

Galerina Earle

GRO GULDEN

Frb mycenoid to collybioid, with main colour range from ochre to red brown. Cap conical, paraboloid or often bell-shaped, expanding to convex often umbonate or with a papilla, rarely plane or slightly depressed, with straight or initially incurved margin, typically membranous or thin-fleshed and translucently striate, generally smooth, very rarely felty to scurfy-subscaly, hygrophamous, in moist condition mat, shiny, fatty-lubricous, viscid or glutinous, colours varying from pale alutaceous over yellow, fulvous, yellow brown, orange brown, red brown to date brown, generally darker at centre and striae, paler at margin and between striae, drying opaque and pale, sometimes with veil remnants at margin. Gills ascending to horizontal, adnexed, emarginate, adnate or decurrent with a small tooth, medium spaced to slightly, not distinctly distant, edge ± white fimbriate (lens!). Stem fistulose, usually 1-4 mm broad, occasionally up to 15 mm, generally cylindrical or slightly thicker downwards, in some species subclavate to bulbous at base, smooth or fibrillose, top always ± pruinose, in some species pruinose over the entire length, hyaline-whitish, yellow to yellow brown or red brown, in many species becoming date brown, bistre or blackish brown from the base, often with veil remnants. Veil absent or cobweb-like and evanescent, leaving only ± fibrils on the stem, in some species membranous forming a ring, ring-zone or patches, white, yellow or pale beige. Smell mostly insignificant, but farinaceous in a number of species. Taste farinaceous to raphanoid, mild or bitter. Sp deposit ochre to rusty brown.

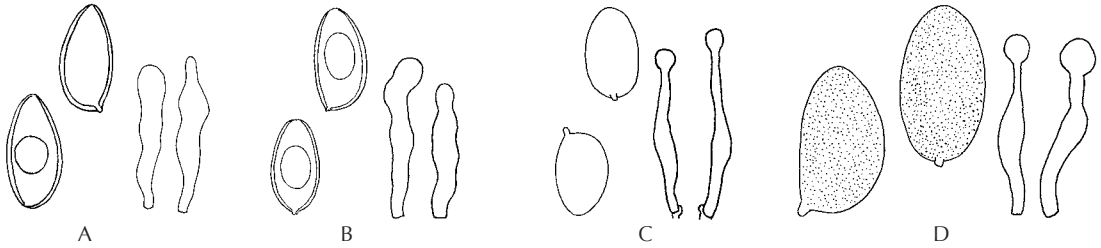
Sp amygdaloid to ellipsoid, in many species with an outdrawn and thin-walled apex (callus), rarely with an apical pore, generally verruculose to rugulose, but often the ornamentation is sublime, and the spores may appear smooth and even by × 1000 only faintly marbled, in a few species truly smooth, mostly with a plage, but in the practically smooth spores this is only discernable as a straight part of the dorsal periphery above the apiculus, sometimes limited above by a tiny hump, pale yellow to deep tawny in 5% KOH, in the keys the colours always refer to KOH mounts, dextrinoid, but without iodine reactions in most of the species with tibiiform cystidia; in a group of species the perispore separates from the main wall and form small blisters or 'ears', particularly in the basal end (calyprate spores), or it splits off ± around the whole surface. Basidia 4-spored, or constantly 2-spored in some taxa. Cystidia always present and their shape and topography of great diagnostic value, tibiiform (figs 787C-D), lageniform (fig. 795A), lageniform-fusiform (fig. 803B) to lageniform-capitate (fig. 796A), utriform or hyphoid-elongate without distinct ventral inflation and then often flexuous, also variously apically inflated (figs 795E, 796D, 797A), often becoming yellow brown or amber with age. Cheilocystidia always numerous, mostly rendering the edge sterile. Caulocystidia always present on top of stem, but in some species present over entire length and only then mentioned in the key. Pleuro- and pileocystidia present in some species. Pileipellis a cutis of radially repent, elongate, sometimes rather short-celled and inflated hyphae; some species with ixocutis on top, formed of narrow ± gelatinized hyphae. Pigment incrusting, asperulate to zebra-like. Clamps generally present and numerous in all tissues, but in some species absent or sporadic.

Saprotrophic, some possibly biotrophic, and at least *G. paludosa* is parasitic; most species grow on bryophytes, including some restricted to *Sphagnum*, others grow on rotting wood or woody or herbal debris, peat, grass turf, humus, sand, silt or clay. Spring and early summer to early winter.

