Peniophora lycii *(Pers.) Höhn. & Litsch. (1907) Sitzungsber. K. Akad. Wiss. Wien, Math.-nat. Kl. I 116: 747.*
Basidiocarp effused, membranaceous, up to 0.12 mm thick. Hymenial surface even, pinkish lilac or greyish lilac to bluish violaceous. Margin indistinct.
Hyphal system. Hyphae hyaline to brownish, thin- to somewhat thick-walled, 2.5-5 µm wide. Basal layer hardly present. With clamps.
Cystidia. *Gloeocystidia* fusiform, 30-65 x 8-15 µm, SA+. *Lamprocystidia* tramal, thick-walled, subglobose to ovoid, 22-42 x 14-25 µm. *Dendrohyphidia* hyaline, thin-walled, terminal branches with crystals.
Basidia subclavate, 30-35 x 4.5-5.5 µm.
Spores (8-)8.5-13(-14) x (3.2-)3.5-5 µm.
Distribution. Argentina (Gomez et al. 1976), Canary Islands (Hallenberg 1991), Morocco (Malençon 1982), Australia and New Zealand (Cunningham 1963), USA (Ginns and Lefebvre 1993), Europe (Jülich & Stalpers 1980), Sweden (Eriksson 1950), France (Boidin 1965), Denmark (Christiansen 1959), Ethiopia (Boidin & Lanquetin 1995).
Distinguishing characters. Hymenial surface even, pinkish lilac or greyish lilac to bluish violaceous. Dendro- and subglobose lamprocystidia present, terminal ends of dendrohyphidia with crystals.

Peniophora meridionalis *Boidin (1958) Bull. Soc. Mycol. France 74 (4): 455.*
Basidiocarp effused, confluent, pustulate when young, up to 0.2 mm thick. Hymenial surface even, ochraceous grey, yellowish brown, clay colored, olivaceous brown or dark brown. Margin fibrillose, pale, or absent.
Hyphal system. Hyphae hyaline to brown, thin- to thick-walled, 2-5 µm wide. With clamps.
Cystidia. *Gloeocystidia* cylindrical, thin-walled, SA+. *Lamprocystidia* subcylindrical, obtuse, thick-walled, encrusted, 35-55 x 8-20 µm, not projecting. *Dendrohyphidia* hyaline in the hymenia to brown in the trama, encrusted at the apices, thin- to thick-walled.
Basidia subclavate, 25-45 x 4.2-5.5 µm.
Spores cylindrical to allantoid, 6.8-8.8 x 2.4-3.2 µm.
Habitat. On angiosperms.
Distribution. France (Boidin 1958), Canary Islands (Hallenberg 1991), Morocco (Malençon 1982), Australia and New Zealand (Cunningham 1963), Europe (Jülich & Stalpers 1980).

Distinguishing characters. Dendrohyphidia present, brown at the base, Lamprocystidia subcylindrical. Hymenial surface even, ochraceous grey, yellowish brown, clay colored, olivaceous brown or dark brown. Margin fibrillose, pale, or absent.

Peniophora polygonia *(Pers. : Fr.) Bourdot & Galzin (1928) Hymen. Fr. 320.*
Basidiocarp effused, adnate, confluent, at first consisting of small round patches, up to 1 mm thick. Hymenial surface even to tuberculate, pink to red to dark red. Margin fimbriate and whitish when young.
Hyphal system. Hyphae hyaline, thin-walled, 2.5-4 µm wide. Basal layer well developed. With clamps.
Cystidia. *Gloeocystidia* big, bladder like, 60-100 x 15-25 µm, SA+. *Dendrohyphidia* hyaline, branches 1-2µm wide.
Basidia 40-50 x 5-6 µm.
Spores cylindrical to allantoid, 9-12(-13) x 2.5-4 µm.
Habitat. On *Populus*.
Distribution. Canada, USA (Ginns and Lefebvre 1993), Europe (Jülich & Stalpers 1990), France (Boidin 1965), Denmark, Finland, Norway, Sweden (Hansen & Knudsen 1997).
Distinguishing characters. Dendrohyphidia present. Lamprocystidia absent. Basidiocarp at first consisting of small rounded patches, thin. Gloeocystidia big, bladder-like. With clamps. Restricted to *Populus*.

Peniophora sphaerocystidiata *Burds. & Nakasone (1983) Mycotaxon 17: 261.*
Basidiocarp effused round at first, becoming confluent, up to 0.1 mm thick. Hymenial surface even, yellowish white to greyish yellow.
Hyphal system hyaline, thin to somewhat thick-walled, 2-4 µm wide. Basal layer very thin. With clamps.
Cystidia. *Dendrohyphidia* hyaline, apically encrusted, 3-5 µm wide. Hymenial *gloeocystidia* fusiform, 25-30 x 5-6 µm. Tramal *gloeocystidia* thick-walled, globose, 25-50 x 25-40 µm, SA-.
Basidia subcylindrical, 25-30 x 5-6 µm.
Spores ellipsoid, 5-6.5(-8) x 3-3,5(-4) µm.
Habitat. On angiosperms.
Distribution. USA (Ginns and Lefebvre 1993).
Distinguishing characters. Dendrohyphidia present. Lamprocystidia absent. Globose tramal gloeocystidia. Spores ellipsoid. Hymenial surface with yellowish white to greyish yellow colours.

Peniophora tamaricicola *Boidin & Malençon (1961) Rev. Mycol. (Paris) 26 (3): 153.*
Basidiocarp effused, ceraceous to crustaceous, up to 0.2 mm thick. Hymenial surface even, strongly cracked when dry, pink when fresh, becoming pale purplish grey to grey. Margin indistinct.
Hyphal system. Hyphae hyaline to yellowish, thin- to thick-walled, 3-4(-5) µm wide. With clamps.
Cystidia. *Gloeocystidia* cylindrical to fusiform, 25-70 x 7-12.5 µm, SA+. *Dendrohyphidia* hyaline to yellowish, encrusted, 2-5 µm wide.
Basidia narrowly clavate, 35-60 x 6-8 µm.
Spores cylindrical to slightly allantoid, 8.5-12(-13) x 3.7-5 µm.
Habitat. On *Tamarix*.
Distribution. Morocco (loc.cit). USA (Ginns and Lefebvre 1993). Europe (Jülich & Stalpers 1990), France (Boidin 1965).

Distinguishing characters. Dendrohyphidia present. Lamprocystidia absent. Hymenial surface strong cracked when dry. Gloeocystidia cylindrical to fusiform. On Tamarix.

Key to Incarnata-group

1. Spores ellipsoid to narrowly ellipsoid **2**
1. Spores cylindrical to subcylindrical and/or allantoid to suballantoid **5**
1. Spores pyriform **P. subpirispora**

2. Spores longer than 13-20 µm. Gloeocystidia prominent (10-20µm wide). On *Alnus* **3**
2. Spores shorter than 6-14 µm long. Gloeocystidia narrow (4-5.5µm wide) or absent **4**

3. With clamps **P. aurantiaca**
3. Without clamps **P. erikssonii**

4. Hymenial surface even. On *Pistacia* **P. boidinii**
4. Hymenial surface tuberculate. On *Buxus* **P. proxima**

5. Hymenial surface even **6**
5. Hymenial surface tuberculiform **9**

6. Hymenial surface brownish, basal hyphae brownish. Gloeocystidia absent. Spores broadly cylindrical **P. versicolor**
6. Hymenial surface with orange tint, rarely with brownish. Basal hyphal system hyaline **7**

7. Gloeocystidia narrow (4-5.5 µm wide) **P. boidinii**
7. Gloeocystidia prominent (8-15 µm wide) **8**

8. Basal layer relatively thin, less than one third of the hymenial layer **P. incarnata**
8. Basal layer relatively thick, more than one third of the hymenial layer. Some basal hyphae brownish **P. pseudoversicolor**

9. Basidiome decorticant (like Vuilleminia comedens), hydnoid. On Carpinus **P. laeta**
9. Basidiome not decorticant **10**

10. Basidiocarp thin, up to 0.5 mm thick, adnate. With clamps **8**
10. Basidiocarp relatively thick, up to 1.5 mm thick. Hymenium detachable. Without clamps **P. laurentii**

Species descriptions Incarnata-group

Peniophora aurantiaca *(Bres.) Höhn. & Litsch. (1906) Sitzungsber. K. Akad. Wiss. Wien, Math.-nat. Kl. I 115: 1583.*
Basidiocarp effused, adnate, ceraceous to membranaceous, up to 0.5 mm thick. Hymenial surface even to tuberculate, orange-red, reddish to reddish grey. Margin pubescent, white.
Hyphal system. Hyphae hyaline, thin-walled 3-5 µm wide. With clamps.
Cystidia. *Gloeocystidia* fusiform, thin-walled 70-100(-150) x 10-15(-20) µm. *Lamprocystidia* conical, hyaline, thick-walled, encrusted, 30-70 x 7-12 µm
Basidia subcylindrical, sinuous 60-90 x 10-15 µm, 4 sterigmata.

Spores ellipsoid, 14-20 x 8-12 µm.
Habitat. On *Alnus*.
Distribution. Italy (loc.cit), Taiwan (Lin and Chen 1990), Canada, USA (Ginns and Lefebvre 1993), Europa, North America (Jülich & Stalpers 1980), France (Slysh 1960), Sweden (Eriksson 1950).
Distinguishing characters. Hymenial surface orange-red. Spores big, ellipsoid. Gloeocystidia and lamprocystidia. With clamps. On *Alnus*.

Peniophora boidinii *D.A. Reid (1965) Revista Biol. (Lisbon) 5 (1-2): 146.*
Basidiocarp effused, subceraceous, adnate, up to 0.2 mm thick. Hymenial surface even, pink, orange or beige.
Hyphal system. Hyphal texture interwoven, not arranged in a horizontal layer. With clamps.
Cystidia. *Gloeocystidia* thin-walled, 35-50 x 4-5.5 µm, some with schizopapilla. *Lamprocystidia* conical, 25-40 x 5-12(-15) µm, very frequent.
Basidia clavate, 25-35 x 6-8 µm. 4 sterigmata
Spores narrow ellipsoid to cylindrical, 6-8.2(-9) x 3-3.8 µm.
Habitat. On angiosperms, *Pistacia*.
Distribution. Portugal (loc.cit), Canary Island (Rodriguez-Armas 1992), Europa (Jülich & Stalpers 1980).
Distinguishing characters. Hymenial surface even, orange. Spores narrow ellipsoid to cylindrical, 6-8 x 3-3.8. Gloeocystidia narrow.

Peniophora erikssonii *Boidin (1957) Bull. Soc. Hist. Nat. Toulouse 92: 286.*
Basidiocarp effused, adnate, ceraceous to membranaceous, up to 0.5 mm thick. Hymenial surface even, often with central wart, pinkish buff to orange yellow. Margin whitish to pale yellow.
Hyphal system. Hyphae hyaline, thin-walled, 2-4 µm wide. Basal layer well developed and dense. Without clamps.
Cystidia. *Gloeocystidia* cylindrical to fusiform, 70-140(-200) x 10-15 µm, SA+. *Lamprocystidia* hyaline, thickwalled, encrusted, 50-110 x 8-15 µm.
Basidia 40-100 x 8-15 µm.
Spores ellipsoid, 13-20 x 8-13 µm.
Habitat. On *Alnus*.
Distribution. Canada, USA (Ginns and Lefebvre 1993), Europa, North America (Jülich & Stalpers 1980), Italy, France, Germany and Czechoslovakia (Slysh 1960), Denmark (Christiansen 1959), Sweden, Norway, Finland (Hansen & Knudsen 1997)
Distinguishing characters. Hymenial surface even, orange (incarnata colors). Margin whitish to pale yellow. Spores ellipsoid 13-20 x 8-13 µm. Gloeocystidia and lamprocystidia. Without clamps. On *Alnus*.

Peniophora incarnata *(Pers. : Fr.) P. Karst. (1889) Hedwigia 28: 27.*
Basidiocarp effused, adnate, subceraceous to membranaceous, up to 0.3 mm thick, Hymenial surface smooth, pale to bright orange, rarely violaceous red, becoming ochraceous when dry. Margin fibrillose, whitish when young.
Hyphal system. Hyphae hyaline, thin- to slightly thick-walled, 3-4.5 µm wide. With clamps.
Cystidia. *Gloeocystidia* cylindrical to fusiform, 50-120(-200) x 9-15 µm. *Lamprocystidia* hyaline, thick-walled, encrusted, 30-60 x 7-15 µm.
Basidia subclavate, often sinuous, 25-45 x 5-7 µm.
Spores subcylindrical to suballantoid 8-12 x 3.5-5 µm.

Habitat. On angiosperms, rarely on gymnosperms.
Distribution. USA (Ginns and Lefebvre 1993), Argentina (Greslebin & Rajchenberg 2003), Canary Island (Ryvarden 1976), Morocco (Malençon 1982), India (Rattan 1977), Taiwan (Lin and Chen 1990), Australia and New Zealand (Cunningham 1963), Canada, USA (Ginns and Lefebvre 1993), Northern Hemisphere (Jülich & Stalpers 1980), China (Maekawa et al. 2002), Germany, Japan, South Africa (Slysh 1960), France (Boidin 1965), Sweden, Denmark, Island, Norway, Finland (Hansen & Knudsen 1997). The most widespread species in *Peniophora*.
Distinguishing characters. Hymenial surface even, pale to bright orange. Gloeocystidia and lamprocystidia present. Rather big, subcylindrical spores

Peniophora laeta *(Fr. : Fr.) Donk (1957) Fungus 27: 17.*
Basidiocarp effused, ceraceous to membraneceous, decorticant, up to 0.2 mm thick. Hymenial surface coarsely tuberculate to raduloid, ochraceous red to orange.
Hyphal system. Hyphae hyaline, thin-walled, 2-4 µm wide, sometimes irregular, loose to agglutinate. Subiculum layer present. With clamps.
Cystidia. *Gloeocystidia* cylindrical, thin-walled, 60-120 x 8-12 µm. *Lamprocystidia* hyaline, thick-walled, 40-60 x 12-15 µm, sometimes rare.
Basidia sybcylindrical, 35-45 x 5-7 µm, 4 sterigmata.
Spores cylindrical to suballantoid, 9.5-12(-16) x 3.5-4.5 µm.
Habitat. On *Carpinus*.
Distribution. USA (Ginns and Lefebvre 1993), Europa (Jülich & Stalpers 1980), France (Boidin 1965), Sweden, Denmark (Hansen & Knudsen 1997).
Distinguishing carracters. Hymenial surface coarsely tuberculate to raduloid, ochraceous red to orange (incarnata colors). Decorticant basidionome (Like *Vuilleminia comedens*). On *Carpinus*.

