

*Psathyrella* (Fr.) Quél. LEIF ÖRSTADIUS & HENNING KNUDSEN

Frb fragile with even margin and black sp deposit. Cap 1-100 mm, when young often hemispherical to obtusely conical, becoming convex to plane, smooth to innately fibrillose, dry, rarely viscid, often translucently striate and strongly hygrophanous, when moist white, grey, grey brown, ochre brown, brown, red brown, dark red brown, dark red or dark purple brown, often drying to paler colours. Gills adnexed to adnate, ventricose to narrow, distant to very crowded, when young white, grey or very pale brown, becoming grey, dark grey, flesh-coloured, brown, reddish brown, dark reddish brown or purple brown, upper part of edge often white fimbriate, and lower part sometimes red pigmented. Stem central, in most species pulverulent at top, pale, sometimes with a ring. Veil most often present on cap or stem, copious to scanty, persistent or often fugacious. Flesh very fragile to rather firm. Smell usually faint to absent, rarely strong, sweetish, soap-like or nauseous-fetid. Taste mild or rarely bitter. Sp in deposit shades of brown, dark brown, dark reddish brown, dusky red or reddish black.

Sp in front view oblong, ovoid, ellipsoid, subcylindrical or fusiform, in side view flattened on adaxial side, sometimes amygdaloid, phaseoliform or with a suprahilar depression, smooth or rarely very weakly ornamented, with or without germ pore, central or rarely eccentric, almost hyaline, very pale brown, yellow, reddish yellow, yellowish red, red, dark reddish brown, dark red to dusky red. Basidia 4-spored, occasionally 2-spored. Pleurocystidia present or sometimes absent. Cheilocystidia often of two types, one type similar to the pleurocystidia and another type which is ± clavate. Gill edge in a few species covered with drops staining green in a 10 % solution of ammonia especially when fresh. Pileocystidia present in a few species. Sclerocystidia present in one species. Pileipellis a hymeniderm, sometimes with a transition to a paraderm, rarely a cutis. Veil most often present, either as hyphae with cells differing in size, rarely as spherocysts. Clamps present or absent.

Saprotrophic, solitary, gregarious or caespitose, on ± alkaline soils or lignicolous, a number occur on dung, and a few on old bonfires or in swamps. Spring to late autumn.

80 species in the Nordic countries, 82 species in the key.


Lit.: Enderle 2004, Kits van Waveren 1985, 1987, Kühner & Romagnesi 1953, Larsson & Örstadius 2008, Ludwig 2007, Romagnesi 1975, 1982, Smith 1972, Örstadius 2007, Vesterholt & Knudsen in Hansen & Knudsen 1992.

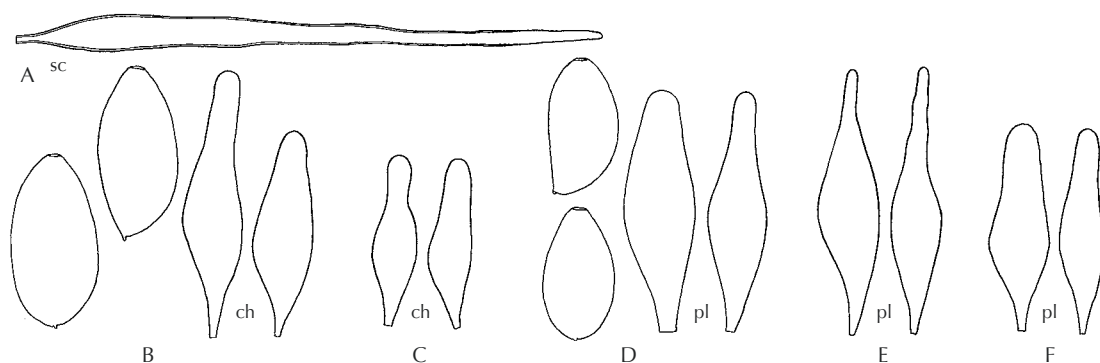
**Main key**

- |    |   |                              |
|----|---|------------------------------|
| 1. | Sp on av > 9 μm long  | 2                            |
| -  | Sp on av < 9 μm long  | 4                            |
| 2. | Sp on av > 12 μm long   | <a href="#">Key A p. 588</a> |
| -  | Sp on av < 12 μm long   | 3                            |
| 3. | Sp on av > 10.5 μm long   | <a href="#">Key B p. 594</a> |
| -  | Sp on av < 10.5 μm long   | <a href="#">Key C p. 598</a> |
| 4. | On dung   | <a href="#">Key D p. 606</a> |
| -  | Not on dung   | 5                            |
| 5. | Pleurocystidia absent   | <a href="#">Key E p. 607</a> |
| -  | Pleurocystidia present  | 6                            |
| 6. | Gill edge and cystidia covered with drops staining green in a solution of ammonia or clamps absent    | <a href="#">Key F p. 608</a> |
| -  | Gill edge and cystidia not covered with drops staining green in a solution of ammonia; clamps present | 7                            |
| 7. | Sp on av < 6.4 μm long  | <a href="#">Key G p. 609</a> |
| -  | Sp on av > 6.4 μm long  | 8                            |

- |     |   |              |
|-----|---|--------------|
| 8.  | Veil absent; pleurocystidia with crystals   | Key H p. 610 |
| -   | Veil present; pleurocystidia with or without crystals                                     | 9            |
| 9.  | Smell sweetish reminding of almond, marzipan or coconut                                   | Key I p. 610 |
| -   | Smell not sweetish  | 10           |
| 10. | Pleurocystidia lageniform to conical, upper part often acute (figs 613, 615)              | Key J p. 611 |
| -   | Pleurocystidia (narrowly) utriform to lageniform, upper part often obtuse (figs 619, 621) | Key K p. 617 |

### Key A: Sp on av > 12 $\mu\text{m}$ long

- |    |                        |   |
|----|------------------------|---|
| 1. | Pleurocystidia absent  | 2 |
| -  | Pleurocystidia present | 3 |
2. Sp on av > 14  $\mu\text{m}$  long; pileipellis with imbedded sclerocystidia (fig. 589A); veil absent. Cap 20-50 mm, conical, when young dark reddish brown, striate up to 3/4 from margin, strongly hygrophanous, fading without pink; gills crowded, L = 36-52, with white edge; stem 50-170 x 2-6 mm, thickened towards base, extremely fragile, whitish, conspicuously pruinose striate at top. Sp 13.5-17 x 6.5-9  $\mu\text{m}$ , Qav = 1.8-2.1, oblong, subcylindrical, subovoid, in profile sometimes with suprahilar depression (fig. 589B), reddish brown, opaque, with distinct, often eccentric germ pore; cheilocystidia of two types: A: 25-80 x 10-22  $\mu\text{m}$ , utriform, lageniform, abundant, B: small, clavate; pileipellis a hymeniderm; sclerocystidia 35-650 x 4-10  $\mu\text{m}$ , yellow brown, scattered. Under deciduous trees on moist, basic soil, in parks and gardens rich in nitrogen, in grass on lawns, on sticks or debris including rotting sawdust or wood chips, in leaves, on dung outside the area; spring to autumn; common in temp., occasional in hemib.-bore.; DK (LC), FI (LC), NO (LC), SE (LC). – B&K 4:326, Däh 566, 567, Jordst 18(1), Lud 98.32, Ves 300, .
- P. conopilea* (Fr.: Fr.) Ulbr. ('*conopilus*', *P. subatrata* (Batsch) Gillet s. auct.)
- Sp on av < 14  $\mu\text{m}$  long; pileipellis without sclerocystidia; veil present. Cap 10-40(-80) mm, conical-convex, reddish brown or more often dried out to grey brown, becoming beige or pale yellow grey, sometimes flesh-coloured or with a pink tinge, hygrophanous, not or faintly striate, veil remnants characteristically as denticulate flocci at margin; gills adnexed, crowded, L = 34-50, reddish grey, brown, with white fimbriate edge; stem 30-70(-150) x 2-6(-12) mm, pulverulent or flocculose from top and downwards, but decreasing in intensity and ceasing at lower half of stem where veil remnants can leave a fibrillose zone or rarely a ring. Sp 10.5-14 x 6-7.5  $\mu\text{m}$ , Qav = 1.6-2, oblong, subcylindrical, ovoid, ellipsoid, hexagonal, in profile sometimes amygdaloid (fig. 589C), reddish brown; cheilocystidia of two types: A: 20-45(-60) x 7-18  $\mu\text{m}$ , narrowly utriform, rarely lageniform or subcylindrical, numerous, B: small, clavate to pyriform; pileipellis a cutis; pileitrama made up of pale pigmented hyphae; veil cells 50-180 x 3-16  $\mu\text{m}$ ; clamps numerous. In rich deciduous forests, parks, gardens or other disturbed places, in nutrient rich grassland, bonfires, lignicolous, terricolous and on wood-chips; spring to autumn; occasional in temp., rare in hemib.; DK (LC), FI (DD), NO (LC), SE (LC). – Bol Bres 36:126, FAD 150A,B, 151F, Lud 98.31, M&J 4, Phil 255i.
- P. marcescibilis* (Britzelm.) Singer (*Psathyra fragillissima* J.E. Lange, *P. lactea* J.E. Lange f. *lactea*, *P. lactea* J.E. Lange f. *virginica* J.E. Lange, *Psathyrella involuta* (Romagn.) M.M. Moser)



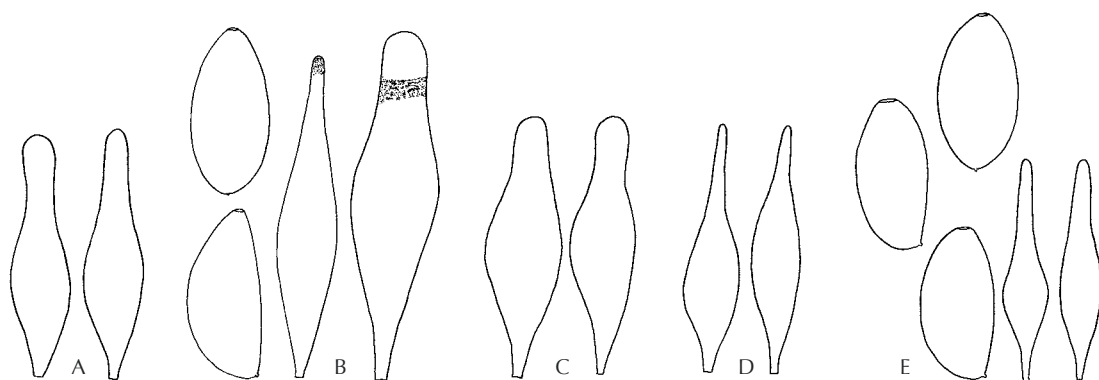
Sclerocystidium, spores, cheilocystidia and pleurocystidia: A-B: *Psathyrella conopilea*, C: *P. marcescibilis*, D: *P. ammophila*, E: *P. jacobssonii*, F: *P. saponacea*.

3. In sand dunes. Cap 10-50 mm, convex, becoming  $\pm$  plane, hardly striate, dark brown to date brown, hygrophanous, fading on drying, veil when young as fibres close to the margin; gills medium spaced, greyish brown with purple tinges; stem 30-70  $\times$  2-5 mm, lower part sunk in sand, sometimes with a pseudorrhiza, bulbous or clavate; smell and taste not distinctive. Sp 9-14  $\times$  5.5-8.5  $\mu\text{m}$ ,  $Q_{av} = 1.5-1.9$ , ellipsoid, oblong, ovoid, obovoid, subrectangular, in profile sometimes amygdaloid or with suprahilar depression, rarely subphaseoliform (fig. 589D), reddish brown, with a distinct, rarely eccentric germ pore; basidia 4(-2)-spored; pleurocystidia 30-70  $\times$  10-22  $\mu\text{m}$ , utriform, narrowly utriform, clavate, sometimes lageniform, rarely rostrate, scattered; cheilocystidia of two types: A: 25-65  $\times$  10-18  $\mu\text{m}$ , similar to pleurocystidia, scattered or locally numerous, B: small, clavate, numerous, especially close to cap margin; gill edge sometimes red-brown pigmented; veil cells 20-60  $\times$  2-16  $\mu\text{m}$ . Spring to autumn; common in western temp., occasional in western hemib., rare in eastern temp. and eastern hemib., very rare in bore.-suba.; DK (LC), IS (Na), NO (NT), SE (NT). – Bol Bres 36:120, FAD 148B (as *Psilocybe a.*), Lud 98.9, Svp 33:45, Ves 301,  $\odot$ .

*P. ammophila* (Durieu & Lév.) P.D. Orton

- Not in sand dunes 4
4. Gill edge and cystidia covered with drops staining green in a solution of ammonia. Cap 15-30 mm, convex with an umbo, at first dark reddish brown, then fading to brown, faintly striate on the marginal area, hygrophanous, drying pale brown; veil flocculose almost to centre; gills medium spaced, dark brown with white edge; stem 50-100  $\times$  1-3 mm, with an up to 10 mm long pseudorrhiza; smell indistinct to unpleasant. Sp 10.5-13  $\times$  6-7  $\mu\text{m}$ ,  $Q_{av} = 1.8-1.9$ , oblong, narrowly ovoid, subcylindrical, in profile sometimes narrowly amygdaloid, reddish brown, with distinct germ pore; pleurocystidia 35-70  $\times$  11-22  $\mu\text{m}$ , lageniform, fusiform, in upper part sometimes rostrate or forked (fig. 589E), with pale or sometimes yellow walls, rather numerous; cheilocystidia of two types: A: 25-70  $\times$  7-17  $\mu\text{m}$ , lageniform, fusiform, rarely capitate, abundant, B: clavate, not dominating; veil cells 20-130  $\times$  4-20  $\mu\text{m}$ . In wet or moist, herb-rich forests, on soil, in leaves, in *Sphagnum* or among other mosses, at margin of eutrophic fens, with *Picea abies*, *Betula* and *Salix*; late summer to autumn; rare in hemib.-bore.; FI (DD), SE (DD). – Lud 98.23.
- P. jacobssonii* Örstadius
- Gill edge and cystidia not covered with drops staining green in a solution of ammonia 5
5. Pleurocystidia (narrowly) utriform to lageniform, often obtuse (figs 589F, 591A-C) 6
- Pleurocystidia lageniform to conical, often acute (figs 591D-E, 593A-E) 10

6. On dung or manured soil. Cap 3-25 mm, convex, dark reddish brown, dark brown, later fading to yellow brown, hygrophanous, when moist striate up to 2/3 from margin, veil rudimentary, as scattered fibrils near margin; gills distant, L = 16-23; stem 15-55 x 1-2.5 mm; smell unpleasant, of soap or not distinctive. Sp 10.5-14.5 x 6-8  $\mu\text{m}$ ,  $Q_{av}$  = 1.7-1.9, oblong, subcylindrical, sometimes irregular in outline, subhexagonal, in profile flattened on adaxial side, sometimes with a slight suprahilar depression, reddish brown, with indistinct to distinct, central to eccentric germ pore; pleurocystidia 25-60 x 10-16  $\mu\text{m}$ , narrowly utriform, sublageniform (fig. 589F), scattered; cheilocystidia of two types: A: 20-45 x 8-16  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: small, clavate, scattered, rarely numerous; veil cells 10-50 x 2-8  $\mu\text{m}$ . Spring to late autumn; rare in temp.-bore.; DK (DD), FI (EH: Janakkala), FO, NO (NE), SE (LC). – FF 3h, Lud 98.14 (as *coprophila*).  
*P. saponacea* F.H. Møller (*P. coprophila* Watling, *P. fimetaria* Watling, *P. equina* A.H. Sm.)
- Not on dung or manured soil 7
7. Mature and moist cap pale, often greyish ochre; gill edge red pigmented; with habitus like *P. corrugis*. Cap 10-45 mm, convex to plane, in primordia dark reddish brown, when young yellow red, yellow brown, soon fading to greyish ochre, striate halfway to centre, hygrophanous, sometimes drying with pink tinges, veil scanty as fibres close to margin in young stages; gills distant, L = 17-23, mostly with continuously red pigmented edge; stem 40-100 x 1-3 mm, with up to 25 mm long pseudorrhiza, also rudimentary or lacking. Sp 11-16 x 6-7.5  $\mu\text{m}$ ,  $Q_{av}$  = 1.8-2.2, oblong, subcylindrical, ovoid, in profile faintly to distinctly amygdaloid, reddish brown; pleurocystidia 40-80(-100) x 10-25  $\mu\text{m}$ , often utriform, also lageniform, fusiform, flexuous, forked or subcapitate, numerous to scattered; cheilocystidia of two types: A: 25-60(-75) x 8-20(-24)  $\mu\text{m}$ , similar to pleurocystidia, numerous, rarely scattered, B: small, clavate to obpyriform, numerous to scattered; veil cells 40-120 x 2-5  $\mu\text{m}$ . In deciduous forests, parks and shrubs, attached to buried wood, on chips, on sticks and twigs, on dry or moist soil, with preference for nutrient rich soil; summer to autumn; common in temp., rare in hemib.-bore.; DK (LC), FI (DD), FO, NO (LC), SE (LC). – B&K 4:353, End 416, FND 28:29, Lud 98.73, M&J 2.  
*P. pseudogracilis* (Romagn.) M.M. Moser
- Mature and moist cap brown or darker; gill edge not red pigmented; not with habitus like *P. corrugis* 8
8. Sp on av < 6.8  $\mu\text{m}$  broad (fig. 591A); clamps absent. Cap 15-25 mm, convex, deep chocolate brown or vinaceous bay, striate when moist, soon drying tawny ochraceous from centre, then often with bright tawny or vermilion tinge, especially round centre, entirely wine reddish when quite dry, when young covered with white floccules from veil; gills distant, L = 16-18; stem 40-60 x 1-2 mm, pale dirty buff or pale ochraceous, sometimes vinaceous or umber at base. Sp 11-13.5 x 6-7  $\mu\text{m}$ ,  $Q_{av}$  = 1.9-2, oblong, subcylindrical, narrowly ovoid, in profile sometimes amygdaloid or with a suprahilar depression, reddish brown; pleurocystidia 40-70(-80) x 12-20(-26)  $\mu\text{m}$ , utriform, a few lageniform, sometimes capitate, scattered to rather numerous; cheilocystidia of two types: A: 30-60 x 10-18  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: small, clavate, scattered to numerous; veil cells 20-70 x 4-14  $\mu\text{m}$ . With conifers and broadleaved trees, at roadsides, in grass attached to decayed wood, on acid or base-rich soil; summer to early winter; DE, UK. – Bol Bres 36:138, Lud 98.81.  
*P. vinosofulva* P.D. Orton
- Sp on av > 6.8  $\mu\text{m}$  broad; clamps present 9
9. Cap 10-60 mm, often tinged purple; smell particular, e.g. fruity, of peppermint, *Urtica dioica*, *Coprinus narcotica* or cat urine; pleurocystidia 45-100 x 10-24  $\mu\text{m}$ , numerous. Cap expanded to almost plane, purple red, dark red, chestnut, when fresh also yellow brown, hygrophanous, drying vinaceous red, pale red brown, ochre or beige, veil when fresh as flocci or fibres almost to the centre; gills medium spaced, L = 18-35; stem 40-80 x 2-5 mm, whitish with or without purple shades. Sp 11-16.5 x 6.5-8.5(-9.5)  $\mu\text{m}$ ,  $Q_{av}$  = 1.5-2.1, ovoid, oblong,



Spores and pleurocystidia: A: *Psathyrella vinosofulva*, B: *P. odorata*, C: *P. calcarea*, D: *P. stercoraria*, E: *P. longicauda*.

ellipsoid, subcylindrical, sometimes slightly irregular, rarely citriform, in profile sometimes amygdaloid or with a slight suprahilar depression (fig. 591B), reddish brown, with sometimes eccentric germ pore; pleurocystidia narrowly utriform, utriform, lageniform, fusiform, oblong, subconical, subclavate, sometimes rostrate; cheilocystidia of two types: A: 35-80 x 8-24  $\mu\text{m}$ , similar to shape and frequency of pleurocystidia, B: small, clavate, scattered; veil cells 30-150 x 2-14  $\mu\text{m}$ . On wood or attached to buried wood, among herbs in open forests, parks, nutrient rich grasslands or roadsides in *Fagus* forests, often on sandy, sometimes calcareous soil; all year; occasional in western temp., very rare in eastern temp. and hemib.; DK (LC), FI (DD, U: Helsinki), SE (LC). – B&K 4:321, Bol Bres 36:139, End 402, Lud 98.50, M&J 8, ☉.

*P. odorata* (Peck) Sacc. (*P. bipellis* (Quél.) A.H. Sm.)


- Cap 5-30 mm, not tinged purple; smell indistinct; pleurocystidia 40-70 x 10-22  $\mu\text{m}$ , scattered. Cap conical-convex, young reddish brown, when mature fading to strong brown, striate, hygrophanous, drying pale brown or cream, veil fibrillose halfway towards centre; gills distant, L = 14-22; stem 10-60 x 1-3 mm, rarely with a very short pseudorrhiza. Sp 11.5-16 x 7-9  $\mu\text{m}$ , Qav = 1.6-2, oblong, ovoid, ellipsoid, obovoid, subcylindrical, rarely slightly irregular in outline, in profile sometimes amygdaloid, subphaseoliform, or with a suprahilar depression, reddish brown, with distinct or indistinct germ pore; pleurocystidia narrowly utriform, utriform, lageniform (fig. 591C); cheilocystidia of two types: A: 25-55 x 10-20  $\mu\text{m}$ , similar to pleurocystidia, scattered to rather numerous, B: small, clavate, numerous, especially near cap margin; veil cells 15-40 x 2-6  $\mu\text{m}$ . In xerophilous grassland or sand steppe, on sunny slopes; spring to autumn; very rare in eastern temp.; SE (LC). – Lud 98.68.