48 species in the Nordic countries, 50 species in the key. Molecular analyses strongly indicate that the genus is polyphyletic. Species of sect. *Naucoriopsis*, e.g. *G. marginata*, contain amanitins and are strongly poisonous.

Lit.: Bon 1992, Bouteville & Moreau 2005, De Haan 1979, 1985, De Haan & Walleyn 2002, 2006, Gulden 1980, 2006, Gulden & Bonsdorff-Salminen 2006, Gulden & Hallgrimsson 2000, Gulden & Vesterholt 1999, Gulden et al. 2005, Kühner 1935, 1972, Smith & Singer 1964, Watling & Gregory 1993.

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| 1. | Cystidia tibiiform (figs 787C-D, 789A-B); clamps present or absent | Key A p. 787 |
| - | Cystidia not tibiiform; clamps present | 2 |
| 2. | Cheilo- and pleurocystidia as metuloids, thick-walled and ± topped with crystals | 3 |
| - | Metuloids absent | 4 |



Spores and cheilocystidia: A: *Flammula alnicola*, B: *F. pinicola*, C: *Galerina sideroides*, D: *G. subclavata*.

- 3. Sp very finely punctate, 7-7.5 x 4-4.5 μm ; metuloids amyloid see *Mythicomycetes* p. 907
- Sp verruculose, (6.5-)-8-10.5(-13) x (4-)-5-6.5 μm , metuloids without iodine reactions see *G. nana* key C 3
- 4. Sp smooth, ellipsoid, with broad apical germ pore, appearing truncate, without iodine reactions see *Phaeogalera* p. 836
- Sp practically smooth to distinctly verruculose, \pm amygdaloid, without or with a small germ pore, not truncate, dextrinoid 5
- 5. Pleurocystidia absent Key B p. 791
- Pleurocystidia present, sometimes few, but always well differentiated Key C p. 799

Key A: Cystidia tibiiform

- 1. Sp $\leq 8 \mu\text{m}$ long, ellipsoid with a blunt apex, smooth; without iodine reactions; clamps present 2
- Sp $> 8 \mu\text{m}$ long, amygdaloid to \pm ellipsoid, practically smooth or verruculose, dextrinoid or without iodine reactions; clamps present or absent 3
- 2. Cap viscid, shiny, 15-40 mm. Cap bell-shaped to convex-umbonate, somewhat fleshy, up to 4 mm thick at centre, with incurved margin when young, sometimes with veil remnants, striate at margin, yellow, fulvous to red brown; gills adnate-emarginate with tooth, ochre to yellow brown; stem 30-65 x 1.5-4(-6) mm, cylindrical or with \pm clavate base, top pale yellow brown, downwards red brown to bistre; veil leaving \pm fibrils, flocks and patches in the lower two thirds of stem, occasionally with a ring zone; smell and taste faintly farinaceous. Sp 6-8 x 4-5 μm , ellipsoid (fig. 787C), pale yellow brown; basidia 4-spored; cheilocystidia 20-45(-60) x 4-7(-10.5) x 1.5-3 x 2-7(-9.5) μm , narrowly lageniform-capitate to tibiiform, mostly with long necks and small heads. Subfasciculate or in groups on coniferous wood, mostly *Picea*, e.g. stumps, logs, buried wood and debris such as cones and needles, also on sawdust and wood chip piles; autumn, with maximum in late autumn; common in hemib.-bore., occasional in temp. and coniferous suba.; DK (LC), FI (LC), NO (LC), SE (NA). – B&K 5:426, FAD 124H, FND 23:38, M&J 5, R&H 527, .
- *G. sideroides* (Bull.) Kühner (*G. stylifera* (G.F. Atk.) A.H. Sm. & Singer)
- Cap dry, mat, 7-20 mm. Cap \pm conical to bell-shaped, membranous to slightly fleshy, striate halfway to centre, pale yellow brown to beige; gills adnexed-adnate, beige to pale ochre; stem 15-45 x 1.2-3 mm, elastic-rigid, at top cream to pale ochre, downwards dark red brown to bistre, \pm silvery fibrillose from evanescent veil; smell and taste faintly farinaceous. Sp 6-7 x 4-4.5(-5) μm , ellipsoid, pale yellow brown; basidia 4-spored; cheilocystidia 22-45 x 4-6(-9.5) x 1.5-3(-5) x 2.5-5(-11) μm , narrowly lageniform-capitate to tibiiform, mainly with long necks and small heads. Gregarious to solitary on rotting coniferous wood and debris; summer to autumn, with maximum in early autumn; rare or overlooked in temp.-hemib.; FI (DD), NO (LC), SE (LC). – B&K 5:412.
- *G. camerina* (Fr.) Kühner (*G. pseudobadipes* Joss.)
- 3. Basidia 2-spored 4
- Basidia 4-spored 6

