

## *Coprinopsis* P. Karst.

JAN VESTERHOLT

*Coprinus* Pers. s. lato p.p.

Frb with blackish sp deposit, often short lived and/or deliquescent, in some species emerging from sclerotia. Cap conical, ovoid, convex, hemispherical or bell-shaped, later expanding with or without an umbo, often becoming radially grooved, dry, white, grey, yellow, buff, brown or black. Universal veil fibrillose, powdery or forming wool-like patches, white, grey, brown, buff, yellow, orange or red. Gills free, medium spaced to very crowded. Stem ± cylindrical, dry. Smell mostly indistinct, but in some species fetid or yeast-like. Taste insignificant or unknown. Sp deposit black.

Sp ellipsoid, ovoid, cylindrical, amygdaloid, citriform, rhomboid, subfusiform, subglobose or subangular, in some species broader in face view than in side view, and in such cases the spore size is given in three dimensions, with a central to slightly eccentric germ pore, smooth, less often verrucose, in some species with loosening perispore, dark brown to black. Basidia mostly 4-spored, less often 2- or 3-spored. Cheilocystidia present or absent, spheropedunculate, ellipsoid, ovoid, utriform, lageniform or cylindrical. Pleurocystidia present or absent, spheropedunculate, ellipsoid, ovoid, utriform, lageniform or cylindrical. Veil of ± globose elements, of chains of elongate elements or of branched, diverticulate elements. Pileipellis a cutis. Clamps present, less often absent.

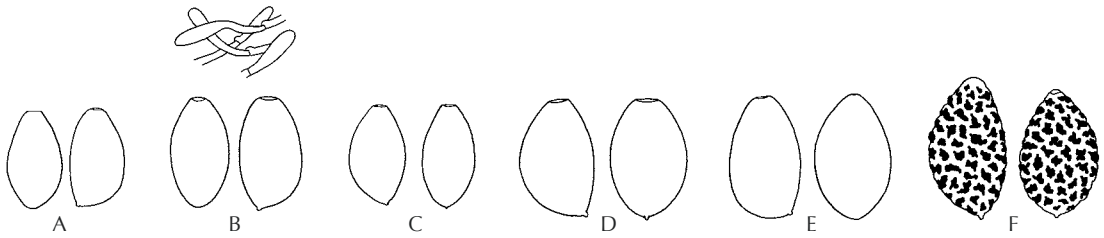
Saprotrophic. On soil, wood, stems, dung, vegetable refuse, burnt ground, etc. Spring to autumn.

57 species in the Nordic countries, 67 species in the key. Some species which morphologically fit in *Coprinopsis*, are placed here temporarily being, though their generic affinities still remain uncertain.

Lit.: Kits van Waveren 1968, Orton & Watling 1979, Uljé 1988, 1992, Uljé & Bas 1993, Uljé in Noordeloos et al. 2005, Uljé & Noordeloos 1993, 1997, 1999.

### Main key

- |    |  |                              |
|----|--|------------------------------|
| 1. | Veil forming small, tightly adhering scales on the cap   | <a href="#">Key A p. 569</a> |
| -  | Veil forming loosely attached powdery, granulose, fibrillose or wool-like patches on the cap                             | 2                            |
| 2. | Veil of elongate elements, leaving fibrillose to wool-like patches on the cap  | 3                            |
| -  | Veil of ± globose elements, sometimes in addition with ± cylindrical elements, appearing powdery to granulose on the cap | 4                            |
| 3. | Veil of chains of elongate elements, leaving a fibrillose cover on the cap   | <a href="#">Key B p. 570</a> |
| -  | Veil of branched, diverticulate hyphae, leaving fibrillose to wool-like patches on the cap                               | <a href="#">Key C p. 573</a> |
| 4. | Elements with persistent warts not dissolving in HCl; sp with or without loosening perispore                             | <a href="#">Key D p. 577</a> |
| -  | Elements of veil smooth or with crystal dissolving in HCl; sp without loosening perispore                                | <a href="#">Key E p. 580</a> |



Spores and veil elements: A: *Coprinopsis romagnesiana*, B: *C. atramentaria*, C: *C. acuminata*, D: *C. erythrocephala*, E: *C. ammophilae*, F: *C. insignis*.

### Key A: Veil forming small, tightly adhering scales on cap

1. Sp verrucose, 11-14.5 x 7-8  $\mu\text{m}$  (fig. 569F); veil whitish see *C. insignis* B4  
 - Sp smooth, 8-11 x 4-6  $\mu\text{m}$ ; veil orange brown to greyish brown 2
2. Veil orange brown, conspicuous on cap and lower half of the stem. Cap 30-40 x 30-45 mm, ellipsoid to conical, later expanding, grey to sepia; gills crowded, finally black and deliquescent; stem 60-95 x 5-15 mm, cylindrical or widened near the base, white. Sp 8-9.5 x 4.5-5.5  $\mu\text{m}$ , ellipsoid, with central germ pore (fig. 569A). Caespitose near roots of old trees or stumps; spring to autumn; rare in temp.-hemib.; DK (DD), FI (DD), NO (NE), SE (LC). – C&D 775.  
*C. romagnesiana* (Singer) Redhead, Vilgalys & Moncalvo (*Coprinus r.* Singer)  
 - Veil brown, fugacious 3

3. Sp 8-11 x 5-6  $\mu\text{m}$  (fig. 569B); unexpanded cap 30-60 x 30-70 mm. Cap conical to convex, later bell-shaped to expanded, grey; gills very crowded, finally black and deliquescent; stem 50-170 x 10-15 mm, cylindrical, smooth, with a fine ring zone in the lower part, white. Sp ellipsoid to amygdaloid, with central germ pore. Solitary or fasciculate around dead wood; spring to autumn; very common in temp.-suba.; DK (LC), FI (LC), FO, IS, NO (LC), SE (LC). – B&K 4:265, Däh 541, Phil 258ab, R&H 424, Ves 291, ☉.  
*C. atramentaria* (Bull.: Fr.) Redhead, Vilgalys & Moncalvo (*Coprinus a.* (Bull.: Fr.) Fr.)
- Sp 8-10.5 x 4-5  $\mu\text{m}$  (fig. 569C); unexpanded cap 10-35 x 10-25(-30) mm. Cap narrowly conical to ellipsoid with a small umbo, later expanded with upturned margin, grey, towards the centre more brown; gills very crowded, finally black and deliquescent; stem 20-70 x 3-7 mm, cylindrical or widened downwards, finely silky fibrillose, white. Sp ellipsoid to amygdaloid, with central germ pore. Mostly fasciculate on buried wood, sawdust or soil, rarely on dung; summer to autumn; occasional, but locally common in temp.-suba.; DK (LC), FI (LC), FO, IS, NO (LC), SE (LC). – End 389, Ger 01:351, Lud 93.2, R&H 424.  
*C. acuminata* (Romagn.) Redhead, Vilgalys & Moncalvo (*Coprinus a.* (Romagn.) P.D. Orton)

**Key B:** Veil of chains of elongate elements, leaving a fibrillose covering on the cap

1. Veil with vivid colours, yellow, buff, yellow, orange or red 2  
 - Veil white, brownish, greyish or pale buff 3
2. Veil yellow to buff yellow. Cap 10-40 x 8-20 mm, ovoid to conical, later expanded, at first pale grey; veil fibrillose, present on cap and stem base; gills crowded; stem 30-80 x 1.5-5.5 mm, widened downwards, sometimes rooting down to 12 mm, fibrillose, whitish to pale greyish; smell unpleasant, like dung. Sp 8.5-14 x 5.5-7.5  $\mu\text{m}$ , ellipsoid to ovoid, with central germ pore; veil of chains of  $\pm$  fusiform, incrusting hyphae. Fasciculate or gregarious on soil, small pieces of wood or rotten roots of e.g. *Populus* and *Malus*; spring; rare in hemib.-southern bore.; FI (DD, U). – Lud 93.49, ZM 61:35.  
*C. ochraceolanata* (Bas) Redhead, Vilgalys & Moncalvo (*Coprinus o.* Bas, *Coprinus citrinovelatus* E. Ludwig & P. Roux)
- Veil orange to red. Cap 10-20 x 5-9 mm, ellipsoid to ovoid, later expanded, orange brown to buff; veil fibrillose, present on cap and stem base; gills crowded, finally blackish and deliquescent; stem 35-80 x 1-4 mm, cylindrical, widened at base, whitish; smell indistinct. Sp 8-13 x 5-7.5  $\mu\text{m}$ , ellipsoid to ovoid, with central germ pore (fig. 569D); veil of chains of  $\pm$  cylindrical, incrusting hyphae. Gregarious on twigs, sawdust, wood chips or vegetable refuse; spring to autumn; rare in temp., very rare in hemib.-southern bore.; DK (LC), FI (LC), NO (LC, Oslo), SE (LC). – Bon 271, C&D 773, FAD 157A (as *Coprinus dilectus*), Lud 93.53, ZM 54:48, ☉.  
*C. erythrocephala* (Lév.) Redhead, Vilgalys & Moncalvo (*Coprinus e.* (Lév.) Fr.)
3. In sand dunes on dead leaves of *Ammophila arenaria*. Cap 5-15 x 3-13 mm, ellipsoid to ovoid, becoming bell-shaped, greyish buff to greyish brown; veil hairy-floccose, whitish to pale buff; gills crowded, finally black and deliquescent; stem up to 35 x 1.5-4 mm,  $\pm$  cylindrical with slightly widened base, white. Sp 8.5-12.5 x 6-9.5 x 6-8  $\mu\text{m}$ , ellipsoid to ovoid, with central germ pore (fig. 569E); veil of chains of cylindrical to  $\pm$  ellipsoid elements. Summer to autumn; very rare in temp.; DK (NA, EJyl: Klitmøller). – C&D 777, Lud 93.54.  
*C. ammophilae* (Courtec.) Redhead, Vilgalys & Moncalvo (*Coprinus a.* Courtec.)
- On wood, soil, burnt ground, dung, rotten straw, vegetable refuse or compost heaps 4
4. Sp verrucose (fig. 569F). Cap 40-150 x 20-70 mm, ovoid to conical, later expanded with upturned margin, whitish or grey, brownish around the centre; gills very crowded, finally black and deliquescent; stem 80-200 x 7-15 mm, cylindrical or slightly widened downwards, floccose, white; veil whitish. Sp 11-14.5 x 7-8  $\mu\text{m}$ , amygdaloid, with central germ pore. On deciduous wood, often in wounds of living trees; summer to autumn; very rare in temp.-