Peniophora laurentii *S. Lundell (1946) Lundell & Nannfeldt, Fungi exs. Suec. 27-28: 23*
Basidiocarp effused, easily separated from substrate, up to 1.5 mm thick. Hymenial surface tuberculate to plicate or merulioid, bright orange red. Margin white.
Hyphal system. Generative hyphae hyaline, thin- to thick-walled, 3-5 µm wide. Basal layer well developed, loose, white, hyphae thick-walled. Without clamps.
Cystidia. *Gloeocystidia* cylindrical to fusiform, 70-150 x 8-12 µm, SA+. *Lamprocystidia* hyaline, thick-walled, developing from thick-walled basal hyphae, encrusted, 40-60 x 10-15 µm wide.
Basidia 50-60 x 6-8 µm.
Spores cylindrical, 8.5-13 x 4-5 µm.
Habitat. On deciduous trees.
Distribution. Canada (Ginns and Lefebvre 1993), Europa (Jülich & Stalpers 1980), Sweden, Island, Norway, Findland (Hansen & Knudsen 1997).
Distinguishing carracters. Hymenial surface tuberculate to plicate or meruloid, bright orange red (incarnata colors). Margin white.
Basidionome separable from substrate. Without clamps.

Peniophora proxima *Bres. (1913) Bourdot & Galzin, Bull. Soc. Mycol. France 28 (4): 402.*
Basidiocarp Effused, ceraceous to membranaceous or crustaceous, up to 0.5 mm thick. Hymenial surface smooth to tuberculate, reddish when fresh, reddish grey when dry. Margin pubescent, loosening from the substrate.
Hyphal system.
Cystidia. Hymenial *gloeocystidia* fusiform, thin-walled, SA-. *Lamprocystidia* fusiform, 15-40 x 5-7 µm.

Basidia up to 50 x 10 µm.
Spores ellipsoid, (8-)9-14 x 6-7 µm.
Habitat. On *Buxus*.
Distribution. Following distribution of *Buxus* in its natural habitat. Europa (Jülich & Stalpers 1980). Georgia, France, Macedonia (Eriksson 1950).
Distinguishing characters. A reddish Peniophora with lamprocystidia, growing on *Buxus*. Spores ellipsoid, up to 14 µm long.

Peniophora pseudoversicolor *Boidin (1965) Bull. Mens. Soc. Linn. Lyon 34: 162.*
Basidiocarp effused, ceraceous to subceraceous or membranaceous, up to 0.5 mm thick. Hymenial surface even to tuberculate, reddish brown to brown, but locally more reddish or orange. Margin fibrillose, whitish when young.
Hyphal system. Hyphae hyaline, thin(to thick-walled, 2.5-5 µm wide. With clamps. Basal layer thick.
Cystidia. *Gloeocystidia* cylindrical to fusiform, 25-85 x 8-15 µm. *Lamprocystidia* hyaline, thick-walled, encrusted, 35-50 x 6-9 µm.
Basidia subclavate, often sinuous, 30-45 x 5-6µm.
Spores 6.5-9(-10) x 3-4(4.5) µm.
Habitat. On angiosperms.
Distribution. USA (Ginns and Lefebvre 1993), Europa (Jülich & Stalpers 1980), France (loc.cit).
Distinguishing carracters. Basidiocarps reddish brown to brown, but locally more reddish or orange (incarnata colors). Spores 6,5-9 µm long, more narrow than *P. incarnata*. Gloeocystidia and lamprocystidia present.

Peniophora subpirispora *Boidin (1997) Bull. Feder. Myc. Dauphiné-Savoie 144: 141.*
Basidiocarp effused, up to 0.25 mm thick. Hymenial surface even, bright orange when fresh, becoming les bright and at times rimose when dry. Margin indistinc.
Hyphal system. Hyphae in bundels, 3-4 µm wide, quite distinct. With clamps.
Cystidia. *Gloeocystidia* abundant, conical or cylindrical, some long, slim and pointy at the upper part sometimes with a schizopapilla, at times emerging from hymenia. *Lamprocystidia* numerous, subcylindrical, in lover parts with horisontal root, 75-100 x 6-15 µm, with conical top.
Basidia clavate, 40-55 x 6,5-7,5 µm.
Spores pyriform with narrow part near appiculis, (7-)8-10.5(-11.5) x 4-5,3 µm, 2 nucleate.
Habitat. On angiosperms.
Distribution. France (loc.cit).
Distinguishing characters. Hymeneal surface with bright orange colors. Very similar to P. incarnate but some spores are pyriform. Incompatible with P. incarnate in crossing tests.

Peniophora versicolor *(Bres.) Sacc. & Syd. (1902) in Syll. fung. 16: 193.*
Basidiocarp effused, adnate, up to 0.1 mm thick. Hymenial surface In dry material reddish grey to reddish brown to chocolate brown to bluish violet. Margin indistinct.
Hyphal system. Hyphae yellow to brown. Basal hyphae light brown.
Cystidia. *Lamprocystidia* conical, incrusted, 15-25 x5-7 µm.
Basidia subclavate.
Spores broadly cylindrical, 9-11 x 4.5-5,5 µm.
Habitat. On angiosperms.
Distribution. Italy (Bernicchia et al. 2008), Canary Islands (Hallenberg 1991), Europa (Jülich & Stalpers 1980), France (Boidin 1965).

Distinguishing carracters. Basidiome in reddish brown to chocolate brown or bluish violet colors. Spores broadly cylindrical (incarnate size), 9-11 x 4.5-5.5 µm. Relatively small lamprocystidia, gloeocystidia absent.

Key to Scintillans-group

1. Spores ovoid **P. ovalispora**
1. Spores ellipsoid to cyllindrical or allantoid **2**

2. Gloeocystidia and clamps present **3**
2. Gloeocystidia and clamps absent **4**

3. Hymenial surface pale brown to chestnut brown to vinaceous brown. Gloeocystidia 45-65 x 9-11µm. Spores up to 2.8 µm wide **P. laxitexta**
3. Hymenial surface cream-coloured to pinkish, salmon or isabelline or brownish. Gloeocystidia 22-45 x 3-7 µm. Spores wider than 3.2 µm **P. scintillans**

4. Hymenial surface greyish, pale brownish or reddish brown, rimose when dry. Basidiocarp up to 0.4 mm thick. Spores ellipsoid to cylindrical or allantoid, 6-7.2 x 2.8-3.4µm. Lamprocystidia conical, thick-walled, 30-70 x 8-16 µm **P. crustosa**
4. Hymenial surface dark grey to bluish black or brownish black. Basidiocarp up to 1.5 mm thick. Spores broadly ellipsoid 5-6 x 3,5-4 µm. Lamprocystidia 35-40 x 4,5-6 µm **P. pruinata**
4. Hymenial surface even, pink to brownish pink. Spores ellipsoid, small, 3.5-4.5 x 2.3-2.8 µm **P. dipyrenosperma**

Species descriptions Scintillans-group

Peniophora crustosa *Cooke (1879) Grevillea 8 (46): 56.*
Fruitody effused, ceraceous, cartilaginous when dry, up to 0.4 mm thick. Hymenial surface even, rimose when old, greyish, pale brownish or ochraceous brown-red when dry.
Hyphal system. Hyphae hyaline to brown, often agglutinated, thin- to somewhat thick-walled, 2-4 µm wide. Without clamps.
Cystidia. *Gloeocystidia* absent. *Lamprocystidia* conical, thick-walled, encrusted, 30-70 x 8-16 µm.
Basidia 15-25 x 4-5 µm.
Spores narrowly ellipsoid to cylindrical or allantoid,6-7.2 x 2.8-3.4 µm.
Distribution. Australia, New Zealand (Cunningham 1963).
Distinguishing characters. Hymenial surface even, rimose when old, pale brownish to brownish red. Spores narrowly ellipsoid 4.5-5.5 x 2-2.5 µm. Lamprocystidia present but gloeocystidia absent. Without clamps.

Peniophora dipyrenosperma *Boidin & Gilles (2000) in Mycotaxon 75: 375.*
Fruitbody effused, adnate, up to 0.5 mm thick, stratified. Hymenial surface even, pink to brownish pink.
Hyphal system. Hyphae hyaline, thin- to slightly thick-walled, 3-3.5 µm wide. Basal layer very thin, hyphal direction mainly vertical. Without clamps.
Cystidia. *Gloeocystidia* cylindrical to clavate, not prominent, 20-30 x 4-5 µm, SA-. *Lamprocystidia* encrusted, abundant, thin- to thick-walled, 28-50 x 6-14 µm.

Basidia subcylindrical, 14-24 x 3.2-4 µm.
Spores ellipsoid, small, 3.5-4.5 x 2.3-2.8 µm
Habitat. On branches.
Distribution. Réunion (loc.cit).
Distinguishing characters. Close to *P. ovalispora* and *P.scintillans*, but lacking clamps.

Peniophora laxitexta *L.D. Gómez (1976) Darwiniana 20 (1-2): 195.*
Basidiocarp pustulate when young, becoming confluent and effused, up to 0.3 mm thick. Hymenial surface even, becoming rimose, pale brown to chestnut brown to vinaceous brown. Margin fibrillose, whitish when young.
Hyphal system. Hyphae hyaline to brown, thin- to slightly thick-walled, 1.8-4 µm wide. With clamps.
Cystidia. *Gloeocystidia* cylindrical, often thick-walled and brownish near the base, 45-65 x 9-11 µm, SA+, often bi-rooted.
Basidia clavate, 27-35 x 4.5-6 µm.
Spores narrowly ellipsoid to cylindrical or allantoid, 4.8-6.8 x 2-2.5(2.8) µm.
Habitat. On angiosperms.
Distribution. Argentina (loc.cit).
Distinguishing characters. Hymenial surface even, becoming rimose, pale brown to chestnut brown to vinaceous brown. Margin fibrillose, whitish when young. Spores narrowly ellipsoid, 2-2.5 µm wide. Gloeocystidia 45-65 x 9-11 µm. With clamps.

Peniophora ovalispora *Boidin, Lanquetin & Gilles (1991) Bull. Soc. Mycol. France 107: 108.*
Basidiocarp effused, at first consisting of small colonies, up to 0.12 mm thick. Hymenial surface even, cream-colored to pink, salmon or isabelline or brownish.
Hyphal system. Generative hyphae hyaline, thin-walled, 2.5-4 µm wide. Basal layer practically absent. With clamps.
Cystidia. *Gloeocystidia* cylindrical to fusiform, thin-walled, 22-45 x 3-7 µm, SA-, some with schizopapilla. *Lamprocystidia* numerous, heavily encrusted, 20-40 x 5.5-8 µm.
Basidia subclavate, 16-30 x 3.5-5 µm.
Spores ovoid, (3.5-)4-5(-6) x 3.2-4(-4.5) µm.
Habitat. On angiosperms.
Distribution. Réunion (loc.cit).
Distinguishing characters. Spores small, ovoid. Hymenial surface even, cream-colored to pink salmon. Lamprocystidia and gloeocystidia present.

Peniophora pruinata *(Berk. & M.A. Curtis) Burt (1926) Ann. Missouri Bot. Gard. 12: 340.*
Basidiocarp effused, adnate, up to 1.5 mm thick. Hymenial surface even, dark grey to bluish black or brownish black.
Hyphal system. Generative hyphae hyaline to brown, 4-5 µm wide. Without clamps.
Cystidia. *Gloeocystidia* absent. *Lamprocystidia* brown at the base, 35-40 x 4.5-6 µm.
Basidia 50-60 x 6-8 µm.
Spores broadly ellipsoid, 5-6 x 3.5-4 µm.
Distribution. Cuba, USA, Mexico, Puerto Rico and Jamaica (Burt 1926).
Distinguishing characters. Hymenial surface even, dark grey to bluish black or brownish black. Spores broadly ellipsoid, 5-6 x 3.5-4 µm. Gloeocystidia absent, lamprocystidia present. Without clamps.

Peniophora scintillans *G. Cunn. (1955) Trans. Roy. Soc. New Zealand 83 (2): 268.*
Basidiocarp effused, at first consisting of small colonies, concrescent, up to 0.12 mm thick. Hymenial surface even, cream-colored to pink salmon or isabelline to brownish.
Hyphal system. Generative hyphae hyaline, thin-walled, 2.5-4 µm wide. Basal layer practically absent. With clamps.
Cystidia. *Gloeocystidia* cylindrical to fusiform, thin-walled, 22-45 x 3-7 µm, SA-, some with schizopapilla. *Lamprocystidia* numerous, hyaline, thick-walled, encrusted, 20-40 x 5-13 µm.
Basidia subclavate, 16-30 x 3.5-5 µm.
Spores ellipsoid, (4.5-)5.5-8 x (3.2-)3.5-4.5(-5) µm
Habitat. On angiosperms.
Distribution. New Zealand (loc.cit), Madagascar and Réunion (Boidin et al. 1991).
Distinguishing carracters. Hymenial surface even cream-colored to pink salmon or brownish. Spores ellipsoid. Gloeocystidia and lamprocystidia present. With clamps.

Key to Molesta-group

1. With clamps **2**
1. Without clamps **4**

2. Hymenial surface strongly reddish brown **P. fulvissima**
2. Hymenial surface with less strong colors **3**

3. Hymenial surface pale pinkish ochraceous to ochraceous, up to 0.2 mm thick. Lamprocystidia up to 12 µm wide. Gloeocystidia up to 60 µm long **P. exima**
3. Hymenial surface pinkish grey to violaceous grey, becoming bluish violaceous, up to 0.2 mm thick. Lamprocystidia up to 20 µm wide. Gloeocystidia up to 100 µm long **P. pithya**
3. Hymenial surface yellowish-cream or pinkish-buff, up to 2.5 mm thick. Lamprocystidia up to 30 µm wide. Gloeocystidia up to 45 µm long **P. duplex**

4. Without gloeocystidia **5**
4. With gloeocystidia **6**

5. Hymenial surface smooth, greyish-black to greyish-blue. Lamprocystidia up to 9 µm wide and up to 40 µm long **P. bruneiensis**
5. Hymenial surface even, rimose when old, greyish, pale brownish or ochraceous olivaceous buff, often with olivaceous tinges when dry. Lamprocystidia up to 16 µm wide and up to 70 µm long **P. farlowii**

6. On gymnosperms. Basidiocarp up to 2.5 mm thick. Hyphae with clamps **P. duplex**
6. On angiosperms. Basidiocarp up to 0.3 mm thick. Hyphae without clamps **7**

7. Lamprocystidia up to 30-35 µm long **8**
7. Lamprocystidia over 30 µm long **9**

8. Basidiocarp up to 0.5 mm thick, cinnamon to brownish to pinkish grey. Hyphae 4-5.5 µm wide. Gloeocystidia SA-, 4.5-6 µm wide **P. parvocystidiata**
8. Basidiocarp up to 0.12 mm thick, lillac-grey to brownish grey. Hyphae glued together 2-4 µm wide. Gloeocystidia SA+, 5-10 µm wide **P. taiwanensis**

9. Hymenial surface pinkish grey, becoming pinkish beige or isabelline. Gloeocystidia SA+. South East Asia. **P. malaiensis**

9. Hymenial surface pinkish grey or blackish brown. Gloeocystidia at least 50 µm long. SA-. African species **P. adjacens**
9. Hymenial surface greyish brown to fuligineous. Gloeocystidia up to 55 µm long, SA-. African species **P. molesta**

Species descriptions to Molesta-group

Peniophora adjacens *Boidin, Lanquetin & Gilles (1991) Bull. Soc. Mycol. France 107: 124.*
Basidiocarp effused, up to 0.3 mm thick. Hymenial surface even, pinkish grey to grey brown or blackish brown. Margin indistinct.
Hyphal system. Generative hyphae hyaline to brown, thin- to thick-walled, 2.5-4 µm. Without clamps (homothallic).
Cystidia. *Gloeocystidia* clavate to fusiform, often with a schizopapilla, SA-. Thin- to slightly thick-walled, 50-60 x 4-8 µm. *Lamprocystidia* hyaline, thick-walled, 30-65 x 9-15 µm.
Basidia 17-30 x 3.5-5 µm, 4 sterigmata.
Spores cylindrical to suballantoid, 5.8-6.5 x 2.5-3 µm.
Habitat. On angiosperms.
Distribution. Central African Republic, Gabon (loc.cit).
Distinguishing characters. Hymenial surface even, pinkish grey to grey brown or blackish brown. Spores shorter than 6µm. Without clamps. Gloeocystidia more than 50µm long.

