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A key to psathyrelloid species in Northern Europe.

Coprinopsis musae of psathyrelloid habitus from a tropical greenhouse in Denmark and *Psathyrella lacuum*, another indoor species in Europe, are excluded from the key.

Spore size

The size varies considerable by psathyrelloid species. *Psathyrella piluliformis* and *P. maculata* have a spore length of about 5–6 µm while *Parasola conopilus* and *Psathyrella prona* on the opposite extreme reach spore lengths of 15 µm or more. The spore size within a species can also vary considerable as by *Homophron spadiceum* and *Psathyrella calcarea*. The presence of both 2-spored and 4-spored basidia can result in a larger size (e.g., *P. corrugis, P. longicauda*). In the infrageneric classification by Kits van Waveren (1985) the spore size is used to divide the genus into two subgenera.

Spore shape

Using the terminology of Vellinga (1988) the shape **in front view** is often oblong, followed by ovoid, ellipsoid and subcylindrical. Rarely, as in *P. panaeoloides* and *P. magnispora* the spores are polymorphic, i.e. triangular, broadly elliptical, subglobose, etc. In species like *Coprinopsis marcescibilis* and *Psathyrella fusca* the spores sometimes are subhexagonal or irregularly shaped. *P. kitsiana* and *P. caput-medusae* are recognized by sometimes subfusiform spores. **In profile** the spores are slightly or distinctly flattened on adaxial side and sometimes more or less phaseoliform. You also find the spores amygdaloid with either obtuse or acute apex. *P. flexispora* and *P. prona* are characterized by ± pronounced suprahilar (just above apiculus) depression. Moreover, by *P. prona* you sometimes find citriform spores.

Spore colour

Colour under the microscope was observed in water, in a 10 % solution of ammonia and in a 5% solution of potassium (KOH) by Kits van Waveren (1985) and in KOH and Melzer's by Smith (1972). Changes in spore colour occurred and no amyloid reactions were found in Melzer's. The spore colour was observed by us in water with an oil-immersion lens. The colour was immediately assessed with the help of Munsell soil color charts (1975). The colour spectrum ranged from almost hyaline by *Coprinopsis melanthina* to dark red by *Parasola conopilus*. Three main groups could be discerned:

1. A pale coloured group with about reddish yellow (Munsell 5YR 6/8) spores. Here we often find species with small or moderately large spores (e.g., *Psathyrella olympiana, P. obtusata, P. piluliformis* and *P. umbrina*).
2. A moderately coloured group with about red (Munsell 2.5YR 4/8) spores. Species belonging here have rather large or large spores (e.g., *P. corrugis, P. microrhiza, P. senex* and *P. pseudogracilis*).
3. A dark coloured group with a spore colour of about dark red (Munsell 10R 3/6). Here we find species with large or rarely moderately large spores often correlated with ± utriform cystidia (e.g., *P. ammophila, P. calcarea, P. leucotephra* and *P. fusca*).

All species do not belong to the mentioned groups. Intermediate cases occur. *Homophron spadiceum* for example finds its place on the colour-scale between *P. melanthina* and group 1. Of course, all of us do not evaluate exactly the same colours with a colour chart. Each person must have its own references and we must make sure of observing the most pigmented spores. In our opinion, spore colour observed under a microscope is taxonomic significant. In addition, the method is more reliable than observing spore colour with the eyes from a spore deposit.

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1.	Sp on av > 9 µm long	2
-	Sp on av < 9 µm long	4
2.	Sp on av > 12 µm long	Key A p. 2
-	Sp on av < 12 µm long	3
3.	Sp on av 10–12 µm long	Key B p. 4
-	Sp on av 9–10 µm long	Key C p. 7
4.	Sp on av 8–9 µm long	Key D p. 10
-	Sp on av < 8 µm long	5
5.	Sp on av 7–8 µm long	Key E p. 14
-	Sp on av < 7 µm long	Key F p. 17

Key A: Sp on av > 12 µm long

1.	Pleurocystidia absent	2
-	Pleurocystidia present	3
2.	Sp on av > 14 µm long; pileipellis with pigmented hairs called setae; veil absent	*Parasola conopilus*
-	Sp on av < 14 µm long; pileipellis without setae; veil present	*Coprinopsis marcescibilis*
3.	On dung or manured soil	4
-	Not on dung or manured soil	8
4.	Pleurocystidia (narrowly) utriform to lageniform, obtuse; germ pore indistinct to distinct, central to eccentric	*P. saponacea*
-	Pleurocystidia lageniform to conical, acute to subacute; germ pore distinct and central	5
5.	Veil on cap when fresh as flocci at least halfway to centre	6
-	Veil when fresh restricted as fibrils close to cap margin or as small flocci halfway	7
6.	Cap not pink on drying; L = 14–26, the edge not red pigmented; stem without pseudorrhiza	*P. hirta*
-	Cap sometimes pink on drying; L = 20–36, the edge often red pigmented; stem with pseudorrhiza	*P. microrhiza*
7.	Cap 4–10(–13) mm; sp on av < 13 µm long	*P. stercoraria*
-	Cap 5–30 mm; sp on av > 13 µm long	*P. prona* and *P. potteri*
8.	In sand dunes	*P. ammophila*
-	Not in sand dunes	9
9.	Gill edge and cystidia covered with drops staining green in a solution of ammonia	*P. jacobssonii*
-	Gill edge and cystidia not covered with drops staining green in a solution of ammonia	10
10.	Pleurocystidia (narrowly) utriform to lageniform, obtuse	11
-	Pleurocystidia lageniform to conical, acute to subacute	15

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11. Pileipellis a cutis with short, wide cells *Coprinopsis udicola*
- Pileipellis a hymeniderm 12

12. Mature and moist cap pale, often greyish ochre; mostly with continuously red pigmented gill edge; with habitus like *P. corrugis* *P. pseudogracilis*
- Mature and moist cap brown or darker; gill edge not red pigmented; not with habitus like *P. corrugis* 13