hemib.; DK (VU), NO (Østf: Fredrikstad), SE (NT). – Cet 1286, Ger 01:353, Lud 93.8, M&H 4:296, M&J *Coprinus* 3.

*C. insignis* (Peck) Redhead, Vilgalys & Moncalvo (*Coprinus i.* Peck, *C. alopecia* Lasch s. auct.)  
- Sp smooth 5

5. Basidia 2-spored 6  
- Basidia 4-spored 7

6. On cow or horse dung; sp 9-12.5 x 6-8.5  $\mu\text{m}$ , on av < 7.5  $\mu\text{m}$  broad. Cap up to 8 x 5 mm, cylindrical to ellipsoid, later conical to bell-shaped, white, soon becoming grey to greyish brown; veil becoming hairy-fibrillose, white, later greyish to greyish brown; gills crowded; stem 30-50 x 1-1.5 mm, slightly widened downwards, whitish, hairy-flocculose. Sp ellipsoid to ovoid, with central germ pore; veil of chains of cylindrical to fusiform, ellipsoid or sub-globose elements. NL.

*C. bicornis* (Uljé & Horvers) Redhead, Vilgalys & Moncalvo (*Coprinus b.* Uljé & Horvers)

- On compost or sawdust; sp 9.5-14 x 7-10  $\mu\text{m}$ , on av > 8  $\mu\text{m}$  broad. Cap 5-20 x 3-14 mm, ellipsoid, later expanded, grey to greyish brown; veil fibrillose; gills very crowded; stem up to 100 x 2-5 mm, slightly widened downwards, with bulbous base, white. Sp broadly ellipsoid to ovoid, with central germ pore; veil of chains of cylindrical to fusiform or inflated elements. NL, UK.

*C. scobicola* (P.D. Orton) Redhead, Vilgalys & Moncalvo (*Coprinus s.* P.D. Orton)

7. Sp 14-23 x 9-14  $\mu\text{m}$ , with strongly eccentric germ pore (fig. 573A). Cap 18-25 x 18-35 mm, ovoid with small, uplifted scales, later bell-shaped, becoming plane, white; gills medium spaced; stem 40-65 x 2-3.5 mm, with a small basal bulb, almost glabrous, white. Sp ellipsoid; basidia 4-spored, sometimes conspicuously brown pigmented; veil of chains of ellipsoid to fusiform elements. In dry, calcareous grassland; early summer; very rare in temp.; SE (Sk: Gyetorp).

*Coprinus xerophilus* Bogart

- Sp  $\leq$  15  $\mu\text{m}$  long, with central germ pore 8

8. On wood, soil or burnt ground 9  
- On dung, rotten straw, vegetable refuse or compost heaps 13

9. On deciduous trees, typically emerging from wounds of living trees. Cap 15-50 x 11-30 mm, narrowly conical to ovoid, later expanded with upturned margin; veil fibrillose, white to greyish; gills crowded, finally black and deliquescent; stem 35-100 x 2-5 mm, cylindrical or widened to 8 mm at base, flocculose, white. Sp 8-11.5 x 6.5-8 x 5.5-7  $\mu\text{m}$ , rhomboid-ellipsoid to subamygdaloid, with central germ pore; veil of chains of inflated, elongate elements. Solitary or subfasciculate; summer to autumn; rare in temp.-hemib.; DK (EN), FI (DD, V: Mietoinen), SE (LC). – Cet 53, 2175, Lud 93.48, Svp 20:81.

*C. spelaiophila* (Bas & Uljé) Redhead, Vilgalys & Moncalvo (*Coprinus s.* Bas & Uljé, *Coprinus extinctorius* (Bull.) Fr. s. auct.)

- On burnt ground, soil or wood chips 10

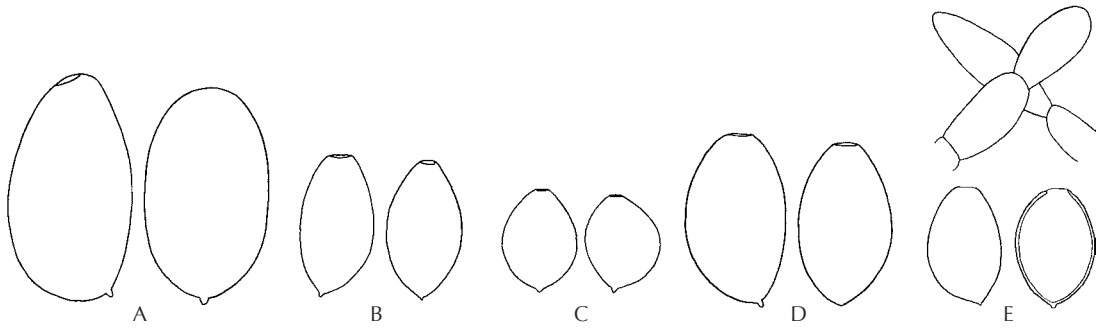
10. Sp on av > 10  $\mu\text{m}$  long 11  
- Sp on av < 10  $\mu\text{m}$  long 12

11. Sp 10-14 x 6-8.5  $\mu\text{m}$  (fig. 573B); veil hairy-fibrillose, rather abundant. Cap 10-35 x 7-20 mm, conical to narrowly ellipsoid, later expanded, white to greyish, sometimes brownish around the centre; veil white to grey, later brownish; gills crowded, finally black and deliquescent; stem 65-130 x 2-5 mm, cylindrical or widened to up to 8 mm at base, hairy flocculose, white. Sp ellipsoid to amygdaloid, with central germ pore; veil of chains of inflated, elongate elements. Solitary or subfasciculate on soil, wood chips, compost heaps or vegetable refuse, rarely on burnt ground; spring to autumn; very common in western temp., common in eastern temp.-bore., rare in suba.; DK (LC), FI (LC), NO (LC), SE (LC). – B&K 4:288, Däh 545,

Lud 93.52, Phil 259e, Ves 295, ☉.

*C. lagopus* (Fr.: Fr.) Redhead, Vilgalys & Moncalvo var. *lagopus* (*Coprinus l.* (Fr.: Fr.) Fr.)  
*Coprinus lagopus* (Fr.: Fr.) Fr. var. *vacillans* Uljé differs in having a very fragile stem, bending down before the cap expands, and the habitat in lawns; very rare or overlooked in temp.-hemib.; DK, NO (Tel: Bamble), SE. – SMT 28(2).

- Sp 9.5-14 x 6-7  $\mu\text{m}$ ; veil thin and cobweb-like. Cap 8-20 x 4-7 mm, cylindrical to ellipsoid, later expanded, whitish to pale grey with dark brown centre; veil whitish to greyish; gills crowded, finally black and  $\pm$  deliquescent; stem 50-90 x 1-4 mm, cylindrical, pale greyish, flocculose, sometimes rooting. Sp ellipsoid to ovoid, with central germ pore; veil of short chains of  $\pm$  cylindrical elements. On soil or wood chips; *DE, NL.* – BKMP 3:216, Lud 93.47.  
*C. kriegsteineri* (Bender) Redhead, Vilgalys & Moncalvo (*Coprinus k.* Bender)
  