Peniophora bruneiensis *Hjortstam (1998) Kew Bull. 53 (4): 815.*
Basidiocarp effused, adnate, rimose, up to 0.7 mm thick. Hymenial surface smooth, greyish-black to greyish-blue.
Hyphal system. Hyphae hyaline to subhyaline with yellow tint, 3-4 µm wide, thick-walled, without clamps. Subiculum well developed, stratified, brown.
Cystidia. *Gloeocystidia* absent. *Lamprocystidia* conical, thick-walled, encrusted, (15-)25-40 x 7-9(-10) µm, hyaline to brown.
Basidia 15-20 x 3.5-4 µm.
Spores cylindrical to allantoid, 4-5 x (1.5-)2-2.5 µm
Distribution. Borneo (loc.cit).
Distinguishing characters. Hymenial surface smooth, greyish-black to greyish-blue. Spores up to 5 µm long. Gloeocystidia absent. Lamprocystidia 25-40 x 7-9 µm. Without clamps.

Peniophora duplex Burt *(1926) Ann. Missouri Bot. Gard. 12: 298.*
Basidiocarp effused, adnate, up to 2.5 mm thick. Hymenial surface pruniose, yellowish-cream or pinkish-buff. Margin fibrillose.
Hyphal system. Hyphae hyaline, gelatinized, thin-walled, 2.5-4 µm wide, with clamps.
Cystidia. *Gloeocystidia* subfusiform to clavate, 25-45 x 7-12 µm. *Lamprocystidia* irregularly cylindrical to subconical, thick-walled, encrusted or naked, 30-60 x 7-10 µm.
Basidia subclavate, 20-25 x 4-6 µm.
Spores cylindrical, curved, 5-7.5 x 2-2.5 µm
Habitat. On gymnosperms.
Distribution. USA – (loc.cit). Widespread in eastern USA (Slysh 1960).
Distinguishing characters. Basidiocarps thick, hymenial surface pruniose, yellowish-cream or pinkish-buff. On gymnosperms. Spores cylindrical, curved, 5-7.5 µm long. With clamps.
Remarks. *P. duplex* is very similar to *P. pseudopini*, but the latter differs primarily by having brown hyphae with distorted tips which run through the hyaline context and end in the hymenium,

and in the generally abundant sulfocystidia. *P. duplex* usually has adnate margins, while it is reflexed in *P. pseudopini*.
Both *P. duplex* and *P. pseudopini* are similar to *P. pini* but differs in the swellings of subicular hyphae which is more prominent in *P. pini.*

Peniophora exima *H.S. Jacks. (1951) Mycologia 43 (1): 60.*
Basidiocarp effused, ceraceous, up to 0.2 mm. Hymenial surface even, rimose when old, pale pinkish ochraceous to ochraceous.
Hyphal system. Hyphae hyaline to brown, thin- to somewhat thick-walled. Basal layer brown. With clamps.
Cystidia. *Gloeocystidia* cylindrical to fusiform, the embedded ones often thick-walled, 50-60 x 7-9 µm. *Lamprocystidia* conical, hyaline to brownish at the base, thick-walled, 40-50 x 10-12 µm.
Basidia subcylindrical, sinuous, 25-35 x 3.5-4.5 µm.
Spores subcylindrical to suballantoid, 5.5-6.5 x 2.5-3 µm.
Habitat. On gymnosperms.
Distribution. Canada, USA (Ginns and Lefebvre 1993). Obviously a rare species.
Distinguishing characters. Basidiocarp thin, hymenial surface even, rimose when old, pale pinkish ochraceous to ochraceous. Spores 5.5-6.5 µm long. Gloeocystidia 50-60 µm long. Lamprocystidia 10-12 µm wide. With clamps.

Peniophora farlowii Burt *(1926) Ann. Missouri Bot. Gard. 12: 343.*
Basidiocarp effused, ceraceous, cartilaginous when dry, up to 1 mm thick. Hymenial surface even, rimose when old, greyish, pale brownish or ochraceous olivaceous buff, often with olivaceous tinges when dry.
Hyphal system. Hyphae hyaline to brown, thin- to somewhat thick-walled, 2-4 µm wide. Without clamps.
Cystidia. *Gloeocystidia* absent. *Lamprocystidia* conical, thick-walled, encrusted, 30-70 x 8-16 µm.
Basidia 15-25 x 4-5 µm
Spores 4 x 2 µm.
Habitat. On angiosperms.
Distribution. Canada, USA (Ginns and Lefebvre 1993). Few findings.
Distinguishing characters. Hymenial surface even, rimose when old, greyish, pale brownish or ochraceous olivaceous buff, often with olivaceous tinges when dry. Spores 4 x 2 µm. Gloeocystidia absent. Lamprocystidia 30-70 x 8-16 µm. Without clamps.

Peniophora fulvissima *Boidin & Gilles (2001) in Bull. Soc. Linn. Lyon 70 (10): 269.*
Fruitbody effused, strongly reddish brown. Hymenial surface even, under the lens minutely spiny due to projecting cystidia.
Hyphal system. Hyphae hyaline, basal ones with thickened walls otherwise thin-walled, 2.5-5 µm wide, with clamps, densely ramified.
Cystidia. *Gloeocystidia* less prominent, fusiform, 50 x 4-5 µm, SA-. *Lamprocystidia* fusoid, encrusted, abundant in the hymenial region, projecting, 35-50 x 7-9 µm.
Basidia cylindrical, 18-22 x 4-5 µm.
Spores subcylindrical, straight, 4.2-6 x 2.2-2.5 µm
Habitat. On much decayed wood
Distribution. Réunion (loc.cit).
Distinguishing characters. The species is easily recognized by its strong colours.

Peniophora malaiensis *Boidin, Lanquetin & Gilles (1991) Bull. Soc. Mycol. France 107: 137.*
Basidiocarp effused, adnate, membranaceous, up to 0,2 m thick. Hymenial surface even, pinkish grey, becoming pinkish beige or isabelline. Margin indistinct. Heterothallic
Hyphal system. Hyphae hyaline to brownish, thin- to thick-walled, 2-4 µm. Subiculum fairly uniform Without clamps.
Cystidia. Tramal *gloeocystidia* cylindrical, thick-walled at the base, SA+. Hymenial *gloeocystidia* fusiform, thin-walled, often with schizopapilla. Both kinds up to 8(-10) µm wide. *Lamprocystidia* conical, encrusted, 40-60 x 9-15(-20) µm.
Basidia 22-25(-35) x 4 µm.
Spores cylindrical to suballantoid, 4.5-7 x 2-2.7 µm.
Distribution. Singapore (loc.cit), Taiwan (Wu 2003).
Distinguishing characters. Hymenial surface even, light coloured (pinkish grey to isabelline). Spores 4.5-7 µm long. Gloeocystidia SA+. Lamprocystidia 40-60 x 9-15 µm. Without clamps.

Peniophora molesta *Boidin, Lanquetin & Gilles (1991) Bull. Soc. Mycol. France 107: 140.*
Basidiocarp effused, up to 0.3 mm thick. Hymenial surface even, greyish brown to fuliginous. Heterothallic.
Hyphal system. Generative hyphae hyaline to brown, thin- to thick-walled, 2.5-4 µm. Without clamps.
Cystidia. *Gloeocystidia* clavate to fusiform, thin- to slightly thick-walled, often with a schizopapilla, 32-55 x 7-10(-12) µm, SA-. *Lamprocystidia* hyaline or brown at the base, thick-walled, 30-65 x 9-15 µm.
Basidia 17-30 x 3.5-5 µm.
Spores cylindrical to suballantoid, 4.5-6 x 2.2-3 µm.
Habitat. On angiosperms.
Distribution. Gabon, Ivory Coast (loc.cit).
Distinguishing characters. Hymenial surface even, greyish brown to fuliginous. Spores 4.5-6 x 2.2-3 µm. Gloeocystidia 32-55 x 7-10 µm, SA-. Lamprocystidia 30-65 x 9-15 µm. Without clamps.

Peniophora parvocystidiata *Boidin & Lanquetin (1991) Bull. Soc. Mycol. France 107: 153.*
Basidiocarp effused, adnate, up to 0.3 mm thick. Hymenial surface even, cinnamon brownish to pinkish grey.
Hyphal system. Hyphae hyaline to brown, thin- to thick-walled, 2-3.5 µm. Without clamps.
Cystidia. *Gloeocystidia* rare, fusiform, thin- to somewhat thick-walled at the base, 30-35 x 4-5 µm, SA-, some with schizopapilla. *Lamprocystidia* conical, hyaline to brown, thick-walled, 15-30 x 4-5.5 µm. Basal lamprocystidia may be larger and up to 11(-15)µm wide.
Basidia subclavate, thin- to somewhat thick-walled, 17-24 x 3-4 µm.
Spores allantoid, 4,5-6 x 1,8-2,2µm.
Habitat. On angiosperms.
Distribution. Guadeloupe (loc.cit).
Distinguishing characters. Hymenial surface even, cinnamon brown to pinkish grey. Spores small, allantoid. Gloeocystidia and lamprocystidia narrow. Without clamps.

Peniophora pithya *(Pers.) J. Erikss. (1950) Symb. Bot. Upsal. 10 (5): 45.*
Basidiocarp effused, adnate, often loosening at the margin, sometimes becoming rimose, up to 0.2 mm thick. Hymenial surface even, pinkish grey to violaceous grey, becoming bluish violaceous. Margin fimbriate, whitish when young, indistinct when old.
Hyphal system. Hyaline to brown, thin- to thick-walled, 3-4µm wide. With clamps.

Cystidia. *Gloeocystidia* 50-70(-100) x 8-10µm, SA+. *Lamprocystidia* hyaline to brownish at the base in the lower parts, 30-70 x (8-)12-15(-20)µm.
Basidia subcylindrical to subclavate, 20-40 x 4-7µm.
Spores cylindrical to allantoid, 5.5-7.5(-9) x 2.5-3µm.
Habitat. On gymnosperms, rarely also on *Salix*.
Distribution. Morocco (Malençon 1982), Canada, USA (Ginns and Lefebvre 1993),Northern Hemisphere (Jülich & Stalpers 1980), France (Boidin 1965), Sweden, Denmark, Norway, Finland (Hansen & Knudsen 1997).
Distinguishing characters. On gymnosperms. Hymenial surface pinkish grey to violaceous grey, becoming bluish violaceous. Margin fimbriate, whitish, often loosening. Spores 5.5-7.5 µm long. Lamprocystidia 12-15(-20) µm wide. Gloeocystidia long, up to 100 µm. With clamps.

Peniophora taiwanensis *Sheng H. Wu (2003) Mycotaxon 85: 197.*
Basidiocarp effused, adnate, membranaceous, up to 0.12 mm thick. Hymenial surface even, lilac-grey to brownish grey, rarely rimose. Margin present with a narrow brown, immature zone.
Hyphal system. Hyphae brownish to yellow, thick-walled, glued together, 2-4 µm wide. Subiculum uniform, with well developed basal layer. Without clamps.
Cystidia. *Gloeocystidia* cylindrical, hyaline, yellow to slightly brown, with schizopapilla, 20-60 x 5-10 µm, SA+. *Lamprocystidia* conical, thick-walled, yellow or brownish, heavily encrusted, 15-35 x 6-10 µm.
Basidia subclavate, thick-walled towards the base, 20-30 x 3.5-4.2 µm.
Spores suballantoid, 5-7 x 1.8-2.2 µm.
Habitat. On angiosperms.
Distribution. Taiwan (loc.cit).
Distinguishing characters. Hymenial surface even, lilac-grey to brownish grey, rarely rimose. Margin present with a narrow brown immature zone. Gloeocystidia present. Lamprocystidia small, 15-35 µm long. Gelatinized hyphae, without clamps.

Key to Cinerea-group

1. On gymnosperms **2**
1. On angiosperms **4**

2. Basidiocarp not loosening in the margin, lamprocystidia 15-25 x 5-10 µm **P. cinerea**
   (*P. spathulata* very similar to *P. cinera* but has bigger lamprocystidia, known from Taiwan.)
2. Basidiocarp loosening in the margin, lamprocystidia 40-80 x 6-14(-18) µm **3**

3. Only known from *Juniperus*. Hymenial surface even, rimose when dry, pinkish or greyish red to violaceous. Spores 8-11 x 2.5-3.5 µm **P. junipercola**
3. Preferebly on *Abies*. Hymenial tuberculate, reddish grey to grey to dark violaceous grey, becoming brown when old, surface rimose when dry. Spores 6.5-9 x 2-2.8 µm **P. piceae**

4. Hymenial surface dark brown **P. seymouriana**
4. Hymenial surface light brown to pinkish grey or bluish grey to violaceous, becoming greyish brown or dark blue grey **5**

5. Lamprocystidia 15-33 µm long **6**
5. Lamprocystidia 25-80 µm long **7**

6. Hymenial surface light brown. Lamprocystidia few, 24-33 x 12-15µm. North American species **P. colorea**
6. Hymenial surface pinkish grey to violaceous grey, becoming brownish when old. Lamprocystidia 15-25 x 5-10 µm. Cosmopolitan. **P. cinerea**

7. Subicular hyphae dark brown. Basidiome stratified (several hymenial layers). Preferable on *Oleaceae* **P. limitata**
7. Subicular hyphae hyaline to yellowish, only gradually becoming brown near the substrate and late in the development **8**

8. Prefereably, but not exlusively on *Tilia*. Spores 7.2-9 x 2.2-3.2 µm. Irregular brown hyphae may penetrate the subhymenium **P. rufomarginata**
8. Prefereably, but not exlusively on *Fagaceae*. Spores 9-12 x 2.8-4 µm. Brown hyphae very few (next to the substrate) or absent, **P. quercina**
(*P. manshurica* also keys out here. It is very similar to *P. quercin*a but spores are slightly smaller and it has a distinct brown basal layer.)