4. Clamps absent; sp ellipsoid-amygdaloid (fig. 787D), without iodine reactions; veil evanescent; bryophilous. Cap 5-20 mm, hemispherical to bluntly conical, bright yellow to fulvous, shiny; gills ascending-adnate, medium spaced to distant, yellowish buff to yellow brown; stem 15-50 x 1-2(-3) mm, buff to pale beige, paler than cap, minutely pruinose, with scanty fibrils from veil; smell and taste indistinct. Sp 11-15.5(-17) x (6-)6.5-8 μm , finely verruculose, without plage, pale yellow brown; cheilocystidia 20-38(-62) x 4.5-10.5 x 1.5-4.5 x 2.5-7.5(-9.5) μm ; caulocystidia scattered over entire stem length; pileocystidia scattered. Solitary or in small groups, often in somewhat moist habitats, among grass and moss in coastal sand dunes, meadows, along fens, springs, snow-beds, occasionally among *Sphagnum*; autumn through mild winters; rare in temp.-arc./alp.; DK (NA, Wyl: Børsmose Strand), FI (DD, EH: Tampere), IS, NO (LC), SE. – B&K 5:427, FND 23:32.

G. subclavata Kühner

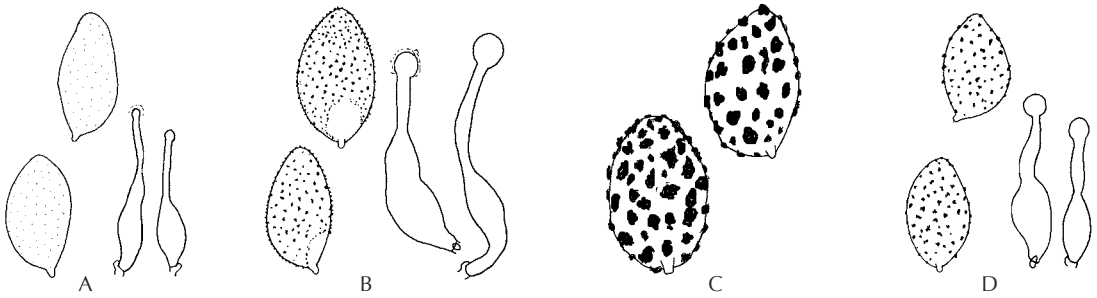
- Clamps present; sp narrowly amygdaloid, dextrinoid; veil substantial; on various debris 5
5. Cystidia 17-29(-48) x 3.5-10 x 1-2 x 1-3 μm , with very thin necks and small heads, some without heads, often with refractive mucilage at apex (fig. 789A); sp practically smooth, with indistinct plage; stem with a distinct, white ring-zone or a narrow, membranous ring and fibrils and scattered patches below. Cap 5-16 mm, young conical to convex, expanding with a prominent umbo, with veil remnants at margin when young, striate at margin, brightly red brown to orange brown, yellowish at margin, strongly fading to whitish ochre or nearly white with centre remaining darker; gills adnexed-adnate or slightly emarginate with a tooth, cream to ochre or yellow brown; stem 12-30(-45) x 0.8-2 mm, pale at top, downwards red brown; smell and taste farinaceous. Sp (9-)10-11(-13.5) x 5-7(-8) μm , pale, ochre to yellow brown. Gregarious, generally on conifer remains like small twigs, buried stumps and roots, in moist, swampy habitats such as banks of creeks and bogs, also among *Sphagnum girgensohnii*; spring to autumn, rarely in late autumn; rare in temp.-bore., in FI north to EnL; FI (LC), NO (LC), SE (LC). – B&K 5:406, 421, FND 11:5.