- 12. Unexpanded cap up to 9 x 8 mm. Cap ellipsoid to conical, later expanded, white, later grey to greyish brown; veil fibrillose, white, later grey to greyish brown; gills crowded; stem 15-45 x 1-2 mm, slightly widened towards base, whitish. Sp 5.5-10.5 x 4.5-7  $\mu\text{m}$ , ovoid to subrhomboid, with central germ pore; veil of chains of  $\pm$  inflated elements. Solitary or fasciculate on soil, wood chips, etc.; *NL.* – Bol Bres 46:18.  
*C. geesterani* (Uljé) Redhead, Vilgalys & Moncalvo (*Coprinus g.* Uljé)
- Unexpanded cap 15-60 x 10-35 mm. Cap narrowly conical to ellipsoid, later expanded, white to greyish; veil fibrillose, white, later greyish brown; gills crowded, finally black and deliquescent; stem 30-110 x 3-12 mm, cylindrical or slightly widened at base, flocculose, white. Sp 6.5-9.5 x 6-8  $\mu\text{m}$ , broadly ellipsoid to broadly ovoid, with central germ pore (fig. 573C); veil of chains of inflated, elongate elements. Solitary or subfasciculate on burnt ground, soil or wood chips, rarely indoors in cellars, etc.; spring to autumn; occasional, but locally common in temp.-bore., occasional in suba.; DK (LC), FI (LC), IS, NO (LC), SE (LC). – B&K 4:287, C&D 778, Lud 93.51, R&H 425, Phil 259d.  
*C. jonesii* (Peck) Redhead, Vilgalys & Moncalvo (*Coprinus jonesii* Peck, *C. funarium* Métrod, *C. lagopides* P. Karst. 1882 non 1879)
  
- 13. Unexpanded cap 2-10 x 1-6 mm 14  
- Unexpanded cap 10-50 x 4-30 mm 15
  
- 14. Sp 13.5-15 x 7.5-8.5  $\mu\text{m}$ . Cap 2-10 x 1-6 mm, ellipsoid to ovoid, later expanded, greyish brown; veil fibrillose, whitish to pale grey; gills crowded, finally black and deliquescent; stem 20-50 x 0.5-1 mm, cylindrical or slightly widened at base, hairy flocculose, white. Sp ellipsoid, with central germ pore; veil of chains of  $\pm$  inflated, elongate elements. Solitary or subfasciculate on dung or soil-dung mixture; spring to late autumn; common in temp.-bore., rare in suba.; DK (LC), FI (LC), IS, NO, SE (LC). – Bon 271, Cet 876, FAD 158C, Lud 93.56.  
*C. radiata* (Bolton: Fr.) Redhead, Vilgalys & Moncalvo (*Coprinus r.* (Bolton: Fr.) Fr.)
- Sp 7.5-9.5 x 5-5.5  $\mu\text{m}$ . Cap up to 6 x 4 mm, ellipsoid to narrowly ovoid, later expanded, greyish brown; veil fibrillose, whitish to pale grey; gills crowded; stem 20-50 x 0.5-1 mm, slightly widened downwards, minutely hairy flocculose, whitish. Sp ellipsoid to subcylindrical, with central germ pore; veil of chains of inflated, elongate elements. Solitary or fasciculate on dung of horse and elk or on soil-dung mixture; spring to autumn; rare in temp.-arc./alp.; FI (LC), IS (Mi), NO (LC), SE (LC).  
*C. pseudoradiata* (Watling) Redhead, Vilgalys & Moncalvo (*Coprinus p.* Watling)
  
- 15. Sp on av  $\geq$  8.2  $\mu\text{m}$  broad (fig. 573D). Cap 10-30 x 4-18 mm, narrowly ellipsoid to  $\pm$  cylindrical, later expanded with upturned margin, pale to dark greyish brown; veil fibrillose, pale grey to greyish brown; gills crowded, soon black and deliquescent; stem 40-150 x 2-7 mm, cylindrical or slightly widened at base, hairy flocculose, whitish. Sp 12-17 x 8-10  $\mu\text{m}$ , ellipsoid to ovoid, with central germ pore; veil of chains of  $\pm$  inflated, elongate elements. Solitary or fasciculate on mixed dung, rotten hay or vegetable refuse; spring to autumn; occasional in temp.-hemib., rare in bore.; DK (LC), FO, IS, NO (LC), SE (LC). – FAD 158B, Jo13(3), Lud



Spores and veil elements: A: *Coprinus xerophilus*, B: *Coprinopsis lagopus*, C: *C. jonesii*, D: *C. macrocephala*, E: *C. cinerea*.

93.55, Phil 257f, Svp 36 cover, ☉.

*C. macrocephala* (Berk.) Redhead, Vilgalys & Moncalvo (*Coprinus m.* (Berk.) Berk.)

- Sp on av  $\leq 7.8 \mu\text{m}$  broad

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16. Sp on av  $\geq 11.3 \mu\text{m}$  long see *C. lagopus* 10

- Sp on av  $\leq 10.6 \mu\text{m}$  long (fig. 573E). Cap 10-30 x 6-20 mm, narrowly ovoid to ellipsoid, later expanded, greyish brown; veil fibrillose, white, later greyish to brownish; gills crowded, finally black and deliquescent; stem 40-120 x 2-6 mm, cylindrical or widened towards base, sometimes rooting, hairy flocculose, white; smell faint like coumarin. Sp 8.5-12 x 6-8  $\mu\text{m}$ , ellipsoid to ovoid, with central germ pore; veil of chains of elongate,  $\pm$  inflated elements. Solitary or fasciculate on dung, mixed dung, rotten hay or vegetable refuse; spring to autumn; common in temp.-bore., occasional in suba.; DK (LC), FI (LC), FO, IS, NO (LC), SE (LC). – B&K 4:269, C&D 779, FAD 158G (as *Coprinus fimetarius*), Ger 01:355, Lud 93.57.

*C. cinerea* (Schaeff.: Fr.) Redhead, Vilgalys & Moncalvo (*Coprinus c.* (Schaeff.: Fr.) Gray)

### Key C: Veil of branched, diverticulate hyphae, leaving fibrillose-woolly patches

1. Stem 4-15 mm wide 2
  - Stem 0.3-4 mm wide 6
2. On sclerotia in dung. Cap up to 18 x 13 mm, globose to ellipsoid, later conical to bell-shaped, white, later pale to dark greyish brown, finally black; veil breaking up into patches, white; gills very crowded, finally black and deliquescent; stem up to 120 x 5-6 mm, slightly widened downwards, with a bulbous base, white; sclerotia 10-35 x c. 10 mm, subglobose to elongate or irregular, very dark brown. Sp 13.5-17.5 x 10.5-12.5 x 9-10.5  $\mu\text{m}$ , rounded angular in face view, ellipsoid to cylindrical in side view, with central, hardly visible germ pore; veil of thin-walled, filamentous to diverticulate elements. *DE, NL*. – Lud 93.94, Mic Due 539. *C. sclerotiorum* (Horvers & de Cock) Redhead, Vilgalys & Moncalvo (*Coprinus s.* Horvers & de Cock)
  - Not on sclerotia 3
3. Sp rounded 4-angular with an apical papilla. Cap 20-30 x 10-18 mm, obtusely conical to convex, later expanded, white, later greyish; veil breaking up into patches, white, often somewhat yellow brown at centre; gills crowded, finally black and deliquescent; stem up to 95 x 5-9 mm, with a 8-15 mm broad, bulbous base, silky striate, white. Sp 8-10.5 x 6-9 x 5-6.5  $\mu\text{m}$ , with central germ pore; veil of thin-walled, slightly diverticulate elements. Among leaves of deciduous trees, rarely on old fire-places; late summer to autumn; rare in temp.-hemib.; FI (DD, V: Korppoo), NO (LC, Tel: Bamble), SE. – B&K 4:276, Bol Bres 40:41, Lud 93.87. *C. episcopalis* (P.D. Orton) Redhead, Vilgalys & Moncalvo (*Coprinus e.* P.D. Orton)