Species descriptions Cinerea-group

Peniophora cinerea *(Pers. : Fr.) Cooke (1879) Grevillea 8 (45): 20.*
Basidiocarp effused, closely adnate, ceraceous to cartilaginous, rimose when old, up to 1.5 mm thick. Hymenial surface even to tuberculate, pinkish grey to violaceous grey, becoming brown when old. Margin narrowly fimbriate when young, becoming indistinct .
Hyphal system. Hyphae hyaline to brown, thin- to thick-walled, 2-4 µm wide. Subhymenium consisting of vertical hyphae. With clamps.
Cystida. *Gloeocystidia* few present, indistinct, cylindrical, 20-30 x 5-10 µm. *Lamprocystidia* hyaline to brown In basal part, thin- to thick-walled, encrusted, 15-25 x 5-10 µm.
Basidia subclavate, 25-40 x 5-6 µm. 4 sterigmata.
Spores cylindrical to allantoid, 7-9(-10) x 2.3-3.2 µm
Habitat. On angiosperms and gymnosperms.
Distribution. New Zealand, Australia (Cunningham 1963), Australia (Fungi of Australia vol. 2B), Canada, USA (Ginns and Lefebvre 1993), Northern Hemisphere (Jülich & Stalpers 1980), China (Maekawa et al. 2002), France and Germany (Slysh 1960), Sweden, Denmark, Finland (Hansen & Knudsen 1997).
Distinguishing characters. Basidiocarp adnate. Hymenial surface pinkish grey to violaceous grey. Spores 7-9 µm long. Gloeocystidia absent. Lamprocystidia 15-25 x 5-10 µm. With clamps.

Peniophora colorea *Burt (1926) Ann. Missouri Bot. Gard. 12: 343.*
Basidiocarp effused, closely adnate, up to 0.08 mm thick. Hymenial surface even, light brownish. Margin thinning out, indeterminate.
Hyphal system. Hyphae somewhat coloured, 3 µm wide.
Cystidia. *Gloeocystidia* absent. *Lamprocystidia* fusiform, encrusted, few, 24-33 x 12-15 µm.
Basidia. No information
Spores cylindrical, 8-10 x 2-3 µm.
Habitat. On angiosperms.
Distribution. USA – Louisianna (Ginns and Lefebvre 1993).
Distinguishing characters. Hymenial surface even, light brownish. Spores 8-10 µm long. Gloeocystidia absent. Lamprocystidia 24-33 µm long.

Peniophora junipericola *J. Erikss. (1950) Symb. Bot. Upsal. 10 (5): 52.*
Basidiocarp effused, at first adnate but margin loosening from the substrate, up to 0.3 mm thick. Hymenial surface even, rimose when dry, pinkish or greyish red to violaceous, pale brownish red when old. Margin whitish when young evanescent.
Hyphal system. Hyphae hyaline to brown, thin- to thick-walled, 2.5-4 µm wide. Subiculum layer well developed. With clamps.
Cystidia. *Gloeocystidia* indistinct or absent. *Lamprocystidia* hyaline to brown, thick-walled, encrusted, 40-80 x 6-14(-18) µm.
Basidia subclavate, 30-50 x 5-7 µm.
Spores allantoid (7-)8-11(-12) x (2.2-)2.5 x 3.5(-4) µm.
Habitat. Only known from *Juniperus*.
Distribution. Sweden (loc.cit), USA (Ginns and Lefebvre 1993), Europe (Jülich & Stalpers 1980), France (Boidin 1965), Finland (Nordic Macromycetes), Ethiopia (Boidin & Lanpuetin 1995).
Distinguishing characters. . Hymenial surface even, rimose when dry, pinkish or greyish red to violaceous. Margin loosening from the substrate. Gloeocystidia absent. Lamprocystidia 40-80 x 6-14 µm. With clamps. On *Juniperus*.

Peniophora limitata *(Chaillet ex Fr. : Fr.) Cooke (1879) Grevillea 8 (45): 21.*
Basidiocarp confluent, effused, strictly adnate, margin loosening with age but it takes some of the substrate with it, up to 0.5 mm thick. Hymenial surface even to tuberculate, becoming rimose, pinkish grey or violaceous grey to dark blue grey. Margin in most cases dark, blackish, in rapid growing specimens sometimes lighter. Subiculum well-developed, hymenia stratified.
Hyphal system. Hyphae hyaline to brown, thin- to thick-walled, 2-4 µm. Subicular hyphae dark brown, agglutinated or not. With clamps.
Cystidia. *Gloeocystidia* absent or indistinct. *Lamprocystidia* conical, hyaline to brown at the base, thick-walled, encrusted, 8-12(-15) x 25-60(-75) µm.
Basidia subclavate, 35-55 x 5-8 µm.
Spores allantoid, 7.5-12 x 2.5-3.5 µm
Habitat. Often found on *Fraxinus* or other *Oleaceae*.
Distribution. Europa, USSR (Jülich & Stalpers 1980), France (Boidin 1965), Sweden, Denmark, Norway, Finland (Hansen & Knudsen 1997).
Distinguishing characters. Hymenial surface becoming rimose, pinkish grey or violaceous grey to dark blue grey. Margin in most cases dark, blackish. Gloeocystidia absent. Lamprocystidia 25-60 µm long. Basidiome stratified and brown subicular layer thick.

Peniophora manshurica *Parmasto (1987) in Biblioth. Mycol. 115: 138.*
Fruitbody effused, adnate, margin loosening with age, up to 0,6 mm thick. Hymenial surface even, to somewhat tuberculate, pinkish to pinkish grey or bluish grey to violaceous, brownish black when old. Margin fibrillose and white to pink when young, becoming indistinct.
Hyphal system. Hyphae thin- to thick-walled, 2-5 µm wide. Tramal hyphae hyaline, embedded in a matrix. Basal layer thin, brown – black, 15-35 µm thick. With clamps.
Cystidia. *Gloeocystidia* absent or indistinct. *Lamprocystidia* hyaline to brown, thick-walled, 45-100 x 9-16 µm.
Basidia subclavate, 30-40 x 4.5-6 µm.
Spores allantoid, 7-9-12 x 2-3 µm.
Habitat. On angiosperms, preferably on Quercus mongolica.
Distribution. Temperate Asia (loc.cit.), China (Maekawa et al. 2002).

Distinguishing characters. Very similar to *P. quercina*, distinguished by slightly smaller spores and presence of a distinct brown basal layer.

Peniophora piceae *(Pers.) J. Erikss. (1950) Symb. Bot. Upsal. 10 (5): 49.*
Basidiocarp effused, at first adnate, but margin loosening from the substrate with age, up to 0,3 mm thick. Hymenia tuberculate, reddish grey to grey to dark violaceous grey, becoming brown when old, surface rimose when dry. Margin whitish when young, evanescent.
Hyphal system. Hyphae hyaline to brown, thin- to thick-walled, 2,5-4µm wide. With clamps.
Cystidia. *Gloeocystidia* indistinct or absent. *Lamprocystidia* hyaline to brown, thick-walled, encrusted, 40-80 x 6-14(-18) µm.
Basidia subclavate, 30-50 x 5-7 µm.
Spores allantoid, 6,5-9(-9,5) x 2-2,8 µm.
Habitat. On gymnosperms, mostly on *Abies*.
Distribution. France (loc.cit). Venezuela (Liberta and Navas 1978). Canada, USA (Ginns and Lefebvre 1993). Europe (W. Jülich & J.A. Stalpers 1980). Sweden (Hansen & Knudsen 1997).
Distinguishing characters. On gymnosperms, mostly on *Abies*. Hymenia tuberculate, reddish grey to grey to dark violaceous grey, becoming brown when old, surface rimose when dry. Margin whitish when young, evanescent. Spores allantoid, 6,5-9 x 2-2,8 µm. Gloeocystidia absent or indistinct. Lamprocystidia 40-80 x 6-14 µm.

Peniophora quercina *(Pers. : Fr.) Cooke (1879) Grevillea 8 (45): 20.*
Basidiocarp obicular at first, confluent, adnate, margin loosening with age, up to 0,5 mm thick. Hymenial surface even, to somewhat tuberculate or even meruloid in fast growing specimens, pinkish to pinkish grey or bluish grey to violaceous. Margin fibrillose and white to pink when young, becoming indistinct.
Hyphal system. Hyphae thin- to thick-walled, 2.5-4 µm wide. Tramal hyphae embedded in gelatinous matrix. Subicular hyphae hyaline to yellowish, only gradually becoming brown near the substrate and late in the development. With clamps.
Cystidia. *Gloeocystidia* absent. *Lamprocystidia* hyaline to brown, thick-walled, 30-80 x 10-15(-20) µm.
Basidia subclavate, 30-50 x 5-6 µm.
Spores allantoid, (8.5-)9-12(-13) x 2.8-4(-4.5) µm.
Habitat. On angiosperms, preferably on *Fagaceae*.
Distribution. Venezuela (Liberta and Navas 1978), Morocco (Malençon 1982), Tunisia (Jülich 1974), India (Rattan 1977), USA (Ginns and Lefebvre 1993), Northern Hemisphere (Jülich & Stalpers 1980), Germany (Slysh 1960), France (Boidin 1965), Sweden, Denmark, Norway, Finland (Hansen & Knudsen 1997).
Distinguishing characters. Hymenial surface even, to somewhat tuberculate, pinkish to pinkish grey or bluish grey to violaceous. Margin loosening with age. Gloeocystidia absent, lamprocystidia present. Subicular hyphae hyaline to yellowish, only gradually becoming brown near the substrate and late in the development. On *Fagaceae*. With clamps.
Remarks. *P. simulans* D.A. Reid is most likely a synonym to *P. quercina*, differing slightly by a more developed and brown-pigmented basallayer.

Peniophora rufomarginata *(Pers.) Litsch. (1923) Keissler, Kryptog. Exs. Wien 2613.*
Basidiocarp orbicular at first, confluent, adnate, margin loosening with age, up to 0.5 mm thick. Hymenial surface smooth to tuberculate or with low ridges, pinkish to pinkish grey or bluish grey to violaceous.

Hyphal system. Hyphae thin- to thick-walled, 2.5-4 µm wide. Irregular brown hyphae may penetrate the hymenia. With clamps
Cystidia. *Gloeocystidia* absent or indistinct. *Lamprocystidia* hyaline to brown, thick-walled, 30-80 x 10-15(-20) µm.
Basidia subclavate, 30-50 x 5-6 µm.
Spores allantoid, 7,2-9(-10,5) x 2,2-3,2(-3,5) µm.
Habitat. On angiosperms, preferably *Tilia*.
Distribution. Canary Islands (Hallenberg 1991), Morocco (Malençon 1982), Europa (Jülich & Stalpers 1980), Argentina (Greslebin & Rajchenberg 2003), France (Boidin 1965), Sweden, Denmark, Norway, Finland (Hansen & Knudsen 1997).
Distinguishing characters. Basidiocarp adnate but margin loosening with age. Hymenial surface smooth to tuberculate, pinkish to pinkish grey or bluish grey to violaceous. Gloeocystidia absent, lamprocystidia present. With clamps. On *Tilia*.

Peniophora seymouriana *Burt (1926) Ann. Missouri Bot. Gard. 12: 337.*
Basidiocarp effused, up to 0.3 mm thick. Hymenial surface even, dark brown. Margin fibrillose, dark brown.
Hyphal system. Generative hyphae brown, thick-walled, 3-7 µm wide. Without clamps.
Cystidia. *Gloeocystidia* absent, *lamprocystidia* thick-walled, conical, encrusted, 20-50 x 12-17 µm.
Spores cylindrical to allantoid, 7-8.5 x 2.5-3 µm.
Habitat. On angiosperms.
Distribution. USA (loc.cit).
Distinguishing characters. Hymenial surface dark brown. Margin fibrillose, dark brown. Spores 7-8,5 µm long. Gloeocystidia absent, lamprocystidia present. Without clamps.

Peniophora spathulata *Sang H. Lin & Z.C. Chen (1990) in Taiwania 35 (2): 96.*
Fruitbody effused, adnate, membranaceous, very thin. Hymenial surface even, pale mouse grey.
Hyphal system. Hyphae hyaline, thin- to slightly thick-walled, 3-3.5 µm wide. Basal layer very thin with brown-pigmented hyphae, hyphal direction mainly vertical, with scattered clamps.
Cystidia. *Gloeocystidia* absent. *Lamprocystidia* 35-37 x 6-12 µm, thick-walled with narrow lumen, mucronate, upper part encrusted, crystals dissolving in KOH.
Spores suballantoid, 2.6-3 x 6-8 µm
Habitat. On branches and stems of broad-leaved trees.
Distribution. Taiwan (loc.cit).
Distinguishing characters. According to Wu very similar to or synonymous with *P. cinerea*. Obviously, the lamprocystidia are bigger here.

Key to Nuda-group

1. On gymnosperms **P. pini**
1. On angiosperms **2**

2. Spores wider than 4.5 µm. On *Populus* **P. rufa**
2. Spores narrower **3**

3. Gloeocystidia thickwalled to very thickwalled (1.5-3 µm), SA+ (dark brown to black) **4**
3. Gloeocystidia less thick-walled or thinwalled **5**

4. Gloeocystidia 30-65 x 6-11 µm. Margin with a tendency to loosen **P. bonariensis**
4. Gloeocystidia 60-115 x 8-15 µm. Margin adnate. With agglutinate basal layer **P. crassitunicata** (*Peniophora fissilis* very similar to *P. crassitunicata* but differs by slightly bigger spores and less thickwalled gloeocystidia.)