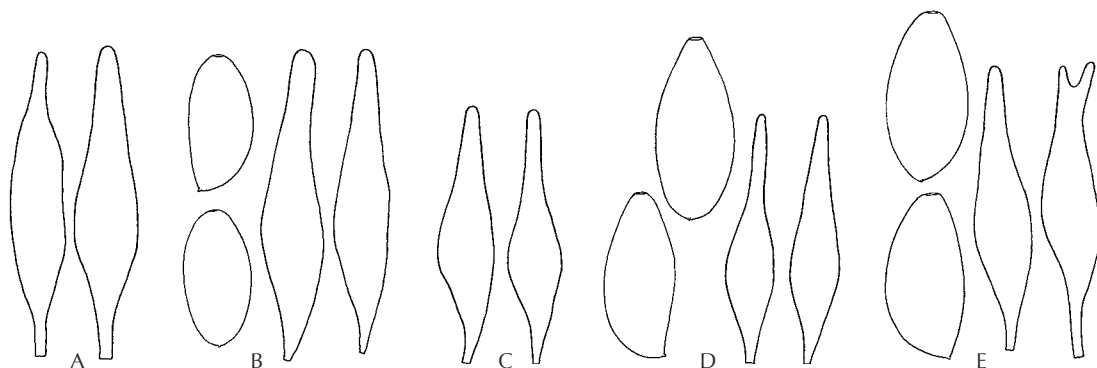
*P. calcarea* (Romagn.) M.M. Moser

10. Frb often tinged purple; smell particular, e.g. fruity, of peppermint, *Urtica dioica*, *Coprinus narcotica* or cat urine see *P. odorata* 9
  - Frb not tinged purple; smell different or indistinct 11
11. On dung 12
  - Not on dung 14
12. Sp on av < 13  $\mu\text{m}$  long 13
  - Sp on av  $\geq$  13  $\mu\text{m}$  long see *P. prona* and *P. potteri* 22
13. Sp on av > 12.2  $\mu\text{m}$  long; veil when young as fibrils or flocci halfway to centre; gill edge sometimes red pigmented. Cap 4-10(-13) mm, convex, dark reddish brown, faintly striate up to 2/3 from margin, hygrophanous, drying pale brown, pale ochraceous, sometimes with a pink tinge; gills distant, L = 12-16, brown; stem 15-40 x 0.5-1.5 mm. Sp 11-14.5 x 6-7  $\mu\text{m}$ ,

Qav = 1.9, oblong, subcylindrical, subfusiform, narrowly ovoid, in profile sometimes narrowly amygdaloid or with a slight suprahilar depression, reddish brown; basidia 4-spored, rarely mixed with 2-spored; pleurocystidia 35-65 x 8-14(-20)  $\mu\text{m}$ , polymorphic, lageniform, lageniform-rostrate, rarely conical, clavate, narrowly utriform, subcylindrical, bent, forked or flexuous (fig. 591D), scattered to numerous; cheilocystidia 20-60(-80) x 6-14(-28)  $\mu\text{m}$ , of similar shape and frequency as pleurocystidia; veil cells 10-40 x 3-7  $\mu\text{m}$ . On horse and cow dung, once on soil in a pasture grazed by horses; summer to autumn; very rare in temp.-bore.; FI, SE.

*P. stercoraria* Örstadius & E. Larss.

- Sp on av < 12.2  $\mu\text{m}$  long; veil when young as flocci to cap centre; gill edge not red pigmented see *P. hirta* key B 9
- 14. Stem with a pseudorrhiza 15
- Stem without a pseudorrhiza 18
- 15. Sp on av 6.7-7.6  $\mu\text{m}$  broad; gill edge not red pigmented. Cap (5-)10-40 mm, conical-convex, when young dark reddish brown, striate up to 2/3, hygrophanous, drying ochraceous brown or pale greyish brown, veil scanty as fibres close to margin; gills medium spaced, L = 19-30; stem 30-110 x 1-4 mm, with a 5-80 mm long pseudorrhiza. Sp 11.5-15 x 6-8  $\mu\text{m}$ , Qav = 1.8-2, oblong, subcylindrical, rarely ovoid, in profile often with a  $\pm$  suprahilar depression (fig. 591E), reddish brown, with a central, rarely eccentric germ pore; basidia 4-spored, rarely mixed with 2-spored; pleurocystidia 35-60(-70) x 9-14  $\mu\text{m}$ , narrowly lageniform, fusiform, conical, rarely subcapitate, scattered; cheilocystidia of two types: A: 20-45 x 6-12  $\mu\text{m}$ , similar to pleurocystidia, scattered to numerous, B: clavate to obpyriform, numerous, towards cap margin extremely numerous, often about ten cells deep; veil cells 20-60 x 3-8  $\mu\text{m}$ ; clamps numerous. On decaying leaves or attached to buried wood, wood-chips or compost in rich deciduous forests, groves and gardens, with preference for moist, calcareous soil, sometimes nitrophilous; summer to late autumn; rare in eastern temp., very rare in eastern hemib. and southeastern bore.; FI (DD), SE (LC). – Lud 98.19.
- P. longicauda* P. Karst.
- Sp on av 5.6-6.8  $\mu\text{m}$  broad; gill edge red pigmented 16
- 16. Veil when young as fibrils, often lacking; the red pigmented gill edge often broken by non-pigmented areas; moist mature cap rather pale. Cap 10-45 mm, low convex, at first entirely dark reddish brown, at maturity fading with darkest centre, reddish brown, brown, reddish yellow or light yellowish brown, striate up to halfway, hygrophanous, when drying often with pink tinges, rugose; gills medium spaced, L = 18-34; stem 30-130 x 1.5-4 mm, stiff, with an up to 50 mm long pseudorrhiza. Sp 10-15 x 5.5-7  $\mu\text{m}$ , Qav = 1.8-2.2, oblong, subcylindrical, obovoid, in profile sometimes narrowly amygdaloid or with a slight suprahilar depression, reddish brown, with distinct germ pore; basidia 4-spored, sometimes mixed with 2-spored; pleurocystidia 40-80 x 8-16  $\mu\text{m}$ , versiform, lageniform, fusiform, conical, cylindrical, clavate, often flexuous and with a rostrate apex, rarely forked or capitate (fig. 593A), scattered to numerous; cheilocystidia of two types: A: 25-60 x 6-12  $\mu\text{m}$ , similar to pleurocystidia, scattered, rarely numerous, B: small, irregularly clavate or flexuous cylindrical, often pigmented; veil cells 10-120 x 2-6  $\mu\text{m}$ . In rich deciduous forests, in parks, along roadsides, in grassland, often on nutrient rich soil, usually attached to sticks, twigs or buried wood, among leaves; summer to autumn; common in temp.-hemib., rare in southern bore.; DK (LC), FI (LC), NO (LC), SE (LC). – End 405, FAD 153B (as *Psathyra gracilis* var. *corrugis*), 154B (as *P. gracilis*), Lud 98.22E, Svp 38:29, Ves 298, .
- P. corrugis* (Pers.: Fr.) Konrad & Maubl. (*P. gracilis* (Fr.) Quéél., *P. polycystis* (Romagn.) Kits van Wav., *P. melanophylloides* Kits van Wav., *P. atrolaminata* Kits van Wav.)
- Veil when young as fibrils or flocci; the red pigmented gill edge hardly broken by non-pigmented areas; moist mature cap moderately coloured 17



Spores and pleurocystidia: A: *Psathyrella corrugis*, B: *P. microrrhiza*, C: *P. orbicularis*, D: *P. prona*, E: *P. potteri*.

17. Cap 10-40 mm, sometimes pink when drying; L = 20-36, the edge moderately red pigmented. Cap conical-convex, when mature and moist reddish brown, ochraceous brown, striate, hygrophanous, fading and drying yellowish grey or very pale brown, veil as white patches of fibrils and flocci, when young reaching almost to the centre; gills medium spaced; stem 35-150 x 1-3(-5) mm, rather stiff, often with a 5-20(-50) mm long pseudorrhiza. Sp 10-14 x 5.5-7  $\mu$ m, Qav = 1.7-2.1, oblong, subcylindrical, sometimes narrowly ovoid, in profile sometimes narrowly amygdaloid, rarely with a suprahilum depression (fig. 593B), reddish brown; basidia 4-spored, rarely mixed with 2-spored; pleurocystidia 40-75(-85) x 8-16  $\mu$ m, conical, narrowly lageniform with subacute to obtuse apex, sometimes subclavate to subcapitate, rarely forked, scattered to numerous; cheilocystidia of two types: A: 25-50 (-60) x 6-13  $\mu$ m, similar to pleurocystidia, abundant, rarely rather numerous, B: clavate to spheropedunculate, scattered to numerous, hardly dominating; veil cells 20-120 x 2-16(-20)  $\mu$ m. Usually attached to buried twigs or sticks, also on sawdust and wood chips in deciduous forests, rarely in coniferous forests, in shrubberies, along paths, in parks, in ditches, in nutrient rich gardens or on herb-rich soil, in dry or moist places, sometimes on wet soil with mosses like *Sphagnum*, rarely on bonfires, once found on dung (Austria); late summer to early winter; common in temp.-hemib., rare in bore.-suba.; DK (LC), FI (LC), IS, NO (LC), SE (LC). – BSMF 116:344 (opposite), End 411, FAD 154A (as *Psathyra squamifera*), Lud 98.21, Ves 298, Ⓢ.  
*P. microrrhiza* (Lasch: Fr.) Konrad & Maubl. ('*microrrhiza*', *P. stellata* (Romagn.) Bon, *P. conata* Kits van Wav.)

- Cap 4-25 mm, not pink when drying; L = 16-22, the edge faintly or not red pigmented. Cap convex, when mature reddish brown, yellowish red, strong and dark brown, striate, hygrophanous, drying pale buff to pale grey brown; gills distant; stem 20-60 x 0.5-2 mm, sometimes with a 5-15 mm long pseudorrhiza. Sp 10-14 x (5-)5.5-6.5(-7)  $\mu$ m, Qav = 1.8-2.1, oblong, subcylindrical, subovoid, in profile sometimes narrowly amygdaloid, rarely subphaseoliform, reddish brown; pleurocystidia 35-65 x 8-18  $\mu$ m, narrowly conical, lageniform or fusiform, obtuse to acute, rarely forked or rostrate (fig. 593C), scattered, sometimes numerous; cheilocystidia of two types: A: 25-60 x 7-18  $\mu$ m, similar to pleurocystidia, numerous, B: small, clavate, scattered, rarely rather numerous but never dominating; veil cells 20-120 x 3-18  $\mu$ m. In deciduous or coniferous forests, often attached to buried wood, in dry to moist, acid or rich soil, rarely nitrophilous; summer to autumn; occasional in eastern temp. and suba., rare in hemib.-suba.; FI, FO, IS, NO, SE. – Lud 98.75, M&J 13.

*P. orbicularis* (Romagn.) Kits van Wav.

Note: often misinterpreted and difficult to separate from *P. microrrhiza* and *P. orbicularum*.

18. Sp on av < 13  $\mu$ m long  
- Sp on av > 13  $\mu$ m long

19  
21

19. Sp on av > 6.8  $\mu\text{m}$  broad see *P. odorata* 9  
 - Sp on av < 6.8  $\mu\text{m}$  broad 20
20. Cap 4-25 mm, striate; L = 16-22; rarely nitrophilous see *P. orbicularis* 17  
 - Cap 4-10(-13) mm, faintly striate; L = 12-16; nitrophilous see *P. stercoraria* 13
21. Cap 10-60 mm, veil when fresh as flocci or fibres almost to the centre; L = 18-35; sp sometimes with eccentric germ pore see *P. odorata* 9  
 - Cap 5-30 mm, veil when fresh as fibrils close to the margin; L = 10-22; sp with central germ pore 22
22. Cap when moist dark brown, striate almost to centre, sometimes pink on drying; gill edge often red pigmented; sp often with a papilla-like apex or a suprahilar depression; basidia mostly 2-spored, 9-13  $\mu\text{m}$  broad. Cap 5-30 mm, convex, when young dark reddish brown, becoming brown to reddish brown, hygrophanous; veil rudimentary; gills distant, L = 14-22; stem 30-80 x 1-3 mm, lower part rather dark brown. Sp 12.5-17(-20) x 6.5-8  $\mu\text{m}$ ,  $Q_{av} = 1.9-2.4$ , subcylindrical, citriform, oblong, narrowly ovoid or subhexagonal, in profile sometimes narrowly amygdaloid (fig. 593D), reddish brown; pleurocystidia 30-70 x 9-16  $\mu\text{m}$ , narrowly lageniform to fusiform, often pointed, rarely forked, scattered to numerous; cheilocystidia of two types: A: 25-50 x 8-15  $\mu\text{m}$ , similar in shape and frequency to pleurocystidia, B: small, clavate, numerous, becoming extremely abundant in the non-pigmented zone close to cap margin, forming layers up to ten cells deep; veil cells 30-80 x 2-10  $\mu\text{m}$ . On base-rich soil, rotten wood, sticks or twigs, in grass on paths or on manured soil, rarely on dung; spring to autumn; common in temp.-hemib., rare in bore., very rare in suba.; DK (LC), FI (DD), FO, IS (Na), NO (LC), SE (LC). – Bres 890, End 414, 415, FAD 155C, C<sup>1</sup>, Fr 139.3 (as *Agaricus p.*), Lud 98.78.

*P. prona* (Fr.) Gillet

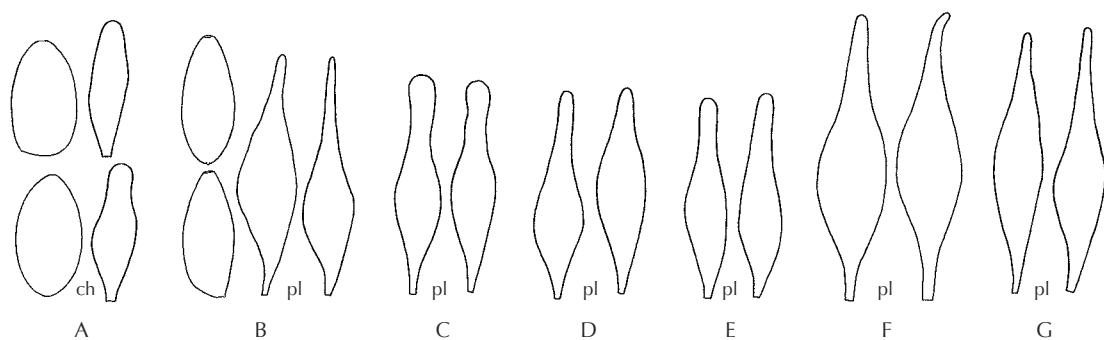
- Cap when moist ochraceous grey to buff, hardly striate, not pink on drying; gill edge exceptionally red pigmented close to cap margin; sp rarely with slightly papilla-like apex or a slight suprahilar depression; basidia mostly 4-spored, 11-14  $\mu\text{m}$  broad. Cap 5-25 mm, convex, when young yellowish brown, often with a grey tinge, when mature fading from margin to very pale brown, ochraceous grey or buff, hygrophanous; veil rudimentary; gills distant, L = 10-22; stem 20-60 x 0.5-2 mm, whitish. Sp 12-16 x 6.5-8.5  $\mu\text{m}$ ,  $Q_{av} = 1.8-2.1$ , oblong, subcylindrical, sometimes subovoid, in profile sometimes narrowly amygdaloid (fig. 593E), reddish brown; pleurocystidia 35-80(-140) x 10-20  $\mu\text{m}$ , narrowly lageniform to fusiform, sometimes forked or flexuous, scattered; cheilocystidia of two types: A: 25-65(-80) x 8-16  $\mu\text{m}$ , similar to pleurocystidia, scattered to numerous, B: small, clavate, numerous, increasing in frequency towards cap margin; veil cells 20-100 x 2-8  $\mu\text{m}$ . In grasslands, in fields, on manured soil, on rotten straw or mixtures of dung and straw, rarely on fresh dung; spring to autumn; occasional in eastern temp., rare in western temp., hemib. and bore.; DK (DD), FI, FO, NO, SE (LC). – FAD 153C, 156C (as *Psathyra atomata*), Bol Bres 36:130 (as *prona*), Lud 98.79.

*P. potteri* A.H. Sm. (*Psathyra subatomata* J.E. Lange, *Psathyrella prona* (Fr.) Gillet var. *prona* f. *albidula* (M.M. Moser) Kits van Wav., *P. prona* (Fr.) Gillet var. *prona* f. *cana* Kits van Wav.)

**Key B:** Sp on av 10.5-12  $\mu\text{m}$  long

1. In sand dunes see *P. ammophila* key A 3  
 - Not in sand dunes 2
2. Pleurocystidia absent 3  
 - Pleurocystidia present 5
3. Sp on av 4.5-5.5  $\mu\text{m}$  broad; cheilocystidia often lageniform see *P. caniceps* key C 6  
 - Sp on av 5.9-7.1  $\mu\text{m}$  broad; cheilocystidia often utriform 4





Spores, cheilocystidia and pleurocystidia: A: *Psathyrella typhae*, B: *P. narcotica*, C: *P. purpureobadia*, D: *P. hirta*, E: *P. romagnesii*, F: *P. dicrani*, G: *P. orbitarum*.

4. Habitat dry or moist; sp dark red see *P. marcescibilis* key A 2  
 - On herbaceous debris close to the waterline in fens, bogs, lakes or ponds; sp light yellow to brownish yellow. Cap 5-25 mm, convex to plane, reddish brown or brown with paler margin, when fresh striate almost to centre, hygrophanous, drying beige or pale buff, veil as dispersed flocci or fibres, denticulate at margin, sometimes brown discolouring; gills medium spaced, L = 16-28; stem 5-35 × 0.7-2 mm, pulverulent at top, often with a fibrillose ring zone near base, lower part fibrillose. Sp 9-12.5 × 5.5-8 μm, Q<sub>av</sub> = 1.6-1.9, oblong, ovoid, ellipsoid, subfusiform, sometimes irregular in outline, in profile sometimes amygdaloid or with a suprahilal depression (fig. 595A), germ pore absent or indistinct; basidia 4-spored; cheilocystidia of two types: A: 15-50 × 7-20 μm, utriform to narrowly utriform, scattered to numerous, B: clavate to subcylindrical, scattered; veil cells 10-70 × 4-18 μm, often brown incrustated. Often in late spring or summer; occasional, but probably overlooked in western temp., rare in eastern temp. and hemib.-bore.; DK (LC), FI (DD, PH: Virrat), NO (LC), SE (LC). – B&K 4:360, Bol Bres 43:35, Lud 98.11, M&J 10, Ves 300.  
*P. typhae* (Kalchbr.) A. Pearson & Dennis
5. Gill edge and cystidia covered with drops staining green in a solution of ammonia 6  
 - Gill edge and cystidia not covered with drops staining green in a solution of ammonia 7
6. Sp on av 6.1-6.6 μm broad; veil copious see *P. jacobssonii* key A 4  
 - Sp on av 4.8-5.3 μm broad; veil present only in young states as simple fibres close to margin. Cap 5-35 mm, convex to plane, brown, often grey towards margin, hygrophanous, striate almost to centre, in the field often dry and then whitish to pale grey yellow; gills medium spaced, L = 18-42, rarely with red pigmented edge; stem 20-70 × 0.5-2 mm, with a pseudo-rhiza up to 20(-50) mm; smell when collected strong or faint, but then gradually becoming strongly nauseous reminding of *Coprinopsis narcoticus* or *C. trisporus*. Sp 9-12.5 × 4.5-6 μm, Q<sub>av</sub> = 1.9-2.1, narrowly ovoid, oblong, subcylindrical, in profile sometimes narrowly amygdaloid (fig. 595B), reddish brown, with a distinct germ pore; pleurocystidia 30-65 × 10-16 μm, lageniform, with narrow, acute, rarely bent neck, scattered, rarely numerous; cheilocystidia of two types: A: 30-50(-65) × 7-14 μm, similar to pleurocystidia, numerous, B: small, clavate, variable in frequency. Growing in rich deciduous forests, rarely mixed with coniferous trees, in shrubs, with preference for calcareous soils, on sand or clay, dry or moist, on wood or attached to buried wood; autumn; rare in temp., very rare in hemib.; DK (LC), SE (LC). – Lud 98.18, M&J 13, Myc 2:171, OPN 12A.  
*P. narcotica* Kits van Wav.
7. On dung 8  
 - Not on dung 11