- Sp ellipsoid to ovoid 4
- 4. Sp 7-9 x 4.5-6  $\mu\text{m}$ ; fasciculate on deciduous wood. Cap 15-40 x 10-25 mm, ellipsoid to ovoid, later bell-shaped to expanded, greyish to ochraceous brown; veil breaking up into patches, white to cream or sordid yellow at centre; gills very crowded, finally black and slightly deliquescent; stem up to 120 x 4-10 mm,  $\pm$  cylindrical, white to pale yellowish, with scattered veil remnants. Sp ellipsoid to ovoid, with central germ pore; veil of thin-walled, slightly diverticulate elements. In the area found on wood of *Fagus*; summer; very rare in hemib.; NO (Østf: Rygge). – Bol Bres 44:7, 10, Lud 93.86, RdM 43:316.  
*C. strossmayeri* (S. Schulz.) Redhead, Vilgalys & Moncalvo (*Coprinus* s. S. Schulz.)
- Sp  $\geq 10 \mu\text{m}$  long; solitary on soil in forests or dry grassland 5
- 5. Sp 14-19 x 9.5-13  $\mu\text{m}$  (fig. 577A); in deciduous forests on rich, often calcareous soil, especially with *Fagus*. Cap 50-80 x 30-40 mm, ovoid to narrowly ellipsoid, later bell-shaped to expanded, greyish brown to black; veil breaking up into patches, sordid cream to buff; gills very crowded, finally black and deliquescent; stem 90-300 x 5-15 mm, slightly widened downwards, flocculose, white; smell unpleasant, like scatol. Sp ellipsoid to ovoid, with central germ pore; veil of thin-walled, diverticulate elements. Autumn; common in temp., rare in hemib.; DK (LC), NO (VU), SE (LC). – B&K 4:297, Lud 93.50, Phil 259c, R&H 425, Ves 291, .  
*C. picacea* (Bull.: Fr.) Redhead, Vilgalys & Moncalvo (*Coprinus* p. (Bull.: Fr.) Gray)
- Sp 10-12.5 x 6.5-8.5  $\mu\text{m}$ ; in the area found on living and rotten wood of *Fraxinus*. Cap 15-40 x 10-25 mm, ellipsoid to ovoid, buff to brown; veil breaking up into patches, whitish to greyish buff; gills very crowded, finally black and deliquescent; stem up to 120 x 4-10 mm, slightly widened downwards, flocculose, white to greyish white. Sp ellipsoid to ovoid, with central germ pore; veil of thin-walled, diverticulate elements. Outside the area recorded from dry calcareous grassland and coniferous forests; autumn; very rare in hemib.; FI (EN). – End 399, Lud 93.85, Myc 7:87, OPN 4A, ZM 54:64.  
*C. stangliana* (Enderle, Bender & Gröger) Redhead, Vilgalys & Moncalvo (*Coprinus* s. Enderle, Bender & Gröger)
- 6. On dung 7
- Not on dung, but sometimes on substrates mixed with dung 10
- 7. Veil with thick-walled, ascending elements and thin-walled, diverticulate elements. Cap about 6 x 4 mm, rounded conical, later expanding; veil breaking up into small hairy-floccose scales, white, but at centre often sepia; gills crowded; stem up to 30 x 0.5-1 mm, cylindrical, minutely fibrillose-floccose, whitish. Sp 8.5-13.5 x 6-9  $\mu\text{m}$ , ellipsoid or ovoid, with central germ pore. On dung of various herbivores; summer; very rare in suba.; FO.  
*C. vermiculifer* (Dennis) Redhead, Vilgalys & Moncalvo (*Coprinus* v. Dennis)
- Veil only with thin-walled or slightly thick-walled, diverticulate elements 8
- 8. Sp 6.5-8.5 x 5-6.5  $\mu\text{m}$ , cylindrical, 4-angled in face view. Cap 7-10 x 4-5.5 mm, subglobose to ellipsoid or ovoid, white, later grey; veil hairy-floccose, white to grey; gills crowded, finally black and deliquescent; stem up to 100 x 1-1.5 mm, cylindrical with a somewhat clavate base, whitish. Sp with central germ pore; veil of thin-walled, diverticulate elements. On dung of various herbivores; autumn; very rare in temp.-suba.; FI (DD), FO, NO (LC), SE (LC). – Lud 93.84.  
*C. filamentifer* (Kühner) Redhead, Vilgalys & Moncalvo (*Coprinus* f. Kühner)
- Sp 9.5-14.5 x 5-8  $\mu\text{m}$ , ellipsoid 9
- 9. Cap sulphur to lemon yellow when young. Cap 8-18 x 6-16 mm, ellipsoid to ovoid, later expanding; veil fibrillose-scurfy, yellow; gills crowded, finally black, not or slightly deliquescent; stem up to 60 x 1-1.5 mm, widened to 2-3 mm at base, hyaline or slightly brownish. Sp 9.5-12 x 5.5-7  $\mu\text{m}$ , ellipsoid to amygdaloid, with central germ pore; veil of slightly thick-walled, diverticulate elements. On dung; summer; very rare in temp.; SE (Sk: Immeln).

– Lud 93.91, RdM 48:326.

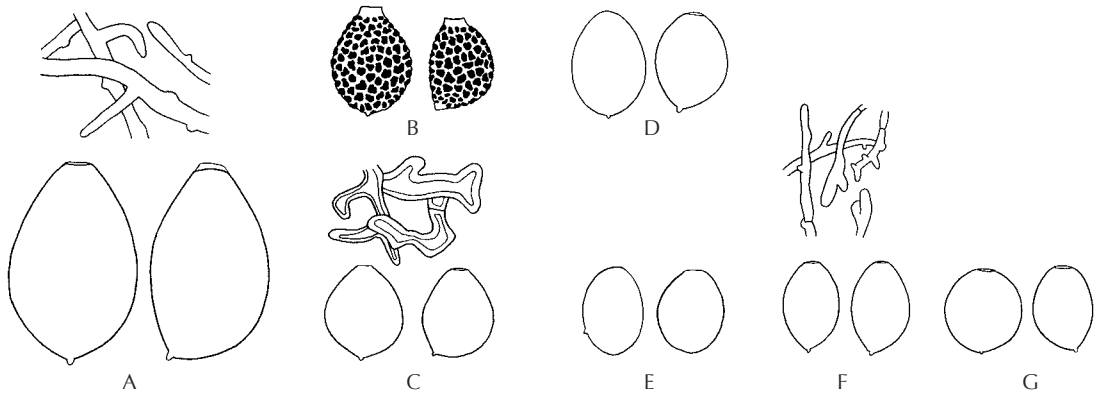
*C. luteocephala* (Watling) Redhead, Vilgalys & Moncalvo (*Coprinus l.* Watling)

- Cap white when young. Cap 2-7(-14) x 2-4(-8) mm, subglobose, ellipsoid or ovoid, later expanding, white, often with clay-coloured centre, later greyish; veil hairy-floccose, whitish; gills crowded, finally black and deliquescent; stem up to 40 x 0.3-2(-2.5) mm, cylindrical, flocculose, watery white. Sp 9.5-14.5 x 5-8  $\mu\text{m}$ , ellipsoid, with central germ pore; veil of thin-walled, diverticulate elements. On cow and elk dung; spring to autumn; very rare in hemib.-southern bore.; FI (LC), NO (LC). – Lud 93.97.

*C. xenobia* (P.D. Orton) Redhead, Vilgalys & Moncalvo (*Coprinus x.* P.D. Orton)

- |     |              |    |
|-----|--------------|----|
| 10. | Sp verrucose | 11 |
| -   | Sp smooth    | 12 |
11. Sp citriform to amygdaloid (fig. 577B). Cap 10-20 x 5-10 mm, ovoid, later expanded, white to greyish; veil fibrillose, white to grey; gills crowded, finally black and deliquescent; stem 40-100 x 1-4 mm, cylindrical or slightly widened at base, white. Sp 8.5-12 x 6-8  $\mu\text{m}$ , with central germ pore; veil of thin-walled, diverticulate elements. On trunks, branches and twigs, often in connection with guano, waste from mussel industries, etc.; summer to autumn; rare in temp.-bore.; DK (LC), FI (LC), NO (LC), SE (LC). – B&K 4:274, Ger 01:353, Lud 93.10, Svp 20:64, ZM 45:25, ☉.
- C. echinospora* (Buller) Redhead, Vilgalys & Moncalvo (*Coprinus e.* Buller)
- Sp citriform to amygdaloid. Cap 5-20 x 3-15 mm, ovoid to ellipsoid, later expanded, white, soon turning greyish; veil hairy-fibrillose, white to grey; gills crowded, finally black and deliquescent; stem up to 80 x 1-3 mm, cylindrical or slightly clavate, whitish. Sp 7.5-11 x 5.5-8  $\mu\text{m}$ , with central germ pore; veil of thin-walled, diverticulate elements. On branches, once in FI recorded on partridge dung; very rare in hemib.-southern bore.; FI (DD, V: Parainen, EH: Tammela). – B&K 4:274, Ger 01:353, Lud 93.9, Svp 20:64, ZM 45:25, ☉.
- C. phlyctidiospora* (Romagn.) Redhead, Vilgalys & Moncalvo (*Coprinus p.* Romagn., *C. lagopides* P. Karst. 1879 non 1882)
- |     |   |    |
|-----|---|----|
| 12. | Veil elements partly with > 0.5 $\mu\text{m}$ thick walls | 13 |
| -   | Veil elements with < 0.5 $\mu\text{m}$ thick walls        | 18 |
13. Veil elements partly with walls > 2  $\mu\text{m}$  thick (fig. 577C). Cap 3-8 x 2-6 mm, conical, ellipsoid or ovoid, later expanded, whitish with a buff centre; veil breaking up into patches, cream to buff; gills crowded, finally dark brown and strongly deliquescent; stem 10-35 x 0.5-1.5 mm, cylindrical with a clavate base, flocculose at base, white to greyish white. Sp 6-9.5 x 5.5-8  $\mu\text{m}$ , broadly ovoid to slightly rhomboid, with central germ pore; veil of diverticulate elements. On grasses and herbs; summer to autumn; very common in temp., occasional in hemib.-suba.; DK (LC), FI (LC), FO, IS (Na), NO (LC), SE (LC). – C&D 781, End 395, Lud 93.100, M&J Coprinus 7, ☉.
- C. friesii* (Quél.) P. Karst. (*Coprinus f.* Quél., *C. rhombisporus* P.D. Orton)
- |   |  |    |
|---|--|----|
| - | Veil elements with walls up to 1.5(-2) $\mu\text{m}$ thick | 14 |
|---|--|----|
- |     |                   |    |
|-----|-------------------|----|
| 14. | Sp Q on av > 1.25 | 15 |
| -   | Sp Q on av < 1.25 | 16 |
15. Veil on cap dark brown. Cap 4-7 x 3-7 mm, ovoid to ellipsoid, later expanded, whitish with a sepia centre; veil breaking up into woolly scales; gills crowded; stem 15-60 x 1-2 mm, cylindrical or slightly widened at base, flocculose at base, greyish white. Sp 5.5-10.5 x 4-8  $\mu\text{m}$ , broadly ovoid to broadly ellipsoid, with central to slightly eccentric germ pore (fig. 577D); veil of thick-walled, diverticulate elements. On dead stems of *Phragmites*, *Carex*, etc.; summer to autumn; occasional in temp.-hemib., rare in bore.; DK (LC), FI (DD), NO (LC), SE (Sk). – B&K 4:304, OPN 5D, Sienil 42:50.
- C. tigrinella* (Boud.) Redhead, Vilgalys & Moncalvo (*Coprinus t.* Boud.)