13. Sp on av < 6.8 µm broad; clamps absent *P. vinosofulva*
- Sp on av > 6.8 µm broad; clamps present 14

14. Cap 10–60 mm, often tinged purple; smell not distinctive or particular, e.g. fruity, of peppermint, *Urtica dioica*, *Coprinopsis narcotica* or cat urine; pleurocystidia 45–100 x 10–24 µm, numerous, upper part sometimes incrusted or with intracellular refringent drops and granules reddening in solution of ammonia and congo red *P. bipellis*
- Cap 5–30 mm, not tinged purple; smell not distinctive; pleurocystidia 40–70 x 10–22 µm, scattered, no reddening drops and granules in solution of ammonia and congo red *P.calcarea*

15. Cap 10–60 mm, often tinged purple; smell not distinctive or particular, e.g. fruity, of peppermint, *Urtica dioica*, *Coprinopsis narcotica* or cat urine; pleurocystidia 10–24 µm wide, upper part sometimes incrusted or with intracellular refringent drops and granules reddening in solution of ammonia and congo red *P. bipellis*
- Cap 5–45 mm, not tinged purple; smell not distinctive; pleurocystidia 8–16(–20) µm wide, no reddening drops and granules 16

16. Stem with or occasionally without a pseudorrhiza; sp on av 9.5–14.5 µm long 17
- Stem without a pseudorrhiza; sp on av 12–16 µm long 20

17. Sp on av 6.3–7.6 µm broad; gill edge not red pigmented *P. longicauda*
- Sp on av 5.1–6.8 µm broad; gill edge red pigmented or not 18

18. Veil when young as fibrils, often lacking; the red pigmented gill edge often broken by nonpigmented areas; moist mature cap rather pale *P. corrugis*
- Veil when young as fibrils or flocci; the red pigmented gill edge hardly broken by nonpigmented areas; moist mature cap moderately coloured 19

19. Cap 10–40 mm, sometimes pink when drying; L = 20–36, the edge often red pigmented *P. microrhiza*
- Cap 4–25 mm, not pink when drying; L = 16–22, the edge faintly or not red pigmented *P. orbicularis*

Note: often misinterpreted and difficult to separate from *P. microrhiza* and *P. orbitarum*.

20. Veil copious; habitat moist to wet *P. tenera*
- Veil scanty; habitat dry to moist, sometimes on manured soil or dung 21

21. 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 often 2–spored, 9–13 µm broad *P. prona*
- 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 µm broad *P. potteri*

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Key B: Sp on av 10–12 µm long

1. In sand dunes or other habitats with dry, open sandy soil 2
- Not as above 4

2. Cystidia utriform, obtuse; sp. on av 5.6–7.7 µm broad *P. ammophila*
- Cystidia conical to lageniform, acute, subacute; sp on av 4.9–5.4 µm broad 3

3. Cap dark reddish brown; L = 14–30; clavate cheilocystidia scattered *P. flexispora*
- Cap cinnamon brown; L = 11–16; clavate cheilocystidia numerousespecially close to cap margin *P. sabuletorum*

4. On dung or manured soil 5
- Not on dung or manured soil 11

5. Pleurocystidia (narrowly) utriform to lageniform, obtuse 6
- Pleurocystidia lageniform to conical, acute to subacute 8

6. Cap with purple tinges, veil as flocci; clamps absent; sp on av 9.8–10.8 µm long *P. purpureobadia*
- Cap without purple tinges, veil as fibrils or rarely as flocci; clamps present; sp on av 10.6–13.8 µm long 7

7. Sp on av 10.6–11.7 x 5.3–6.2 µm; L = 6–13 *P. romagnesii*
- Sp on av 11.7–13.8 x 6.4–7.3 µm; L = 16–23 *P. saponacea*

8. Cap 2–10 mm, veil as fibrils or rarely as flocci; L = 6–13 *P. romagnesii*
- Cap 5–40 mm, veil as flocci; L = 11–36 9

9. Sp on av 9.2–10.3 x 4.7–5.5 µm; cystidia pronouncedly acute *P. scatophila*
- Sp on av 10.3–13.3 x 5.9–6.8 µm; cystidia moderately acute 10

10. Cap not pink on drying; L = 14–26, the edge not red pigmented; stem without pseudorrhiza *P. hirta*
- Cap sometimes pink on drying; L = 20–36, the edge often red pigmented; stem with pseudorrhiza *P. microrhiza*

11. Pleurocystidia absent 12
- Pleurocystidia present 15

12. Cheilocystidia mostly lageniform to conical; sp on av 4.5–5.5 µm broad *Coprinopsis canoceps*
- Cheilocystidia mostly utriform; sp on av 5.8–7.1 µm broad 13

13. Sp dark red, germ pore distinct *Coprinopsis marcescibilis*
- Sp yellow to hyaline, germ pore absent to indistinct 14

14. Cap 25–60 mm, covered by dark fibrils or scales; growing dry to moist, on soil or on stumps of trees in deciduous forests *Coprinopsis melanthina*
- Cap 5–25 mm, without dark fibrils or scales; growing wet to moist, connected to herbaceous debris *P. typhae*

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15. Clamps absent 16
- Clamps present 19

16. Cap without purple tinges 17
- Cap with purple tinges 18

17. Cap pale ochraceous yellow, pale buff, veil as scales and flocci; habitat typically dry *P. gordonii*
- Cap young dark reddish brown, veil as fibrils; habitat moist to wet *P. thujina*

18. Sp 11–13.5 x 6–7 µm; not on dung *P. vinosofulva*
- Sp 9–11.5 x 5–6 µm; typically dung-inhabiting *P. purpureobadia*

19. Pleurocystidia with crystals; veil absent *Homophron spadiceum*
- Pleurocystidia without crystals; veil present 20

20. Gill edge and cystidia covered with drops staining green in a solution of ammonia; stem with pseudorrhiza 21
- Gill edge and cystidia not covered with drops staining green in a solution of ammonia; stem with or without pseudorrhiza 22

21. Cap when young with veil flocci almost to centre; smell not becoming strongly nauseous as by *Coprinopsis narcotica* or *C. trispora*; sp on av 11.1–12.4 x 6.1–6.6 µm *P. jacobssonii*
- Cap when young with veil fibrils at margin; smell when collected strong or faint, but then gradually becoming strongly nauseous reminding of *Coprinopsis narcotica* or *C. trispora*; sp on av 9.2–11.2 x 4.8–5.3 µm *P. supernula*