8. Clamps absent; cap when young dark reddish brown with a purple tinge. Cap 3-15 mm, convex, when mature fading to rust brown, reddish yellow to hazel brown, hygrophanous, when moist striate, drying reddish yellow, pale brown; veil when young as flocci on entire cap, appendiculate at margin, evanescent; gills distant, L = 10-16, with white fimbriate edge; stem 10-25 x 0.5-1.5 mm, pale brown, darker towards base. Sp 9-11.5 x 5-6  $\mu\text{m}$ , Qav = 1.8-1.9  $\mu\text{m}$ , oblong, rarely ovoid, obovoid, citriform to subfusiform, in profile sometimes with a suprahilar depression, rarely amygdaloid, reddish brown, with distinct germ pore; pleurocystidia 30-65 x 8-18  $\mu\text{m}$ , narrowly utriform to lageniform, rarely with flexuous walls or forked apex (fig. 595C), pale, scattered to rather numerous; cheilocystidia of two types: B: 25-65 x 6-20  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: small, clavate, scattered to numerous; veil cells 10-80 x 5-26  $\mu\text{m}$ . On cow and horse dung in pastures and forest margins; summer to autumn; probably overlooked, occasional in eastern temp., rare in hemib.; FI, SE. – Lud 98.13 (as *pratensis*).  
*P. purpureobadia* Arnolds
- Clamps present; cap without a purple tinge when young 9
9. Cap when young floccose to centre from veil; pleurocystidia lageniform to fusiform (fig. 595D). Cap 5-30 mm, convex, at first dark reddish brown, then brown to yellow brown, hygrophanous, striate when moist, drying pale ochraceous or pale brown; gills broadly adnate, medium spaced, L = 14-26; stem 20-45 x 1-2 mm, lower part with flocci. Sp 10-13 x 5.5-7  $\mu\text{m}$ , Qav = 1.6-1.9, oblong to narrowly ovoid, rarely ellipsoid, in profile sometimes narrowly amygdaloid or with a slight suprahilar depression, reddish brown; pleurocystidia 30-60 x 10-16  $\mu\text{m}$ , lageniform, fusiform, sometimes acute, rarely subcapitate or bent, scattered to numerous; cheilocystidia of two types: A: 25-50 x 7-14  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: small, clavate, numerous close to cap margin and scattered for the rest; veil cells 40-250 x 4-32  $\mu\text{m}$ . On dung of horse and cow, rarely on manured soil; spring to autumn; occasional in temp., rare in hemib., very rare in bore.-suba.; DK (LC), FI (DD), FO, NO (LC), SE (LC). – Bon 267, FAD 152F, Lud 98.16, ZM 58:80bis.  
*P. hirta* Peck (*Psathyra coprobia* J.E. Lange)
- Cap when young with fibrils rarely with flocci close to margin; pleurocystidia narrowly utriform to lageniform (figs 589F, 595E) 10
10. Sp on av 11.7-13.8 x 6.4-7.3  $\mu\text{m}$ ; L = 16-23 see *P. saponacea* key A 6
- Sp on av 10.6-11.7 x 5.3-6.2  $\mu\text{m}$ ; L = 6-13. Cap 2-10 mm, convex, when young dark reddish brown, reddish brown, becoming dark brown to grey brown, hygrophanous, striate to centre, veil at margin as fibrils or rarely as flocci, fugacious; gills broadly adnate, distant; stem 10-40 x 0.3-1.5 mm. Sp Qav = 1.7-2, oblong, ovoid, subcylindrical, rarely citriform, sometimes irregular in outline, in profile sometimes narrowly amygdaloid or with a suprahilar depression, rarely subphaseoliform, reddish brown, with central or rarely eccentric germ pore; pleurocystidia 25-60 x 8-16  $\mu\text{m}$ , narrowly utriform, lageniform, sometimes widened or subcapitate (fig. 595E), scattered to rather numerous; cheilocystidia of two types: A: 20-50 x 6-14  $\mu\text{m}$ , similar to pleurocystidia, scattered to numerous, B: small,  $\pm$  clavate, scattered to numerous; veil cells 15-100 x 4-16  $\mu\text{m}$ . In pastures on rotten straw, on mixtures of straw and dung or directly on dung of horse, more seldom cow, once on a burnt spot; autumn; rare in eastern temp., very rare in western temp. and hemib.-suba.; DK (DD), IS (Su), NO (LC), SE (NE). – Arnolds pl. 8d, FND 26:7B, Lud 98.80.  
*P. romagnesii* Kits van Wav. (*P. waverenii* Arnolds)
11. In open land, in wet or moist places on herbaceous plant remnants of *Cirsium*, *Epilobium*, *Phragmites* and *Typha* see *P. almerensis* key C 13
- Habitat dry to moist, on wood, among mosses, on dung, etc. 12
12. Pleurocystidia (narrowly) utriform to lageniform, often obtuse 13
- Pleurocystidia lageniform to conical, often acute 18

13. L = 6-13; cap 2-10 mm see *P. romagnesii* 10  
 - L > 13; cap > 10 mm 14
14. Gill edge red; with pseudorrhiza; habitus like *P. corrugis* see *P. pseudogracilis* key A 7  
 - Gill edge not red; without pseudorrhiza; habitus not like *P. corrugis* 15
15. Sp on av > 11  $\mu\text{m}$  long; clamps absent; cap 15-25 mm see *P. vinosofulva* key A 8  
 - Sp on av < 11  $\mu\text{m}$  long; clamps present; cap 15-90 mm 16
16. Veil breaking up as scales on cap and membranous ring on stem, discolouring to dark brown; smell sweetish; sp without germ pore; often on logs and stumps of *Picea* and *Pinus* see *P. caput-medusae* key C 30  
 - Veil breaking up as fibrils on cap and stem, not discolouring to dark brown; smell not sweetish; sp with germ pore; not on logs or stumps of *Picea* and *Pinus* 17
17. Gills reddish brown; usually caespitose, in fascicles of 50-100 frb; veil silky fibrillose, at first covering entire surface; pileipellis a cutis see *P. pannucioides* key C 32  
 - Gills grey; not in large fascicles; veil as fibres or flocci at cap margin; pileipellis a hymeniderm see *P. fusca* key C 36
18. L = 6-13; cap 2-10 mm see *P. romagnesii* 10  
 - L > 13; cap often > 10 mm 19
19. Veil when young as flocci on entire cap; gill edge not red pigmented see *P. hirta* 9  
 - Veil when young not as flocci or fibrils on entire cap; gill edge sometimes red pigmented 20
20. Veil when young as fibrils, often lacking; red pigmented gill edge often broken by non-pigmented areas; moist mature cap rather pale see *P. corrugis* key A 16  
 - Veil when young as flocci or fibrils; red pigmented gill edge not broken by non-pigmented areas; moist mature cap  $\pm$  brown 21
21. Cap 25-70 mm; in *Fagus* forests see *P. fagetophila* key C 23  
 - Cap 4-45 mm; rarely in *Fagus* forests 22
22. On litter or on sand between mosses such as *Dicranum scoparium*, *Pohlia nutans* and *Campylopus flexuosus* in woods of *Quercus* on nutrient and humus poor sandy soils, in *Calluna* heathland with *Agrostis capillaris*, *Campanula rotundifolia*, *Corynephorus canescens*, *Plantago lanceolata* and *Rumex acetosella*. Cap 15-45 mm, obtusely conical to convex, when young dark reddish brown, when mature orange brown to yellow brown, striate 2/3 to centre, hygrophanous, drying pale brown, often with pink or ochraceous brown tinges at centre, veil as fibres or flocci halfway towards centre; gills medium spaced, L = 20-35; gill edge white flocculose, sometimes red pigmented, especially towards cap margin; stem 20-90 x 2-5 mm, rather stiff. Sp 10-12 x 5-6.5  $\mu\text{m}$ , Qav = 1.7-2, oblong, subcylindrical, narrowly ovoid, in profile sometimes narrowly amygdaloid, reddish brown; pleurocystidia 35-70 x 9-16  $\mu\text{m}$ , narrowly lageniform, conical or fusiform, sometimes bent or subcapitate, flexuous (fig. 595F), scattered to numerous; cheilocystidia of two types: A: 25-50 x 8-14  $\mu\text{m}$ , similar in shape and frequency to the pleurocystidia, B: small, clavate, numerous; veil cells 15-80 x 4-15  $\mu\text{m}$ . Spring to autumn; rare in eastern temp., very rare in western temp. and southern hemib.; DK (DD), SE (LC). – Arnolds pl. 5A, Lud 98.74.  
*P. dicrani* (A.E. Jansen) Kits van Wav.  
 - Not on litter or on sand between mosses, etc., but attached to buried twigs or sticks, on sawdust, wood chips, herb-rich soil, on path sides, etc. 23
23. Stem without pseudorrhiza; sp on av 10.1-11.4 x 5.1-6  $\mu\text{m}$ ; small clavate cheilocystidia often 5-10 cells deep close to cap margin; habitus like *P. prona*. Cap 4-18 mm, convex, when young rather dark brown, at maturity fading to brown, faintly to distinctly striate, hygrophanous, drying pale brown with or without pink tinges; veil when young with dispersed white

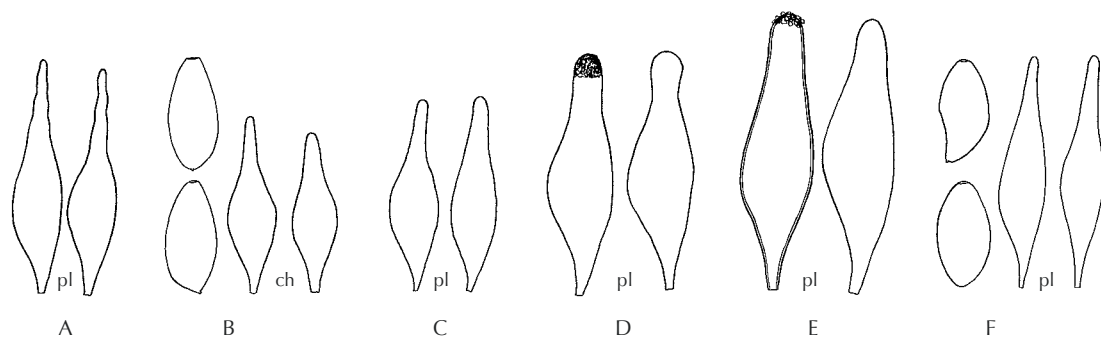
floccules or fibres, denticulate at cap margin, evanescent; gills distant, L = 15-22, with white pruinose edge, sometimes red pigmented; stem 15-50 x 0.8-1.5 mm. Sp 9.5-12.5 x 5-6.5  $\mu\text{m}$ , Qav = 1.8-2.1, oblong, subcylindrical, narrowly ovoid, in profile  $\pm$  narrowly amygdaloid, reddish brown; pleurocystidia 30-80 x 8-16  $\mu\text{m}$ , narrowly lageniform, conical or fusiform, often acute (fig. 595G), scattered to rather numerous; cheilocystidia of two types: A: 25-50 x 7-14  $\mu\text{m}$ , similar to pleurocystidia, scattered, sometimes numerous, absent near margin, B: small, clavate to obpyriform, numerous, rarely scattered; veil cells 30-70 x 2-12  $\mu\text{m}$ . Solitary or scattered in moist or dry rich deciduous woods or parks, often on path sides; summer to autumn; very rare in eastern temp. and eastern hemib.; SE (LC). – Lud 98.77.

*P. orbitarum* (Romagn.) M.M. Moser (*P. prona* (Fr.) Gillet f. *orbitarum* (Romagn.) Kits van Wav.)

- Stem sometimes with a pseudorrhiza; sp on av 10.6-13.3 x 5.6-6.8  $\mu\text{m}$ ; small clavate cheilocystidia not 5-10 cells deep close to cap margin; habitus hardly like in *P. prona*, but expanded-convex 24
- 24. Cap 10-40 mm, sometimes pink when drying; L = 20-36; the red pigmented gill edge moderately pigmented see *P. microrrhiza* key A 17
- Cap 4-25 mm, not pink when drying; L = 16-22; the red pigmented gill edge often faint when present see *P. orbicularis* key A 17

### Key C: Sp on av 9-10.5 $\mu\text{m}$ long

1. On dung 2
  - Not on dung 4
2. Pleurocystidia often narrowly utriform; clamps absent see *P. purpureobadia* key B 8
  - Pleurocystidia often lageniform; clamps present 3
3. Sp on av 5.9-6.6  $\mu\text{m}$  broad; cystidia moderately acute see *P. hirta* key B 9
  - Sp on av 4.7-5.5  $\mu\text{m}$  broad; cystidia pronouncedly acute (fig. 599A). Cap 5-20 mm, convex, reddish brown, reddish yellow, when mature fading to brown, hygrophanous, striate up to halfway from margin, drying pale brown, veil as floccules to centre, at margin appendiculate; gills distant to medium spaced, L = 11-25; stem 20-60 x 1-2.5 mm. Sp 8.5-10.5 x 4.5-5.5  $\mu\text{m}$ , Qav = 1.8-2, oblong, subcylindrical, sometimes narrowly ovoid, in profile sometimes narrowly amygdaloid, reddish brown; pleurocystidia 30-60 x 7-16  $\mu\text{m}$ , narrowly fusiform, lageniform, sometimes flexuous or with yellow thickened wall, rarely bent or provided with crystals or incrustations, numerous; cheilocystidia of two types: A: 20-45 x 7-16  $\mu\text{m}$ , similar in shape and frequency to pleurocystidia, B: small, clavate, scattered; edge rarely pigmented; veil cells 30-300 x 5-35  $\mu\text{m}$ . On dung of horse, cow, elk and badger; late summer to early autumn; very rare in temp. and the eastern parts of bore.; FI (PH: Toivakka), SE.  
*P. scatophila* Örstadius & E. Larss.
4. Pleurocystidia absent 5
  - Pleurocystidia present 7
5. Sp on av 5.9-6.8  $\mu\text{m}$  broad, yellow; habitat wet see *P. typhae* key B 4
  - Sp on av 4.4-5.5  $\mu\text{m}$  broad, reddish brown; habitat dry to moist 6
6. Veil covering the entire cap surface with fibrils or floccules, appendiculate at margin; clamps present; veil cells 30-180 x 4-24  $\mu\text{m}$ . Cap 8-25 mm, conical-convex, brown, striate up to halfway from margin, hygrophanous, drying pale brown or dirty yellow; gills adnate, narrow, medium spaced, L = 26-32, with white edge; stem 30-55 x 1-2.5 mm. Sp 8-11 x 4.5-6  $\mu\text{m}$ , Qav = 1.7-2, oblong, subcylindrical, ellipsoid, narrowly ovoid or subfusiform, in profile narrowly amygdaloid with a suprahilar depression or phaseoliform (fig. 599B), reddish brown, with distinct germ pore; cheilocystidia of two types: A: 25-50 x 8-16  $\mu\text{m}$ , narrowly lageniform to conical, sometimes rostrate, pale, numerous, B: clavate to ellipsoid, 8-14  $\mu\text{m}$  wide, scattered.



Spores, pleurocystidia and cheilocystidia : A: *Psathyrella scatophila*, B: *P. canoiceps*, C: *P. effibulata*, D: *P. lutensis*, E: *P. olympiana*, F: *P. flexispora*.

On rich soil with deciduous trees, *Alnus*, *Betula*, *Corylus*, *Fagus*, *Fraxinus* and *Quercus*, with preference for calcareous soil, sometimes attached to decayed wood, in moist, rarely dry places; summer to autumn; rare in temp., very rare in hemib. and suba.; DK (LC), IS (Ve), NO (NE), SE (LC). – B&K 4:323, FAD 151C, E (as *Psathyra pennata* and *P. gordonii* f. *minor*), Lud 98.30, M&J 14, ZM 66:5.

*P. canoiceps* (Kauffman) A.H. Sm.

- Veil as scattered white fibrils or flocci, especially close to the cap margin; clamps absent; veil cells  $10\text{--}60 \times 2\text{--}8 \mu\text{m}$ . Cap 5–20 mm, convex to plane, at first dark reddish brown, then cinnamon brown with paler margin, at maturity fading to brown, grey brown or ochraceous brown, when moist striate almost to centre, hygrophanous, drying pale ochre or cream, not pink; gills distant to medium spaced, L = 11–28, edge sometimes red pigmented; stem 15–45  $\times$  0.5–1.5 mm. Sp 8–11  $\times$  4–5.5  $\mu\text{m}$ , Qav = 1.6–2, oblong, subcylindrical, narrowly ovoid, in profile sometimes narrowly amygdaloid, reddish brown; pleurocystidia 25–50  $\times$  8–16  $\mu\text{m}$ , narrowly fusiform, lageniform, subutriform or clavate, sometimes rostrate or forked (fig. 599C), scattered or absent; cheilocystidia of two types: A: 15–45(–55)  $\times$  6–16(–20)  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: small, clavate to obpyriform, scattered. On soil or attached to buried wood, in ruderal places, fields, parks, or shrubberies, *Urtica* often present suggesting preference for nutrient rich places; spring to early autumn; rare in eastern temp., very rare in bore.; SE (LC). – End 407, Lud 98.83.

*P. effibulata* Örstadius & E. Ludw.

7. Gill edge and cystidia covered with drops staining green in a solution of ammonia 8
  - Gill edge and cystidia not covered with drops staining green in a solution of ammonia 9
  8. Smell nauseous or becoming strongly nauseous, reminding of *Coprinopsis narcoticus*; pleurocystidia acute; stem with a pseudorrhiza see *P. narcotica* key B 6
  - Smell not nauseous like *C. narcoticus*; pleurocystidia obtuse; stem without a pseudorrhiza.
- Cap 10–50 mm, convex, when very young dark reddish brown, then dark brown to reddish brown, when mature fading to yellowish brown, when moist striate almost to centre, hygrophanous, drying pale brown or whitish, veil as fibres or flocci more than halfway towards centre; gills medium spaced, L = 18–35; stem 30–80  $\times$  1.5–6 mm. Sp 8–11  $\times$  4.5–6  $\mu\text{m}$ , Qav 1.8–2, oblong, subcylindrical, ovoid, in profile sometimes amygdaloid, rarely subphaeoliform or with a suprahilar depression, reddish brown; pleurocystidia 35–70  $\times$  10–20  $\mu\text{m}$ , utriform, lageniform, obtusely fusiform (fig. 599D), numerous to scattered; cheilocystidia of two types: A: 30–70  $\times$  8–20  $\mu\text{m}$ , similar to pleurocystidia, numerous or rarely scattered, B: small, clavate, often scattered; veil cells 20–100  $\times$  4–14  $\mu\text{m}$ . On muddy or loamy soil, on sticks or twigs, sometimes attached to buried wood, on moss, often in damp places in deciduous forests, rarely mixed with coniferous trees, on paths, by brooks, at lake shores and in cart



when drying often bicoloured with brown-orange centre and darker marginal zone, striate when moist, veil denticulate at margin or as fibres or flocci near margin; gills distant to medium spaced, L = 14-30; stem 15-40 x 1-3 mm. Sp 8.5-11.5 x 4.5-6  $\mu\text{m}$ ,  $Q_{av} = 1.8-2.1$ , oblong, subcylindrical, in profile rarely amygdaloid, subphaseoliform (fig. 599F), reddish brown; pleurocystidia 35-65 x 8-14  $\mu\text{m}$ , narrowly conical, fusiform or lageniform, sometimes flexuous or bent at apex, with slightly yellow walls, numerous; cheilocystidia of two types: A: 25-40 x 8-14  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: small, clavate, scattered; veil cells 15-80 x 3-14  $\mu\text{m}$ . In sand dunes amongst *Ammophila*, *Carex arenaria* or *Festuca*, on acid sandy soil with *Calluna vulgaris*, *Corynephorus canescens* and *Polytrichum piliferum*, also found on woody remnants and among *Pinus* needles; late summer to autumn; very rare in temp.-hemib.; DK (DD), SE (LC). – Lud 98.76.