- Veil on cap white to buff. Cap 5-10 x 3-8 mm, ellipsoid to ovoid or conical, later expanding, whitish with a pale brown to buff centre; veil breaking up into patches; gills crowded, finally black, not deliquescent; stem up to 60 x 1-2 mm, cylindrical, flocculose at base, white to greyish white. Sp 6-10 x 5-8  $\mu\text{m}$ , broadly ovoid to broadly ellipsoid, with central germ pore; veil of thick-walled, diverticulate elements. On wood, grasses and herbs; summer to autumn; very rare in temp.; SE (Sk). – Lud 93.98.  
*C. pseudofriesii* (Pilát & Svrček) Redhead, Vilgalys & Moncalvo (*Coprinus p.* Pilát & Svrček)
- 16. Sp with a c. 3  $\mu\text{m}$  broad germ pore. Cap 10-20 x 8-15 mm, globose to broadly ellipsoid or ovoid, later expanding, white, later grey with a buff centre; veil fibrillose to woolly-felty, white to buff; gills very crowded, finally brownish black and strongly deliquescent; stem 40-80 x 2.5-3.5 mm, cylindrical or widened downwards, with a bulbous base, minutely fibrillose, white to slightly brownish. Sp 7.5-9.5 x 7-9.5  $\mu\text{m}$ , subglobose to rounded 4-angled in face view, with a central to slightly eccentric germ pore; veil of thick-walled, diverticulate and thick-walled, ascending elements. On soil and saw dust; early summer to autumn; rare in temp.-hemib.; FI (DD), NO (NE), SE (LC). – BCat 112, Jordst 18(3), Lud 93.89.  
*C. spilospora* (Romagn.) Redhead, Vilgalys & Moncalvo (*Coprinus s.* Romagn.)
- Sp with c. 1-1.5  $\mu\text{m}$  broad germ pore 17
- 17. Sp distinctly broader in face view than in side view, with eccentric germ pore (fig. 577E); pleurocystidia 10-30  $\mu\text{m}$  broad. Cap 5-15(-20) x 3-12 mm, subglobose to ellipsoid or ovoid, white; veil forming velvety, buff coloured patches, mostly around centre; gills crowded, finally dark brown and deliquescent; stem up to 120 x 0.5-2 mm, cylindrical, almost glabrous, white to greyish white. Sp 5.5-8 x 4.5-7 x 4.5-6  $\mu\text{m}$ , subcircular in face view, broadly ellipsoid in side view; veil of thick-walled, diverticulate elements. On plant remains, mainly of *Fabaceae*; summer; very rare or overlooked in temp.-southern bore.; DK (LC), FI (LC), NO (LC, Vestf: Nøtterøy and Tjøme), SE (Sk). – Ger 01:355, Lud 93.99.  
*C. phaeospora* (P. Karst.) P. Karst. (*Coprinus p.* P. Karst.)
- Sp not distinctly broader in face view than in side view, with a central to slightly eccentric germ pore; pleurocystidia 25-40  $\mu\text{m}$  broad. Cap 8-10 x 4-5 mm, cylindrical to ellipsoid or ovoid, later conical, whitish with a buff centre; veil breaking up into felty scales, buff; gills crowded; stem up to 60 x 1-1.5 mm, cylindrical, white to greyish white. Sp 5-7 x 4.5-6  $\mu\text{m}$ , short ovoid, truncate, with central to slightly eccentric germ pore; veil of thick-walled, diverticulate elements. On grasses and herbs; NL.  
*C. xantholepis* (P.D. Orton) Redhead, Vilgalys & Moncalvo (*Coprinus x.* P.D. Orton)
- 18. Sp  $Q_{av} > 1.25$  19  
- Sp  $Q_{av} < 1.25$  20
- 19. Sp 7-10 x 4.5-6  $\mu\text{m}$ ,  $Q_{av} = 1.55-1.7$ ; on deciduous wood. Cap 5-12 x 4-9 mm, ellipsoid to ovoid, later expanded, white to greyish; veil breaking up into hairy scales, white; gills crowded; stem 20-40 x 1-1.5 mm, cylindrical or widened at base, flocculose, white to greyish white. Sp ellipsoid to ovoid, with central germ pore; veil of thin-walled, diverticulate elements. DE, NL. – Pers 15:364.  
*C. goudensis* (Uljé) Redhead, Vilgalys & Moncalvo (*Coprinus g.* Uljé)
- Sp 5.5-9 x 4.5-6.5  $\mu\text{m}$ ,  $Q_{av} = 1.25-1.45$  (fig. 577F); on grasses and herbs, rarely on wood. Cap 3-8 x 2-4 mm, ovoid to conical, later expanded, white; veil breaking up in small, woolly-hairy scales, white; gills crowded, finally black and deliquescent; stem 5-40 x 0.2-1 mm, cylindrical, white, flocculose at base. Sp ellipsoid to ovoid, with central germ pore; cheilocystidia 30-65 x 10-14  $\mu\text{m}$ , utriform to conical; veil of thin-walled, diverticulate elements. Summer to autumn; common in temp., occasional in hemib.-southern bore.; DK (LC), FI (LC), NO (LC), SE (LC). – B&K 4:306, Cet 1724, Lud 93.95, M&J Coprinus 11, Sienil 42:49.  
*C. urticicola* (Berk. & Broome) Redhead, Vilgalys & Moncalvo var. *urticicola* (*Coprinus u.* (Berk. & Broome) Buller)  
var. *salicicola* Uljé & Noordel. differs in having a dark grey cap when young. NL.



Spores and veil elements: A: *Coprinopsis picacea*, B: *C. echinospora* (veil elements  $\times 600$ ), C: *C. friesii*, D: *C. tigrinella*, E: *C. phaeospora*, F: *C. urticicola* var. *urticicola*, G: *C. gonophylla*.

20. Young cap whitish; on burnt ground, sandy or clayey soil, rarely in flower-pots. Cap 4-15(-20)  $\times$  3-12 mm, globose to ellipsoid or conical, later convex, white; veil breaking up into patches, white, becoming brownish; gills crowded, finally black and deliquescent; stem 20-65  $\times$  0.5-3 mm, cylindrical or slightly widened at base, flocculose, whitish. Sp 6-8.5  $\times$  5.5-8  $\times$  5-6.5  $\mu\text{m}$ , broadly ovoid to subcircular in face view, ellipsoid in side view, with central germ pore (fig. 577G); veil of thin-walled, diverticulate elements. Summer; occasional in temp.-hemib., rare or overlooked in southern-middle bore.; DK (LC), FI (LC), SE. – B&K 4:278, Lud 93.92, Mic Due 381.

*C. gonophylla* (Quél.) Redhead, Vilgalys & Moncalvo (*Coprinus* g. Quél.)

- Young cap buff to dark grey brown or sepia; on soil, dead stems or rotten straw 21
21. Young cap buff to grey brown; on dead stems or rotten straw. Cap 3-6(-10)  $\times$  2.5-5(-8) mm, subglobose to ellipsoid or ovoid, later expanded, becoming greyish; veil flocculose; gills crowded; stem up to 30  $\times$  0.5-1.5 mm, with a bulbous base, flocculose, white. Sp 7-11.5  $\times$  6-10.5  $\mu\text{m}$ , subglobose to broadly ellipsoid, with central to slightly eccentric germ pore; veil of thin-walled, diverticulate elements. Summer to autumn; rare in temp.-bore.; FI (DD), NO (LC, Vestf: Tønsberg, Tjøme), SE (NA, Sk). – Jordst 23(1):69, Lud 93.96.

*C. kubickae* (Pilát & Svrček) Redhead, Vilgalys & Moncalvo (*Coprinus* k. Pilát & Svrček)

- Young cap dark grey brown to sepia; in lawns or on naked soil. Cap 3-6  $\times$  2-5 mm, subglobose to ovoid, late expanded; veil breaking up into small, hairy flocks, sepia, paler grey to almost white; gills crowded, finally black and slightly deliquescent; stem up to 30  $\times$  0.5-1 mm, cylindrical, greyish white. Sp 7-10  $\times$  6.5-9  $\times$  6.5-8  $\mu\text{m}$ , subcircular in face view, broadly ellipsoid in side view, with central germ pore; veil of thin-walled, sparsely diverticulate elements. Summer to autumn; very rare in hemib., only two records from NO (Tel: Bamble, STr: Trondheim).