5. Spores up to 2.2 µm wide. Hymenial surface tuberculate **P. rhodocarpa**
5. Spores wider. Hymenial surface even **6**

6. Spores suballantoid, over 8.5 µm long and over 3.2 µm wide. Gloeocystidia 60-90 µm long, SA-. Hymenial surface even, rimose, orange to reddish brown or vinaceous brown, becoming pinkish grey to brownish when dry. African species **P. fasticata**
6. Spores subcylindrical, up to 8.2 µm long and less than 3.5 µm wide. Gloeocystidia 45-65 µm long, SA+ (dark brown to black). Hymenial surface even, cream-coloured or pale salmon to yellowish. African species **P. subsalmonea**
6. Spores cylindrical to allantoid, 8-10.5 x 2.5-3.5 µm. Gloeocystidia abundant, ovoid or ellipsoid to cylindrical, 30-80 x 8-20µm. Hymenial surface even, reddish grey, purplish grey or violaceous. Cosmopolitan species **P. nuda**

Species descriptions Nuda-group

Peniophora bonariensis *L.D. Gómez (1976) Darwiniana 20 (1-2): 201.*
Basidiocarp confluent, effused, adnate or somewhat loosening at the margin up to 0.4mm thick. Hymenial surface even, pinkish grey to greyish violaceous, Margin often brown with tendency to loosen.
Hyphal system. Hyphae hyaline to brown, thin- to somewhat thick-walled, 3-5 µm wide. With clamps.
Cystidia. *Gloeocystidia* very thick-walled (2-3 µm), 30-65 x 6-11 µm, SA+. *Lamprocystidia* heavily encrusted, 30-50 x 12-22(-25) µm.
Basidia subclavate, 25-40 x 4.5-6 µm. 4 sterigmata.
Spores cylindrical to allantoid 7-9.2 x 2.5-3.7 µm.
Habitat. On angiosperms.
Distribution. Argentina (loc.cit), Guadelope (Boidin and Lanquetin 1991).
Distinguishing characters. . Hymenial surface even, pinkish grey to greyish violaceous. Gloeocystidia 30-65 x 6-11 µm wide, very thick-walled (2-3 µm), lamprocystidiia heavily encrusted.
Remarks. Close to *P. crassitunicata*.

Peniophora crassitunicata *Boidin, Lanquetin & Gilles (1991) Bull. Soc. Mycol. France 107: 118.*
Basidiocarp confluent, effused, adnate or somewhat loosening at the margin, up to 0.3 mm thick. Hymenial surface even, pinkish grey to greyish violaceous. Margin often brown.
Hyphal system. Hyphae hyaline to brown, thin- to somewhat thick-walled, 2-3.5 µm wide. Basal layer compact, agglutinate. With clamps.
Cystida. *Gloeocystidia* very thick-walled (2-3 µm), 60-115 x 8-15(-19) µm, SA+. *Lamprocystidia* hyaline, thick-walled, heavily encrusted, 30-50 x 12-22(-25) µm.
Basidia subclavate, 25-40 x 4.5-6 µm.
Spores cylindrical or allantoid 5-8(-9.5) x 2-3 µm
Habitat. On angiosperms.
Distribution. Réunion,Central African Republic and Madagascar (loc.cit).

Distinguishing characters. Hymenial surface even, pinkish grey to greyish violaceous. Gloeocystidia 60-115 x 8-15 µm, very thick-walled (2-3 µm). Basal layer gelatinized.

Peniophora fasticata *Boidin & Lanquetin (1995) Cryptog. Mycol. 16 (2): 93.*
Basidiocarp effused, up to 0.4 mm thick. Hymenial surface even, rimose, orange to reddish brown or vinaceous brown, becoming pinkish grey to brownish when dry. Margin pink.
Hyphal system. Hyphae hyaline, thin- to thick-walled, 2.5-5 µm wide. With clamps.
Cystidia. *Gloeocystidia* conical to fusiform, thin- to thick-walled, 60-90 x 9-14 µm, SA-. *Lamprocystidia* narrowly conical to fusiform, hyaline, thick-walled, 7-17µm wide.
Basidia flexuous-cylindrical, 35-55 x 5.5-7 µm, often basally thick-walled and brown.
Spores suballantoid, 8.5-13 x 3.2-4.2 µm
Habitat. On angiosperms.
Distribution. Ethiopia (loc.cit).
Distinguishing characters. Hymenial surface even, rimose, orange to reddish brown or vinaceous brown, becoming pinkish grey to brownish. Margin pink. Spores suballantoid, 8.5-13 x 3.2-4.2 µm long. Gloeocystidia 60-90 x 9-14 µm, SA-.

Peniophora nuda *(Fr. : Fr.) Bres. (1897) Atti Imp. Regia Accad. Rovereto III 3: 114.*
Basidiocarp effused, adnate, becoming rimose, up to 0.2 mm thick. Hymenial surface even, reddish grey, purplish grey or violaceous. Margin fimbriate, whitish when young, indistinct when old.
Hyphal system. Hyphae hyaline to brown, thin- to thick-walled, 3-4 µm wide. With clamps.
Cystidia. *Gloeocystidia* abundant, ovoid or ellipsoid to cylindrical, 30-80 x 8-20 µm, SA+. *Lamprocystidia* hyaline to brownish at the base, 20-40 x 5-12 µm.
Basidia subcylindrical, 20-45 x 5-7 µm.
Spores cylindrical to allantoid, (7-)8-10.5(-11) x 2.5-3.5 µm.
Habitat. On angiosperms, rarely on gymnosperms.
Distribution. USA, Canada (Ginns and Lefebvre 1993), Morocco (Malençon 1982), Australia and New Zealand (Cunningham 1963), Northern Hemisphere (Jülich & Stalpers 1980), France, Germany, Finland and South Africa (Slysh 1960), Sweden, Denmark, Norway (Hansen & Knudsen 1997), Hawaii (Gilbertsom et al. 2001), Argentina (Urcelay et al. 1999).
Distinguishing characters. . Hymenial surface even, reddish grey, purplish grey or violaceous. Margin fimbriate, whitish when young, indistinct when old. Spores 8-10,5 x 2,5-3,5 µm. Gloeocystidia 30-80 x 8-20 µm. Lamprocystidia 20-40 x 5-12 µm. With clamps.

Peniophora pini *(Schleich. & DC. : Fr.) Boidin (1956) Rev. Mycol. (Paris) 21: 123.*
Basidiocarp effused, small round patches when young, centrally attached, confluent, adnate, loosening at the margin, ceraceous to cartilaginous, up to 0.5 mm thick. Hymenial surface even to tuberculate, reddish when young, becoming violaceous grey to dark bluish violaceous.
Hyphal system. Hyphae hyaline to pale brownish close to the substrate, 2.5-5(-7) µm wide. Gelatinized hyphae present in horizontal layer. With clamps.
Cystidia. *Gloeocystidia* vesicular to cylindrical, hyaline, without gelatinous sheath, 20-50 x 10-25 µm. *Lamprocystidia* hardly thick-walled, 25-40 x 5-8 µm.
Basidia subclavate, 30-40 x 4.5-6 µm.
Spores cylindrical to allantoid, (5-)6-9 x 2.2-3(-3.3) µm.
Habitat. On gymnosperms, preferably *Pinus*.
Distribution. Canada, USA (Ginns and Lefebvre 1993). Europe, USSR (Jülich & Stalpers 1980), France (loc.cit), Sweden, Denmark, Norway, Findland (Hansen & Knudsen 1997).

Distinguishing characters. Basidiocarp effused, confluent but centrally attached. A thick, gelatinous, basal layer with big gloeocystidia and less prominent hymenial lamprocystidia. On Gymnosperms.
Remarks. *Peniophora pseudopini* is very similar to *P. pini* but differs in the swellings of subicular hyphae which is more prominent in *P. pini* than in *P. pseudopini.*
Peniophora pseudopini Weresub & Gibson was described from North America together with *P. duplex* (as *P. pini* subsp. *duplex*). *Peniophora pseudopini* is very similar to *P. duplex*, but differs primarily in the brown hyphae with distorted tips which run through the hyaline context and end in the hymenium, and in the generally abundant sulfocystidia. *Peniophora duplex* usually has adnate margins.

Peniophora rhodocarpa *Rehill & B.K. Bakshi (1965) Forest Bull. Dehr Dunn II 242: 4.*
Basidiocarp effused, adnate, membranaceous, up to 0.4 mm thick. Hymenial surface tuberculate, rimose, pink to pinkish cinnamon. Margin indistinct.
Hyphal system. Hyphae hyaline to brown, thin- to thick-walled, 2.5-4 µm. With clamps.
Cystidia. *Gloeocystidia* cylindrical, thin-walled, 50-90 x 12-18 µm. *Lamprocystidia* fusiform, thick-walled, subhyaline to dark brown, 60-100 x 12-18 µm.
Basidia subclavate, 20-25 x 4-6 µm.
Spores suballantoid, 5-8.5 x 1.7-2.2 µm.
Distribution. India (loc.cit).
Distinguishing characters. Hymenial surface tuberculate, rimose, pink to pinkish cinnamon. Spores 5-8.5 x 1.7-2.2 µm. Gloeocystidia 12-18 µm wide. With clamps.

Peniophora rufa *(Fr. : Fr.) Boidin (1958) Bull. Soc. Mycol. France 74 (4): 443.*
Basidiocarp tuberculiform, rarely concrescent, adnate, ceraceous to cartilagineous, up to 1-1.5(-2) mm thick. Hymenial surface even to tuberculate, red to vinaceous brown. Margin concolourous to whitish.
Hyphal system. Hyphae hyaline to brownish near the substrate, 2-8 µm wide. Hyphae in subhymenium gelatinized. With clamps (can be difficult to se).
Cystidia. *Gloeocystidia* clavate to cylindrical, hyaline, 50-200 x 10-25 µm, with gelatinous sheat. *Lamprocystidia* thin- to somewhat thick-walled, encrusted, 20-40 x 4.5-7.5 µm.
Basidia subclavate, 30-50 x 4.5-6 µm.
Spores cylindrical to allantoid, 6-9 x (1.5-)2.3 µm.
Habitat. On *Populus*.
Distribution. Mexico (as Cryptochaete - Marmolejo et al. 1981), Canada, USA (Ginns and Lefebvre 1993), Europe (Jülich & Stalpers 1980), China (Maekawa et al. 2002), France (Boidin 1965), Sweden, Denmark, Norway, Finland (Hansen & Knudsen 1997).
Distinguishing characters. Basidiocarp tuberculiform, rarely concrescent with red to vinaceous brown colors. Gelatinized hyphae in subhymenium. Big gloeocystidia, small and little prominent lamprocystidia. Only found on *Populus*. With clamps.

Peniophora subsalmonea *Boidin, Lanquetin & Gilles (1991) Bull. Soc. Mycol. France 107: 113.*
Basidiocarp effused, adnate, up to 0.12 mm thick. Hymenial surface even, cream-colored or pale salmon to yellowish. Margin indistinct.
Hyphal system. Hyphae hyaline, thin- to thick-walled, 1.5-4 µm wide. Basal layer compact to somewhat gelatinized, brown hyphae practically absent. With clamps.

Cystidia. *Gloeocystidia* conical, cylindrical or fusiform, thick-walled in trama, often bi-rooted, in the hymenia often thin-walled and with a schizopapilla, 45-65 x 10-15(-24) µm, SA+.
Lamprocystidia hyaline, thin- to thick-walled, incrusted, 25-38 x 10-16(-20) µm.
Basidia subcylindrical, 19-30 x 4.5-6 µm.
Spores cylindrical to allantoid, 6.5-8.2 x 2.5-3.5 µm.
Habitat. On angiosperms.
Distribution. Réunion (loc.cit), Ethiopia (Boidin & Lanquetin 1995).
Distinguishing characters. Hymenial surface even, cream-colored or pale salmon to yellowish. Spores up to 8,2 µm long. Gloeocystidia up to 65 µm long, SA+. African species.

Key to Reidii-group

1. Spores wider than 4 µm **2**
1. Spores up to 4 µm wide **3**

2. Lamprocystidia up to 9 µm wide. Hymenial surface greyish violaceous when fresh, pinkish grey to pale violaceous grey when dry. Found in Argentina **P. multicystidia**
2. Lamprocystidia over 10 µm wide. Hymenial surface pink to salmon, becoming buff to cream-coloured when dry. Found in Australia and on New Zealand **P. coprosmae**

3. With clamps **4**
3. Without clamps **5**

4. Basidiocarp effused to effused-reflexed. Hymenial surface pinkish to pale orange, becoming yellowish pink when dry. Found in Argentina. On angiosperms **P. taraguiensis**
4. Basidiocarp effused, membranaceous. Hymenial surface pale ochraceous to hazel brown or greyish brown. Found in Europe. Only found on *Quercus* **P. suecica**

5. Hymenial surface even, pinkish grey to grey when fresh, becoming ochraceous buff to vinaceous buff. Found in Taiwan and Europe **P. redii**
5. Hymenial surface grey or purplish grey **6**

6. Lamprocystidia with 1-3 µm thick walls, 30-50 x 12-18 µm. Spores 8-10 µm long. Margin brown. Found in Taiwan and once on Réunion island **P. borbonica**
6. Lamprocystidia 50-70 x 15-21 µm. Spores 6-8 µm long. Margin sometimes rolled-in when dry. Found in Central African Republic **P. elaeidis**

Species descriptions Reidii-group

Peniophora borbonica *Boidin & Gilles (2000) Mycotaxon 75: 374.*
Basidiocarp effused, adnate, membranaceous, up to 1.2 mm thick. Hymenial surface even or rarely rimose, purplish grey or grey. Margin brown.
Hyphal system. Hyphae hyaline to brown, thin- to thick-walled. Subiculum fairly uniform. Without clamps.
Cystidia. *Gloeocystidia* cylindrical, thick-walled towards bases, hyaline, yellow to slightly brown, 30-60 x 7-12 µm, SA-. *Lamprocystidia* conical, very thick-walled (1-3 µm), yellow or brown, 30-50 x 12-18 µm.
Basidia subclavate or cylindrical, 25-40 x 4.5-5.7 µm, thick-walled towards the base. 4 sterigmata.
Spores suballantoid or cylindrical, adaxially slightly concave, 8-10.5 x 2.7-3.5 µm.
Habitat. On angiosperms.

Distribution. Taiwan (Sheng-Hua Wu 2003). Reunion (loc.cit).
Distinguishing characters. Hymenial surface even or rarely rimose, purplish grey or grey. Spores 8-10.5 x 2.7-3.5 µm. Lamprocystidia 30-50 x 12-18 µm, with 1-3 µm thick walls. Without clamps.