22. Veil discolouring to dark brown; smell sweetish *P. caput-medusae*
- Veil not discolouring to dark brown; smell not sweetish 23

23. In wet or moist places on remnants of *Cirsium*, *Epilobium*, *Phragmites* or *Typha* *P. thujina*
- In dry to moist places, on wood, on manured soil, etc. 24

24. Stem with a membranous ring *P. vesterholtii*
- Stem not with a membranous ring 25

25. Pleurocystidia (narrowly) utriform to lageniform, obtuse 26
- Pleurocystidia lageniform to conical, acute to subacute 33

26. Sp on av 6–7.6 µm broad; with or without pseudorrhiza 27
- Sp on av 5.1–6.2 µm broad; without pseudorrhiza 29

27. Sp on av < 11.6 µm long, Qav 1.5–1.7; in grasslands *P. magnispora*
- Sp on av > 11.7 µm long, Qav 1.8–2.2; in forests, connected to wood 28

28. Mature and moist cap pale, often greyish ochre; gill edge often red pigmented; clavate cheilocystidia numerous or scattered close to cap margin *P. pseudogracilis*
- Mature and moist cap reddish brown; gill edge rarely red pigmented close to cap margin; clavate cheilocystidia extremely abundant close to cap margin, often ten cells deep *P. longicauda*

29. Cap 2–15 mm; in open places 30
- Cap 10–75 mm; often in forests, on soil or connected to wood 31

30. Cap with purple tinges; when young veil as flocci to centre; sp on av 9.8–10.8 µm long; clamps absent *P. purpureobadia*
- Cap without purple tinges, when young veil as fibrils or rarely as flocci at margin; sp on av 10.6–11.7 µm long; clamps present *P. romagnesii*

31. Cap dark reddish brown, veil as fibrils or flocci on the marginal area; pileipellis a hymeniderm of often subglobose cells *P. fusca*
- Cap pale buff to strong brown, veil as flocci or fibrils to centre; pileipellis a cutis of broad, short cells 32

32. Usually caespitose, in fascicles of up to 25–100 basidiomata; cap entirely covered by a fibrillose veil *Coprinopsis pannucioides*
- At most subcaespitose; veil on cap as scales, flocci or fibres to centre *P. gordonii*

33. L = 6–13; in open places; cap 1–10 mm 34
- L > 15; in different habitats; cap often > 10 mm 35

34. Sp on av < 10.5 µm long *P. lilliputana*
- Sp on av > 10.5 µm long *P. romagnesii*

35. In *Fagus* forests; cap 25–70 mm, veil scanty *P. fagetophila*
- In different habitats; cap up to 45 mm, veil scanty to copious 36

36. Qav 1.5–1.7; in grasslands; gill edge not red underlined *P. magnispora*
- Qav 1.7 or more; habitats variable; gill edge red underlined or not 37

37. Stem lacking pseudorrhiza; sp on av 5.1–6.2 µm broad 38
- Stem with or without pseudorrhiza; sp on av 5.1–7.6 µm broad 39

38. Stem 15–50 x 0.8–1.5 mm; habitus like *P. prona*; preferable in rich deciduous woods or parks; L = 14–22 *P. orbitarum*
- Stem 20–90 x 2–5 mm; habitus not like *P. prona*; preferable on poor sandy soils in and outside forests; L = 20–35 *P. dicrani*

39. Veil when young as fibrils, often lacking; red pigmented gill edge often broken by non-pigmented areas; moist mature cap rather pale *P. corrugis*
- Veil when young as fibrils or flocci; red pigmented gill edge not broken by non-pigmented areas; moist mature cap ± brown 40

40. Sp on av < 10.8 µm long 41
- Sp on av > 10.8 µm long 42

41. Veil as fibres; gill edge not red pigmented; Qav 1.7 *P. sublatispora*
- Veil as fibres or flocci; gill edge sometimes faintly red pigmented; Qav 1.8–2.1 *P. orbicularis*

Note: often misinterpreted and difficult to separate from *P. microrhiza* and *P. orbitarum*.

42. Mature gills often red pigmented; veil on cap copious as flocci; sp on av 10.9–13.3 x 5.7–6.8 µm *P. microrhiza*
- Gills rarely pigmented close to cap margin; veil on cap scanty as fibres; sp on av 11.9–14 x 6.3–7.6 µm *P. longicauda*

Key C: Sp on av 9–10 µm long

1.	Pleurocystidia absent	2
-	Pleurocystidia present	4
2.	Cap 25–60 mm; covered by darkening fibrils or scales; sp on av > 5.7 µm broad	*Coprinopsis melanthina*
-	Cap 5–25 mm; covered by white veil fibrils or flocci; sp on av < 5.7 µm broad	3
3.	Clamps present; veil cells 30–180 x 4–24 µm	*Coprinopsis canoceps*
-	Clamps absent; veil cells 10–60 x 2–8 µm	*P. effibulata*
4.	On dung or manured soil	5
-	Not on dung or manured soil	6
5.	Hymenial cystidia narrowly fusiform to lageniform, acute; cap reddish brown to reddish yellow; clamps present	*P. scatophila*
-	Hymenial cystidia narrowly utriform to lageniform, obtuse; cap with purple tinges; clamps absent	*P. purpureobadia*
6.	Pleurocystidia with crystals; veil absent	*Homophron spadiceum*
-	Pleurocystidia rarely with crystals; veil present	7
7.	Veil granulose, with subglobose to ellipsoid cells	*P. albofloccosa*
-	Veil fibrillose to flocculose, with hyphae	8
8.	Clamps absent	9
-	Clamps present	13
9.	Pleurocystidia narrowly fusiform, lageniform, acute to subacute; sp on av 4.3–5.3 µm broad	*P. effibulata*
-	Pleurocystidia (narrowly) utriform to lageniform, obtuse; sp on av 4.7–6.2 µm broad	10
10.	Cap greyish yellow, pale buff, etc.; pileipellis similar to a cutis with short cells	*P. gordonii*
-	Cap (dark) reddish brown; pileipellis a hymeniderm with clavate to subglobose cells	11
11.	Connected to woody remnants of *Fagus* and *Ulmus*; L = 27–35	*P. romellii*
-	Connected to herbs, not wood; L = 10–20	12
12.	Cap with purple tinges; on rather dry sandy soil in grassland	*P. purpureobadia*
-	Cap reddish brown without purple tinges; in wet or moist places on remnants of *Cirsium*, *Epilobium, Phragmites* or *Typha*	*P. thujina*
13.	Gill edge and cystidia covered with drops staining green in a solution of ammonia	14
-	Gill edge and cystidia not covered with drops staining green in a solution of ammonia	15
14.	Pleurocystidia utriform to lageniform, obtuse; smell faint, not nauseous; stem without a pseudorrhiza	*P. lutensis*
-	Pleurocystidia lageniform, acute; smell nauseous reminding of *Coprinopsis narcotica*; stem with a pseudorrhiza	*P. supernula*