*P. flexispora* T.J. Wallace & P.D. Orton

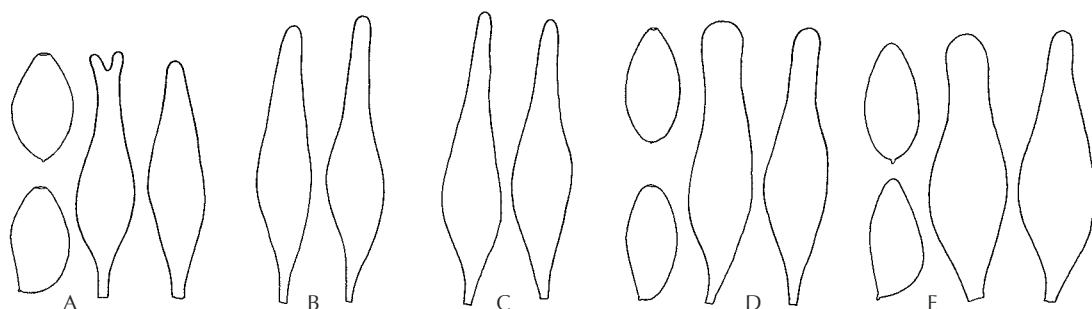
- Sp on av 5.4-6.2  $\mu\text{m}$  broad, not with suprahilar depression or subfusiform; cap 15-45 mm see *P. dicrani* key B 22
- 18. Cap 25-70 mm; L = 26-40; in *Fagus* forests see *P. fagetophila* 23
- Cap 4-30 mm; L = 15-26; on manured soil, in rich deciduous woods or in parks 19
- 19. Sp on av 5.1-6  $\mu\text{m}$  broad; in rich deciduous woods or in parks; veil cells 30-70 x 2-12  $\mu\text{m}$  see *P. orbitarum* key B 23
- Sp on av 5.9-6.6  $\mu\text{m}$  broad; on manured soil; veil cells 40-250 x 4-32  $\mu\text{m}$  see *P. hirta* key B 9
- 20. Clamps absent 21
- Clamps present 22
- 21. Nitrophilous; sp on av 4.4-5.3  $\mu\text{m}$  broad, not subfusiform; gill edge sometimes red pigmented see *P. effibulata* 6
- Lignicolous; sp on av 5.5-5.9  $\mu\text{m}$  broad, sometimes subfusiform; gill edge not red pigmented. Cap 8-25 mm, convex, dark reddish brown, when mature dark brown, strong brown, yellowish red, striate up to 2/3 from margin, hygrophanous, drying ochraceous brown or cream, veil whitish to cream, strongly developed as a fibrillose-woolly covering close to the margin, sometimes reminding of *Tubaria conspersa*, appendiculate, also as single fibres or floccules towards centre; gills crowded, L = 27-35; stem 25-90 x 2-4 mm; smell not distinctive or like aniseed, reminding of *Clitocybe fragrans*. Sp 8.5-10.5 x 5-6  $\mu\text{m}$ ,  $Q_{av} = 1.6-1.7$ , ovoid, subfusiform, oblong, ellipsoid, in profile sometimes amygdaloid or with a slight suprahilar depression (fig. 603A), brownish orange, with indistinct germ pore; pleurocystidia 40-70 x 10-16  $\mu\text{m}$ , narrowly utriform, fusiform, lageniform, subcylindrical, often forked, numerous; cheilocystidia of two types: A: 30-60 x 8-18  $\mu\text{m}$ , similar to pleurocystidia but less commonly forked, very numerous; B: small, clavate, scattered; veil cells 20-100 x 2-16  $\mu\text{m}$ . On rotten stumps or cavities of *Fagus* in rich forests; autumn; very rare in eastern temp. and southern hemib.; SE. – Agar 27:81.
- P. romellii* Örstadius
- 22. On acid sandy soil, sometimes attached to woody debris, not on trunks, stumps or among leaves in forests see *P. flexispora* 17
- On trunks or stumps or among leaves in forests, rarely attached to debris on acid sandy soil 23
- 23. In *Fagus* forests; gill edge sometimes red pigmented; veil rather scanty, when young present in a few mm narrow zone at cap margin and as scattered flocci or fibres halfway up. Cap 25-70 mm, convex, when young reddish brown, then rather dark brown, translucently striate up to 2/3 from margin, hygrophanous, fading on drying pale ochraceous, cream or alutaceous; gills crowded, L = 26-40; stem 30-120 x 3-11 mm, often with a fugacious fibrillose zone at lower part. Sp 8.5-12 x 4.5-6.5  $\mu\text{m}$ ,  $Q_{av} = 1.7-1.9$ , oblong, subcylindrical, ellipsoid, in profile narrowly amygdaloid, with a slight suprahilar depression or subphaseoliform, reddish brown; pleurocystidia 40-70 x 10-18  $\mu\text{m}$ , obtusely fusiform to lageniform, some-

times rostrate or forked (fig. 603B), scattered to numerous; cheilocystidia of two types: A: 25-50 x 8-16  $\mu\text{m}$ , similar to pleurocystidia, numerous, rarely scattered, B: small, clavate to vesiculose, numerous, close to margin sometimes several cells deep; veil cells 10-100 x 2-10  $\mu\text{m}$ . Among leaves or attached to fallen branches, on humus rich soil, often late in season; common in eastern temp., occasional in western temp. and hemib.; DK (LC), SE (LC). – B&K 4:338 (as *murcida*), End 407, FND 26:6B, FAD 154C (as *Psathyra fusca*), Lud 98.82.

*P. fagetophila* Örstadius & Enderle (*P. murcida* (Fr.) Kits van Wav. s. auct.)

- In deciduous or coniferous forests; gill edge not red pigmented; veil when young scanty to copious 24
- 24. Veil scanty, when young as fibres or scattered floccules close to cap margin, soon disappearing; small clavate to obpyriform cheilocystidia numerous, especially towards cap margin, sometimes mucronate see *P. obtusata* key J 9
  - Veil copious, when young as fibrils, floccules or scales, sometimes to cap centre, persistent or evanescent; small clavate to obpyriform cheilocystidia scattered to numerous hardly increasing in number towards cap margin, not mucronate 25
- 25. Sp without or with an indistinct germ pore; L = 32-60; pleurocystidia often bent or forked; sp pale, often slightly irregular in outline see *P. rostellata* key J 16
  - Sp with a distinct germ pore; L = 22-38; pleurocystidia rarely bent or forked; sp moderately dark, hardly irregular in outline 26
- 26. Pleurocystidial walls below apex often yellow and thickened in a solution of ammonia; in coniferous and deciduous forests, with *Betula*, *Fagus*, *Picea*, *Pinus* and *Quercus*, on sticks and debris, on rotten wood, in leaves, in moss, with preference for acid soils see *P. fibrillosa* key J 18
  - Pleurocystidial walls below apex not yellow and thickened in a solution of ammonia; in rich deciduous forests especially of *Fagus*, on soil, among leaves or mosses or attached to wood. Cap 15-45 mm, convex to plane, dark reddish brown, when mature ochraceous brown to brown, faintly to distinctly striate to 2/3 from margin, hygrophanous, drying pink or pale ochre, veil when young as flocci towards centre, appendiculate at margin; gills medium spaced, L = 22-34; stem 30-80 x 2-5 mm. Sp 8-10.5 x 4.5-5.5  $\mu\text{m}$ , Qav = 1.8-2.1, oblong, subcylindrical, narrowly ovoid, obovoid, subfusiform, in profile sometimes with a suprahilar depression or phaseoliform, rarely narrowly amygdaloid, reddish brown; pleurocystidia 35-70 x 9-18  $\mu\text{m}$ , narrowly lageniform, fusiform or conical, sometimes acute, rarely bent or subcapitate, flexuous (fig. 603C), numerous or scattered; cheilocystidia of two types: A: 25-60 x 8-15  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: small, clavate to spheropedunculate, scattered to numerous; veil cells 30-150 x 4-25  $\mu\text{m}$ . Summer to autumn; common in eastern temp., rare in western temp.; DK (DD), SE (LC). – Bon 267, Cet 2203, End 408, Lud 98.57, M&J 17.  
*P. impexa* (Romagn.) Bon
- 27. Dominating type of cheilocystidia similar to pleurocystidia 28
  - Dominating type of cheilocystidia small, clavate to spheropedunculate 37
- 28. Clamps absent 29
  - Clamps present 30
- 29. Cap when moist dark reddish brown; pleurocystidia often forked; sp subfusiform see *P. romellii* 21
  - Cap when moist ochraceous yellow to pale buff; pleurocystidia hardly forked; sp not subfusiform. Cap 10-35 mm, convex to plane, not or only faintly striate, hygrophanous, drying from margin to greyish white or white, veil copious, as scales, flocci or fibres to centre, appendiculate at margin; gills medium spaced, L = 28-34; stem 30-80 x 2-6 mm, entirely floccose below, sometimes with a ring zone; smell faint, pleasant or sweetish. Sp 8-11.5 x 4.5-6  $\mu\text{m}$ , Qav = 1.7-2.2, oblong, ovoid, subcylindrical, sometimes irregular in outline or conspicuously obtuse at base, in profile sometimes amygdaloid or with a slight suprahilar





Spores and pleurocystidia: A: *Psathyrella romellii*, B: *P. fagetophila*, C: *P. impexa*, D: *P. gordonii*, E: *P. caput-medusae*.

depression (fig. 603D), reddish brown; pleurocystidia 35-75 x 8-18  $\mu\text{m}$ , mostly narrowly to broadly utriform, also lageniform, fusiform or subcylindrical, often flexuous, rather numerous; cheilocystidia of two types: A: 25-60 x 7-14  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: small, clavate, scattered to numerous; veil cells 25-150 x 5-24  $\mu\text{m}$ ; pseudoclamps rarely seen on stem hyphae. In deciduous forests, in shrubberies, in grasslands, on debris of wood or directly on soil, dry to moist, probably with preference for calcareous soil; summer to autumn; rare in eastern temp., very rare in hemib.-bore.; FI (PS: Virtasalmi), SE (LC). – End 420, Lud 98.69, M&J 21, Myc 15(4):157.

*P. gordonii* (Berk. & Broome) A. Pearson & Dennis (*P. vestita* (Peck) A.H. Sm., *P. pervelata* Kits van Wav.)

30. Veil discolouring to dark brown; smell sweetish; often caespitose to gregarious on wood of *Picea* and *Pinus*, rarely *Betula* and *Fagus*. Cap 15-90 mm, convex, at first dark brown, then ochraceous brown or grey brown, faintly striate and hygrophane, drying buff or pale brown, in young stages covered with a white or rarely brown pigmented veil later breaking up as scales and then often discoloured to dark brown; gills medium spaced; stem 50-100 x 5-12 mm, whitish, often with a membranous ring in upper part, below ring with white scales often discolouring to brown. Sp 8.5-11(-12.5) x 4.5-5.5(-6.5)  $\mu\text{m}$ ,  $Q_{av} = 1.9-2.1$ , fusiform, subcylindrical, narrowly ovoid or oblong, in profile narrowly amygdaloid, with a suprahilar depression, with a large conspicuous apiculus (fig. 603E), brown, without germ pore; pleurocystidia 40-70 x 12-26  $\mu\text{m}$ , utriform, fusiform, lageniform, cylindrical or clavate, rarely rostrate, sometimes with flexuous or yellow pigmented walls, scattered to rather numerous; cheilocystidia of two types: A: 40-70 x 8-24  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: small, clavate, scattered or absent; edge sometimes yellow pigmented; veil cells 30-140 x 4-30  $\mu\text{m}$ . On logs and stumps; late summer to autumn; occasional in western hemib., western bore., rare in temp., eastern hemib., eastern bore.; DK (CR), FI (LC), NO (LC), SE (LC). – Däh 576, End 403, FAD 143G (as *Stropharia c.*), Jordstj 13(3), Lud 98.1.

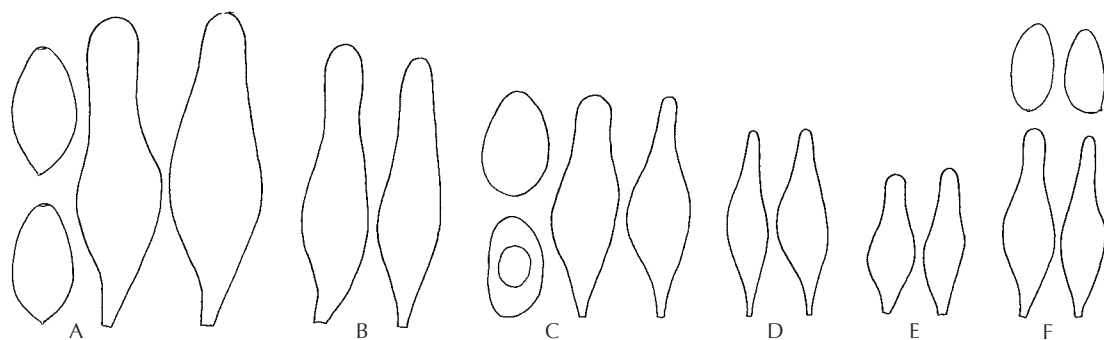
*P. caput-medusae* (Fr.) Konrad & Maubl.

- Veil not discolouring to dark brown; smell strong to absent, not sweetish; hardly caespitose to gregarious on wood of *Picea* and *Pinus* 31
- 31. On *Sphagnum* or other wet mosses in forests of conifers or *Betula*; stem often with a membranous ring see *P. sphagnicola* key K 19
- Not on *Sphagnum* or other wet mosses in forests of conifers or *Betula*; stem without a membranous ring 32
- 32. Cap entirely silky fibrillose from veil remnants when fresh; pileipellis a cutis; usually caespitose, in fascicles of up to 50-100 frb; cap umbonate. Cap 15-40 mm, often becoming convex to almost plane, when young brown, then pale greyish brown or pale yellowish

brown, darkest towards centre, not or faintly striate, hygrophanous, drying pale brown or pale yellow; gills crowded, L = 25-42; stem 30-60 x 2-6 mm. Sp 9-11.5 x 5-6.5  $\mu\text{m}$ , Qav = 1.7-1.9, subfusiform, ovoid, oblong, in profile amygdaloid to subcitriform (fig. 605A), brown; pleurocystidia 35-90 x 12-24  $\mu\text{m}$ , mostly utriform, also lageniform, clavate, obtusely conical or fusiform, numerous or rarely scattered; cheilocystidia of two types: A: 30-80 x 11-25  $\mu\text{m}$ , similar in shape and frequency to pleurocystidia, B: small, clavate, in a variable number; veil cells 30-200 x 6-22  $\mu\text{m}$ . In forests, on logs or stumps or living trunks of deciduous trees or attached to buried wood, also directly on loamy, base-rich soil, sometimes calcareous, in park lawns, dry to moist; all year; rare in temp.-hemib.; DK (EN), FI (DD), NO (LC), SE (LC). – FAD 200H (as *Hypholoma pannuicioides*), Lud 98.24, OPN 12B.

*P. pannuicioides* (J.E. Lange) M.M. Moser

- Cap not entirely silky fibrillose from veil remnants when fresh; pileipellis a hymeniderm to a paraderm; gregarious or caespitose, in fascicles of up to 10 frb; cap umbonate or not 33
- 33. Veil granulose, with subglobose to ellipsoid cells. Cap 5-25 mm, low convex, when young white, mature very pale brown with pinkish shades, not striate; veil in primordia of thick, conical to pyramidal white spines, when mature typically lacking spines but covered overall with granulose to sacchariferous remains, being easily removed when touched; gills free to almost free, distant, L = c. 15, white to beige, becoming dark brown, with a white edge; stem 30-80 x 0.5-1.5 mm, cylindrical with a small basal bulb, white, entirely floccose to fibrillose; smell and taste absent. Sp 8.5-11 x 4.5-5.5  $\mu\text{m}$ , Qav = 1.9, ovoid, in profile sometimes amygdaloid, subcitriform to subphaseoliform, brownish orange, germ pore indistinct or absent; pleurocystidia 35-50(-60) x 10-15  $\mu\text{m}$ , narrowly utriform to lageniform, sometimes with slightly yellow pigmented walls, rather numerous; cheilocystidia 20-40 x 8-14  $\mu\text{m}$ , similar to the pleurocystidia, numerous; veil cells 15-30  $\mu\text{m}$  wide, pale, sometimes in chains; clamps seen at stem hyphae. Solitary to gregarious, a single record from the Nordic countries in an open pasture on remnants of *Deschampsia*, 200 m below the *Betula* tree-line, outside the area in a manured garden, on soil among grass; autumn; very rare in bore., only known from NO (Troms: Kvalvikdalen).  
*P. albofloccosa* Arenal, M. Villarreal & Esteve-Rav.
- Veil fibrillose to flocculose, with hyphae 34
- 34. Veil as fibrils or flocci up to halfway from cap margin see *P. olympiana* 12
- Veil as fibrils or flocci close to cap margin 35
- 35. Cap 7-30 mm; pleurocystidia 20-60  $\mu\text{m}$  long; L = 20-30 see *P. panaeoloides* key K 12
- Cap 20-90 mm; pleurocystidia 35-85  $\mu\text{m}$  long; L = 30-60 36
- 36. Sp on av 8-9.6 x 4.7-5.8  $\mu\text{m}$ , in profile phaseoliform, rather pale; gills reddish brown; in deciduous or coniferous forests see *P. larga* key K 15
- Sp on av 9.4-10.9 x 5.3-6.2  $\mu\text{m}$ , in profile amygdaloid or with a slight suprahilar depression, dark; gills grey; in wooded pastures or in rich deciduous woods. Cap 20-75 mm, conical-convex to plane, dark reddish brown, soon fading to brown or yellowish, when moist striate halfway from margin, hygrophanous, drying ochraceous or very pale brown, but typically the reddish brown or yellow-brown colour remains for a long time at margin or to a less degree at centre, veil as fibres or flocci at the margin; gills crowded, L = 34-62; stem 40-100 x 2-10 mm, white, pulverulent striate from top and downwards but decreasing in intensity and ceasing at lower half of stem, where veil remnants can leave a fibrillose zone. Sp 9-11.5(-13.5) x 5-6.5  $\mu\text{m}$ , Qav = 1.6-1.9, oblong, ovoid, obovoid, ellipsoid, subhexagonal, subpentagonal or subcylindrical, reddish brown; pleurocystidia 35-80 x 10-22  $\mu\text{m}$ , utriform to lageniform (fig. 605B), numerous; cheilocystidia of two types: A: 25-70 x 7-18  $\mu\text{m}$ , similar in shape and frequency to pleurocystidia, B: small, clavate, scattered, rarely numerous; gill edge often covered with drops not staining green in a solution of ammonia; veil cells 20-70 x



Spores and pleurocystidia: A: *Psathyrella pannucioides*, B: *P. fusca*, C: *P. clivensis*, D: *P. fimiseda*, E: *P. sphaerocystis*, F: *P. merdicola*.

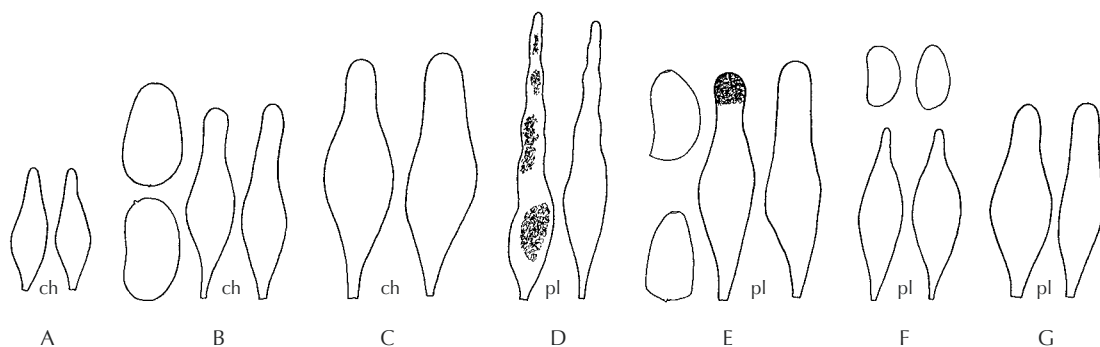
2-8  $\mu\text{m}$ . Solitary to gregarious, on soil or debris incl. wood-chips in wooded pastures, in rich deciduous woods and in parks, often in calcareous areas, sometimes nitrophilous; spring to autumn; common in temp., rare in hemib.; DK (LC), FI, NO (LC), SE (LC). – B&K 4:359, BKPM 9:73, BSMF 116:362 (opposite), Lud 98.71, M&J 15.

*P. fusca* (Schumach.) A. Pearson (*P. tephrophylla* (Romagn.) Bon)

37. Cap 30-90 mm; pleurocystidia 40-85  $\times$  10-24  $\mu\text{m}$ ; basidia or other cells in hymenium with brown intracellular pigmentation; in deciduous or coniferous forests see *P. larga* key K 15
- Cap 10-50(-70) mm; pleurocystidia 30-65  $\times$  8-20  $\mu\text{m}$ ; basidia and other cells in hymenium without brown intracellular pigmentation; in open grassland, in deciduous forests, occasionally in coniferous forests 38
38. Small clavate to obpyriform cheilocystidia sometimes mucronate; in forests on decayed wood or on mossy logs, rarely directly on soil see *P. obtusata* key J 9
- Small clavate to obpyriform cheilocystidia not mucronate; in open grassland, in forests on soil or attached to buried sticks or twigs 39
39. Sp on av 5.2-6  $\mu\text{m}$  broad, germ pore absent to indistinct; in dry open grassland, along paths in forests or in inner parts of sand dunes. Cap 10-40 mm, convex to plane, at first rather dark reddish brown, but soon dark brown to ochraceous brown, hygrophanous, faintly translucently striate halfway from margin, often drying ochraceous at centre and pale grey brown towards margin, veil as white fibres or rarely flocci close to the margin; gills medium spaced, L = 20-40; stem 25-70  $\times$  2-5 mm. Sp 8-11  $\times$  5-6.5  $\mu\text{m}$ , Qav = 1.5-1.8, oblong, ellipsoid, ovoid, rarely subfusiform, sometimes irregular in outline, in profile sometimes subphaseoliform (fig. 605C), brownish orange; pleurocystidia 35-60  $\times$  10-18  $\mu\text{m}$ , utriform, lageniform, obtusely fusiform, rarely forked, scattered to numerous; cheilocystidia of two types: A: 25-50  $\times$  10-20  $\mu\text{m}$ , similar to pleurocystidia, scattered, rarely rather numerous, especially towards stem, B: small, clavate, abundant, often 1-2(-3) cells deep; veil cells 20-100  $\times$  2-12  $\mu\text{m}$ . Spring to autumn; occasional in temp., very rare in hemib.; DK (LC), NO (NE), SE (LC). – Bol Bres 43:41, BKPM 3:352 (opposite), BSMF 116:356 (opposite), End 404, Ves 300.
- P. clivensis* (Berk. & Broome) P.D. Orton
- Sp on av 4.2-5.2  $\mu\text{m}$  broad, with a distinct germ pore; in wooded pastures, parks and deciduous forests attached to buried sticks or twigs 40
40. Cap 20-70 mm, when mature dark to pale; pleurocystidia sometimes yellow brown pigmented or incrustated at apex and forked see *P. spadiceogrisea* key K 33
- Cap 15-45 mm, when mature pale; pleurocystidia not yellow brown pigmented or incrustated at apex, hardly forked see *P. fatua* key K 33

**Key D: Growing on dung**

1. Sp 4.5-5.5  $\mu\text{m}$  broad 2  
 - Sp 3-4.5  $\mu\text{m}$  broad 3
  
2. Cap 3-6 mm, fulvous, striate almost to centre; clamps absent; veil of hyphae. Cap convex, hygrophanous, drying pale brown, veil when young as flocci to the centre; gills broadly adnate, distant, L = 11-13; stem 10-20 x 0.5-1 mm. Sp 8-9 x 4.5-5.5  $\mu\text{m}$ , Qav = 1.7, ovoid, oblong, ellipsoid, in profile sometimes amygdaloid, reddish brown; pleurocystidia 25-45(-60) x 8-14  $\mu\text{m}$ , obtusely conical, lageniform, rarely forked (fig. 605D), scattered; cheilocystidia of two types: A: 25-40 x 9-14  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: small, clavate, scattered; veil cells 20-120 x 4-20  $\mu\text{m}$ . On cow dung in a non-fertilised pasture with *Crataegus* and *Rosa* on calcareous soil; summer; very rare in temp.; SE (Sk: Ivö).  
*P. fimiseda* Örstadius & E. Larss.
  