Peniophora coprosmae *G. Cunn. (1955) Trans. Roy. Soc. New Zealand 83(2): 266.*
Fruit body effused, creaceous to subcreaceous or membranaceous, up to 1 mm thick. Hymenial surface even to tuberculate or rugulose, pink to salmon, becoming buff to cream-colored when dry. Margin fibrillose, whitish when young.
Hyphal system. Hyphae hyaline, thin- to slightly thick-walled, 2.5-3.5 µm wide. Subiculum thick (more than 1/3 of the hymenia. With clamps.
Cystida. *Gloeocystidia* cylindrical to fusiform, thin-walled, 30-80 x 6-10 µm, strongly SA+. *Lamprocystidia* hyaline, thick-walled, encrusted, 35-80(-115) x 10-16(-20) µm.
Basidia subclavate to sinuous, 35-60 x 6-9 µm. 4 sterigmata.
Spores subcylindrical to suballantoid, 9-11.5(-12) x 4-5(-5.5) µm.
Habitat. On angiosperms.
Distribution. New Zealand (loc.cit). Australia (Cunningham 1963).
Distinguishing characters. Hymenial surface even to tuberculate or rugulose, pink to salmon, becoming buff to cream-colored when dry. Spores 9-11.5 x 4-5 µm long. Lamprocystidia 10-16 µm wide.

Peniophora elaeidis *Boidin, Lanquetin & Gilles (1991) Bull. Soc. Mycol. France 107: 132.*
Basidiocarp effused, submembranaceous, up to 1.6 mm thick. Hymenial surface even, grey. Margin sometimes rolled-in when dry.
Hyphal system. Hyphae hyaline to brownish, thin- to thick-walled, 2.5-3.5 µm wide. Without clamps.
Cystidia. *Tramal* g*loeocystidia* cylindrical, thick-walled at the base, SA+; *hymenial* g*loeocystidia* fusiform, often with schizopapillae, thin-walled, 35-50 long, up to13 µm wide. *Lamprocystidia* conical, 50-70 x 15-21 µm.
Basidia 25-30 x 4-5 µm.
Spores cylindrical to suballantoid, 6-8 x 2.5-3 µm
Distribution. Central African Republic (loc.cit).
Distinguishing characters. Hymenial surface even, grey. Margin sometimes rolled-in when dry. Spores 6-8 x 2.5-3 µm long.Lamprocystidia 50-70 x 15-21 µm. Without clamps.

Peniophora multicystidiata *L.D. Gómez (1976) Darwiniana 20 (1-2): 198.*
Basidiocarp pustulate when young, concrescent, effused, adnate, up to 0.2 mm thick. Hymenial surface tuberculate, greyish violaceous when fresh, pinkish grey to pale violaceous grey when dry. Margin whitish to brown.
Hyphal system. Hyphae hyaline to dark brown, thin- to somewhat thick-walled, 2-4 µm wide. With clamps.
Cystidia. *Gloeocystidia* ovoid to fusiform, 30-60 x 7-15 µm, SA+, thin- to at least basally thick-walled, and then often brownish, often bi-rooted. *Lamprocystidia* fusiform, slightly thick-walled, 20-50 x 4-9 µm.
Basidia clavate, 30-45 x 5-7 µm.
Spores cylindrical to allantoid, (7.5-)8-11(-12) x 4-5(-5.5) µm.
Habitat. On angiosperms.
Distribution. Argentina (loc.cit).

Distinguishing characters. Hymenial surface tuberculate, greyish violaceous (fresh), pinkish grey (dry). Spores 8-11 x 4-5 µm. Gloeocystidia thin- thick-walled, often birooted. Lamprocystidia up to 9 µm wide.

Peniophora reidii *Boidin & Lanquetin (1983) Trans. Brit. Mycol. Soc. 81 (2): 279.*
Basidiocarp effused, up to 0.6 mm thick. Hymenial surface even, pinkish grey to grey when fresh, becoming ochraceous buff to vinaceous buff or beige when dry. Margin fibrillose, evascent.
Hyphal system. Generative hyphae hyaline to brown, 2-4.5 µm wide. Without clamps.
Cystidia. *Gloeocystidia* cylindrical to fusiform, thin-walled, 25-75 x 4.5-8(-13) µm, SA-, some with schizopapilla. *Lamprocystidia* hyaline to brown, thick-walled, conical, 40-65 x 12-20 µm, sometimes bifurcate.
Basidia 22-40 x 5.5-7,5 µm.
Spores cylindrical to allantoid, (7-)8-10 x 2.5-4 µm.
Habitat. On angiosperms.
Distribution. Taiwan (Wu 2003), Europe (www.mycobank.com).
Distinguishing carracters. Hymenial surface even, pinkish grey (fresh), ochraceous buff to vinaceous buff or beige (dry). Margin fibrillose, evascent. Spores 8-10 x 2,5-4 µm. Gloeocystidia 4,5-8 µm wide. Lamprocystidia 12-20 µm wide, sometimes bifurcate. Without clamps.

Peniophora suecica *Litsch. (1941) Ann. Mycol. 39 (2-3): 131.*
Basidiocarp effused, membranaceous, up to 0.4 mm thick. Hymenial surface even, rimose when dry, pale ochraceous to hazel brown or greyish brown. Margin indistinct or fibrillose, pale, remaining adnate.
Hyphal system. Hyphae hyaline, Thick subiculum with brown basal hyphae, hyphae thin- to slightly thick-walled, 3-4 µm wide. With clamps.
Cystidia. *Gloeocystidia* cylindrical to narrowly fusiform, 40-70 x 7-8 µm, SA-. *Lamprocystidia* conical, thick-walled, 30-60 x 15-25 µm.
Basidia subclavate, 30-40 x 6-7 µm.
Spores allantoid, 8-11 x 3-4 µm.
Habitat. Only known from *Quercus.*
Distribution. Sweden (Hansen & Knudsen 1997), France (Lanquetin et al. 1987).
Distinguishing characters. Hymenial surface pale ochraceous to hazel brown or greyish brown. Spores allantoid, 8-11 x 3-4 µm. Lamprocystidia thick-walled 15-25 µm wide. On Quercus. With clamps.

Peniophora taraguiensis *Popoff & J.E. Wright (1994) Mycotaxon 51: 318.*
Basidiocarp effused to effused-reflexed, up to 0.2 mm thick. Hymenial surface even, pinkish to pale orange, becoming yellowish pink when dry, rimose. Margin indistinct.
Hyphal system. Hyphae hyaline to brown, thin- to slightly thick-walled, 3-5 µm wide. With clamps.
Cystidia. *Gloeocystidia* cylindrical to fusiform, often flexuous, somewhat thick-walled, 60-90 x 7-10 µm, SA- reddish or negative. *Lamprocystidia* conical, hyaline, thick-walled, 40-60 x 15-25 µm.
Basidia subclavate to flexuous-cylindrical, thin-walled, 30-45 x 5-6 µm.
Spores cylindrical to allantoid, 7.5-10 x 3-4 µm.
Habitat. On angiosperms.
Distribution. Argentina (loc.cit).

Distinguishing characters. Basidiocarp effused to effused-reflexed. Hymenial surface pinkish to pale orange, becoming yellowish pink when dry, rimose. Lamprocystidia 15-25 µm wide. With clamps.

Key to Violaceolivida-group

1. Hymenial surface light buff when dry. Margin clay-colored. Found in Alaska **P. borealis**
1. Hymenial surface without buff colors, or without clay-colored margin **2**

2. On gymnosperms. Preferable on *Picea* **P. septentrionalis**
2. On angiosperms **3**

3. Without clamps **4**
3. With clamps **7**

4. Basidia typically with two sterigmata **P. bicornis**
4. Basidia typically with four sterigmata **5**

5. Lamprocystidia small, 20-40 µm long, thickwalled **P. confusa**
5. Lamprocystidia 40-60 µm long **6**

6. Found in Africa **P. gabonensis**
7. Found in South America **P. guadelupensis**

7. Gloeocystidia, when present, thin-walled over the entire length, not bi-rooted **8**
7. Gloeocystidia, at least at the base, with thickned walls, sometimes bi-rooted **9**

8. Lamprocystidia 15-30 x 5-8 µm. Gloeocystidia (when fresh) SA+ **P. violaceolivida**
8. Lamprocystidia 25-60 x 6-16 µm. Gloeocystidia SA- **P. pilatiana**

9. Spores 8-12 x 3.5-5.5 µm. Found in the Caucasus **P. pseudonuda**
9. Spores up to 3.5µm wide, in average smaller and narrower. Found on Réunion **P. monticola**

Species descriptions Violaceolivida-group

Peniophora bicornis *Hjortstam & Ryvarden (1984) Mycotaxon 20 (1): 138.*
Basidiocarp effused, adnate, membranaceous, up to 0.3 mm thick. Hymenial surface even, rimose when old, pinkish grey to beige or clay.
Hyphal system. Generative hyphae hyaline to brown, thin- to typically thick-walled, 2-3.5 µm. Subiculum uniform. Without clamps.
Cystidia. *Gloeocystidia* fusiform, 25-45 x 4-7.5 µm wide, some with schizopapilla, SA-. *Lamprocystidia* conical, brown at base, thick-walled, 20-40 x 5-10(-12) µm, rarely bi-rooted.
Basidia subclavate, thin- or thick-walled at the base, 18-25(-30) x 4-5 µm. 2-4 sterigmata, usually 2.
Spores cylindrical to suballantoid, (5.5-)6-8 x 2.8-3.8 µm
Habitat. On angiosperms.
Distribution. Nepal (loc.cit). Gabon, Réunion, Singapore (Boidin et al. 1991), Taiwan (Wu 2003).

Distinguishing characters. Hymenial surface even, pinkish grey to beige or clay. Spores longer than 6 µm. Without clamps. Most basidia with 2-Sterigmata.

Peniophora borealis *(Peck) Burt (1926) Ann. Missouri Bot. Gard. 12: 295.*
Basidiocarp effused, membranaceous, loosening, up to 0.6 mm thick. Hymenial surface light buff when dry. Margin clay-colored.
Hyphal system. Hyphae hyaline, 2 µm thick. Subiculum present.
Cystidia. *Gloeocystidia* occasional, with clavate or pyriform tips 4.5-7 µm wide. *Lamprocystidia* cylindrical, incrusted, 60-75 x 6-9 µm, numerous.
Basidia. Not seen.
Spores. Not seen.
Habitat. On *Alnus*.
Distribution. Alaska (loc.cit).
Distinguishing characters. Hymenial surface light buff when dry. Margin clay-colored. Gloeocystidia 4.5-7 µm wide. Lamprocystidia 6-9 µm wide. On *Alnus*.
Remarks Much like *P. aurantiaca* in appearance but more buff-colored, with darker margin becoming free, and with long and numerous cystidia.

Peniophora confusa *L.D. Gómez (1976) Darwiniana 20 (1-2) 205.*
Basidiocarp effused, pustulate when young, up to 0.3 mm thick. Hymenial surface even, pinkish to greyish violaceous. Margin indistinct.
Hyphal system. Generative hyphae hyaline to brown, often conglutinate, 2-3 µm wide. Without clamps.
Cystida. *Gloeocystidia* cylindrical, thin- to somewhat thick-walled, 30-60 x 6-9 µm. *Lamprocystidia* brownish at the base, thick-walled, encrusted, 20-40 x 10-14 µm.
Basidia clavate, 28-40 x 5-7 µm. 4 sterigmata.
Spores suballantoid, 6.2-8.5(-9) x 2-2.8(-3) µm.
Habitat. On angiosperms.
Distribution. Argentina (loc.cit), Colombia (Hjortstam & Ryvarden 1997).
Distinguishing characters. Hymenial surface even, pinkish to greyish violaceous. Spores 6.2-8.5 µm. Lamprocystidia small 20-40 x 10-14 µm. Without clamps.

Peniophora gabonensis *Boidin, Lanquetin & Gilles (1991) Bull. Soc. Mycol. France 107: 134.*
Basidiocarp effused, membranaceous, up to 0.2 mm thick. Hymenial surface even, pinkish grey, becoming pinkish beige or isabelline. Margin indistinct.
Hyphal system. Hyphae hyaline to brownish, thin- to thick-walled, 2-4 µm. Without clamps. Homothallic.
Cystidia. *Tramal gloeocystidia* cylindrical, thick-walled at the base, SA+. *Hymenial gloeocystidia* fusiform, thin-walled, often with schizopapilla. Both types up to 8(-10) µm wide. *Lamprocystidia* conical, 40-60 x 9-15(-20) µm.
Basidia 16-25 x 3.5-4.5 µm.
Spores cylindrical to suballantoid, 6-7.5(-8) x 2.5-3.2(-3.5) µm.
Habitat.
Distribution. Gabon (loc.cit).
Distinguishing characters. Hymenial surface even, pinkish grey, becoming pinkish beige or isabelline. Spores 6-7,5 µm long. Lamprocystidia 40-60 µm long. Without clamps. Found in Gabon.

Peniophora guadelupensis *Boidin & Lanquetin (1991) Bull. Soc. Mycol. France 107: 151.*

Basidiocarp effused, membranaceous, up to 0.2 mm thick. Hymenial surface even, pinkish grey, becoming pinkish beige or isabelline. Margin indistinct.
Hyphal system. Hyphae hyaline to brownish, thin- to thick-walled, 2-4 µm. Without clamps. Heterothallic.
Cystidia. *Tramal gloeocystidia* cylindrical, thick-walled at the base, SA+. *Hymenial gloeocystidia* fusiform, thin-walled, often with schizopapilla. Both types up to 8(-10) µm wide. *Lamprocystidia* conical, 40-60 x 9-15(-20) µm.
Basidia 35-40 x 3.5-6 µm.
Spores cylindrical to suballantoid, (5.5-)6-9(-10) x 2.3-3.5 µm.
Distribution. Guadeloupe, Equador (loc.cit).
Distinguishing characters. Hymenial surface even, pinkish grey, becoming pinkish beige or isabelline. Spores 6-9 µm long. Lamprocystidia 40-60 x 9-15 µm. Without clamps. Resembles *P. gabonensis* in appearance but occurs in South America.

Peniophora monticola *Boidin, Lanquetin & Gilles (1991) Bull. Soc. Mycol. France 107: 123.*
Basidiocarp effused, adnate, up to 0.12 mm thick. Hymenial surface even, cream-colored or pale salmon to yellowish, paler when dry. Margin indistinct.
Hyphal system. Hyphae hyaline, thin- to slightly thick-walled, 1.5-4 µm wide. Basal layer present, compact to gelatinized, with brown hyphae. With clamps.
Cystidia. *Gloeocystidia* cylindrical, narrowly clavate or fusiform, thin-walled except near the base, often bi-rooted, in the hymenia often thin-walled and with a schizopapilla, 30-55 x 6-11(-13) µm, SA+ dark brown to black. *Lamprocystidia* hyaline, thin- to thick-walled, incrusted, 7-12 µm wide.
Basidia subcylindrical, 19-30 x 4.5-6 µm.
Spores cylindrical to allantoid, 6-8.2 x 2.5-3.5 µm
Habitat. On angiosperms.
Distribution. Réunion (loc.cit).
Distinguishing characters. Hymenial surface even, cream-colored or pale salmon to yellowish, paler when dry. Spores < 3.5 µm wide. *Gloeocystidia* thin-walled except near the base, often bi-rooted. With clamps. Found in Réunion.