15. Stem with a membranous ring 16
- Stem not or rarely (*P. rostellata* key D 52 and *P. obtusata* key D 53) with a membranous ring 18

16. Growing on logs or stumps; veil discolouring to dark brown; smell sweetish *P. caput-medusae*
- Growing among mosses; veil not discolouring; smell not distinctive 17

17. Sp on av 8.7–9.3 x 4.5–5.1 µm; pleurocystidia 40–60 x 10–18 µm *P. sphagnicola*
- Sp on av 9.8–10.4 x 5.2–5.7 µm; pleurocystidia 45–85 x 9–22 µm *P. vesterholtii*

18. Basidia 2–sp, rarely mixed with 4–sp; cap 3–5(–8–11) mm *P. perpusilla*
- Basidia 4–sp, rarely mixed with 2–sp; cap tiny to large 19

19. Pleurocystidia (narrowly) utriform to lageniform, obtuse 20
- Pleurocystidia fusiform, lageniform, acute to subacute 37

20. On dry soil, sandy, gravelly, or clayey 21
- Not as above but connected to wood, growing moist etc. 29

21. Sp in front view on av 5.6–7.7 µm broad; basidia 4–sp or mixed with 2–sp, often in sand dunes, grasslands or meadows 22
- Sp in front view on av 4.4–6.2 µm broad; basidia 4–spored; habitat more variable 23

22. In sand dunes; pleurocystidia utriform, narrowly utriform, clavate, sometimes lageniform, rarely rostrate *P. ammophila*
- Often in grasslands or meadows; pleurocystidia lageniform, subcylindrical, narrowly utriform, obtusely conical, sometimes subcapitate, rostrate, or forked *P. magnispora*

23. Cap 20–75 mm; gills often grey, L = 34–62 *P. fusca*
- Cap 5–45 mm; gills variously coloured, L < 40 24

24. Cap 7–45 mm; gills medium spaced, L = 20–40 25
- Cap 5–15 mm; gills distant, L = 10–20 27

25. Sp on av 4.4–5 µm broad *P. fatua*
- Sp on av 5–6.1 µm broad 26

26. Sp in water reddish yellow, germ pore indistinct to absent, rarely distinct; clavate to obpyriform cheilocystidia dominate, often 1–2(–3) cells deep *P. clivensis*
- Sp in water red, germ pore distinct; clavate to obpyriform cheilocystidia scattered to numerous, not 1–2(–3) cells deep *P. panaeoloides*

27. Germ pore indistint to absent; clavate cheilocystidia dominate, often several cells deep from margin and halfway inwards *P. sabuletorum*
- Germ pore distinct; clavate cheilocystidia scattered to numerous, not several cells deep 28

28. Pleurocystidia utriform, 10–22 µm broad *P. rybergii*
- Pleurocystidia lageniform, often with subcapitate or subclavate apex, 10–16 µm broad *P. scanica*

29. Cap entirely silky fibrillose from veil remnants when fresh; pileipellis a cutis; usually

caespitose, in fascicles of up to 25–100 basidiomata *Coprinopsis pannucioides*
- Cap not silky fibrillose as above; pileipellis a hymeniderm sometimes with transition to a paraderm; not in fascicles of up to 25–100 basidiomata 30

30. Veil when young as fibrils or flocci up to halfway from cap margin; hymenial cystidia at apex incrusted or with crystals *P. olympiana*
- Veil when young often restricted as fibrils or flocci on the marginal area of cap; hymenial cystidia rarely incrusted at apex 31

31. Cap often non-striate, veil fibrillose; sp Qav in front view 1.3–1.6 *P. panaeoloides*
- Cap striate or not, veil fibrillose or floccose; sp Qav 1.5–2 32

32. Stem pulverulent striate from top and downwards but decreasing in intensity and ceasing at lower half of stem; gills grey *P. fusca*
- Stem pulverulent at top, rarely lower down; gills variously coloured 33

33. Sp on av 5–5.8 µm broad; clavate to obpyriform cheilocystidia vary in frequency 34
- Sp on av 4.2–5.2 µm broad; clavate to obpyriform cheilocystidia dominate 36

34. Cap 30–140 mm; stem 4–15 mm broad; germ pore indistinct to absent *Kauffmania larga*
- Cap 15–40 mm; stem 1–5 mm broad; germ pore distinct 35

35. Moist growing on remnants of *Cirsium*, *Epilobium, Phragmites* or *Typha*; L < 20 *P. thujina*
- When moist not on *Cirsium* etc; L > 20 *P. fennoscandica*

36. Cap 15–45 mm, when mature pale; pleurocystidia not yellow brown pigmented or incrusted at apex, hardly forked *P. fatua*
- Cap 20–70 mm, when mature dark to pale brown; pleurocystidia sometimes yellow brown pigmented or incrusted at apex or forked *P. spadiceogrisea*

37. On dry soil, sandy, gravelly, or clayey, not connected to wood 38
- Not as above but connected to wood, growing moist, etc. 41

38. Sp in front view 6–7.5 µm broad, Qav = 1.5–1.7; basidia 4– to 2–sp *P. magnispora*
- Sp 4.5–6.5 µm broad, Qav = 1.7–2.1; basidia 4–sp 39