- Cap 4-10 mm, pale ochraceous buff or clay ochraceous, then darkening to clay buff, faintly striate when moist; clamps present; veil of spherocysts. Cap convex, entirely granulose mealy-scaly or furfuraceous, becoming mat and atomate when veil is washed off, edge of cap joined to stem by pale buff or ochraceous cortinate veil when young; gills distant, L = 14-18; stem 15-24 x 0.5-1.5 mm. Sp 7.5-9 x 5-5.5 x 4-5  $\mu\text{m}$ , Qav = 1.5-1.7 in front view, 1.8 in side view, ovoid, oblong, ellipsoid, in side view sometimes amygdaloid, but not pronounced, rarely subphaseoliform, reddish brown; pleurocystidia 20-35 x 8-12  $\mu\text{m}$ , narrowly lageniform to subutriform (fig. 605E), scattered to rather numerous; cheilocystidia of two types: A: 20-30 x 6-12  $\mu\text{m}$ , similar to pleurocystidia, scattered to numerous, B: small, clavate, scattered; veil cells (spherocysts) on cap surface single or in chains, 10-35  $\mu\text{m}$  broad, subglobose, ellipsoid, subcylindrical, often brown pigmented, sometimes incrustated. On dung of horse or cow on dry, sandy soil; autumn; very rare in temp.; SE (Sk: Landön). – FND 26:7E.  
*P. phaerocystis* P.D. Orton
  
3. Cap surface not pubescent; veil forming flocci on entire cap. Cap 5-15(-20) mm, convex to plane, dark reddish brown, becoming brown, hygrophanous, faintly striate at margin, fading to pale yellow brown, veil appendiculate at margin; gills distant to medium spaced, L = 15-24; stem 15-35 x 0.5-2 mm. Sp 6.5-8 x 3.5-4.5  $\mu\text{m}$ , Qav = 1.7-1.8, oblong, narrowly ovoid, in profile sometimes narrowly amygdaloid, rarely subphaseoliform (fig. 605F), reddish brown; pleurocystidia 25-50 x 8-15  $\mu\text{m}$ , conical, lageniform, subutriform, sometimes rostrate or swollen at apex, numerous to rather numerous; cheilocystidia of two types: A: 20-40 x 6-13  $\mu\text{m}$ , similar to pleurocystidia, scattered to rather numerous, B: small, clavate, most frequent towards cap margin; veil cells 20-180 x 6-40  $\mu\text{m}$ . On moderately old cow dung in open pastures or in copses with *Quercus robur*, *Larix decidua*, *Rosa* and *Crataegus*; summer; very rare in temp.; SE.  
*P. merdicola* Örstadius & E. Larss.
  
- Cap surface pubescent; veil forming granules on entire cap. Cap 2-12 mm, convex to almost plane, ochraceous buff, striate when moist, hygrophanous, fading on drying; gills distant, L = 10-18; stem 20-60 x 0.2-1.5 mm, when moist entirely pubescent (lens). Sp 6.5-8.5 x 3-4  $\mu\text{m}$ , Qav = 1.8-2.2, subcylindrical, oblong, in profile slightly flattened on adaxial side, sometimes narrowly amygdaloid or with a suprahilar depression, rarely subphaseoliform, reddish brown; pleurocystidia 20-40 x 6-10  $\mu\text{m}$ , lageniform to conical, pale, scattered; cheilocystidia of two types: A: 15-30 x 5-10  $\mu\text{m}$ , similar to pleurocystidia (fig. 607A), numerous or sometimes scattered, B: small, clavate, scattered; pileocystidia and caulocystidia similar to pleurocystidia or widened at base; veil cells 10-40  $\mu\text{m}$  wide, subglobose, sometimes yellow brown pigmented, smooth or delicately warty; clamps only found in mycelium of stem base. On dung, humus rich soil and decaying plant remains; early spring to autumn; very rare in eastern temp. and southernmost hemib.; FI (DD, EH: Tammela), SE (LC). – Lud 98.15.  
*P. tenuicula* (P. Karst.) Örstadius & Huhtinen



Spores, cheilocystidia and pleurocystidia: A: *Psathyrella tenuicula*, B: *P. leucotephra*, C: *P. candolleana*, D: *P. multipedata*, E: *P. sylvestris*, F: *P. maculata*, G: *P. piluliformis*.

### Key E: Pleurocystidia absent; sp < 9 $\mu\text{m}$

1. Most cheilocystidia narrowly utriform to lageniform (figs 607B-C) 2
- Most cheilocystidia narrowly lageniform to fusiform 3

2. Sp without germ pore, on av 8.5-8.8 x 5.5-5.8  $\mu\text{m}$ ; stem often with a ring. Cap 30-90 mm, convex to plane, pale ochre buff or pale brown, not or slightly striate when moist, hygrophanous, drying pale dirty buff or whitish without a pink tinge, veil as fugacious fibres or flocci close to the margin; gills very crowded, L = c. 45-75, dark grey-brown; stem 60-160 x 4-15 mm. Sp 8-10 x 5-6.5  $\mu\text{m}$ , Qav = 1.5-1.6, subtriangular, ellipsoid, ovoid, subrectangular or oblong, sometimes irregular in outline, in profile phaseoliform (fig. 607B), reddish brown; cheilocystidia of two types: A: 25-50 x 8-14  $\mu\text{m}$ , narrowly utriform, rarely lageniform, pale, numerous, B: small, clavate, scattered; veil cells 30-130 x 4-22  $\mu\text{m}$ . Usually caespitose in large clusters at the base of deciduous trees of *Crataegus*, *Fagus*, *Fraxinus*, *Quercus* or *Ulmus* on base rich soil; summer to autumn; rare in western temp., very rare in western hemib.; DK (VU), SE (DD). – BKPM 14:54bis, FAD 144D (as *Stropharia hypsipoda*), FND 26:8A, Lud 98.28, Ves 297.

#### *P. leucotephra* (Berk. & Broome) P.D. Orton

- Sp with germ pore, on av 7-8.3 x 4.1-5  $\mu\text{m}$ ; stem rarely with a ring. Cap 20-100 mm, low convex, dark reddish brown, becoming ochraceous brown, at maturity fading to ochre with yellow, grey, purple or violet tinges, striate up to halfway from margin, hygrophanous, drying sordid white or grey; universal veil on cap as dispersed white or brown floccules; partial veil at cap margin white appendiculate; gills crowded to very crowded, L = 35-70, brown with pink tinges; stem 40-100 x 3-10 mm. Sp 6.5-10 x 4-5.5  $\mu\text{m}$ , Qav = 1.5-1.9, oblong, ovoid, ellipsoid or subcylindrical, in profile rarely subphaseoliform or subamygdaloid, brown; cheilocystidia of two types: A: 35-70(-140) x 8-20  $\mu\text{m}$ , utriform, narrowly utriform, lageniform to subcylindrical, sometimes clavate (fig. 607C), pale, abundant, B: small, clavate, scattered; veil cells 15-120 x 2-25  $\mu\text{m}$ . In rich deciduous forests, parks and gardens on or around stumps or decayed wood, on dry or moist soil; spring to autumn; very common in temp., common in hemib.-bore., very rare in suba.; DK (LC), FI (LC), NO (LC), SE (LC). – B&K 4:322, C&D 803, Däh 573, R&H 433, Ves 297, ☉.

#### *P. candolleana* (Fr.: Fr.) Maire

3. Densely caespitose, often with 25-100(-200) frb; apex and walls of cheilocystidia covered with drops turning green in a solution of ammonia see *P. multipedata* key F 3
- Solitary, gregarious to subcaespitose; apex and walls of cheilocystidia not covered with drops turning green in a solution of ammonia 4

4. Veil covering entire cap as fibrils or floccules, appendiculate at margin; clamps present; veil cells 30-180 x 4-24  $\mu\text{m}$  see *P. caniceps* key C 6
- Veil as scattered white fibrils or flocci, especially close to cap margin; clamps absent; veil cells 10-60 x 2-8  $\mu\text{m}$  see *P. effibulata* key C 6

**Key F:** Gill edge and cystidia covered with drops staining green in a solution of ammonia or clamps absent; sp < 9  $\mu\text{m}$

1. Gill edge and cystidia covered with drops staining green in a solution of ammonia; clamps present 2
- Gill edge and cystidia not covered with drops staining green in a solution of ammonia; clamps absent 4
2. Sp on av > 8.7  $\mu\text{m}$  long see *P. lutensis* key C 8
- Sp on av < 8.7  $\mu\text{m}$  long 3
3. Densely caespitose, often with 25-100(-200) frb; pleurocystidia lageniform to narrowly conical, acute (fig. 607D). Cap 10-40 mm, convex to almost plane, reddish brown, yellowish red, becoming dark brown or paler, faintly striate halfway towards centre when moist, hygrophanous, often shiny, drying sordid brown or pale yellow, veil as scattered fibrils near the margin or appendiculate; gills crowded, L = 32-46; stem 30-100 x 2-5 mm, often with a fibrillose zone near base, with a thick pseudorrhiza. Sp 6.5-9 x 4-5  $\mu\text{m}$ , Qav = 1.7-1.9, oblong, narrowly ovoid, in profile sometimes subphaseoliform, rarely narrowly amygdaloid, brown; pleurocystidia 40-60 x 9-12  $\mu\text{m}$ , scattered to absent; cheilocystidia of two types: A: 25-70 x 7-12  $\mu\text{m}$ , similar to pleurocystidia, upper part often with a yellow intracellular content, apex and walls covered with drops turning green in a solution of ammonia, numerous, B: small, clavate, scattered; veil cells 15-60 x 3-7  $\mu\text{m}$ . On soil, usually attached to buried wood, on stumps, in forests or parks, with *Alnus*, *Carpinus*, *Corylus*, *Fagus*, *Picea*, *Pinus*, *Quercus* and *Tilia*, on calcareous or nutrient rich soil, in grass lawns and on sawdust; spring to early winter, mostly in late autumn; occasional in temp., rare in hemib.-bore., in FI only north to southern bore.; DK (LC), FI (DD), NO (LC), SE (LC). – FAD 153E (as *Psathyra stipatissima*), L&D 151, Lud 98.25, R&H 433, Ves 299, ☉.
- P. multipedata* (Peck) A.H. Sm.
- Solitary to gregarious, hardly caespitose; pleurocystidia utriform, obtuse (fig. 607E). Cap 20-70 mm, convex to plane, brown, ochraceous yellow or olivaceous, not striate or hygrophanous, covered with appressed fibrillose or triangular, ochraceous brown, dark brown or olivaceous scales, similar to an *Inocybe*, towards margin sometimes velvety; gills crowded, L = 38-60; stem 35-100 x 3-10 mm, below brown fibrillose from veil remnants; taste mild to bitter. Sp 7-10 x 4.5-5.5  $\mu\text{m}$ , Qav = 1.5-1.7, subrectangular to subtriangular, ovoid, oblong to ellipsoid, in profile often distinctly phaseoliform, sometimes with a nodule at base, brownish orange; pleurocystidia 35-60 x 9-15  $\mu\text{m}$ , upper part of cystidia sometimes yellow refringent, numerous or rather numerous; cheilocystidia of two types: A: 30-55 x 8-16  $\mu\text{m}$ , similar in shape, frequency, etc. to pleurocystidia, B: small, clavate, scattered; veil cells 20-150 x 4-30  $\mu\text{m}$ , with brown intracellular pigmentation. On deciduous wood, *Betula*, *Fagus*, *Fraxinus*, *Populus* and *Salix* or directly on soil in rich forests; spring to autumn; rare in temp., very rare in hemib.; DK (EN), SE (NT). – BKPM 5:64 (opposite), Bon 269, Bres 850, Lud 98.4, M&H 4:291.
- P. sylvestris* (Gillet) Konrad & Maubl. (*P. populina* (Britzelm.) Kits van Wav., *Hypholoma lepidotum* Bres.)
4. Cap and stem surface pubescent; sp on av < 8.5  $\mu\text{m}$  long see *P. tenuicula* key D 3
- Cap and stem surface not pubescent; sp on av > 8.5  $\mu\text{m}$  long 5
5. Cap when moist dark reddish brown, veil scanty as fibrils or flocci, especially close to the margin see *P. effibulata* key C 6
- Cap when moist ochraceous yellow to pale buff, veil copious as scales, flocci or fibres to the centre see *P. gordonii* key C 29

**Key G:** Sp on av < 6.4  $\mu\text{m}$  long

1. Pleurocystidia with crystals see *P. pygmaea* key K 3  
 - Pleurocystidia without crystals 2
2. Veil when mature becoming brown to black 3  
 - Veil when mature not becoming brown to black 4
3. Sp 4.5-6 x 3-3.5  $\mu\text{m}$ ; clavate cystidia often with a rostrum (fig. 607F). Cap 20-65 mm, convex to plane, when young covered with a white veil of fibrillose scales, appendiculate at margin, soon breaking up and then exposing the sordid white to pale greyish brown cap surface; gills very crowded, L = 60-75; stem 40-90(-150) x 3-10 mm, when young white, soon discolouring, in upper part with a fibrillose zone, below the zone with fibrils or scales becoming black at centre. Sp Qav = 1.5-1.7, oblong, ellipsoid, ovoid, sometimes irregular, in profile sometimes subphaseoliform, brownish orange, germ pore absent or indistinct; pleurocystidia 25-55 x 10-16  $\mu\text{m}$ , clavate or lageniform, numerous to scattered; cheilocystidia of two types: A: 20-45 x 6-16  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: small, clavate, scattered rarely numerous; veil cells 30-250 x 4-20  $\mu\text{m}$ , with brown intracellular or parietal pigmentation. Caespitose or subcaespitose on stumps or logs in rich forests of *Alnus*, *Betula*, *Fagus*, *Quercus*, *Picea*, *Pinus*, *Populus*, *Salix* and *Tilia*, sometimes in moist places; autumn; occasional in temp., very rare in hemib.-bore.; DK (LC), FI (DD, OP: Oulunsalo), NO (NE), SE. – B&K 334, End 410, FAD 146D, D<sup>1</sup> (as *Hypholoma melanthinum*), Lud 98.3, M&H 4:290.  
*P. maculata* (C.S. Parker) A.H. Sm. (*P. scobinacea* (Fr.) Konrad & Maubl. s. Konrad & Maublanc)  
 - Sp 6-7.5  $\mu\text{m}$  long; cystidia without a rostrum see *P. hirtosquamulosa* key K 2
4. Pleurocystidia with a rostrum; cap 10-40 mm, veil when young not appendiculate as a membrane at the margin. Cap convex to plane, dark reddish brown, then dark brown, sepia brown or ochraceous brown, with paler margin, hygrophanous, striate, drying pale brown with ochraceous tinges at centre, veil in young stages as fibres near the margin, evanescent; gills crowded, L = 24-46; stem 15-50 x 1-3 mm; smell faintly agreeable to strongly sweetish; taste mild or like radish. Sp 5-6 x 3-4  $\mu\text{m}$ , Qav = 1.7, oblong, ellipsoid to ovoid, in profile rarely subphaseoliform, brownish orange, with a rather distinct germ pore; pleurocystidia 20-45 x 10-16  $\mu\text{m}$ , numerous, faintly pigmented, fusiform, utriform to clavate, the rostrum 2-10 x 1.5-5  $\mu\text{m}$ ; cheilocystidia of two types: A: 20-32 x 9-12  $\mu\text{m}$ , similar to pleurocystidia, scattered, B: 7-18  $\mu\text{m}$  broad, clavate to spheropedunculate, often many cells deep, especially close to cap margin; veil cells 2-6  $\mu\text{m}$  broad. Solitary, gregarious like *Coprinellus disseminatus* or caespitose in deciduous forests, on sticks, logs, wood chips or stumps; all year; very rare in temp.; DK (EJyl: Læsø).  
*P. laevissima* (Romagn.) Singer  
 - Pleurocystidia without a rostrum; cap 20-80 mm, veil when young appendiculate as a membrane at the margin. Cap convex to plane, dark reddish brown, dark dark brown, soon fading to reddish brown, hardly translucently striate, hygrophanous, drying pale yellow brown, pale buff, veil sometimes as small flocci or fibrils halfway up; gills crowded to very crowded, L = 36-75; stem 40-90 x 4-9 mm, sometimes with a fibrillose zone; smell sometimes fragrant. Sp 4.5-6.5 x 3-4  $\mu\text{m}$ , Qav = 1.5-1.8, ovoid, oblong or ellipsoid, slightly irregular in outline, in profile sometimes phaseoliform, brownish orange, germ pore distinct to almost absent; pleurocystidia 25-50 x 9-16(-20)  $\mu\text{m}$ , narrowly utriform, obtusely fusiform, clavate, sublageniform or subcylindrical (fig. 607G), scattered to numerous; cheilocystidia of two types, but sometimes intermediate forms occur: A: 20-45 x 7-14  $\mu\text{m}$ , similar in shape and frequency to pleurocystidia, B: small, clavate, scattered to numerous; veil cells 20-140 x 2-12(-20)  $\mu\text{m}$ . Usually caespitose, rarely solitary, around stumps or debris of deciduous trees, often *Fagus*, rarely of conifers; all year; very common in temp., occasional in hemib., rare in bore., in FI north to southern bore.; DK (LC), FI (LC), NO (LC), SE (LC). – B&K 347, Däh 571,

Lud 98.26A, R&H 434, Ves 299, ☉.

*P. piluliformis* (Bull.: Fr.) P.D. Orton (*P. hydrophila* (Bull.) Maire, *P. subpapillata* (P. Karst.) Romagn., *P. hydrophiloides* Kits van Wav.)

**Key H:** Veil absent; pleurocystidia with crystals; sp < 9  $\mu$ m

1. Pleurocystidia acute (fig. 611A); gills very crowded, L = 60-82; sp pale. Cap 25-120 mm, convex to plane, dark reddish brown, red brown, sometimes striate at margin, faintly hygrophanous, at maturity or when drying fading to pale ochraceous brown, flesh-coloured or pink, at margin covered with minute hairs (lens); veil absent; stem 25-100 x 3-12 mm, rigid. Sp 6.5-11 x 4-5.5  $\mu$ m, Qav = 1.7-1.9, ovoid, oblong or subcylindrical, sometimes irregular in outline, in profile sometimes phaseoliform, rarely amygdaloid, very pale brown, germ pore absent or rarely indistinct; pleurocystidia 30-80 x 10-24  $\mu$ m, lageniform, fusiform to conical, often rostrate with apex covered with crystals, abundant, rarely rather scattered, wall up to 3  $\mu$ m thick near apex, yellow or not; cheilocystidia of two types: A: 40-85 x 8-22  $\mu$ m, similar to pleurocystidia, scattered to abundant, B: 30-90 x 6-28  $\mu$ m, clavate, utriform or cylindrical, scattered or rarely numerous; hairs at cap margin originating from globose cells of pileipellis, septate or not; terminal cells of the hairs 40-180 x 6-18  $\mu$ m, versiform, cylindrical, clavate, lageniform, etc., rarely similar to pleurocystidia. Usually caespitose around deciduous trees and conifers, both stumps and at the base of living trees; spring to early winter; occasional, but locally common in temp., common in hemib.-bore., very rare in suba.; DK (LC), FI (LC), NO (LC), SE (LC). – B&K 4:356, Bol Bres 36:134, Däh 569, FAD 148E, F, Lud 98.42, ☉.

*P. spadicea* (P. Kumm.) Singer (*P. sarcocephala* (Fr.) Singer, *P. variata* A.H. Sm.)