Peniophora pilatiana *Pouzar & Svrcek (1953) Ceska Mykol. 7: 180.*
Basidiocarp effused, confluent, adnate at first, margin loosening with age, up to 0.5 mm thick. Hymenial surface even, becoming rimose, pinkish grey, becoming lilaceous to reddish brown, much paler when dry. Margin indistinct.
Hyphal system. Hyphae hyaline to brown, thin- to thick-walled, 2-4 µm wide. Stratified, subicular hyphae agglutinated or not, dark brown. With clamps.
Cystidia. *Gloeocystidia* with oily contents, SA-. *Lamprocystidia* conical, hyaline to brown at the base, thick-walled, encrusted, 6-16(-22) x 60(-75) µm.
Basidia subclavate, 35-55 x 5-8 µm.
Spores 6.5-9.5 x 2-3.2 µm.
Habitat. On angiosperms.
Distribution. Poland (loc.cit), Morocco (Malencon 1982), Europa (Jülich & Stalpers 1980).
Distinguishing characters. Hymenial surface even, becoming rimose, pinkish grey, becoming lilaceous to reddish brown, much paler when dry. Spores < 3.2 µm. Gloeocystidia present. Lamprocystidia thick-walled, 6-16 x 60 µm. With clamps.

Peniophora pseudonuda *Hallenb. (1980) Mycotaxon 11 (2): 459.*

Basidiocarp effused, adnate, concrescent, rounded when young, up to 0.2 mm thick. Hymenial surface even, light greyish brown. Margin abrupt.
Hyphal system. Hyphae hyaline to brown, thin- to somewhat thick-walled, 2-5 µm wide. Well developed basal layer. With clamps.
Cystidia. *Gloeocystidia* clavate to cylindrical, 50-80 x 9-15 µm, thin- to at least at the base somewhat thick-walled, often bi-rooted, SA+ dark brown to black. *Lamprocystidia* fusiform, slightly thick-walled, 25-40 x 9-12 µm.
Basidia clavate to flexuous-cylindrical, 45-80 x 5-7 µm.
Spores cylindrical to suballantoid, 9-11 x 3.5-4 µm.
Habitat. On angiosperms.
Distribution. Iran (loc.cit).
Distinguishing characters. Hymenial surface even, light greyish brown. Margin abrupt. Spores , 9-11 x 3.5-4 µm. Gloeocystidia 9-15 µm wide, thin- to at least at the base somewhat thick-walled, often bi-rooted. Lamprocystidia 9-12 µm wide. With clamps.

Peniophora septentrionalis *Laurila (1939) Ann. Bot. Soc. Zool.-Bot. Fenn. "Vanamo" 10 (4): 10.*
Basidiocarp effused, adnate, sometimes becoming rimose, up to 0.4 mm thick. Hymenial surface even to tuberculate or with ridges, pinkish red to greyish red when fresh, greyish violaceous to greyish brown when old. Margin fimbriate, whitish when young, indistinct when old.
Hyphal system. Hyphae hyaline to brown, thin- to thick-walled, 3-4 µm wide. Basal layer well developed, thick. Subhymenium consisting of several divided layers. With clamps.
Cystidia. *Gloeocystidia*, 60-120 x 7-10 µm. *Lamprocystidia* hyaline to brownish at the base in the lower parts, 30-70 x 7-12 µm.
Basidia subcylindrical to subclavate, 40-50 x 5-6 µm.
Spores cylindrical to allantoid, 6.5-9 x 2-2.7 µm.
Habitat. On Gymnosperms, only known from *Picea*.
Distribution. Canada, USA (Ginns and Lefebvre 1993), Sweden, Finland (Eriksson 1950).
Distinguishing characters. Hymenial surface pinkish red to greyish red when fresh, greyish violaceous to greyish brown when old. Spores 6.5-9 µm long. Gloeocystidia 7-10 µm wide. Lamprocystidia 7-12 µm wide. On gymnosperms.
Remarks. Resembles *P. junipercola*, but has smaller spores and presence of gloeocystidia.

Peniophora violaceolivida *(Sommerf.) Massee (1889) J. Linn. Soc., Bot. 25: 152.*
Basidiocarp effused, adnate, becoming rimose, up to 0.2 mm thick. Hymenial surface even to tuberculate, grey with reddish or violaceous tinge to bluish grey. Margin fimbriate, whitish when young, indistinct when old.
Hyphal system. Hyphae hyaline to brown, thin- to thick-walled, 3-4 µm wide. With clamps.
Cystidia. *Gloeocystidia* 30-75 x 7-10(-12) µm, SA+. *Lamprocystidia* 15-30 x 5-8 µm, hyaline to brownish at the base.
Basidia subcylindrical, 20-45 x 5-7 µm.
Spores cylindrical to allantoid, 7.5-9(-10) x 2.3-3 µm.
Habitat. On angiosperms, rarely on gymnosperms. Preferably on *Salicaceae.*
Distribution. Morocco (Malencon 1982), India (Rattan 1977), Australia (Warcup and Talbot 1963), Canada, USA (Ginns and Lefebvre 1993), China (Maekawa et al. 2002), France (Boidin 1965), Sweden, Denmark, Norway, Finland (Hansen & Knudsen 1997). Uruguay (Gazzano 1994). Cosmopolitan.

Distinguishing characters. Hymenial surface even to tuberculate, grey with reddish or violaceous tinge to bluish grey. Gloeocystidia 7-10 µm wide, SA+. Lamprocystidia 15-30 x 5-8 µm wide. With clamps. Preferably found on Populus or Salix.

Distribution on the 6 continents

Rusland is considered as part of Asia in this list.

Species	Europe	North America	South America	Asia	Australia	Africa
Peniophora adjacens						x
Peniophora aurantiaca	x	x		x		
Peniophora bicornis				x		x
Peniophora boidinii	x					
Peniophora bonariensis			x			
Peniophora borbonica				x		x
Peniophora borealis		x				
Peniophora bruneiensis				x		
Peniophora carnea		x			x	
Peniophora cinerea	x	x		x	x	
Peniophora colorea		x				
Peniophora confusa			x			
Peniophora coprosmae					x	
Peniophora crassitunicata						x
Peniophora crustosa					x	
Peniophora decorticans		x				
Peniophora dipyrenosperma						x
Peniophora duplex		x				
Peniophora elaeidis						x
Peniophora erikssonii	x	x				
Peniophora exima		x				
Peniophora farlowii		x				
Peniophora fasticata						x
Peniophora fissilis						x
Peniophora fulvissima						x
Peniophora gabonensis						x
Peniophora gilbertsonii						
Peniophora guadelupensis			x			
Peniophora incarnata	x	x	x	x	x	x
Peniophora junipericola	x	x				
Peniophora laeta	x	x				
Peniophora laurentii	x	x				
Peniophora laxitexta			x			
Peniophora lilacea	x			x		
Peniophora limitata	x			x		
Peniophora lycii	x	x	x		x	x
Peniophora malaiensis				x		

Species	**Europe**	**North America**	**South America**	**Asia**	**Australia**	**Africa**
Peniophora manshurica				**x**		
Peniophora meridionalis	**x**				**x**	**x**
Peniophora molesta						**x**
Peniophora monticola						**x**
Peniophora multicystidiata			**x**			
Peniophora nuda	**x**	**x**		**x**	**x**	**x**
Peniophora ovalispora						**x**
Peniophora parvocystidiata			**x**			
Peniophora piceae	**x**	**x**	**x**			
Peniophora pilatiana	**x**					**x**
Peniophora pini	**x**	**x**				
Peniophora pithya	**x**	**x**				**x**
Peniophora polygonia	**x**	**x**				
Peniophora proxima	**x**					
Peniophora pruinata		**x**				
Peniophora pseudonuda				**x**		
Peniophora pseudopini		**x**				
Peniophora pseudoversicolor	**x**	**x**				
Peniophora quercina	**x**	**x**	**x**	**x**		**x**
Peniophora reidii				**x**		
Peniophora rhodocarpa				**x**		
Peniophora rufa	**x**	**x**		**x**		
Peniophora rufomarginata	**x**					**x**
Peniophora scintillans					**x**	**x**
Peniophora septentrionalis	**x**	**x**				
Peniophora seymouriana		**x**				
Peniophora similis		**x**				
Peniophora spathulata				**x**		
Peniophora sphaerocystidiata		**x**				
Peniophora subpirispora	**x**					
Peniophora subsalmonea						**x**
Peniophora suecica	**x**					
Peniophora taiwanensis				**x**		
Peniophora tamaricicola	**x**	**x**				**x**
Peniophora taraguiensis			**x**			
Peniophora tephra		**x**			**x**	
Peniophora versicolor	**x**					
Peniophora violaceolivida	**x**	**x**		**x**	**x**	**x**

Genus Duportella Pat

Basidiocarp resupinate, adnate, thin to moderately thick, usually with a slightly reflexed margin; hymenial surface smooth, reddish, greyish, violaceous, beige, pale buff, pale ochraceous or brown in different nuances of vinaceous, purplish, olivaceous, grey or black, or just brown. Hyphal system dimitic or monomitic, hyphae with or without clamps. Skeletocystidia numerous, rusty brown, bending into the hymenium and subhymenium, apically strongly encrusted. Gloeocystidia subcylindrical, hyaline and usually SA+. Basidia subcylindrical or subclavate, 4 sterigmate and with basal clamp. Spores hyaline, thin-walled, ellipsoid to ovoid, subovoid, cylindrical, allantoid, lacrimoid to pyriform or subreniform, reniform, globose to subglobose, triangular. The shape is often characteristic for species.

Type species: Duportella tristicula (Berk. & Br.) Reink.

Key to the 12 species of Duportella

1. Skeletocystidia absent **2**
1. Skeletocystidia present **3**

2. The following spore shapes are characteristic for the species.

2.1. Broadly ellipsoid to ovoid **D. halimi**

2.2. Cylindrical to allantoid **D. kuehneroides**

2.3. Subovoid to somewhat irregular **D. miranda**

2.4. Lacrimoid to pyriform or subreniform **D. pirispora**

2.5. Reniform **D. renispora**

2.6. Globose to subglobose **D. sphaerospora**

2.7. Triangular **D. trignosperma**

3.1. Spores 5.2-7.5 µm long **D. kuehneri**
3.2. Spores up to 12.5 x 4 µm **4**
3.3. Spores up to 14.5 x 6 µm **5**

4. Reflexed part up to 1 cm broad. Gloeocystidia subulate to narrowly fusiform, 5.5-7 µm wide. Hymenial surface purplish brown to purplish grey **D. malenconii**
4. Reflexed part up to 5 mm broad. Gloeocystidia fusiform to ventricose, 8-25 µm wide. Hymenial surface rusty to dark reddish brown **D. tristicula**

5. Basidiocarp effused, up to 0.6 mm thick. Gloeocystidia fusiform, relatively narrow, 60-90 x 5-12 µm. Found in Ethiopia **D. rhoica**
5. Basidiocarp effused, up to 0.3 mm thick. Gloeocystidia ovoid to fusiform, relatively wide, up to 65 x 33 µm. Found in Taiwan **D. tristiculoides**

Species descriptions

Duportella halimi *(Boidin & Lanquetin) Hjortstam (1987) Windahlia 17: 56.*
Basidiocarp effused, up to 0.25 mm thick. Hymenial surface even, rimose when old, avellaneous to brown. Margin adpressed.
Hyphal system monomitic. Hyphae hyaline to brown, thin- to thick-walled. With clamps.
Cystidia. *Gloeocystidia* cylindrical to fusiform, thin- to somewhat thick-walled, 55-72 x 5-10 µm, tramal gloeocystidia SA+. *Lamprocystidia* brown, 40-55 x 3-6 µm.
Basidia 35-52 x 6-6.5 µm.
Spores broadly ellipsoid to ovoid, thin-walled, 5.5-7 x 4-4.8 µm.
Habitat. On Atriplex.
Distribution. France (loc.cit).
Distinguishing characters. Spores broadly ellipsoid to ovoid, thin-walled. Hymenial surface, avellaneous to brown.

Duportella kuehneri *(Boidin & Lanquetin) Hjortstam (1987) Windahlia 17: 58.*
Basidiocarp effused, up to 0.15 mm thick. Hymenial surface even, vinaceous brown to purplish brown, becoming dark greyish brown. Margin fibrillose.
Hyphal system dimitic. Hyphae hyaline to brown, thin- to thick-walled, 2-4 µm wide. With clamps. Basal layer practically absent. Skeletal or skeletoid hyphae present, 4-4.5 µm wide.
Cystidia. *Gloeocystidia* (sub)cylindrical, thin- to thick-walled, 45-60 x 7,5-13 µm, SA-. *Lamprocystidia* cylindrical to conical, brown, 23-50 x 5-7(-10) µm, often bi-rooted. *Skeletocystidia* developing from skeletoid hyphae, not encrusted, 35-40 x 3-4 µm (pseudocystidia, false setae).
Basidia 22-32 x 4-5 µm.
Spores cylindrical to allantoid, 5.2-7.5 x 2-3.5 µm.
Habitat. On angiosperms.
Distribution. Ethiopia (Boidin & Lanquetin 1995). Madagascar and Réunion (Boidin et al. 1991).
Distinguishing characters. Skeletocystidia present. Lamprocystidia brown. Spore shape cylindrical to allantoid, 5.2-7.5 µm long.

Duportella kuehneroides *Boidin, Lanquetin & Gilles (1991) Bull. Soc. Mycol. France 107: 98.*
Basidiocarp effused, up to 0.25 mm thick. Hymenial surface even, greyish violaceous, sometimes locally brighter. Margin indistinct.

Hyphal system dimitic. Hyphae hyaline to yellowish, thin- to slightly thick-walled, 2-4 µm. Generative hyphae with clamps. Basal layer compact with subhyaline to brownish hyphae, context hyphae hyaline, thin-walled.
Cystidia. *Tramal gloeocystidia* cylindrical, thin- to thick-walled, SA+. *Hymenial gloeocystidia* fusiform, 5-18 µm wide, some with schizopapilla, SA+. *Lamprocystidia* cylindrical to conical, brown, 4.5-6 µm wide, often bi-rooted.
Basidia 22-28 x 5-6 µm.
Spores cylindrical to allantoid, 6-8(-10) x 2,5-3(-3,5) µm.
Habitat. On angiosperms.
Distribution. Taiwan (Sheng-Hua Wu 2000).
Distinguishing characters. Gloeocystidia SA+. Spores cylindrical to allantoid, 6-8 µm long. Otherwise similar to *D. kuehneri*.