39. Veil with fibrils; L = 11–16; germ pore indistinct to absent *P. sabuletorum*
- Veil with fibrils or flocci; L = 14–30; germ pore distinct 40

40. Sp on av 4.9–5.4 µm broad, sometimes with a suprahilar depression or subfusiform *P. flexispora*
- Sp on av 5.1–6.5 µm broad, neither with a suprahilar depression nor subfusiform *P. orbicularis*

41. Cap 1–4 mm; L < 10; sp sometimes snout-like projected at apex *P. lilliputana*
- Cap > 4 mm; L > 15; sp not snout-like projected at apex 42

42. In *Fagus* forests; veil scanty *P. fagetophila*
- Rarely in *Fagus* forests; veil copious or scanty 43

43. Cap 4–25 mm; stem sometimes with a pseudorrhiza; sp on av 5.1–6.5 µm broad *P. orbicularis*
- Cap 10–70 mm; stem rarely with a pseudorrhiza; sp on av 4.5–5.5 µm broad 44

44. Pleurocystidia often mucronate or rostrate, forked or bent; L = 32–60; veil typically on cap as larger patches close to margin or appendiculate *P. rostellata*
- Pleurocystidia rarely forked or bent; L = 17–38; veil on cap as flocci or fibrils, rare as larger patches 45

45. Veil on cap as fibrils or scattered floccules; gill edge dominated by clavate to obpyriform sometimes mucronate cheilocystidia *P. obtusata*
- Veil typically covering entire cap as floccules; gill edge with clavate to obpyriform cheilocystidia, not mucronate, scattered to numerous 46

46. Pleurocystidia with yellow, thickened walls below apex in ammonia solution; with preference for acid coniferous and deciduous forests *P. fibrillosa*
- Pleurocystidia without yellow, thickened walls below apex in ammonia solution; with preference for base rich deciduous forests *P. impexa*

Key D: Sp on av 8–9 µm long

1. Pleurocystidia absent 2
- Pleurocystidia present 7

2. Sp hyaline to very pale brown, germ pore indistinct to absent; cheilocystidia with obtuse apex *P. sulcatotuberculosa*
- Sp pigmented, germ pore distinct to absent; cheilocystidia with obtuse to acute apex 3

3. Cheilocystidia (narrowly) utriform to lageniform, obtuse; cap 20–100 mm; L = 35–75 4
- Cheilocystidia narrowly fusiform, lageniform, acute to subacute; cap 5–40 mm; L = 11–46 5

4. Stem often with a ring; sp on av 8.5–8.8 x 5.5–5.8 µm, germ pore absent *P. leucotephra*
- Stem rarely with a ring; sp on av 7–8.3 x 4.1–5 µm, germ pore distinct *P. candolleana*

5. Densely caespitose, often in bundles of 25–100 basidiomata; gill edge and cystidia covered with drops staining green in a solution of ammonia *P. multipedata*
- At most subcaespitose; gill edge and cystidia not covered with drops staining green in a solution of ammonia 6

6. Clamps present; veil cells 30–180 x 4–24 µm *Coprinopsis canoceps*
- Clamps absent; veil cells 10–60 x 2–8 µm *P. effibulata*

7. On dung 8
- Not on dung 9

8. Veil granulose, of spherocysts; cap faintly striate, clamps present *P. sphaerocystis*
- Veil flocculose, of hyphae; cap striate almost to centre; clamps absent *P. fimiseda*

9. Pleurocystidia with crystals; veil absent 10
- Pleurocystidia without or rarely with crystals; veil present 11

10. Pleurocystidia acute; gills very crowded, L = 60–82; sp pale *Homophron spadiceum*
- Pleurocystidia obtuse; gills crowded, L = 28–44; sp moderately pigmented *Homophron cernuum*

11.	Cap surface with granules, of spherocysts	12
-	Cap surface with fibrils or flocci, of hyphae	14
12.	Germ pore distinct; pleurocystidia 20–35 µm long; on dung	*P. sphaerocystis*
-	Germ pore absent to indistinct: pleurocystidia 30–80 µm long; not on dung	13
13.	Gills adnate; pleurocystidia 55–80 x 12–22 µm	*P. lyckebodensis*
-	Gills free; pleurocystidia 30–50(–60) x 10–15 µm	*P. albofloccosa*
14.	Clamps absent	15
-	Clamps present	17
15.	Cap pale ochraceous yellow to buff, veil copious with scales or flocci; L > 28	*P. gordonii*
-	Cap reddish brown to fulvous, veil moderately with fibrils or flocci; L < 28	16
16.	Cap 3–6 mm; on dung	*P. fimiseda*
-	Cap 5–20 mm; not on dung	*P. effibulata*
17.	Gill edge and cystidia covered with drops staining green in a solution of ammonia	18
-	Gill edge and cystidia not covered with drops staining green in a solution of ammonia	20
18.	Densely caespitose, often in bundles of 25–100 basidiomata; pleurocystidia acute	*P. multipedata*
-	Solitary to gregarious growing; pleurocystidia obtuse	19
19.	Cap with dark fibrils or scales, not striate; L > 37; sp on av 7.4–8.6 µm long	*Cystoagaricus silvestris*
-	Cap not with dark fibrils or scales, striate; L < 37; sp on av 8.8–9.9 µm long	*P. lutensis*
20.	Smell strongly sweetish like *Hebeloma sacchariolens*; veil cells 5–50 µm broad	*P. suavissima*
-	Smell not sweetish, often not distinctive; veil cells 2–25 µm broad	21
21.	Basidia 2–sp, rarely mixed with 4–sp; cap 3–5(–8–11) mm	*P. perpusilla*
-	Basidia 4–sp, rarely mixed with 2–sp; cap tiny to large	22
22.	Often red pigmented gill edge; cap 8–20(–30) mm; clavate cheilocystidia dominate	*P. dunensis*
-	Not that combination of characters	23
23.	Growing moist to wet	24
-	Growing dry, on wood, etc.	32
24.	With a membranous ring or ring-like zone; on *Sphagnum* or other wet mosses	25
-	Without ring or ring-like zone; habitat variable	26
25.	Pleurocystidia utriform, obtuse, 40–60 µm long, with faintly yellow walls in a solution of ammonia	*P. sphagnicola*
-	Pleurocystidia often conical to lageniform, acute or rarely obtuse, 35–80 µm long, often with ± yellow thickened walls	*P. fibrillosa*