*C. epichloea* (Uljé & Noordel.) Redhead, Vilgalys & Moncalvo (*Coprinus* e. Uljé & Noordel.)

#### Key D: Veil with $\pm$ globose elements with persistent warts not dissolving in HCl

1. Basidia in majority 2- or 3-spored 2
- Basidia in majority 4-spored 4
2. Basidia in majority 3-spored; smell fetid; sp 7-10  $\times$  4.5-6  $\mu\text{m}$  (fig. 579A). Cap 5-18  $\times$  7-8 mm, ovoid to ellipsoid or cylindrical, later convex to expanded, becoming radially grooved, whitish, often greyish to clay buff at centre; veil powdery to floccose, white; gills finally black and deliquescent; stem 10-25  $\times$  2-3.5 mm, base widened to 3.5-4.5 mm, white to grey-

ish. Sp ellipsoid to ovoid, with central germ pore, with  $\pm$  loosening perispore; veil of globose to ellipsoid, verruculose elements and cylindrical elements. On dung of horse, cow or elk, sometimes on rotting straw, rarely on soil; spring to summer; rare in temp., occasional in hemib.-bore.; DK (NA, EJyl: Randers), FI (LC), NO, SE (LC). – Lud 93.66, ZM 56:40.


*C. trispora* (Kemp & Watling) Redhead, Vilgalys & Moncalvo (*Coprinus t.* Kemp & Watling)

- Basidia 2-spored; smell yeast-like or insignificant; sp  $> 11 \mu\text{m}$  long 3
3. Sp 15-18  $\times$  8-10  $\mu\text{m}$ ; smell yeast-like. Cap 7-15  $\times$  5-7 mm, ovoid, later conical to expanded, becoming radially grooved, pale grey; veil powdery to flocculose, grey, at centre to clay buff; gills finally black and slowly deliquescent; stem 24-62  $\times$  1-2 mm,  $\pm$  cylindrical, whitish to hyaline-greyish. Sp ellipsoid to ovoid, with central germ pore, sometimes with slightly loosening perispore; veil of globose to ellipsoid or pyriform, verruculose elements and fusiform to cylindrical elements. On naked soil or in grass; spring to autumn; very rare in hemib.-suba.; FO, NO (LC, AA: Arendal, STR: Malvik), SE (Sk). – B&K 4:300, Lud 93.64.

*Coprinus saccharomyces* P.D. Orton

- Sp 11-15  $\times$  7-9  $\times$  5.5-7  $\mu\text{m}$ ; smell insignificant. Cap 11-22  $\times$  8-20 mm, ellipsoid to ovoid or conical, later expanded, becoming  $\pm$  radially grooved, pale grey; veil powdery to granulose, grey to buff; gills crowded, finally black and slowly deliquescent; stem 60-100  $\times$  1-6 mm, cylindrical or widened downwards, white to pale grey. Sp ellipsoid to amygdaloid, tapering towards apiculus, with loosening perispore; veil of globose to ellipsoid, verruculose elements and fusiform to cylindrical elements. On soil or litter, sometimes in grass; rare in hemib.-suba.; FI (DD), NO (LC). – B&K 4:268, Lud 93.62A.

*C. cinereofloccosa* (P.D. Orton) Redhead, Vilgalys & Moncalvo (*Coprinus c.* P.D. Orton)

4. Sp 6-8  $\times$  3.5-4.5  $\mu\text{m}$  (fig. 579B). Cap 1-12  $\times$  0.5-4 mm, ovoid to ellipsoid, later expanded, becoming radially grooved, white to greyish; veil powdery, white to grey or clay buff; gills finally black and  $\pm$  deliquescent; stem 10-40  $\times$  0.5-1 mm, cylindrical, sometimes slightly widened and hairy at base, hyaline to whitish. Sp ellipsoid to cylindrical or slightly phaseoliform, perispore rarely slightly loosening, with  $\pm$  central germ pore; veil of  $\pm$  globose, verruculose elements and  $\pm$  branching, diverticulate hyphae. On dung; autumn; common in temp.-bore.; DK (LC), FI (LC), IS, NO (LC), SE (LC). – B&K 4:303, FAD 159C, Lud 93.67, RdM 32:121, .

*C. stercorea* (Fr.) Redhead, Vilgalys & Moncalvo (*Coprinus s.* Fr., *C. velox* Godey s. auct.)

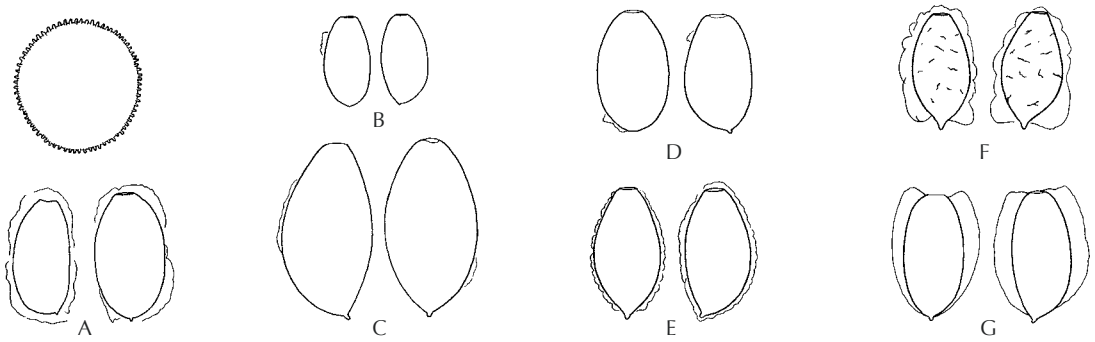
- Sp  $> 8 \mu\text{m}$  long 5
5. Sp on av  $> 7.5 \mu\text{m}$  broad 6
- Sp on av  $< 7.5 \mu\text{m}$  broad 7

6. On remnants of *Juncaceae* or *Cyperaceae*, often in inundated habitats; smell faint. Cap 5-22  $\times$  3-8 mm, ovoid to cylindrical, later expanding, becoming radially grooved, grey; veil powdery, grey; gills crowded, finally black and deliquescent; stem 32-60  $\times$  1.5-2 mm, cylindrical with widened base, pale grey; smell insignificant. Sp 13-17  $\times$  7.5-8.5  $\mu\text{m}$ , ellipsoid to amygdaloid, with loosening perispore and central germ pore (fig. 579C); veil of globose to ellipsoid, verruculose elements and branching, often diverticulate hyphae. Spring to autumn; occasional in temp.-arc./alp.; DK (DD), FI (DD), FO, IS, NO (LC), SE (LC). – B&K 4:293, Lud 93.65.

*C. martinii* (P.D. Orton) Redhead, Vilgalys & Moncalvo s.l. (*Coprinus m.* P.D. Orton)

Note: there is a considerable variation in spore size, and more than one species may be involved.

- On compost heaps, soil or dung; smell strong, gas-like. Cap 10-30  $\times$  7-25 mm, cylindrical to ovoid, later expanded, becoming radially grooved, grey to brownish grey; veil powdery to floccose, grey; gills crowded, finally black and deliquescent; stem 30-80  $\times$  1.5-3 mm, cylindrical, sometimes slightly widened at base, rooting, whitish. Sp 13-17  $\times$  8.5-10.5  $\mu\text{m}$ , ellipsoid to amygdaloid, tapering towards apiculus, with slightly loosening perispore, with central germ pore; veil of  $\pm$  globose, verruculose elements and  $\pm$  cylindrical hyphae. On compost



Spores and veil elements (x 600): A: *Coprinopsis trispora*, B: *C. stercorea*, C: *C. martinii*, D: *Coprinus tuberosus*, E: *Coprinopsis narcotica*, F: *C. laanii*, G: *C. semitalis*.

heaps, soil or dung; rare in temp.-hemib.; DK (DD), NO (LC), SE (Sk). – Lud 93.60.

*C. radicans* (Romagn.) Redhead, Vilgalys & Moncalvo (*Coprinus r.* Romagn.)