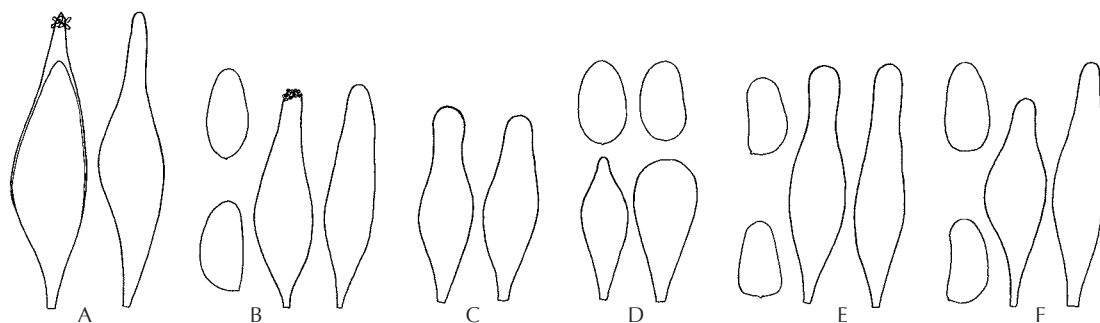
- Pleurocystidia obtuse (fig. 611B); gills crowded, L = 28-44; sp moderately pigmented. Cap 20-70 mm, convex, brown, striate halfway from margin when moist, hygrophanous, soon fading to pale brown, greyish yellow, whitish, when young sometimes pruinose at margin; veil absent; gills becoming dark reddish brown; stem 15-50 x 2-13 mm, rather firm. Sp 6-9 x 3.5-5  $\mu$ m, Qav = 1.6-1.9, oblong, ovoid, ellipsoid, subcylindrical to subfusiform, in profile sometimes phaseoliform or amygdaloid, brown, germ pore rather distinct to seemingly absent; pleurocystidia 30-60(-70) x 8-20  $\mu$ m, narrowly utriform, conical to subcylindrical, often covered with crystals or incrustations, numerous to scattered; cheilocystidia of two types: A: 30-70 x 8-20  $\mu$ m, similar to pleurocystidia, numerous, B: small, clavate, scattered; subhymenium and basidia often with brown, partly intracellular pigment. Caespitose or gregarious on or around stumps or bases of living deciduous trees in forests, parks or gardens; often late in the season; occasional in temp.-southern bore.; DK (LC), FI (LC), NO (LC), SE (LC). – B&K 4:324, FAD 147B (as *Psilocybe papyracea*), FD 1008.1 (as *Agaricus c.*), Lud 98.40.

*P. cernua* (Vahl: Fr.) G. Hirsch (*P. ivoeënsis* Örstadius)

**Key I:** Smell sweetish reminding of almonds, marzipan or coconuts

1. Veil cells 30-450 x 5-50  $\mu$ m; gills crowded, L = 30-40; sp with a distinct germ pore. Cap 10-50 mm, convex to plane, ochraceous brown, yellow brown to reddish brown, striate at margin, hygrophanous, drying ochraceous, pale ochraceous brown to grey brown, veil strongly developed as scales or flocci to the centre, appendiculate at margin; stem 35-60 x 2-7 mm, rarely with a ring; smell sweetish. Sp 6.5-9 x 4-5  $\mu$ m, Qav = 1.7-2.1, oblong, rarely narrowly ovoid, in profile sometimes with a suprahilar depression, narrowly amygdaloid to phaseoliform, brown; pleurocystidia 30-55 x 10-17  $\mu$ m, narrowly to broadly utriform, sometimes capitate, rarely lageniform or forked (fig. 611C), scattered, rarely numerous; cheilocystidia of two types: A: 25-55 x 7-16  $\mu$ m, similar to pleurocystidia, numerous to very numerous, B: small, clavate, variable in frequency. In forests of *Fagus* and *Picea*, on rotten wood chips or woody debris, rarely in grass lawns; spring to autumn; very rare in temp.-suba.; DK (vu), FI (DD), IS (Ve), NO (LC), SE (LC). – Bol Bres 40:199, End 417, Lud 98.17, M&J 15, Svp 37:25.
- P. suavissima* Ayer (*P. sacchariolens* Enderle)






Spores and pleurocystidia: A: *Psathyrella spadicea*, B: *P. cernua*, C: *P. suavissima*, D: *P. mucrocystis*, E: *P. pertinax*, F: *P. cotonea*.

- Veil cells 15-100 x 2-12  $\mu\text{m}$ ; gills very crowded, L = 45-70; sp with or without an indistinct germ pore 2
- 2. Pleurocystidia 20-40 x 9-14  $\mu\text{m}$ , clavate or clavate-mucronate with a 2-10  $\mu\text{m}$  long protuberance (fig. 611D). Cap 30-90 mm, bell-shaped to convex, becoming plane with a low umbo, dark reddish brown to brown, not striate, hygrophanous, fading to bright ochraceous tawny; veil as fibrils halfway from margin and connecting stem and margin in young stages; stem 30-90 x 6-13 mm, when young with an evanescent fibrillose zone; smell sweetish. Sp 6.5-8 x 4-5  $\mu\text{m}$ ,  $Q_{av} = 1.5-1.6$ , ovoid, ellipsoid, oblong, in profile sometimes phaseoliform or amygdaloid, brownish orange; pleurocystidia scattered; cheilocystidia 20-40 x 8-14  $\mu\text{m}$ , similar to pleurocystidia, clavate ones numerous, mucronate ones scattered. Caespitose to solitary on stumps of coniferous or deciduous trees; spring to autumn; very rare in eastern temp. and southern bore.; FI (NT), SE (LC). – Pers 11:496.  
*P. mucrocystis* A.H. Sm.
- Pleurocystidia 25-65 x 8-16  $\mu\text{m}$ , polymorphic, narrowly utriform, lageniform, fusiform, clavate to conical, rarely mucronate (fig. 611E). Cap 20-75 mm, conical-convex to plane, when young chestnut to dark reddish brown, then often fading to reddish brown, ochraceous brown or yellow brown, dull, almost velvety, often becoming radially rugose or veined, reticulate or not, not or hardly hygrophanous, not striate, veil as white floccules or scales near the margin, sometimes brown discoloured; stem 30-90 x 5-12 mm, flocculose from veil remnants, sometimes brown discoloured; smell sweetish; taste mild, once recorded as slightly peppery. Sp 6-8.5 x 3.5-5  $\mu\text{m}$ ,  $Q_{av} = 1.5-1.8$ , subrectangular to ovoid, oblong or ellipsoid, sometimes irregular in outline or phaseoliform, brownish orange; pleurocystidia numerous to scattered; cheilocystidia of two types: A: similar in size, shape and frequency to pleurocystidia, B: small, clavate, often dominating. On decayed wood of *Picea*, rarely *Pinus* or *Betula*; summer to autumn; rare in temp.-bore.; DK (LC), FI (LC), NO (LC), SE (LC). – End 403, FAD 147C, FND 26:2B, Lud 98.64, M&J 6.  
*P. pertinax* (Fr.) Örstadius (*P. chondroderma* (Berk. & Broome) A.H. Sm.)

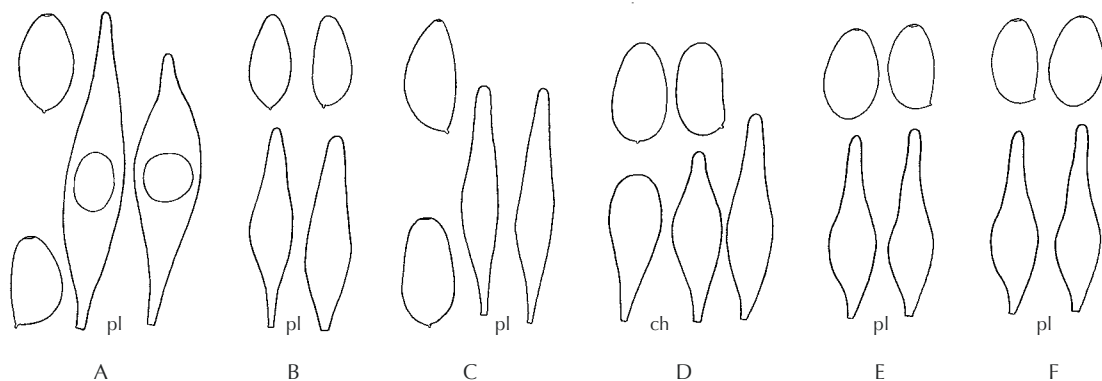
### Key J: Pleurocystidia lageniform to conical, upper part often acute

1. Cap whitish, alutaceous to buff, not striate; veil white, becoming sordid or discolouring to brown or black with age. Cap 30-80 mm, convex to almost plane, sometimes with a violet tinge, not or very slightly hygrophanous, covered with a dense coating of white fibrils and scales, appendiculate at margin; gills narrowly adnate, crowded to very crowded, L = 45-65; stem 40-120 x 5-12 mm, whitish, white fibrillose scaly, firm, at base sometimes with yellow mycelium. Sp 6-9 x 3-4.5  $\mu\text{m}$ ,  $Q_{av} = 1.7-2$ , oblong, subcylindrical to subrectangular, sometimes irregular, in profile often phaseoliform (fig. 611F), brownish orange; pleurocystidia 25-

60 x 10-16  $\mu\text{m}$ , utriform, lageniform, obtusely fusiform or conical, pale, scattered to rather numerous; cheilocystidia of two types: A: 25-60 x 6-15  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: small, clavate to obpyriform, scattered; veil cells 30-150 x 4-20  $\mu\text{m}$ , often brown pigmented. In deciduous or coniferous forests, in parks, often around stumps or on debris of *Fagus*, sometimes *Betula*, *Quercus* or *Picea* on slightly acid to base-rich soil; late summer to autumn, occasional in temp., rare in hemib.; DK (LC), NO (LC), SE (LC). – B&K 4:327, Bon 269, FAD 146C, 147E (as *Hypholoma* c.), Lud 98.2, M&J 5, .

*P. cotonea* (Quél.) Konrad & Maubl.

- Cap  $\pm$  brown, striate or not; veil hardly discolouring 2
- 2. Pleurocystidia with one, rarely two large internal globules, often with a long rostrum (fig. 613A). Cap 10-70 mm, convex to plane, when young dark brown, dark reddish brown, striate at margin, hygrophanous, drying pale ochraceous brown, veil as fibres or flocci near the margin, appendiculate at margin; gills medium spaced, L = 30-38; stem 25-100 x 3-10 mm, with fibrils and flocci from veil remnants below, sometimes with a fugacious, hanging, striate ring. Sp 7-9 x 5-6 x 4.5-5.5  $\mu\text{m}$ , Qav = 1.4-1.6 and 1.5-1.7, ovoid, subfusiform, ellipsoid to oblong, in profile often amygdaloid or with a suprahilar depression, sometimes subphaseoliform, reddish brown; pleurocystidia 35-80 x 10-18  $\mu\text{m}$ , fusiform to conical, rarely clavate, numerous; cheilocystidia of two types: A: similar in size, shape and frequency to pleurocystidia, B: small, clavate, scattered to numerous; veil cells 25-120 x 4-10(-20)  $\mu\text{m}$ . In deciduous or coniferous forests with *Betula*, *Fagus*, *Quercus*, *Picea* or *Pinus*, on logs, twigs, wood chips and fireplaces; all year; rare in western temp., very rare in hemib.-bore.; DK (LC), FI (DD, SoL: Sodankylä), NO (LC), SE (LC). – Cke 612 (as *Agaricus* g.), FAD 152G, FND 26:5B, Lud 98.49, M&J 19.  
*P. gossypina* (Bull.: Fr.) A. Pearson & Dennis (*P. xanthocystis* P.D. Orton)
- Pleurocystidia without globules, without or with a short rostrum 3
- 3. On burnt soil. Cap 10-55 mm, convex to plane, dark reddish brown, at maturity fading to reddish brown, striate to 3/4 from margin, hygrophanous, drying reddish yellow, pale grey brown or pink, veil when young as flocci or scales to the centre, when mature often denticulate at margin; gills crowded, L = 36-44; stem 20-60 x 2-5 mm, sometimes with a fibrillose zone of veil remnants. Sp 6.5-8.5 x 3.5-4.5  $\mu\text{m}$ , Qav = 1.8-2, oblong to fusiform, in profile sometimes narrowly amygdaloid or with a slight suprahilar depression (fig. 613B), reddish brown, germ pore absent or sometimes indistinct; pleurocystidia 30-60 x 8-16  $\mu\text{m}$ , fusiform, usually acute, rarely capitate, numerous to scattered; cheilocystidia of two types: A: 25-55 x 7-14  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: small, clavate to obpyriform, scattered to numerous; veil cells 25-150 x 4-20  $\mu\text{m}$ . In coniferous or deciduous forests with *Alnus*, *Betula* or *Pinus*, also in open places; spring to early winter; occasional in temp.-hemib., rare in bore.-suba.; DK (NT), FI (DD), FO, NO (LC), SE (LC). – BKPM 14:56 (opposite), B&K 4:344, Dah 571, Lud 98.45, Myc 5:170.  
*P. pennata* (Fr.) A. Pearson & Dennis
- Not on burnt soil 4
- 4. Dominating type of cheilocystidia small, clavate to spheropedunculate 5
- Dominating type of cheilocystidia similar to pleurocystidia 10
- 5. Veil as patches close to cap margin; cap 20-70 mm; L = 32-60 see *P. rostellata* 16
- Veil as flocci or fibres close to margin; cap 8-40 mm; L = 16-34 6
- 6. Sp on av 6.4-7.6  $\mu\text{m}$  long; pleurocystidia sometimes or rarely mucronate, rostrate or bent; sp smooth to granulose see *P. umbrina* 14
- Sp on av 7.2-9.2  $\mu\text{m}$  long; pleurocystidia not or rarely mucronate, rostrate or bent; sp smooth 7
- 7. Cap 8-20 mm; sp with a distinct to indistinct germ pore, moderately to



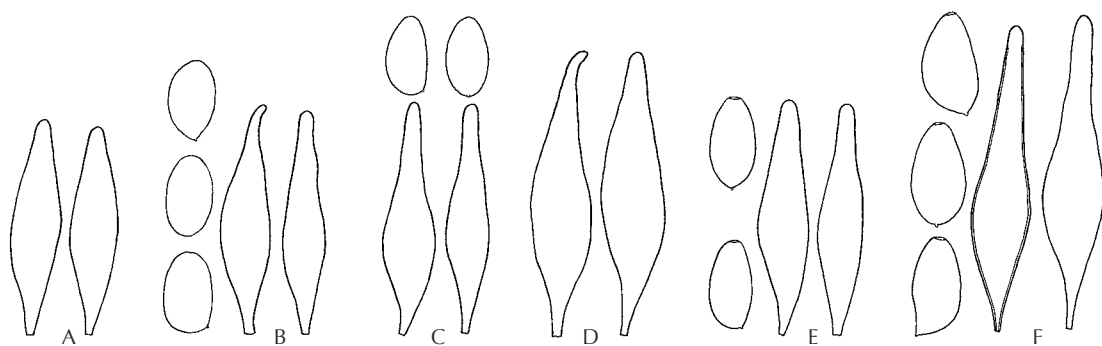
Spores, pleurocystidia and cheilocystidia: A: *Psathyrella gossypina*, B: *P. pennata*, C: *P. dunensis*, D: *P. obtusata*, E: *P. seymourensis*, F: *P. spintrigeroides*.

- rather dark; on sandy soil 8
- Cap 10-40 mm; sp without or with an indistinct germ pore, pale; on wood or attached to buried wood 9
8. Gill edge red pigmented; veil absent or as rudimentary fibres at cap margin. Cap convex to bell-shaped, when moist dark brown, dark greyish brown, umber grey, hygrophanous, striate to 3/4 from margin, drying pale brownish grey, ochraceous beige or alutaceous, with traces of pink, sometimes slightly sulcate becoming more pronounced when drying; gills broadly adnate, distant; stem 20-65 x 1-2 mm. Sp 7-9.5 x 4.5-5.5  $\mu\text{m}$ , Qav 1.6-1.8, oblong, ovoid to ellipsoid, in profile sometimes amygdaloid or subphaseoliform (fig. 613C), reddish brown, with a distinct germ pore; pleurocystidia 35-65 x 8-14  $\mu\text{m}$ , narrowly fusiform, lageniform to subcylindrical, rarely bent or subcapitate, flexuous, numerous or rather numerous; cheilocystidia of two types: A: 25-50 x 8-13  $\mu\text{m}$ , similar to pleurocystidia, scattered to rather numerous, B: 8-12  $\mu\text{m}$  broad, clavate, 1-2 cells deep; veil cells 20-60 x 4-6  $\mu\text{m}$ . On a grassy verge of path through sand dunes, in grassland within a forest of *Quercus rotundifolia* on basic soil, in a deciduous forest dominated by *Fraxinus*; spring to autumn; very rare in eastern temp.; SE (Sk: Bjärsjölagård). – Lud 98.62.  
*P. dunensis* Kits van Wav.
- Gill edge not red pigmented; veil as flocci halfway from margin see *P. seymourensis* 10
9. Sp on av 7.6-9.2 x 4.7-5.5  $\mu\text{m}$ ; pleurocystidial walls not distinctly yellow below apex; clavate cheilocystidia sometimes mucronate. Cap 10-40 mm, conical-convex to plane, dark reddish brown to brown, when moist striate to 3/4 from margin, hygrophanous, drying ochraceous, cream or pale brown; veil when young as fibres or scattered floccules; gills medium spaced, L = 17-34; stem 20-80 x 1-5 mm, rarely with a pseudorrhiza, a ring or an evanescent fibrillose zone. Sp 7.5-10 x 4.5-6  $\mu\text{m}$ , Qav = 1.5-1.8, oblong, ovoid to ellipsoid, often irregular in outline, in profile sometimes phaseoliform (fig. 613D), brownish orange, with indistinct germ pore; pleurocystidia 35-70 x 8-16  $\mu\text{m}$ , narrowly lageniform, obtusely fusiform to conical, rarely cylindrical, utriform, flexuous or forked, numerous, sometimes scattered; cheilocystidia of two types: A: 25-50 x 8-16  $\mu\text{m}$ , similar to pleurocystidia, often scattered near cap margin and increasing in number towards stem, B: clavate to obpyriform, sometimes mucronate, dominating the gill edge, especially abundant towards the cap margin; veil cells 10-120 x 4-20  $\mu\text{m}$ . In rich deciduous forests, occasionally in coniferous forests, on decayed wood, mossy logs or soil, rarely nitrophilous, dry to moist; all year; common in temp., occasional in hemib., rare in bore.; DK (LC), FI, NO (LC), SE (LC). – B&K 4:329 (as aff. *friesii*), End

420, FAD 152A, Lud 98.37, M&J 20 (as *senex*).

*P. obtusata* (Pers.: Fr.) A.H. Sm. (*P. senex* (Peck) A.H. Sm. s. Kits van Waveren, *P. vrynwyensis* Kits van Wav.)

- Sp on av 7.2-8 x 4.1-4.6  $\mu\text{m}$ ; pleurocystidial walls often distinctly yellow below apex; clavate cheilocystidia not mucronate see *P. cortinarioides* key K 25
  
- 10. On sandy soil, in sand dunes, in grasslands or at roadsides; cap 8-20 mm; some sp subtriangular, reminding of the sp of *P. panaeoloides*. Cap convex, dark reddish brown, striate to half-way from margin, hygrophanous, drying from centre to ochraceous or pale grey brown, veil present as flocci halfway from the margin, sometimes appendiculate; gills distant, L = 16-20; stem 20-45 x 1-2 mm. Sp 7-9 x 4-5.5  $\mu\text{m}$ , Qav = 1.5-1.7, ovoid, oblong to ellipsoid, in profile sometimes amygdaloid or subphaseoliform (fig. 613E), reddish brown; pleurocystidia 30-50 x 10-16  $\mu\text{m}$ , lageniform, sometimes acute, flexuous, numerous to scattered; cheilocystidia of two types: A: lageniform, 25-40 x 8-15  $\mu\text{m}$ , numerous to scattered, B: small, clavate, numerous; veil cells 15-60 x 4-14  $\mu\text{m}$ . Spring to autumn; very rare in temp.; DK (DD), SE (LC). – Lud 98.61.  
*P. seymourensis* A.H. Sm.
  - Often on remnants of wood; cap 10-70 mm; sp ovoid, ellipsoid, oblong, subcylindrical, amygdaloid or phaseoliform 11
  
- 11. Sp on av < 8  $\mu\text{m}$  long 12
  - Sp on av  $\geq$  8  $\mu\text{m}$  long 16
  
- 12. Cap 30-70 mm; pleurocystidia 40-80 x 9-20  $\mu\text{m}$ , extremely numerous; veil as large scales on cap. Cap convex or plane, umbonate, dark reddish brown to dark brown, when mature reddish brown to brown, rarely striate to 1/3 from margin, hygrophanous, drying brown ochraceous or pale yellow, veil well developed, dentate at cap margin; gills crowded, L = 30-50; stem 30-90 x 3-8 mm, veil remnants leaving scales or flocci in lower part or rarely a membranous ring. Sp 7-8.5 x 4-5  $\mu\text{m}$ , Qav = 1.7-1.9, oblong to ovoid, in profile sometimes phaseoliform or amygdaloid (fig. 613F), brownish orange, often with an indistinct germ pore; pleurocystidia fusiform to lageniform, often acute and bent, with up to 1  $\mu\text{m}$  thick, yellow walls; cheilocystidia of two types: A: 30-70 x 8-18  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: 10-20  $\mu\text{m}$  wide, clavate, scattered to numerous; veil cells 20-150 x 4-24  $\mu\text{m}$ . Often gregarious on decayed stumps, mossy logs or other debris in rich *Fagus* forests, also in rich (once acid) forests with *Alnus*, *Betula*, *Corylus*, *Dryopteris carthusiana*, *Fraxinus*, *Lycopodium clavatum*, *Quercus*, *Picea*, *Pinus*, *Salix*, *Ulmus* and *Vaccinium myrtillus*; summer to autumn; occasional in eastern temp., very rare in western temp. and eastern hemib.; DK (vu), NO, SE (LC). – BKPM 5:64bis, Lud 98.46.  
*P. spintrigeroides* P.D. Orton
  - Cap 10-40 mm; pleurocystidia 30-65  $\mu\text{m}$  long, numerous to scattered; veil as flocci 13
  
- 13. Sp on av 3.8-4.2  $\mu\text{m}$  broad; veil cells 30-300 x 6-35  $\mu\text{m}$ . Cap 10-40 mm, convex, brown, when moist striate at margin, hygrophanous, drying pale yellow brown or alutaceous, veil white to cream, copious as floccules to the centre, appendiculate at margin; gills medium spaced; stem 25-70 x 2-4 mm, sometimes with a fugacious ring zone. Sp 6-8 x 3.5-4.5  $\mu\text{m}$ , Qav = 1.7-1.9, oblong, ovoid to ellipsoid, in profile sometimes amygdaloid, phaseoliform or with a suprahilar depression, smooth to minutely rough, brownish orange; pleurocystidia 30-60 x 8-16  $\mu\text{m}$ , narrowly conical, fusiform, subutriform to lageniform, sometimes flexuous, rarely bent, forked or capitata (fig. 615A), numerous; cheilocystidia of two types: A: 20-60 x 6-14  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: small, clavate, scattered, rather numerous. In deciduous forests, on paths, on wood chips, once on stump of *Salix*, in leaves, probably with preference for rich soil, noted with *Acer*, *Aconitum lycotonum*, *Aegopodium*, *Betula*, *Chrysosplenium alternifolium*, *Populus tremula*, *Prunus padus*, *Salix caprea*, *Sorbus* and *Urtica*, in dry or moist places; late summer to early autumn; rare in hemib.-



Spores and pleurocystidia: A: *Psathyrella squamosa*, B: *P. umbrina*, C: *P. atomatoides*, D: *P. rostellata*, E: *P. senex*, F: *P. fibrillosa*.

bore.; FI (DD), NO (LC), SE (LC). – Lud 98.65.