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26. Sp on av > 8.6 µm long 27
- Sp on av < 8.6 µm long 29

27. Sp in front view oblong, subcylindrical, ovoid affecting the Qav to 1.8–2; gill edge and cystidia covered with drops staining green in a solution of ammonia *P. lutensis*
- Sp in front view ovoid, ellipsoid, subfusiform, broadly ellipsoid, subtriangular, oblong, affecting the Qav to 1.3–1.7; gill edge and cystidia not covered with drops staining green in a solution of ammonia 28

28. Stem 50–120 mm long; cap striate; in forests *P. fennoscandica*
- Stem 20–60 mm long; cap often found non-striate; in open places *P. panaeoloides*

29. Sp in front view 5–6.5 µm broad, ovoid, ellipsoid, subtriangular, broadly ellipsoid, Qav 1.3–1.6 *P. panaeoloides*
- Sp in front view 3.5–5 µm broad, ovoid, oblong, ellipsoid, subfusiform, Qav 1.6–2 30

30. Germ pore often phaseoliform; some pleurocystidia > 50 µm long *P. noli-tangere*
- Germ pore rarely phaseoliform; pleurocystidia < 50 µm long 31

31. Veil when fresh with flocci to cap centre, cells 40–190 x 6–40 µm; pleurocystidia 12–26 µm broad *P. madida*
- Veil when fresh with flocci at cap margin, cells 20–60 x 2–6 µm; pleurocystidia 7–14 µm broad *P. rubiginosa*

32. On dry soil, sandy, gravelly, or clayey 33
- Not as above 43

33. Pleurocystidia (narrowly) utriform to lageniform, obtuse 34
- Pleurocystidia lageniform to conical, acute to subacute 42

34. Cap < 15 mm broad 35
- Cap > 15 mm broad 40

35. Pleurocystidioid type of cheilocystidia dominate 36
- Clavate to obpyriform cheilocystidia dominate 39

36. Cap 7–30 mm, striate to halfway from margin but often non-striate; sp in front view > 5.3 µm broad *P. panaeoloides*
- Cap 4–15 mm, often striate; sp in front view < 5.3 µm broad 37

37. Sp on av < 8.5 µm long *P. arenosa*
- Sp on av > 8.5 µm long 38

38. Pleurocystidia lageniform, often with subcapitate or subclavate apex, 10–16 µm broad; in a pasture with *Juniperus communis* *P. scanica*
- Pleurocystidia utriform, 10–22 µm broad; among gravel in a forest *P. rybergii*

39. Cap 10–40 mm; L > 20; often in open grassland; germ pore absent to indistinct, rarely distinct *P. clivensis*
- Cap 5–11 mm; L < 20; among gravel in a forest; germ pore distinct *P. rybergii*

40. Pleurocystidioid type of cheilocystidia dominate *P. panaeoloides*

- Clavate to obpyriform cheilocystidia dominate 41

41. Sp on av 4.4–5 µm broad, germ pore distinct *P. fatua*
- Sp on av 5–6 µm broad, germ pore absent to indistinct, rarely distinct *P. clivensis*

42. Veil on cap as flocci halfway from margin; germ pore distinct *P. seymourensis*
- Veil on cap as fibrils at margin; germ pore indistinct to absent *P. sabuletorum*

43. Pleurocystidia with one, rarely two large internal globules, often with a long rostrum *Typhrasa gossypina*
- Pleurocystidia without globules, without or with a short rostrum 44

44. On burnt soil *P. pennata*
- Not on burnt soil 45

45. Pleurocystidia (narrowly) utriform to lageniform, obtuse 46
- Pleurocystidia lageniform to conical, acute to subacute 51

46. Pleurocystidia with apical crystals or incrustations, often with thickened, yellow walls *P. olympiana*
- Pleurocystidia rarely with incrustations, not with thickened, yellow walls 47

47. Pleurocystidioid type of cheilocystidia often dominate 48
- Clavate to obpyriform cheilocystidia dominate 49

48. Cap 30–140 mm; sp pale, reddish yellow, germ pore indistinct to absent *Kauffmania larga*
- Cap 15–40 mm; sp dark, red, germ pore distinct *P. fennoscandica*

49. Veil as flocci almost to cap centre; sp on av 4–4.3 µm in front view, smooth to granulose *P. pseudocasca*
- Veil as fibres or flocci near cap margin; sp on av 4.2–5.2 µm in front view, smooth 50

50. Cap 15–45 mm, when mature pale; pleurocystidia not yellow brown pigmented or incrusted at apex, hardly forked *P. fatua*
- Cap 20–70 mm, when mature dark to pale brown; pleurocystidia sometimes yellow brown pigmented or incrusted at apex or forked *P. spadiceogrisea*
  Note: often misinterpreted and difficult to separate from *P. fatua* and related taxa.

51. Pleurocystidia with apical crystals or incrustations, often with thickened, yellow walls *P. olympiana*
- Pleurocystidia without apical crystals, sometimes with incrustations or with thickened, yellow walls 52

52. Pleurocystidia mucronate, rostrate, forked or bent; L = 32–60; sp without or with an indistinct germ pore *P. rostellata*
- Pleurocystidia not or rarely mucronate, rostrate, forked or bent; L = 17–38; sp with a distinct or indistinct germ pore 53

53. Clavate and obpyriform cheilocystidia dominate, especially abundant towards the cap margin, mucronate cells present *P. obtusata*
- Pleurocystidioid type of cheilocystidia dominate, mucronate cells absent 54

54. Veil rather scanty, as evanescent fibres or flocci near the cap margin; sp without a suprahilar depression *P. senex*
- Veil copious, as flocci or scales at least halfway to cap centre; sp sometimes with a suprahilar depression 55

55. Pleurocystidia with yellow, thickened walls below apex in ammonia solution; with preference for acid coniferous and deciduous forests *P. fibrillosa*
- Pleurocystidia without yellow, thickened walls below apex in ammonia solution; with preference for base rich deciduous forests *P. impexa*