7. Sp with rounded base (fig. 579D) 8  
 - Sp tapering towards apiculus (figs 579E-G) 9
8. Unexpanded cap 3-22 x 2-11 mm; frb emerging from up to 15 mm broad sclerotia; stem often rooting; smell faint or like raw potatoes. Cap narrowly ellipsoid to ± cylindrical, later expanded with upturned margin, pale grey, slightly darker around the centre; veil powdery, grey; gills crowded, finally black and deliquescent; stem 10-90 x 1-4 mm, cylindrical, finely downy, white or whitish. Sp 8-11 x 5-6.5 μm, ellipsoid, with central germ pore, sometimes with loosening perispore (fig. 579D); veil of globose to ellipsoid, verruculose elements and ± cylindrical hyphae. On dung, dung-soil mixture or rotten straw, sometimes in flower-pots; all year; occasional in temp.-southern bore.; DK (LC), FI (LC), FO, NO (LC), SE (LC). – B&K 4:305, FAD 159A, Lud 93.61, M&J *Coprinus* 12, RdM 33:68, ☉.  
*Coprinus tuberosus* Qué! (*C. sclerotiger* Watling, *C. stercorarius* (Bull.) Fr. s. auct.)  
 - Unexpanded cap 1-4 x 0.5-2 mm; frb not emerging from a sclerotia; stem not rooting; smell strong, fetid. Cap ellipsoid to ± cylindrical, later expanded, becoming radially grooved pale grey; veil forming powdery to flocculose, grey or tinged buff; gills finally black and slowly deliquescent; stem 28-60 x 0.2-0.5 mm, cylindrical, pale grey. Sp 9-11 x 5.5-6 μm, ellipsoid, with slightly loosening perispore and central germ pore; veil of ± globose, verruculose elements and filamentous hyphae. On dung; spring to autumn; very rare in temp.-hemib.; NO (Østf: Fredrikstad), SE (Lc, Bl: Olofström). – Lud 93.63.  
*Coprinus foetidellus* P.D. Orton
9. Smell strong and fetid; on compost heaps, soil, dung, etc. Cap 8-15 x 5-10 mm, ellipsoid to ovoid, later expanded, becoming radially grooved, pale to dark grey; veil powdery, whitish grey; gills crowded; stem 15-70 x 1.5-3 mm, cylindrical, sometimes slightly widened at base, whitish. Sp 11-13.5 x 5.5-7 μm, ellipsoid to amygdaloid, tapering towards apiculus, with loosening perispore, with central germ pore (fig. 579E); veil of ± globose, verruculose elements and branching hyphae. Summer to autumn; rare in temp.-bore.; DK (LC), FI (DD), NO (LC), SE (LC). – Bon 273, Däh 551, FAD 159D, M&H 4:310, Phil 259f.  
*C. narcotica* (Batsch: Fr.) Redhead, Vilgalys & Moncalvo (*Coprinus n.* (Batsch: Fr.) Fr.)  
 - Smell pleasant or insignificant; on wood on soil 10
10. Sp with lines and dots (fig. 579F); on stumps, wood chips, sawdust, etc. Cap 5-22 x 3-12 mm, ellipsoid, later convex to bell-shaped or expanded, becoming radially grooved, pale grey to grey; veil powdery, grey; gills crowded, finally black and ± deliquescent; stem 20-55 x 1-4

mm, cylindrical, sometimes slightly widened at base, hyaline to greyish. Sp 10-11.5 x 5-6  $\mu\text{m}$ , ellipsoid to amygdaloid, tapering towards apiculus, with strongly loosening perispore, with central germ pore; veil of globose to ovoid, verruculose elements and branching, often diverticulate hyphae. Autumn; rare in temp.; DK (LC), SE (LC, Sk). – B&K 4:286, C&D 765, Lud 93.68, OPN 4D, Svp 20:82.

*C. laanii* (Kits van Wav.) Redhead, Vilgalys & Moncalvo (*Coprinus l.* Kits van Wav.)

- Sp without lines or dots (fig. 579G); on soil in forests and in open land. Cap 13-22 x 6-10 mm, ovoid, later expanded, whitish to grey; veil powdery, grey to buff or pale sepia; gills crowded; stem 50-100 x 1.5-3 mm, cylindrical, sometimes slightly widened at base, hyaline to greyish. Sp 10.5-13.5 x 6.5-8 x 4.5-5.5  $\mu\text{m}$ , ellipsoid to amygdaloid, tapering towards apiculus, with strongly loosening perispore, with central germ pore; veil of globose to ellipsoid, verruculose elements and branching, often diverticulate hyphae. Spring to autumn; rare in temp.-bore.; DK (LC), FO, NO (LC), SE (LC). – B&K 4:301, Lud 93.62B, ☉.

*C. semitalis* (P.D. Orton) Redhead, Vilgalys & Moncalvo (*Coprinus s.* P.D. Orton)

**Key E:** Veil with  $\pm$  globose elements which are smooth or with crystals dissolving in HCl

1. Basidia 2-spored 2
  - Basidia 4-spored 4
2. Sp 13.5-16.5 x 12.5-15.5 x 8.5-10  $\mu\text{m}$ . Cap up to 30 x 18 mm, ellipsoid to hemispherical, later conical to plane or with upturned margin, white; veil powdery to  $\pm$  scaly, grey to creamy grey, to sepia at top of scales; gills crowded, finally black and deliquescent; stem up to 110 x 4 mm, widened downwards, floccose, whitish. Sp citriform in face view, ellipsoid in side view, with  $\pm$  eccentric germ pore; veil of  $\pm$  globose elements. On cow dung; autumn; rare in hemib.-bore.; FI (LC), NO (LC, Nordl: Træna), SE (LC). – Lud 93.71, OPN 5B, Phil 259g.
 

*C. pachysperma* (P.D. Orton) Redhead, Vilgalys & Moncalvo (*Coprinus p.* P.D. Orton)

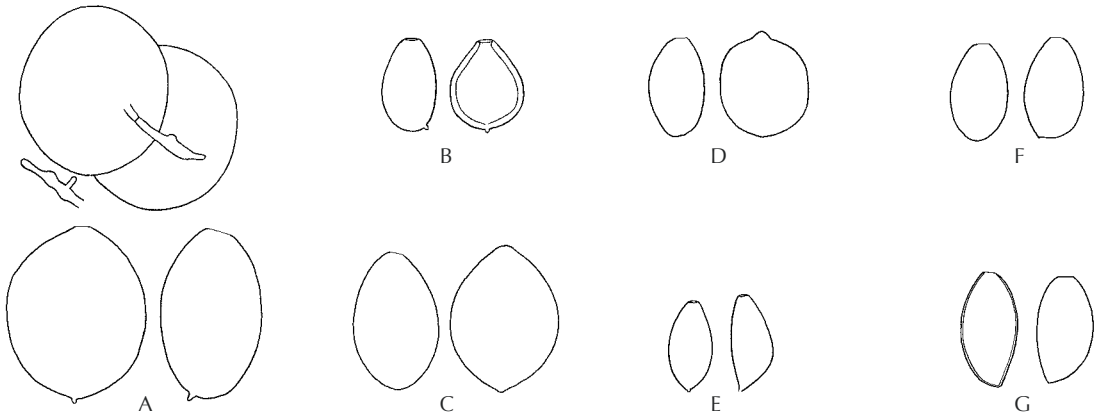
  - Sp < 11.5  $\mu\text{m}$  long 3
3. Sp ellipsoid to ovoid or amygdaloid; in scrubs or lawns. Cap up to 12 x 9 mm, hemispherical to ellipsoid, later expanded; veil powdery, white; gills crowded, finally black and deliquescent; stem up to 80 x 2.5 mm, gradually widened towards base, whitish-hyaline to pale brownish. Sp 7.5-10.5 x 6-8 x 5-7  $\mu\text{m}$ , with central germ pore; veil of  $\pm$  globose elements. *DE, NL*. – End 392, Lud 93.81, RdM 40:203, 48:53, ZM 56:24.
 

*Coprinus bellulus* Uljé

  - Sp  $\pm$  5-angled in face view; on dung see *C. cordisporus* 10
4. Sp on av > 12  $\mu\text{m}$  long 5
  - Sp on av < 12  $\mu\text{m}$  long 6
5. Sp  $\pm$  citriform in face view, 12-19 x 11-15.5 x 7.5-9  $\mu\text{m}$  (fig. 581A). Cap 15-30 x 9-17 mm, ellipsoid to ovoid or narrowly conical, later bell-shaped to plane with upturned margin, white; veil powdery to  $\pm$  scaly, white; gills crowded, finally black and deliquescent; stem 30-100 x 1-4 mm, widened towards base, white. Sp ellipsoid in side view, with central germ pore; veil of  $\pm$  globose elements. On dung, especially of horse and cow; summer to autumn; common in temp.-hemib., occasional in bore.-suba.; DK (LC), FI (LC), FO, IS, NO (LC), SE (LC). – B&K 4:289,295, Lud 93.78, Phil 259h, R&H 427, Ves 294, ☉.
 

*C. nivea* (Pers.: Fr.) Redhead, Vilgalys & Moncalvo (*Coprinus n.* (Pers.: Fr.) Fr., *Coprinus latissporus* P.D. Orton)

  - Sp  $\pm$  6-angled in face view, 9.5-15.5 x 6.5-8.5 x 7-7.5  $\mu\text{m}$ . Cap up to 20 x 13 mm, ellipsoid, later convex to plane, white; veil powdery, white; gills crowded, soon black and deliquescent; stem up to 100 x 3-5 mm, widened towards base, white. Sp ellipsoid in side view, with  $\pm$  central germ pore; veil of globose or subglobose elements. On horse or cow dung and rotting straw; spring to autumn; rare in temp.-southern bore.; FI (LC), SE (LC). – Cet 1719, End



Spores and veil elements (x 600): A: *Coprinopsis nivea*, B: *Coprinus ephemeroides*, C: *Coprinopsis pseudonivea*, D: *Coprinus cordisporus*, E: *Coprinopsis coniophora*, F: *Coprinus cortinatus*, G: *C. candidatus*.

392, Ger 01:355, Lud 93.80, M&J *Coprinus* 16, ☉.