*P. squamosa* (P. Karst.) A.H. Sm. (*P. stigmatospora* Clemençon s. Kytövuori et al. 2005)

- Sp on av 3.9-5  $\mu\text{m}$  broad; veil cells 15-140  $\times$  2-20  $\mu\text{m}$  14

14. Pleurocystidia sometimes to rarely mucronate, rostrate or bent; sp Qav = 1.4-1.6, smooth to granulose, pale, without or with an indistinct germ pore. Cap 10-35 mm, conical-convex, rarely plane, dark reddish brown, reddish brown, soon brown, striate to 2/3 from margin, hygrophanous, drying pale yellow brown or ochraceous, veil well developed, as flocci or fibrils to the centre, appendiculate at margin; gills medium spaced, L = 17-34; stem 25-60  $\times$  1.5-4 mm. Sp 6-8  $\times$  4-5  $\mu\text{m}$ , Qav = 1.4-1.6, ellipsoid, oblong, ovoid to obovoid, with conspicuously obtuse poles, in profile sometimes amygdaloid (fig. 615B), brownish orange; pleurocystidia 30-65  $\times$  8-18  $\mu\text{m}$ , narrowly fusiform to subutriform, scattered to numerous; cheilocystidia of two types: A: 25-50  $\times$  7-15  $\mu\text{m}$ , similar to pleurocystidia, numerous to scattered, B: small, clavate, numerous close to cap margin; veil cells 15-140  $\times$  4-20  $\mu\text{m}$ . On both rich calcareous and acid soils, in deciduous and coniferous forests, in *Salix* thickets, in grassland, attached to remnants of wood or directly on soil; late summer to autumn; rare but locally occasional in temp.-suba.; FI, IS, NO (LC), SE (LC). – Lud 98.48.

*P. umbrina* Kits van Wav. (*P. subumbrina* Kits van Wav. & Örstadius)

- Pleurocystidia rarely mucronate or rostrate, not bent; sp Qav = 1.6-1.9, smooth, moderately pigmented, with an indistinct to distinct germ pore 15

15. Sp on av 6.7-7.7  $\times$  3.9-4.6  $\mu\text{m}$ ; with an indistinct germ pore; pleurocystidia often conical. Cap 10-40 mm, convex to almost plane, dark reddish brown, fading to date brown or ochre brown, when moist faintly striate at margin, hygrophanous, drying pale brown, veil as white or cream floccules 1/3 from the margin, appendiculate; gills distant, L = 10-22; stem 30-90  $\times$  2-6 mm, sometimes with a fugacious ring zone. Sp 6.5-8  $\times$  3.5-5  $\mu\text{m}$ , Qav = 1.6-1.8, ovoid, oblong to ellipsoid, in profile sometimes amygdaloid, subphaseoliform (fig. 615C), reddish brown; pleurocystidia 30-60  $\times$  9-15  $\mu\text{m}$ , narrowly conical, fusiform to lageniform, rarely clavate, numerous, rarely scattered; cheilocystidia of two types: A: 25-45  $\times$  8-14  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: small, clavate, in variable numbers; veil cells 20-100  $\times$  3-14  $\mu\text{m}$ . Often in moist to wet habitats with *Alnus*, *Betula*, *Picea*, *Pinus*, *Populus* or *Salix*, with *Sphagnum*, close to alluvial marshes or thickets, in dried ponds, usually attached to decayed wood, also on sawdust or directly on soil, oligotrophic; spring to autumn; occasional in eastern bore., very rare in temp., hemib. and western bore.; DK (DD), FI (LC), NO (LC), SE (LC). – Lud 98.58.

*P. atomatoides* (Peck) A.H. Sm. (*P. solitaria* (P. Karst.) Örstadius & Huhtinen, nom. illeg., *P. caespitosa* Weholt, *P. rannochii* Kits van Wav.)


- Sp on av 7.5-8.8 x 4.2-5  $\mu\text{m}$ ; with a distinct germ pore; pleurocystidia lageniform, fusiform, narrowly utriform or cylindrical see *P. senex* 17
- 16. Pleurocystidia mucronate, rostrate, forked or bent (fig. 615D); L = 32-60; sp without or with an indistinct germ pore. Cap 20-70 mm, convex to plane, when moist dark reddish brown to yellowish red, striate up to 1/2-2/3 from margin, shiny or not, hygrophanous, drying ochraceous grey or cream, veil as larger patches close to or appendiculate at the margin, also as floccules or fibrils towards centre; gills crowded; stem 35-100 x 2-10 mm, rarely with a membranous ring in upper part. Sp 7.5-10 x 4.5-5.5  $\mu\text{m}$ , Qav = 1.6-1.9, ovoid, oblong to ellipsoid, often slightly irregular in outline, in profile sometimes amygdaloid or phaseoliform, brownish orange; pleurocystidia 45-80 x 9-20  $\mu\text{m}$ , abundant, fusiform, lageniform or subutriform, with obtuse or acute apex; cheilocystidia of two types: A: 25-60 x 8-18  $\mu\text{m}$ , similar to pleurocystidia, scattered to numerous, B: small, clavate to obpyriform, numerous; veil cells 15-130 x 3-20  $\mu\text{m}$ . In rich deciduous or coniferous forests with *Alnus*, *Betula*, *Fagus*, *Picea*, *Pinus*, *Populus*, *Quercus* and *Ulmus*, on mossy stumps or branches or attached to decaying leaves and wood; late summer to autumn; occasional in temp.-bore., very rare in suba.; DK (LC), FI (LC), NO (LC), SE (LC). – BKPM 10:51 (as *kauffmanii*), FAD 143A, B (as *Stropharia spintrigera* and *S. spintrigera* var. *semivestita*), Lud 98.47.  
*P. rostellata* Örstadius
- Pleurocystidia not or rarely mucronate, rostrate, forked or bent; L = 20-38; sp with a distinct germ pore 17
- 17. Veil rather scanty, as evanescent fibres or flocci near the cap margin; sp without a suprahilar depression. Cap 7-40(-60) mm, conical-convex, then expanded plane, dark reddish brown, when mature reddish brown, dark brown to brown, striate when moist, hygrophanous, fading to very pale brown, sometimes with brown-orange tinges remaining at centre; gills medium spaced, L = 20-34; stem 20-100 x 2-6 mm. Sp 7-9.5 x 4-5(-5.5)  $\mu\text{m}$ , Qav = 1.6-1.9, oblong, ovoid to ellipsoid, in profile sometimes amygdaloid, but not pronounced, rarely subphaseoliform (fig. 615E), reddish brown; pleurocystidia 30-60 x 9-16  $\mu\text{m}$ , narrowly utriform, fusiform, lageniform to cylindrical, rarely subcapitate or rostrate, scattered or more seldom numerous; cheilocystidia of two types: A: 20-50 x 8-16  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: small, clavate, scattered; veil cells 20-100 x 2-20  $\mu\text{m}$ . On debris of wood or among fallen leaves, also terricolous, in deciduous or coniferous forests, sometimes nitrophilous, rarely in open grassland, dry or moist; spring to autumn; very common in temp. and western suba., common in hemib. and eastern bore., rare in western bore. and eastern suba.; DK (LC), FI (DD), IS, NO (LC), SE (LC). – Bol Bres 40:197 (as *fusca*), End 408 (as *fusca*), FND 26:3C, Lud 98.63, M&J 18 (as *fulvescens* var. *brevicystis*).  
*P. senex* (Peck) A.H. Sm. (*P. ocellata* (Romagn.) M.M. Moser, *P. friesii* Kits van Wav., *P. badia* Kits van Wav., *P. capitatocystis* Kits van Wav., *P. ploddensis* Kits van Wav., *P. twickelensis* Kits van Wav., *P. fulvescens* (Romagn.) A.H. Sm. var. *brevicystis* Kits van Wav., *P. fusca* (Schumach.) A. Pearson s. auct.)
- Veil copious, as flocci or scales at least halfway to cap centre; sp with a suprahilar depression 18
- 18. Pleurocystidia with yellow, thickened walls below apex in ammonia solution; with preference for acid coniferous and deciduous forests. Cap 15-50(-70) mm, convex to plane, dark reddish brown, when mature fading to reddish brown, sometimes in young stages fading to brown or grey brown, the amount of grey components variable, when moist striate up to 3/4 from margin, hygrophanous, drying cream or alutaceous, veil with radial fibrils or with scattered flocci or scales, especially close to the margin; gills medium spaced to crowded, L = 28-38; stem 30-70 x 2-7 mm, sometimes with a ring zone in upper part. Sp 7.5-10 x 4-5.5  $\mu\text{m}$ , Qav = 1.7-2, ovoid, oblong to subcylindrical, in profile amygdaloid, with a suprahilar depression or subphaseoliform (fig. 615F), reddish brown; pleurocystidia 35-80 x 10-20  $\mu\text{m}$ , numerous, rarely scattered, fusiform, narrowly conical, lageniform, cylindrical to subutri-


form, with acute or obtuse apex, which rarely is forked or incrusting; cheilocystidia of two types: A: 25-65 x 8-16  $\mu\text{m}$ , similar in shape and frequency to pleurocystidia, B: 7-20  $\mu\text{m}$  wide, clavate, scattered to numerous; veil cells 15-100(-150) x 4-20(-24)  $\mu\text{m}$ . With *Betula*, *Fagus*, *Picea*, *Pinus* and *Quercus*, on sticks and debris, rotten wood and leaves, in moss, in dry, moist or wet places; summer to autumn; common in temp.-suba.; DK (LC), FI (DD), FO, IS, NO (LC), SE (LC). – End 402, FAD 145C, 152D, Lud 98.43, Phil 256c, Ves 298.

*P. fibrillosa* (Pers.: Fr.) Maire (*P. artemisiae* (Pass.) Konrad & Maubl. s. auct.)

- Pleurocystidia without yellow, thickened walls below apex in ammonia solution; with preference for base rich deciduous forests see *P. impexa* key C 26

### Key K: Pleurocystidia (narrowly) utriform to lageniform, upper part often obtuse

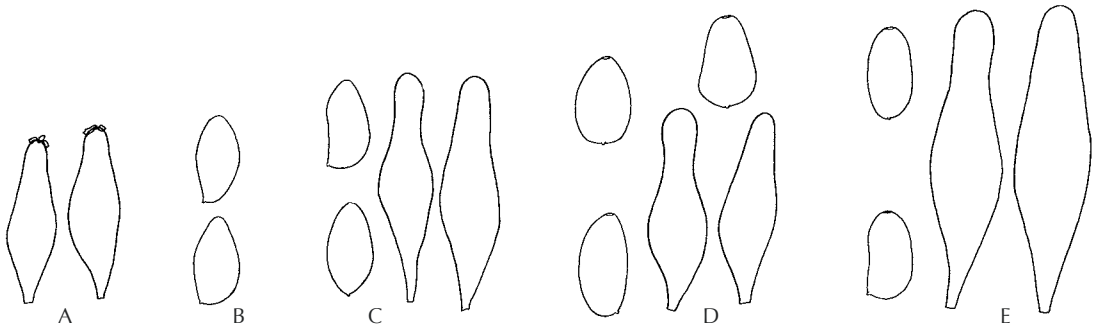
1. Veil at maturity becoming brown to black 2
  - Veil not becoming brown to black at maturity 3
2. Cap 15-35 mm; sp on av  $\leq 7 \mu\text{m}$  long,  $Q_{av} = 1.2-1.3$  in front view. Cap convex to nearly plane, when moist greyish buff, avellaneous or dark drab, a sparse to copious, innate fibrillose covering breaking up into erect to somewhat decumbent, fine, dark-coloured scales especially around the disc, with dark brown to blackish brown fibrils; gills adnate, crowded, pallid at first, but soon drab, finally dark purplish brown, with white fimbriate edge; stem 20-40 x 1.5-2 mm, fragile, ground colour white or pallid, but this obscured by coarse appressed dark fibrils similar to those on the cap, pruinose at top. Sp 6-7.5 x 5-5.5 x 4-5  $\mu\text{m}$ , irregularly ellipsoid, ovoid, broadly ellipsoid, subtriangular, in profile sometimes phaseoliform, reddish yellow, germ pore indistinct to absent; basidia 4-spored; pleurocystidia 25-40 x 10-17  $\mu\text{m}$ , utriform to clavate, sometimes with red-brown intracellular pigmentation, numerous; cheilocystidia 20-35 x 10-16  $\mu\text{m}$ , similar in shape and frequency to the pleurocystidia; veil cells 35-90 x 6-14  $\mu\text{m}$ . Solitary to gregarious on logs and debris of deciduous trees, particularly on *Fraxinus*; late summer to early autumn; very rare in eastern hemib.; FI (A: Jomala, Ramsholm).  
*P. hirtosquamulosa* (Peck) A.H. Sm.
  - Cap 30-80 mm; sp on av  $\geq 7 \mu\text{m}$  long,  $Q_{av} = 1.7-2$  see *P. cotonea* key J 1
3. Sp on av 6-6.6  $\mu\text{m}$  long; stem  $\pm$  entirely white pulverulent; pleurocystidia often with crystals. Cap 5-20 mm, convex to plane, brown, at maturity slightly paler, striate up to 2/3 from margin, hygrophanous, drying pale buff or whitish, veil in early stages as small, fibrillose scales, erect or appressed, at centre ochraceous to brown, towards margin white; gills distant, L = 14-21; stem 10-30 x 1-2 mm; taste mild to bitter. Sp 6-7.5 x 3.5-4  $\mu\text{m}$ ,  $Q_{av} = 1.6-1.7$ , ovoid, oblong to ellipsoid, in profile sometimes amygdaloid or phaseoliform, brownish orange; pleurocystidia 25-40 x 10-18  $\mu\text{m}$ , mostly utriform, scattered clavate, sometimes slightly thick-walled (fig. 619A), numerous; cheilocystidia of two types: A: 20-40 x 8-17  $\mu\text{m}$ , similar in shape and frequency to pleurocystidia, B: small, clavate, scattered; caulocystidia present over entire length of stem; veil cells 40-120 x 4-22  $\mu\text{m}$ , brown incrusting. On decayed stumps or twigs of deciduous trees, e.g. *Alnus*, *Fagus*, *Fraxinus*, *Populus*, *Salix* and *Ulmus* or directly on soil, sometimes with *Coprinellus disseminatus*, dry to moist; spring to autumn; occasional in western temp., rare in eastern temp. and hemib.; DK (LC), FI, SE (LC). – B&K 4:354, End 417, FAD 151B (as *Psathyra consimilis*), Lud 98.39, M&J 9, .  
*P. pygmaea* (Bull.: Fr.) Singer
  - Sp on av 6.4-9.6  $\mu\text{m}$  long; stem not entirely white pulverulent; pleurocystidia with or without crystals 4
  - 4. Veil as granules, made up of globose to ellipsoid cells 5
    - Veil as fibrils or flocci, made up of hyphae 6
  - 5. Sp 7-8.5 x 3.5-4.5  $\mu\text{m}$ . Cap 5-20 mm, convex, whitish, yellow, ochraceous or pinkish buff, later developing grey tones, not striate; gills medium spaced; stem 20-40 x 1-2.5 mm,  $\pm$

equal, concolorous with cap, at top pulverulent, downwards flocculose from the veil. Sp Qav = 1.8-1.9  $\mu\text{m}$ , oblong, narrowly ovoid to subcylindrical, sometimes irregular, in profile sometimes (narrowly) amygdaloid to subphaseoliform or with a suprahilar depression (fig. 619B), reddish yellow, germ pore lacking or indistinct; pleurocystidia 25-60  $\times$  10-20  $\mu\text{m}$ , polymorphic, often utriform to lageniform, rarely with bent or forked upper part,  $\pm$  numerous; cheilocystidia of two types: A: 20-55  $\times$  9-20  $\mu\text{m}$ , utriform to lageniform, scattered to numerous, B: small, clavate, scattered; spherocysts on cap of 10-60  $\mu\text{m}$  wide, globose to ellipsoid cells similar to the cells of pileipellis and difficult to distinguish from them. In rich to slightly acid deciduous forests, on rotten wood, moist to wet, often on remnants of *Agaricales*, forming sclerotia-like structures; autumn; DE, NL. – Lud 98.6, ZM 64:221, .

*P. globosivelata* Gröger

- Sp 8.5-11  $\times$  4.5-5.5  $\mu\text{m}$  see *P. albofloccosa* key C 33
- 6. Dominating type of cheilocystidia similar to pleurocystidia 7
- Dominating type of cheilocystidia small, clavate to spheropedunculate 20
- 7. Sp on av < 8  $\mu\text{m}$  long 8
- Sp on av > 8  $\mu\text{m}$  long 14
- 8. Gill edge often pink; cap 20-70 mm. Cap convex to nearly plane, dark brown, umber, date brown, dark reddish brown, striate to 1/3 from margin, hygrophanous, drying pale ochraceous, sometimes with pink or vinaceous tinges, veil rudimentary as fibrils at the margin; gills crowded, L = 28-42, with pruinose edge; stem 35-105  $\times$  3-10 mm. Sp 6.5-8  $\times$  4-5  $\mu\text{m}$ , Qav = 1.6-1.8, ovoid, oblong to ellipsoid, in profile often  $\pm$  phaseoliform, sometimes amygdaloid, brown, with a distinct or indistinct germ pore; pleurocystidia 35-55  $\times$  10-18  $\mu\text{m}$ , utriform, narrowly utriform to lageniform, numerous to scattered; cheilocystidia of two types: A: 25-55  $\times$  8-17  $\mu\text{m}$ , similar to pleurocystidia,  $\pm$  numerous, B: small, clavate, often with yellow refringent walls, scattered to numerous; veil cells 20-80  $\times$  3-10  $\mu\text{m}$ . On leaves, decayed branches or on grass in deciduous forests; summer to autumn; very rare in southeastern temp. and hemib.; FI (U: Porvoo), SE (LC).  
*P. pseudocorrugis* (Romagn.) Bon (*P. borgensis* Kits van Wav.)
- Gill edge not pink; cap 7-40 mm 9
- 9. Sp without or with an indistinct germ pore, obovoid, dacryoid or subfusiform. Cap 10-30(-40) mm, conical-convex, brown, striate almost to centre, hygrophanous, drying pale brown; veil well developed as flocci or fibres to centre, appendiculate at margin; gills distant to medium spaced, L = 17-28; stem 20-50  $\times$  2-4 mm. Sp 6.5-8  $\times$  3.5-5  $\mu\text{m}$ , Qav = 1.5-1.8, ellipsoid, oblong, ovoid, dacryoid to subfusiform, in profile sometimes amygdaloid or with a suprahilar depression (fig. 619C), brownish orange; pleurocystidia 35-65  $\times$  10-16  $\mu\text{m}$ , narrowly utriform, obtusely fusiform, sublageniform, scattered to numerous; cheilocystidia of two types: A: 25-45  $\times$  8-16  $\mu\text{m}$ , similar to pleurocystidia, numerous or rarely scattered, B: small, clavate to obpyriform, variable in number; veil cells 10-160  $\times$  5-40  $\mu\text{m}$ . In deciduous or coniferous forests, with *Fagus sylvatica*, *Quercus robur*, *Oxalis acetosella* and *Urtica dioica*, on logs or attached to wood in base rich soil; late summer to autumn; very rare in eastern temp. and southernmost hemib.; FO, SE (LC). – Lud 98.51.  
*P. kitsiana* Örstadius
- Sp with a pore distinct to absent germ pore, ellipsoid, oblong, ovoid, subcylindrical, subtriangular, amygdaloid or phaseoliform 10
- 10. Sp on av 3.9-4.1  $\mu\text{m}$  broad 11
- Sp on av 4.2-6.1  $\mu\text{m}$  broad 12
- 11. Veil copious, as floccules to centre of cap, of 6-35  $\mu\text{m}$  broad cells see *P. squamosa* key J 13
- Veil scanty, as floccules at cap margin, of 2-6  $\mu\text{m}$  broad cells see *P. rubiginosa* 13
- 12. Sp on av 5.4-6.1  $\mu\text{m}$  broad, sometimes irregular in outline (fig. 619D); cap striate to halfway





Spores and pleurocystidia: A: *Psathyrella pygmaea*, B: *P. globosivelata*, C: *P. kitsiana*, D: *P. panaeoloides*, E: *P. noli-tangere*.

from margin, but often non-striate. Cap 7-30 mm, convex to nearly plane, dark reddish brown to dark brown, fading to brown, ochraceous brown or grey brown, hygrophanous, drying pale buff or pale brown, sometimes tinged vinaceous, veil remnants rudimentary, when fresh as fibrils close to the margin; gills medium spaced, L = 20-30; stem 20-60 x 1-5 mm. Sp 7-10.5 x 5-6.5 x 4.5-6  $\mu\text{m}$ ,  $Q_{\text{av}} = 1.3-1.6$  in front view, 1.5-1.8 in side view, ovoid, ellipsoid, subtriangular to broadly ellipsoid, sometimes irregular in outline, in profile oblong to ellipsoid, sometimes phaseoliform, reddish brown; pleurocystidia 20-60 x 8-20  $\mu\text{m}$ , narrowly utriform, obtusely conical or fusiform, lageniform to subcylindrical, numerous, rarely scattered; cheilocystidia of two types: A: 20-50 x 6-18  $\mu\text{m}$ , similar to pleurocystidia, numerous to scattered, B: small, clavate to obpyriform, scattered to numerous; veil cells 20-80 x 2-10  $\mu\text{m}$ . In open grassland, on the great alvar of ÖI, on calcareous soil, sometimes on disturbed soil or sand-dunes, in dry to wet places, sometimes among leaves or attached to sticks or twigs; spring to autumn; occasional in temp., rare in hemib.-bore.; DK (LC), FI (DD), NO (NE), SE (LC). – Lud 98.70, M&J 19, Ves 300.