Key E: Sp on av 7–8 µm long

1. Pleurocystidia absent 2
- Pleurocystidia present 5

2. Sp hyaline to very pale brown, germ pore indistinct to absent; cheilocystidia with obtuse apex *P. sulcatotuberculosa*
- Sp pigmented, germ pore distinct to absent; cheilocystidia with obtuse to acute apex 3

3. Cheilocystidia lageniform to conical, acute to subacute; densely caespitose, often in bundles of 25–100 basidiomata *P. multipedata*
- Cheilocystidia (narrowly) utriform to lageniform, obtuse; solitary, gregarious, caespitose 4

4. Cap 20–100 mm; cheilocystidia 35–70 µm long; germ pore distinct *P. candolleana*
- Cap 5–15 mm; cheilocystidia 25–45 µm long; germ pore absent *Coprinopsis submicrospora*

5. On dung 6
- Not on dung 7

6. Cap not pubescent; veil flocculose on entire cap, of hyphae; clamps frequent *P. merdicola*
- Cap pubescent; veil granular, rudimentary, of spherocysts; clamps if present rare *P. tenuicula*

7. Pleurocystidia with crystals; veil absent 8
- Pleurocystidia without crystals; veil present 9

8. Pleurocystidia acute; gills very crowded, L = 60–82; sp pale *Homophron spadiceum*
- Pleurocystidia obtuse; gills crowded L = 28–44; sp moderately pigmented *Homoph. cernuum*

9. Veil granulose, of spherocysts; cap < 20 mm 10
- Veil flocculose, of hyphae; cap variable in size 11

10. Cap and stem not pubescent; pleurocystidia polymorphic, often utriform, lageniform, 10–20 µm broad *P. globosivelata*
- Cap and stem pubescent; pleurocystidia narrowly lageniform to conical, 6–12 µm broad *P. tenuicula*

11. Cap surface breaking up into dark fibrils or scales 12
- Cap surface not breaking up into dark fibrils or scales 13

12. Cap 20–70 mm; sp on av 7.4–8.6 µm long; pleurocystidia 35–60 x 9–15 µm *Cystoagaricus silvestris*

- Cap 20–35 mm; sp on av 6.7–7 µm long; pleurocystidia 25–45 x 10–20 µm *Cystoagaricus hirtosquamulosus*

13. Densely caespitose, often in bundles of 25–100 basidiomata; gill edge and cystidia covered with drops staining green in a solution of ammonia *P. multipedata*
- Not caespitose in that way; gill edge and cystidia not covered with drops staining green in a solution of ammonia 14

14. Smell sweetish reminding of almonds, marzipan or coconuts 15
- Smell not sweetish, often absent 17

15. Veil cells 30–450 x 5–50 µm; gills crowded, L = 30–40; sp with a distinct germ pore *P. suavissima*
- Veil cells 15–100 x 2–12 µm; gills very crowded, L = 45–70; sp with or without an indistinct germ pore 16

16. Pleurocystidia 20–40 x 9–14 µm, clavate or clavate-mucronate with a 2–10 µm long protuberance *P. mucrocystis*
- Pleurocystidia 25–65 x 8–16 µm, polymorph, narrowly utriform, lageniform, fusiform, clavate to conical, rarely mucronate *P. pertinax*

17. Cap when young pale, white, alutaceous or buff 18
- Cap when young ± brown 19

18. Veil discolouring to brown or black with age; clamps present *P. cotonea*
- Veil not discolouring; clamps absent *P. immaculata*

19. Pleurocystidia with one, rarely two large internal globules, often with a long rostrum *Typhrasa gossypina*
- Pleurocystidia without globules, without or with a short rostrum 20

20. On burnt soil *P. pennata*
- Not on burnt soil 21

21. Often red pigmented gill edge; cap 8–20(–30) mm; clavate cheilocystidia dominate *P. dunensis*
- Not that combination of characters 22

22. Growing moist to wet 23
- Growing dry, on wood, etc. 29

23. Cap < 5 mm; L < 15 *P. scheppingensis*
- Cap > 5 mm; L > 15 24

24. Pleurocystidia narrowly conical to fusiform, acute to subacute *P. atomatoides*
- Pleurocystidia (narrowly) utriform to lageniform, obtuse 25

25. Pleurocystidioid type of cheilocystidia scattered to numerous; pleurocystidia often yellow below apex; germ pore indistinct to absent *P. cortinarioides*
- Pleurocystidioid type of cheilocystidia numerous, rarely scattered; pleurocystidia rarely slightly yellow; germ pore distinct, sometimes absent 26

26. Sp in front view 5–6.5 µm broad, ovoid, ellipsoid, subtriangular, broadly ellipsoid; cap often non-striate, veil as fibrils *P. panaeoloides*
- Sp in front view 3.5–5 µm broad, ovoid, oblong, ellipsoid; cap often striate, veil as fibrils or flocci 27

27. Cap 5–20 mm; germ pore absent to distinct; pleurocystidioid type of cheilocystidia 6–13 µm broad *P. rubiginosa*
- Cap sometimes larger than 20 mm; germ pore distinct; pleurocystidioid type of cheilocystidia 8–35 µm broad 28

28. Pleurocystidia 40–75 µm long; sp sometimes phaseoliform; veil cells 30–90 x 2–10 µm *P. noli-tangere*
- Pleurocystidia 35–50 µm long; sp sometimes subfusiform, narrowly amygdaloid, subcitriform; veil cells 40–190 x 6–40 µm *P. madida*

29. On dry soil, sandy, gravelly, or clayey 30
- Not as above but on wood, etc. 34

30. Cap moist often non-striate; sp in front view > 5.3 µm broad *P. panaeoloides*
- Cap moist often striate; sp in front view < 5.3 µm broad 31

31. Pleurocystidia lageniform to subutriform, obtuse *P. arenosa*
- Pleurocystidia fusiform to lageniform, often acute 32

32. Sp on av > 7.6 µm long, with distinct germ pore *P. seymourensis*
- Sp on av < 7.6 µm long, with indistinct to absent germ pore 33

33. Cap 10–35 mm; pleurocystidia sometimes mucronate, rostrate, forked or bent *P. umbrina*
- Cap 2–15 mm; pleurocystidia rarely mucronate, rostrate, forked or bent *P. parva*