*C. cothurnata* (Godey) Redhead, Vilgalys & Moncalvo (*Coprinus c.* Godey)

6. Stem with a ring. Cap 3-7 x 1.5-3 mm, cylindrical to ovoid, later bell-shaped to plane or with upturned margin, becoming radially grooved, whitish grey; veil powdery, yellowish to pale pinkish brown; gills medium spaced, finally black, but mostly not deliquescent; stem 15-70 x 0.5-1.5 mm, cylindrical, sometimes slightly widened and hairy at base, hyaline to whitish. Sp 6-9 x 5.5-8 x 4.5-5  $\mu\text{m}$ , citriform to 5-angled in face view, ellipsoid in side view, with central germ pore (fig. 581B); veil of  $\pm$  globose elements. On dung, especially horse and elk dung; all year; occasional in temp.-suba.; DK (LC), FI (LC), IS, NO (LC), SE (LC). – BCat 1007, FAD 159H, Lud 93.69, M&H 4:311, M&J *Coprinus* 7, ☉.

*Coprinus ephemeroides* (DC.: Fr.) Fr.


- Stem without a ring 7
- 7. Sp  $\pm$  pyriform, citriform or 5-angled in face view 8
- Sp ellipsoid to cylindrical, ovoid, amygdaloid or subfusiform 11
- 8. Sp  $\pm$  pyriform to heart-shaped in face view. Cap up to 7 x 4 mm, cylindrical to ellipsoid, later expanded, becoming radially grooved, white; veil powdery, cream to pinkish buff; gills rather crowded; stem up to 35 x 0.5-1 mm, cylindrical with a slightly widened base, hyaline-white. Sp 5.5-8.5 x 5-6.5 x 3.5-4.5  $\mu\text{m}$ , ellipsoid in side view, with central germ pore; veil of globose to ellipsoid elements. On compost heaps or dung; DE, NL.

*Coprinus cardiasporus* Bender

- Sp citriform to 5-angled in face view 9
- 9. Unexpanded cap 12-20 x 6-12 mm; sp citriform to bluntly 5-angled in face view. Cap ellipsoid, later conical to plane with upturned, splitting margin, white; veil powdery, white to greyish; gills crowded, finally black and deliquescent; stem 50-120 x 3-5 mm, widened towards base, white; smell aromatical. Sp 9-12.5 x 7.5-11.5 x 6-8  $\mu\text{m}$ , ellipsoid in side view, with  $\pm$  central germ pore (fig. 581C); veil of  $\pm$  globose elements. On cow dung and compost heaps; summer to autumn; occasional, but locally common in temp.-hemib.; DK (NA), SE (LC). – Lud 93.79, SMT 28(2):14.

*C. pseudonivea* (Bender & Uljé) Redhead, Vilgalys & Moncalvo (*Coprinus p.* Bender & Uljé)

- Unexpanded cap up to 12 x 6 mm; 5-angled in face view 10

10. Some cheilocystidia utriform; on dung of various animals. Cap 4-12 x 3-6 mm, ellipsoid, later conical to expanded, becoming radially grooved, whitish to pale buff; veil powdery, pale pinkish brown; gills finally black, mostly not deliquescent; stem 15-60 x 1-2 mm, cylindrical, smooth, hyaline to white. Sp 7-11.5 x 6.5-10 x 5-7  $\mu\text{m}$ , 5-angled in face view, ellipsoid in side view, with central germ pore (fig. 581D); veil of globose to ellipsoid elements. Autumn; common in temp.-hemib., occasional in suba.; DK (LC), FO, IS, NO (LC), SE (LC). – B&K 4:296, FAD 159E, M&J *Coprinus* 5, ZM 52:128.  
*Coprinus cordisporus* T. Gibbs (incl. *C. patouillardii* Quél. s. auct. p.p.)
- All cheilocystidia spheropedunculate to ellipsoid; on compost heaps. Cap up to 5 x 4 mm, cylindrical to ellipsoid or hemispherical, later expanded, becoming radially grooved, whitish to grey; veil powdery, pale pinkish brown; gills crowded; stem up to 50 x 0.5-1 mm, cylindrical, hyaline-white. Sp 6-9 x 6-8 x 3.5-5  $\mu\text{m}$ ,  $\pm$  5-angled in face view, ellipsoid in side view, with central germ pore; veil of globose to ellipsoid elements. Spring to autumn; occasional in temp.-bore.; DK (LC), NO (LC), SE (LC). – Lud 93.70, M&J 15.  
*Coprinus patouillardii* Quél.
11. On soil or wood 12  
- On dung 14
12. Sp 6.5-9 x 4-5  $\mu\text{m}$ , amygdaloid to subfusiform (fig. 581E); veil dark greyish brown. Cap up to 7 x 5 mm, hemispherical to ellipsoid, later expanded, white; veil powdery; gills crowded, not deliquescent; stem up to 30 x 0.5-1 mm, cylindrical with widened base, whitish-hyaline, often brownish flocculose. Sp with central germ pore; veil of globose to ellipsoid or fusiform elements. On and around stumps of deciduous trees; summer to autumn; rare in temp.-hemib.; DK (DD, SJ: Fakse Kalkværk), NO (LC). – Lud 93.72, M&J *Coprinus* 17.  
*C. coniofhora* (Romagn.) Redhead, Vilgalys & Moncalvo (*Coprinus* c. Romagn.)
- Sp on av  $\geq$  5  $\mu\text{m}$  broad, ellipsoid to ovoid; veil white to cream 13
13. Without differentiated cheilocystidia; sp Qav = 1.4-1.6 (fig. 581F). Cap up to 6 x 5 mm, hemispherical to ellipsoid, later expanded, white with a cream to pale buff centre; veil powdery, white; gills medium spaced, finally black, slightly deliquescent or not; stem up to 40 x 0.5-1 mm, cylindrical, sometimes with small basal bulb, whitish-hyaline. Sp 6-9.5 x 4.5-6  $\mu\text{m}$ , ellipsoid to ovoid, with central germ pore; veil of  $\pm$  globose elements. On naked soil, dung or among grass and moss; summer to autumn; occasional in temp.-hemib., rare in southern-middle bore.; DK (LC), FI (DD), SE (LC). – C&D 771, FAD 159B, Lud 93.82, M&J *Coprinus* 16, SMT 28(2):10, .
- Coprinus cortinatus* J.E. Lange
- With clavate to utriform, ellipsoid or spheropedunculate cheilocystidia; sp Qav = 1.7-1.9 (fig. 581G). Cap up to 8 x 6 mm, hemispherical to ovoid, later expanded, whitish; veil powdery to floccose; gills crowded; stem up to 50 x 1.5 mm, cylindrical or widened towards base, whitish, often whitish flocculose. Sp 7.5-11.5 x 4.5-6  $\mu\text{m}$ , ellipsoid, with central germ pore; veil of  $\pm$  globose elements. On soil, old cow dung or among twigs; summer; rare in temp.-hemib. and suba. in IS; DK (DD), IS (Su), NO (LC, Tel: Bamble), SE (LC).  
*Coprinus candidatus* Uljé
14. Sp on av  $\geq$  7.5  $\mu\text{m}$  long 15  
- Sp on av  $\leq$  7.5  $\mu\text{m}$  long 16
15. Young cap and veil white see 13  
- Young cap and veil grey. Cap up to 5 x 3 mm, ellipsoid to cylindrical, later expanded or with upturned margin, whitish to greyish; veil powdery to hairy-floccose; gills medium spaced, finally blackish and slowly deliquescent; stem up to 20 x 0.5 mm, cylindrical with small basal bulb. Sp 7.5-9.5 x 5-6  $\mu\text{m}$ , ellipsoid, with central germ pore; veil of cylindrical to fusiform and  $\pm$  globose elements. On dung, especially of cow; spring to autumn; rare in temp.; DK (LC), SE (NE). – Lud 93.102, M&J *Coprinus* 15, RdM 40:207.  
*Coprinus poliomallus* Romagn.

16. Unexpanded cap up to 13 x 3-8 mm. Cap ellipsoid to cylindrical, later expanded, becoming radially grooved, whitish, becoming brown; veil powdery, grey to brown; gills crowded; stem up to 50 x 1-2 mm, cylindrical, sometimes slightly widened and hairy at base, whitish to greyish. Sp 6-7.5 x 4-5 x 4-4.5  $\mu\text{m}$ , ellipsoid to broadly cylindrical, with central germ pore; veil of  $\pm$  globose elements. On dung; rare in hemib.-southern bore.; FI (DD).  
*C. utrifer* (Watling) Redhead, Vilgalys & Moncalvo (*Coprinus u.* Watling)
- Unexpanded cap up to 0.3-4 x 0.2-2.5 mm. Cap globose to subglobose or ellipsoid, later expanded, becoming radially grooved, at first white; veil powdery, white; gills medium spaced, finally black and deliquescent; stem up to 20 x 0.1-0.7 mm, cylindrical, whitish, sub-transparent. Sp 6-7.5(-8) x 3.5-4.5(-5)  $\mu\text{m}$ , ellipsoid to ovoid, with central germ pore; veil of  $\pm$  globose elements. On dung; spring to autumn; rare in temp.-hemib.; NO (Østf: Fredrikstad), SE. – Lud 93.83.  
*Coprinus pseudocortinatus* Cacialli, Caroti & Doveri