Duportella malenconii *(Boidin & Lanquetin) Hjortstam (1987) Windahlia 17: 58.*
Basidiocarp effused to effused-reflexed, submembranaceous to coriaceous, up to 0.5 mm thick, reflexed part up to 1 cm broad. Abhymenial surface velutinous to felty, brown to blackish brown, sometimes zonate. Hymenial surface even, rimose when old, purplish brown to purplish grey.
Hyphal system. Generative hyphae hyaline to dark brown, thin- to thick-walled, with clamps, but in tomentum many septa without clamps. Skeletal or skeletoid hyphae brown, 3-4.5 µm wide, some curving into the hymenia to form *skeletocystidia* (pseudocystidia, false setae), 5-8 µm wide.
Cystidia. *Gloeocystidia* subulate to narrowly fusiform, 45-70 x 5.5-7 µm, SA+, sometimes with schizopapilla. *Lamprocystidia* narrowly conical, thick-walled, brown, 55-100 x 9-13 µm.
Basidia 40-50 x 5-7 µm.
Spores cylindrical to allantoid, (7-)7.5-10(-13) x 2.5-4(-4.5) µm.
Habitat. On angiosperms.
Distribution. Morocco (Malençon 1982), USA (Ginns and Lefebvre 1993 - ssp. *americana*).
Distinguishing characters. Effused-reflexed with reflexed part up to 1 cm broard. Purplish. Skeleocystidia present.

Duportella miranda *Boidin, Lanquetin & Gilles (1991) Bull. Soc. Mycol. France 107: 100.*
Basidiocarp effused, up to 0.25 mm thick. Hymenial surface even, rimose when old, avellaneous to brown, typically with olivaceous tinges. Margin adpressed.
Hyphal system monomitic. Hyphae hyaline to brown, thin- to thick-walled. With clamps.
Cystidia. *Hymenial gloeocystidia* cylindrical to fusiform, thin-walled, 7-10 µm wide, often with a schizopapilla. *Tramal gloeocystidia* 10-20 µm wide, SA+. *Lamprocystidia* brown, 40-60 x 9-12 µm, often bi-rooted.
Basidia 25-30 x 6-6.5 µm.
Spores subovoid to somewhat irregular, slightly thick-walled, 5-6.5 x 3.8-4.7 µm.
Habitat. On angiosperms.
Distribution. Taiwan (Wu 2000), Réunion (Boidin et al. 1991).
Distinguishing characters. Hymenium with olivaceous tinges Differs from *D. sphaerospora* by smaller spores.

Duportella pirispora *Boidin, Lanquetin & Gilles (1991) Bull. Soc. Mycol. France 107: 104.*
Basidiocarp effused, up to 0.07mm thick. Hymenial surface even, beige.
Hyphal system. Hyphae hyaline to yellowish, thin- to slightly thick-walled, 2-3 µm wide. With clamps. Basal layer practically absent.

Cystidia. *Gloeocystidia* cylindrical, slightly thick-walled at the base, 48-65 x 8-14 µm, SA+. *Lamprocystidia* conical, brown, 35-70 x 7-12 µm, multi-rooted.
Basidia subcylindrical, 28-33 x 5.5 µm.
Spores lacrimoid to pyriform or subreniform, (7.5-)8.5-11 x (4.5-)5-6(-6.8) µm.
Habitat. On angiosperms.
Distribution. Gabon (loc.cit).
Distinguishing characters. Hymenial surface beige. Very thin basidiome. Spores lacrimoid to pyriform or subreniform, up to 11 µm long.

Duportella renispora *Boidin, Lanquetin & Gilles (1991) Bull. Soc. Mycol. France 107: 104.*
Basidiocarp effused, up to 0,06 mm thick. Hymenial surface even, beige to grey.
Hyphal system monomitic. Hyphae hyaline, thin-walled, 2-3.5 µm wide. Clamps present. Basal layer practically absent.
Cystidia. *Gloeocystidia* terminal or lateral, cylindrical, obtuse, SA-. *Lamprocystidia* conical, brown, thinly encrusted, 33-55 x 6-8.5 µm, often multi-rooted.
Basidia subcylindrical, 20-30 x 5.5-6.5 µm.
Spores reniform, 5.2-6.5(-) x 3.5-4.5 µm.
Habitat. Only known from *Urtica*.
Distribution. Réunion (loc.cit).
Distinguishing characters. Spores reniform. Growing on *Utrica*.

Duportella rhoica *Boidin & Lanquetin (1995) Cryptog. Mycol. 16 (2): 89.*
Basidiocarp effused up to 0.6 mm thick. Hymenial surface even, violaceous brown to greyish brown to dark grey. Margin paler.
Hyphal system dimitic. Generative hyphae hyaline to brown, thin- to usually thick-walled, 2.5-3.5 µm wide, with clamps. Skeletoid hyphae 3-5 µm wide, curving into the hymenia to form *skeletocystidia.*
Cystidia. *Gloeocystidia* fusiform, relatively narrow, 60-90 x 5-12 µm, SA+, often with schizopapilla. *Lamprocystidia* subhyaline to brown, 30-80 x 5-8 µm.
Basidia 40-55 x 7-8 µm
Spores cylindrical to allantoid, 10-14.5 x 4-6 µm.
Habitat. On angiosperms.
Distribtion. Ethiopia (loc.cit)
Distinguishing characters. Hyphae thick-walled, 2.5-3.5 µm wide. Skeletocystidia present. Spores 10-14.5 µm long.

Duportella sphaerospora *G. Cunn. (1957) Trans. Roy. Soc. New Zealand 85 (1): 96.*
Basidiocarp effused, ceraceous, up to 0,3 mm thick. Hymenial surface even to rugulose, pale buff, pale ochraceous or greyish brown, rimose when dry. Margin free or adherent.
Hyphal system dimitic. Generative hyphae 1.5-2 µm wide. With clamps. Skeletal hyphae 3-5 µm wide.
Cystidia. *Gloeocystidia* vesicular to clavate, 32-48 x 10-14 µm. *Skeletocystidia* cylindrical or acute, sometimes furcate near the apex, finely encrusted, 4-6 µm wide.
Basidia subclavate, 26-32 x 10-12 µm.
Spores globose to subglobose, 10-12 x 9-12 µm.
Habitat. New Zealand (www.mycobank.com).
Distinguishing characters. Skeletocystidia sometimes apically bifid. Big, subglobose spores, 10-12 x 9-12.

Duportella trigonosperma *(Boidin, Lanquetin & Gilles) Hjortstam (1987) Windahlia 17: 58.*
Basidiocarp effused, up to 0.25 mm thick. Hymenial surface even, pinkish beige, minutely rimose when dry.
Hyphal system monomitic. Hyphae hyaline to dark brown, 2-4 µm wide. Basal layer consisting of agglutinated hyphae. Clamps present.
Cystidia. *Gloeocystidia* often lateral, cylindrical to fusiform, 30-50 x 5-7 µm, often with schizopapilla, SA+. *Lamprocystidia* conical, yellowish brown to dark brown, 28-42 x 4-7 µm, often bi-rooted.
Basidia subcylindrical, 25-32 x 4-5 µm.
Spores triangular in outline, 4-6 x 3-3.5 x 4.2-5.5 µm.
Habitat. On angiosperms. Only known from palm trees.
Distribution. China (Maekawa et al 2002), Cameroon (herb. Ryvarden, O), Thailand (loc.cit), Central Africa (www.mycobank.com)
Distinguishing characters. Hymenial surface pinkish beige. Spores triangular. On palm trees.

Duportella tristicula *(Berk. & Broome) Pat. (1920) Reink., Philipp. J. Sci. 17: 364.*
Basidiocarp effused, rarely effused-reflexed, submembranaceous to coriaceous, up to 0.5 mm thick, reflexed part up to 0.5 cm broad. Hymenial surface velutinous to felty, rusty to dark reddish brown. Margin floccose, slightly darker than the hymenium.
Hyphal system dimitic. Generative hyphae hyaline to dark brown, thin- to thick-walled, 2.5-4 µm, with clamps, but in tomentum many septae without clamps. Basal layer present. Skeletal or skeletoid hyphae brown, 3-4.5 µm wide, some curving into the hymenia to form *skeletocystidia*, 5-11 µm wide.
Cystidia. *Gloeocystidia* bladderlike, fusoid or clavate, 40-80 x 8-25 µm, sometimes with schizopapilla, SA+. *Lamprocystidia* narrowly conical, thick-walled, brown, 40-60 x 9-11 µm. *Skeletocystidia* present.
Basidia 25-40 x 5-7µm.
Spores cylindrical to allantoid, 10.0-12.5 x 3.7-4.2 µm.
Habitat. On angiosperms.
Distribution. Taiwan (Wu 2000). Africa, Réunion, Singapore (Boidin et al. 1991), Phillippines, Australia (Cunningham 1963).
Distinguishing characters. Rusty to dark reddish brown with a distinct margin, superficially resembling a Hymenochaete species, but hyphae with clamps, presence of gloeocystidia.

Duportella tristiculoides *Sheng H. Wu & Z.C. Chen (1993) Bull. Nat. Mus. Nat. Sci. 4: 108.*
Basidiocarp effused, membranaceous, up to 0.3 mm thick. Hymenial surface even, rimose, greyish brown. Margin concolorous.
Hyphal system dimitic. Generative hyphae usually thin-walled, 2.2-4.5 µm wide, with clamps. Skeletoid hyphae brown, thick-walled 2.5-5 µm wide, curving into the hymenia to form *skeletocystidia*. Basal layer absent.
Cystidia. *Gloeocystidia* ovoid to fusiform, relatively wide, up to 65 x 33 µm, SA+. *Skeletocystidia* up to 5 µm wide.
Basidia 30-45 x 6.7-8.5 µm.
Spores cylindrical to allantoid, 10-14.5 x 4-6 µm.
Habitat. On angiosperms.
Distribution. Taiwan (Wu 2000).

Distinguishing characters. Differs from *D. tristicula* by absence of basal layer, an indistinct margin, and wider basidia.

Genus Dendrophora (*Parm.*) *Chamuris*

Basidiocarp resupinate, effused or effused reflexed (reflexed part velutinous or felty to tomentose), adnate, but loosening at the margin by age. Hymenial surface smooth or tuberculate, grey to dark brown. Hyphal system dimitic or monomitic with some skeletoid hyphae; generative hyphae with clamps, skeletoid hyphae thick-walled, yellow to pale-brown, indextrinoid, dominating in the subiculum and branching to dendrohyphae in the subhymenium. Lamprocystidia usually numerous, hyaline or basally pale brown. Gloeocystidia fusiform, thinwalled, SA+. Basidia 4 sterigmate and with basal clamp. Spores cylindrical to allantoid, inamyloid. Spore print pink.

Key to genus Dendrophora

1. Spores cylindrical to suballantoid, 7-11 x 3-4.2 µm. Lamprocystidia up to 15 µm wide. Reflexed parts up to 1 cm broad **D. albobadia**

1. Spores allantoid, 5-8 x 1.5-2.5 µm. Lamprocystidia 15-25 µm wide. Reflexed parts up to 0.5 mm broad **D. versiformis**

Species descriptions

Dendrophora albobadia *(Schwein. : Fr.) Chamuris (1987) Mycotaxon 28 (2): 544.*
Basidiocarp effused to effused-reflexed, thin coriaceous, up to 0.6 mm thick, reflexed parts up to 1 cm wide. Abhymenial surface tomentose-strigose to felty, light brown to dark brown. Hymenial surface even to slightly tuberculate, often with concentric zones, pale brown, greyish brown or cinnamon. Margin whitish.
Hyphal system. Hyphae hyaline to brown, thin- to thick-walled, rarely skeletoid, 2-5 µm wide. With clamps.
Cystidia. *Gloeocystidia* fusiform, thin-walled, weakly SA+. *Lamprocystidia* conical, thick-walled, encrusted, 25-50 x (6.5-)8-15 µm, protruding up to 25 µm. *Dendrohyphidia* subhyaline to brown, darkest near the apices, thick-walled.
Basidia subclavate, 25-40 x 5-6 µm.
Spores cylindrical to suballantoid, 7-11 x (2.5)3-4.2 µm
Habitat. On angiosperms.
Distribution. North America (Jülich and Stalpers 1990), Mexico (Marmolejo et al. 1981), Hawaii (Gilbertson et al. 2001), West Indies (Boidin & Lanquetin 1991), Bermuda (Chamuris 1988), Argentina (Gomez & Loewenbaum 1976, Popoff 1997), Colombia, Brazil, Uruguay (Gazzano 1998).
Distinguishing characters. The species may be confused with *D. versiformis*, which differs in having a generally darker coloration and a cream to pale yellow brown margin. Moreover, *D. versiformis* differs in spore size and shape and width of lamprocystidia.

Dendrophora versiformis *(Berk. & M.A. Curtis) Chamuris (1987) Mycotaxon 28 (2): 544.*
Basidiocarp effused to effused-reflexed, coriaceous, up to 0.8 mm thick, reflexed parts up to 5 mm wide. Basidiome discoid to pustulate when young. Abhymenial surface tomentose, dark brown to greyish black. Hymenial surface even to tuberculate, brown.

Hyphal system. Hyphae hyaline to brown, thin- to thick-walled, rarely skeletoid, 2-6(-8) µm wide. With clamps.
Cystidia. *Gloeocystidia* fusiform, thin-walled, SA+, 30-50 x 5-12 µm. *Lamprocystidia* conical, thick-walled, encrusted, 30-100 x (10-)15-25 µm, embedded. *Dendrohyphidia* subhyaline to brown, darkest near the apices, thick-walled throughout, 3-8µm wide at the base.
Basidia subclavate, 25-40 x 4-6(-7) µm.
Spores allantoid, 5-8(-9) x 1.5-2.5 µm.
Habitat. On angiosperms.
Distribution. France, USA (Eriksson 1950), Taiwan (Wu 2000), Jamaica (Punugu et al. 1980). Ecuador, Morocco (Malençon 1982), Canary Island (Ryvarden 1976), Eastern North America, Eastern Asia, North Africa (Chamuris).
Distinguishing characters Dendrohyphidia present and not encrusted, brown and thick-walled, forming a dense felt on the surface of the basidiocarp.
Remarks. *Dendrophora erumpens* (Burt) Chamuris is very similar to – or conspecific with – *D. versiformis*. The species may be distinguished from *D. versiformis* by its erumpent basidiomata with elevated margins and a distinctly gray hymenial surface. The hymenial surface is gray because of the tendency to form more hymenial cystidia than *D. versiformis*, and for the paler dendrohyphidia.

Acknowledgements

The species descriptions were obtained from different sources as follows from the list below. However, the descriptions produced by J.A. Stalpers, Utrecht, on CBS and Mycobank web-sites have been very useful and were used as ground pillars in this work. We are also grateful to E. Yurchenco, Minsk, L. Rydberg and Bente Eriksen Molau, Göteborg, who contributed with helpful comments to the draft of the manuscript.

Litterature

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