34. Pleurocystidia (narrowly) utriform to lageniform, obtuse 35
- Pleurocystidia lageniform to conical, acute to subacute 39

35. Veil on cap copious as flocci to centre; sp on av 4–4.3 µm broad, smooth to granulose *P. pseudocasca*
- Veil on cap scanty to copious; sp on av 3.9–5.2 µm broad, smooth 36

36. Cap 10–30(–40) mm, veil as flocci or fibres to centre; sp sometimes with a suprahilar depression, not phaseoliform, germ pore absent to indistinct *P. kitsiana*
- Cap 15–70 mm, veil scanty to copious; sp not with a suprahilar depression, often phaseoliform, germ pore distinct to absent 37

37. Cap 15–40 mm, veil as scales or flocci halfway from margin or to centre; sp pale, reddish yellow, germ pore indistinct to absent *P. cortinarioides*
- Cap 20–70 mm, veil as fibres or flocci on the marginal area; sp moderately pigmented, yellow red to reddish brown, germ pore distinct to indistinct 38

38. Sp on av < 7.5 µm long; clavate to obpyriform cheilocystidia scattered to numerous *P. pseudocorrugis*
- Sp on av > 7.5 µm long; clavate to obpyriform cheilocystidia numerous, one or several cells deep *P. spadiceogrisea*

39. Cap 30–70 mm, L = 30–50; pleurocystidia 40–80 x 9–20 µm, with yellow thickened walls, extremely numerous *P. spintrigeroides*
- Cap 10–40 mm, L < 35; pleurocystidia 30–60 x 8–16 µm, pale or yellow, numerous to scattered 40

40. Sp often ovoid, germ pore indistinct to absent; often growing moist to wet *P. atomatoides*
- Sp shape variable, germ pore distinct to indistinct; growing dry to moist 41

41. Gill edge dominated by clavate to obpyriform sometimes mucronate cheilocystidia; sp on av 4.7–5.5 µm broad *P. obtusata*
- Gill edge with scattered to rather numerous clavate to obpyriform not mucronate cheilocystidia; sp on av 3.9–5 µm broad 42

42. Sp on av 4.2–5 µm, rarely subphaseoliform, without a suprahilar depression; cap with veil fibres or flocci close to margin *P. senex*
- Sp on av 3.9–4.1 µm, phaseoliform or with a suprahilar depression; cap with veil floccules to centre, appendiculate at margin *P. squamosa*

Key F: Sp on av < 7 µm long

1. On dung *P. tenuicula*
- Not on dung 2

2. Pleurocystidia with crystals; veil absent *Homophron cernuum*
- Pleurocystidia rarely with crystals; veil present 3

3. Pleurocystidia often rostrate or mucronate 4
- Pleurocystidia not often rostrate or mucronate 7

4. With a white veil discolouring to brown or black *P. maculata*
- Not with a discolouring veil 5

5. Sp 6.5–8 x 4–5 µm *P. mucrocystis*
- Sp 5–6 x 3–4 µm 6

6. Pleurocystidia with an intracellular globule like *Typhrasa gossypina*; without smell; veil copious *Typhrasa nanispora*
- Pleurocystidia not with an intracellular globule like *Typhrasa gossypina*; smell faintly agreeable to strongly sweetish; veil scanty *P. laevissima*

7. Pleurocystidia often provided with crystals at apex *P. pygmaea*
- Pleurocystidia not provided with crystals at apex 8

8. Pleurocystidia (narrowly) utriform to lageniform, obtuse 9
- Pleurocystidia lageniform to conical, acute to subacute 16

9. Sp on av < 6.6 µm long 10
- Sp on av > 6.6 µm long 13

10. Sp on av < 3.7 µm broad; growing on wood 11
- Sp on av > 3.7 µm broad; growing on soil 12

11. Cap 20–80 mm; preferable on stumps or debris of deciduous trees; smell not distinctive *P. piluliformis*
- Cap 5–40 mm; preferable on stumps or debris of conifers; smell fragrant, sweet or not distinctive *P. fragrans*

12. Cap 10–30 mm; L = 30–33; sp 3.5–4.5 µm broad *P. stridvallii*
- Cap 8–14 mm; L = 12–16; sp 4.5–5 µm broad *P. siccophila*

13. Cap surface breaking up in dark scales and fibrils; sp in front view 5–5.5 µm broad *Cystoagaricus hirtosquamulosus*
- Cap not breaking up in dark scales and fibrils; sp in front view 3.5–5 µm broad 14

14. Cap 5–20 mm; growing moist to wet *P. rubiginosa*
- Cap 20–75 mm; growing dry to moist 15

15. Smell sweetish reminding of almond or marzipan; gill edge white; L = 45–65 *P. pertinax*
- Smell not distinctive; gill edge often pink; L = 28–42 *P. pseudocorrugis*

16. On burnt soil *P. pennata*
- Not on burnt soil 17

17. Cap and stem entirely pubescent; veil granular *P. tenuicula*
- Cap and stem not pubescent; veil not granular 18

18. Growing moist to wet 19
- Growing dry to moist 21

19. Cap < 5 mm, veil with fibrils at margin *P. scheppingensis*
- Cap > 5 mm, veil with flocci or fibrils 20

20. Stem 30–90 x 2–6 mm; often attached to decayed wood *P. atomatoides*
- Stem 15–50 x 1–2.5 mm; often among remnants of herbs *P. rubiginosa*

21. Cap 2–15 mm; stem 10–35 x 0.3–1.5 mm *P. parva*
- Cap 10–40 mm; stem 25–70 x 1.5–4 mm 22

22. Sp on av 3.9–4.1 µm broad, Qav = 1.7–2, oblong, ovoid, ellipsoid, subcylindrical, in profile sometimes amygdaloid, phaseoliform or with a suprahilar depression, germ pore distinct to indistinct *P. squamosa*
- Sp on av 4–4.9 µm broad, Qav = 1.4–1.7, ellipsoid, oblong, ovoid, obovoid, with conspicuously obtuse poles, in profile sometimes amygdaloid, germ pore absent to indistinct *P. umbrina*