*P. panaeoloides* (Maire) Arnolds

- Sp on av 4.4-5.3  $\mu\text{m}$  broad, rarely irregular in outline; cap distinctly striate 13
- 13. Cap 10-40 mm; L = 26-36; pleurocystidia 40-75 x 10-22  $\mu\text{m}$ . Cap convex to nearly plane, dark reddish brown, fading to brown from margin, when moist striate almost to centre, hygrophanous, drying pale brown or dirty yellow; gills medium spaced; stem 20-60 x 1-4 mm. Sp 7-9 x 4-5  $\mu\text{m}$ ,  $Q_{\text{av}} = 1.6-1.9$ , oblong, ovoid to ellipsoid, rarely slightly irregular in outline, in profile often phaseoliform, rarely subamygdaloid (fig. 619E), brown; pleurocystidia narrowly utriform to lageniform, rarely forked, numerous, sometimes scattered; cheilocystidia of two types: A: 30-70 x 10-22  $\mu\text{m}$ , similar to pleurocystidia, numerous, B: small, clavate, scattered to numerous; veil cells 30-90 x 2-10  $\mu\text{m}$ . On wet or moist habitats in deciduous woods, often with *Fagus* on basic or acid soil, also with *Alnus*, *Betula*, *Populus tremula*, *Quercus* and *Rhamnus*, on loamy paths, among leaves, on stumps or logs; spring to autumn; very rare in temp.-hemib.; DK (DD), NO (LC), SE (LC). – Lud 98.67, M&J 16.

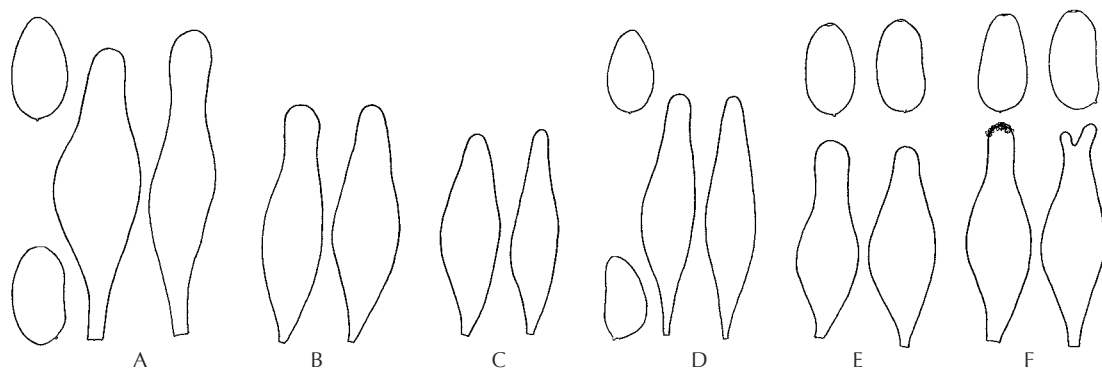
*P. noli-tangere* (Fr.) A. Pearson & Dennis

- Cap 5-20 mm; L = 18-22; pleurocystidia 25-45 x 7-14  $\mu\text{m}$ . Cap convex, at first dark brown to reddish brown, paler towards margin, shining, hygrophanous, drying pale ochre, reddish yellow, rarely pink tinged, veil as flocci at the margin and dispersed fibrils towards centre, rarely glabrous; gills distant; stem 15-50 x 1-2.5 mm, pale brown, darker towards base; smell faint or absent; taste mild. Sp 6.5-9 x 3.5-5  $\mu\text{m}$ ,  $Q_{\text{av}} = 1.6-2$ , ovoid, oblong, ellipsoid, in profile sometimes amygdaloid or subphaseoliform, reddish brown; germ pore absent to distinct; pleurocystidia utriform, lageniform, obtusely fusiform, rarely rostrate at apex, scattered to rather numerous; cheilocystidia of two types: A: 15-40 x 6-13  $\mu\text{m}$ , similar to pleuro-

cystidia, numerous, B: small, clavate, scattered, rarely numerous; veil cells 20-60 × 2-6  $\mu\text{m}$ . In moist or wet places, in deciduous forests with *Alnus*, in fens outside forests, on muddy soil, among plants or remnants of plants, spring to autumn; occasional in temp., rare in hemib., very rare in bore.; DK (LC), FI, NO, SE. – Lud 98.52 (as spec. 6).

*P. rubiginosa* A.H. Sm.

14. Pleurocystidia with crystals see *P. olympiana* key C 12  
 - Pleurocystidia without crystals 15
15. Cap 30-90 mm; sp without or with an indistinct germ pore; veil scanty. Cap convex to plane, dark reddish brown, dark brown, at maturity cinnamon, dark yellow brown to yellowish red, sometimes glossy, when moist striate up to halfway from margin, hygrophanous, drying pale buff or cream, veil as white fibrils at margin, connecting to the stem in young frb; gills crowded, L = 30-40; stem 40-110 × 4-15 mm; smell faint, sometimes like tomato leaves. Sp 7.5-10 × 4.5-6.5  $\mu\text{m}$ ,  $Q_{av} = 1.5-1.7$ , ellipsoid, oblong to ovoid, sometimes slightly irregular in outline, in profile sometimes phaseoliform (fig. 621A), brownish orange; basidia or other cells in hymenium sometimes in part with brown intracellular pigmentation; pleurocystidia 40-90 × 10-24  $\mu\text{m}$ , mostly utriform, sometimes obtusely fusiform, lageniform to clavate, rarely forked or rostrate, numerous, walls yellow; cheilocystidia of two types: A: 35-90 × 10-22  $\mu\text{m}$ , similar to pleurocystidia, numerous to scattered, B: small, clavate, scattered to numerous; veil cells 20-150 × 2-10  $\mu\text{m}$ . In deciduous or coniferous forests on rotten wood, wood chips, sticks or twigs or directly on soil, in dry or moist places, on acid or base rich soil; summer to autumn; rare in temp.-hemib., occasional in bore.-suba., in FI with northern distribution; DK (DD), FI, IS (Au), NO (LC), SE.  
*P. larga* (Kauffman) A.H. Sm.
- Cap 7-50 mm; sp without or with a distinct germ pore; veil copious to scanty 16
16. Sp on av 5.4-6.1  $\mu\text{m}$  broad, sometimes irregular in outline; cap often non-striate see *P. panaeoloides* 12  
 - Sp on av 3.9-5.3  $\mu\text{m}$  broad; not or rarely irregular in outline; cap striate 17
17. Sp on av 6.9-8.3  $\mu\text{m}$  long; veil moderately developed, as fibrils or flocci on the cap 18  
 - Sp on av 8.1-9.4  $\mu\text{m}$  long; veil copious as patches on cap or a ring on the stem 19
18. Cap 10-40 mm; L = 26-36; pleurocystidia 40-75 × 10-22  $\mu\text{m}$  see *P. noli-tangere* 13  
 - Cap 5-20 mm; L = 18-22; pleurocystidia 25-45 × 7-14  $\mu\text{m}$  see *P. rubiginosa* 13
19. Stem often with a membranous ring in upper part, sometimes reduced to a ring-like zone; pleurocystidia with faintly yellow walls; often on *Sphagnum* or other wet mosses like *Polytrichum*, in forests of conifers or *Betula*. Cap 10-40 mm, conical-convex, when moist reddish brown, striate halfway from margin, hygrophanous, drying alutaceous or pale buff, veil forming fibrils or floccules near the margin; gills medium spaced, L = 22-30, edge rarely faintly red; stem 50-100 × 2-5 mm. Sp 8-10 × 4.5-5.5  $\mu\text{m}$ ,  $Q_{av} = 1.8-2$ , oblong, ovoid to subcylindrical, in profile sometimes amygdaloid or with a suprahilar depression, hardly phaseoliform, reddish brown; pleurocystidia 40-60 × 10-18  $\mu\text{m}$ , mostly utriform, rarely obtusely fusiform or sublageniform (fig. 621B), numerous; cheilocystidia of two types: A: 25-45 × 8-16  $\mu\text{m}$ , similar in shape and frequency to pleurocystidia, B: small, clavate to obpyriform, numerous; veil cells 20-90 × 4-16  $\mu\text{m}$ . Summer to autumn; occasional in central hemib., rare in the rest of hemib.-bore., very rare in temp.; DK (RE), FI (DD), FO (Tórshavn), NO (NE), SE (LC). – B&K 4:358, C&D 811, FAD 144A (as *Stropharia psathyroides*), M&J 4.  
*P. sphagnicola* (Maire) J. Favre
- Stem sometimes with a ring zone; pleurocystidia with yellow walls; habitat variable see *P. fibrillosa* key J 18
20. Sp on av < 8  $\mu\text{m}$  long 21  
 - Sp on av ≥ 8  $\mu\text{m}$  long 26



Spores and pleurocystidia: A: *Psathyrella larga*, B: *P. sphagnicola*, C: *P. pseudocasca*, D: *P. cortinarioides*, E: *P. fatua*, F: *P. spadiceogrisea*.

21. Sp on av 5.4-6.1  $\mu\text{m}$  broad in front view, subtriangular or broadly ellipsoid see *P. panaeoloides* 12  
 - Sp on av 3.9-5.5  $\mu\text{m}$  broad in front view, not subtriangular or broadly ellipsoid 22
22. Sp with a distinct germ pore; L = 24-50; cap 10-70 mm 23  
 - Sp without or with an indistinct germ pore; L = 17-34; cap 10-40 mm 24
23. Sp on av 4-4.2  $\mu\text{m}$  broad, smooth, granulose to verruculose, rarely phaseoliform; veil as flocci almost to centre of cap. Cap 10-70 mm, conical-convex to plane, when moist dark reddish brown to dark yellow brown, striate halfway from margin, drying cinnamon brown, reddish yellow to pale brown; gills crowded, L = 30-48; stem 30-80  $\times$  3-8 mm, sometimes with a fibrillose ring zone in upper part. Sp 6.5-8.5  $\times$  3.5-4.5  $\mu\text{m}$ , Qav = 1.7-2, oblong, ovoid to subcylindrical, in profile sometimes amygdaloid, brownish orange; pleurocystidia 25-60  $\times$  8-14  $\mu\text{m}$ , narrowly utriform, fusiform to lageniform (fig. 621C), scattered to numerous; cheilocystidia of two types: A: 30-40  $\times$  8-12  $\mu\text{m}$ , similar to pleurocystidia, scattered, B: 15-35  $\times$  8-20  $\mu\text{m}$ , clavate, abundant, 1-3 cells deep; veil cells 10-100  $\times$  5-25  $\mu\text{m}$ . In rich deciduous forests, rarely coniferous forests, on stumps or on soil attached to decaying wood, with herbs like *Lamium galeobdolon*, *Galium odoratum*, *Mercurialis perennis* or *Allium ursinum*; spring to autumn; very rare in temp.; DK (DD), SE (LC). – FAD 147A (as *Hypholoma cascum*), Lud 98.29, Mych 1:409, BSMF 116:376.  
*P. pseudocasca* (Romagn.) Kits van Wav. (*P. stigmatospora* Clemençon)  
 - Sp on av 4.2-5.2  $\mu\text{m}$  broad, smooth, often phaseoliform; veil as fibres or flocci near the cap margin see *P. spadiceogrisea* 33
24. Sp on av 7.6-9.2  $\mu\text{m}$  long; veil as flocci near cap margin see *P. obtusata* key J 9  
 - Sp on av 7.2-8  $\mu\text{m}$  long; veil as flocci to halfway from margin or to centre of cap 25
25. Sp without a suprahilar depression, often phaseoliform; pleurocystidia often yellow below apex. Cap 15-40 mm, convex to plane, date brown to umber, becoming ochre brown or grey brown, hygrophanous, when moist not striate or striate halfway from margin, drying pale ochraceous brown to beige; veil at first as scales or flocci to halfway from margin or to centre; gills medium spaced, L = 24-32; stem 20-60  $\times$  2-5 mm, sometimes leaving a fibrillose ring zone. Sp 6.5-9  $\times$  4-5  $\mu\text{m}$ , Qav = 1.6-1.9, oblong, ovoid to ellipsoid, sometimes irregular in outline, in profile rarely amygdaloid (fig. 621D), brownish orange, germ pore indistinct or absent; pleurocystidia 35-70  $\times$  10-18  $\mu\text{m}$ , narrowly utriform, lageniform, subcylindrical to obtusely fusiform-conical, rarely clavate or forked, numerous; cheilocystidia of two types: A: 20-45  $\times$  8-18  $\mu\text{m}$ , similar to pleurocystidia, scattered to numerous, B: small, clavate, numerous and dominating; veil cells 20-100(-160)  $\times$  2-14(-18)  $\mu\text{m}$ . Lignicolous or terricolous, in

deciduous or coniferous forests, wooded pastures, along path sides, often on calcareous soil, dry or moist; spring to autumn; rare in temp., very rare in eastern bore.; DK (LC), FI (KP: Haapajärvi), FO, SE (LC). – C&D 805 (as *frustulenta*), End 406, Lud 98.56.

*P. cortinarioides* P.D. Orton (*P. multicystidiata* Kits van Wav., *P. frustulenta* (Fr.) A.H. Sm. s. auct.)

- Sp sometimes with a suprahilar depression, not phaseoliform; pleurocystidia hardly yellow below apex see *P. kitsiana* 9
- 26. On *Sphagnum* or other wet mosses in forests of conifers or *Betula*; stem often with a membranous ring; sp hardly phaseoliform see *P. sphagnicola* 19
- Not on *Sphagnum* or other wet mosses in forests of conifers or *Betula*; stem very occasionally with a membranous ring; sp often phaseoliform 27
- 27. Sp without or with an indistinct germ pore 28
- Sp with a distinct germ pore 31
- 28. Cap 30-90 mm; pleurocystidia 10-24  $\mu\text{m}$  broad; basidia or other cells in hymenium with brown, intracellular pigment see *P. larga* 15
- Cap 10-40 mm; pleurocystidia 8-18  $\mu\text{m}$  broad; basidia and other cells in hymenium without brown, intracellular pigment 29
- 29. In dry, open grassland, along paths in forests or behind sand dunes; sp on av 5.2-6  $\mu\text{m}$  broad in front view see *P. clivensis* key C 39
- In rich deciduous forests or occasionally in coniferous forests on decayed wood, mossy logs or soil; sp on av 4.1-5.5  $\mu\text{m}$  broad in front view 30
- 30. Sp on av 4.1-4.6  $\mu\text{m}$  broad in front view; clavate cheilocystidia not mucronate; pleurocystidial walls often yellow see *P. cortinarioides* 25
- Sp on av 4.7-5.5  $\mu\text{m}$  broad in front view; clavate cheilocystidia sometimes mucronate; pleurocystidial walls pale yellow see *P. obtusata* key J 9
- 31. Sp on av 5.4-6.1  $\mu\text{m}$  broad in front view, subtriangular or broadly ellipsoid; L = 20-30; cap often non-striate see *P. panaeoloides* 12
- Sp on av 4-5.5  $\mu\text{m}$  broad in front view, not subtriangular or broadly ellipsoid; L = 24-50; cap often striate 32
- 32. Sp on av 4-4.2  $\mu\text{m}$  broad in front view, smooth, granulose to verruculose; veil strongly developed, as flocci almost to cap centre see *P. pseudocasca* 23
- Sp on av 4.2-5.2  $\mu\text{m}$  broad in front view, smooth; veil present as fibres or flocci near cap margin 33
- 33. Cap 15-45 mm, when mature pale; pleurocystidia not yellow brown pigmented or incrustated at apex, hardly forked. Cap convex to plane, in primordium reddish brown, then yellow red to ochraceous brown, at maturity fading from margin to pale grey ochraceous, sometimes shiny or sticky, hygrophanous, when moist striate, drying cream or alutaceous, veil as flocci or scattered fibrils near the margin; gills medium spaced to crowded, L = 24-39; stem 20-100  $\times$  1.5-5 mm, rather stiff. Sp 7.5-9.5(-10.5)  $\times$  4-5.5  $\mu\text{m}$ , Qav = 1.6-2, oblong, ovoid, ellipsoid to subcylindrical, sometimes irregular in outline, in profile sometimes phaseoliform (fig. 621E), brown; pleurocystidia 30-60  $\times$  10-19  $\mu\text{m}$ , utriform, lageniform, fusiform to conical, sometimes capitate, scattered to numerous; cheilocystidia of two types: A: 20-45  $\times$  8-18  $\mu\text{m}$ , similar to pleurocystidia, scattered, sometimes rather numerous, B: 8-20  $\mu\text{m}$  wide, clavate to obpyriform, numerous; veil cells 20-120  $\times$  2-10  $\mu\text{m}$ , hyaline. In deciduous woods, in parks, along paths, in grass lawns, in leaves, attached to buried sticks or twigs, on calcareous, disturbed and nitrophilous soil; spring to autumn; rare in eastern temp., very rare in western temp.-western bore.; NO (LC), SE (LC). – Lud 98.36A,C, M&J 8 (as *pseudocorrugis*).  
*P. fatua* (Fr.) Konrad & Maubl.

- Cap 20-70 mm, when mature dark to pale brown; pleurocystidia sometimes yellow brown pigmented or incrustated at apex or forked. Cap conical-convex to plane, dark reddish brown, fading to yellow red, yellow brown, ochraceous brown, brown, grey brown, pale grey brown, sometimes with olivaceous tinges, faintly striate to halfway from margin, hygrophorous, sometimes shiny or sticky, drying from margin to cream or alutaceous with  $\pm$  grey tinges, veil present as fibres or flocci on the marginal area; gills crowded, L = 24-50; stem 30-120 x 2-10 mm, near base sometimes with an evanescent fibrillose zone. Sp 7-9.5(-10.5) x 4-5.5  $\mu$ m, Qav = 1.6-2, oblong, ovoid, subcylindrical to ellipsoid, in profile often  $\pm$  phaseoliform, rarely amygdaloid (fig. 621F), reddish brown; pleurocystidia 30-60 x 10-20  $\mu$ m, mostly utriform, sometimes fusiform or lageniform, rarely acute, numerous, rarely scattered; cheilocystidia of two types: A: 25-45 x 10-16  $\mu$ m, similar to pleurocystidia, scattered, rarely rather numerous, B: small, clavate to obpyriform, one or several cells deep; veil cells 20-140 x 3-12  $\mu$ m. In rich deciduous woods, with *Alnus*, *Betula*, *Fagus*, *Fraxinus*, *Populus*, *Quercus*, *Tilia* or *Ulmus*, sometimes mixed with conifers, in parks, along path sides, attached to sticks or twigs, in leaves, sometimes on nutrient rich soil, dry to moist; mainly in spring, but also in summer to autumn; common in temp., occasional in hemib., very rare in bore.; DK (LC), FI (LC), NO (LC), SE (LC). – Bol Bres 36:135, FAD 153A (as *Psathyra obtusata* var. *vernalis*), D, M&J 22, Ves 301, ZM 66:17.

*P. spadiceogrisea* (Schaeff.) Maire (*P. vernalis* (J.E. Lange) M.M. Moser, *P. casca* (Fr.) Konrad & Maubl. s. Kits van Waveren)

Note: often misinterpreted and difficult to separate from *P. fatua* and related taxa.