G. ampullaceocystis P.D. Orton (*G. pseudocamerina* Singer, *G. jösserandii* Kühner nom. nud.)

- Cystidia 25-45(-58) x 4.5-10 x 1.5-3.5 x 2-6(-8.5) μm , mostly with thicker and longer necks and larger heads (fig. 789B); sp verruculose to rugulose with distinct plage; veil remnants on stem generally as white fibrils in lower third, occasionally with a ring-zone or belt when young. Cap 6-15 mm, when young obtusely conical to convex, soon expanded and remaining with a papilla or obtusely umbonate, when old slightly depressed, striate halfway to centre, brightly yellow brown to orange brown, centre and striae red brown, margin pale and occasionally with veil remnants when young; gills fairly distant, adnexed-adnate or slightly emarginate with a small tooth, yellow, ochre to rusty brown; stem 8-30 x 0.5-1.5 mm, cylindrical or clavate-bulbose with an up to 2 mm broad base, often bent or flexuous, evenly yellow brown or paler at top and more red brown from base upwards; smell and taste farinaceous. Sp (8.5-)10-12.5(-13.5) x 5-6(-8) μm , pale tawny. Gregarious, in moist deciduous forests, among dead grass, on various plant debris, e.g. *Erica*, *Carex*, *Juncus* and *Molinia*, and rotting wood, on acid humus rich and clayey soil, also among *Sphagnum*; late spring to autumn; very rare in temp.-hemib.; DK (DD, Sj: Sorø), NO (LC, Vestf: Nøtterøy), SE (NE, Sk). – B&K 5:413, FND 33:42.

G. cinctula P.D. Orton


6. Clamps present; smell and taste farinaceous or not 7
 - Clamps absent or sporadic; smell and taste not farinaceous 10
7. Sp practically smooth see *G. cephalotricha* key B 23
 - Sp distinctly ornamented 8
8. In fairly dry sites among mosses, grass and herbs, calciphilous; smell and taste farinaceous; sp 10-14(-15) x 6-9.5 μm , without iodine reactions. Cap 5-25 mm, hemispherical to bell-shaped or convex-umbonate, somewhat fleshy, with incurved margin when young, faintly



Spores and cheilocystidia: A: *Galerina ampullaceocystis*, B: *G. cinctula*, C: *G. pseudocerina*, D: *G. tibiicystis*.

striate, mat to lubricous, fulvous, apricot to red brown; gills adnate to emarginate, \pm horizontal, medium spaced to distant, pale ochre, yellow brown to red brown; stem 15–40 \times 1–2.5 mm, white to pale beige at top, downwards with shades of cap colour, silky fibrillose from evanescent veil, at base white tomentose. Sp broadly ellipsoid, ovoid or amygdaloid, ornamentation coarse, of irregular ridges and rifts, appearing \pm cracked, with indistinct plage (fig. 789C); cheilocystidia 20–45(–65) \times 3–12 \times 1–3.5 \times 2.5–7 μm ; caulocystidia over entire stem length; pileocystidia absent. In small groups; summer to autumn, occasional in bore.-arc. / alp.; FI (NT), FO, IS, NO (LC, incl. Sv), SE (LC). – AAF 2:53, B&K 5:422, NJB 19:691.

G. pseudocerina A.H. Sm. & Singer

- Sphagnicolous; smell and taste not farinaceous; sp (4–)5.5–6.5(–7) μm broad, dextrinoid 9
- 9. Sp amygdaloid, on av $> 6 \mu\text{m}$ wide, in dorsal profile convex, with \pm angular apex, without callus (fig. 789D); stem top of young frb greyish and darker than the gills; stem not fibrillose. Cap 5–33 mm, conical, bell-shaped to convex-umbonate, finally convex to plane, fatty-shiny, ochre, orange brown, red brown or brown; gills ascending to horizontal, adnexed-adnate, pale greyish ochre when young, becoming ochraceous to cinnamon brown; stem 40–100 \times 2–3 mm, minutely pruinose (lens!), pale ochre alutaceous, honey-coloured to evenly brownish, \pm translucent towards base, mostly paler downwards; veil absent. Sp (8–)8.5–11(–13.5) \times (4–)5.5–6.5(–7) μm , verruculose, yellow brown to golden tawny, with indistinct plage; cheilocystidia 27–55(–67) \times 6–9.5(–14) \times 2–4 \times 3–6(–8) μm ; caulocystidia capitate, present over entire stem length; pileocystidia occasional. Gregarious or in small groups in bogs and fens, also in dryer habitats, e.g. with *Sphagnum girgensohnii*; autumn, with peak in Sept.; common in FI, elsewhere occasional in temp.-suba., continental; DK (LC), FI (LC), NO (LC), SE (LC). – B&K 5:429, BMDS 177:23, FND 33:27, M&J 2, Ves 378, .

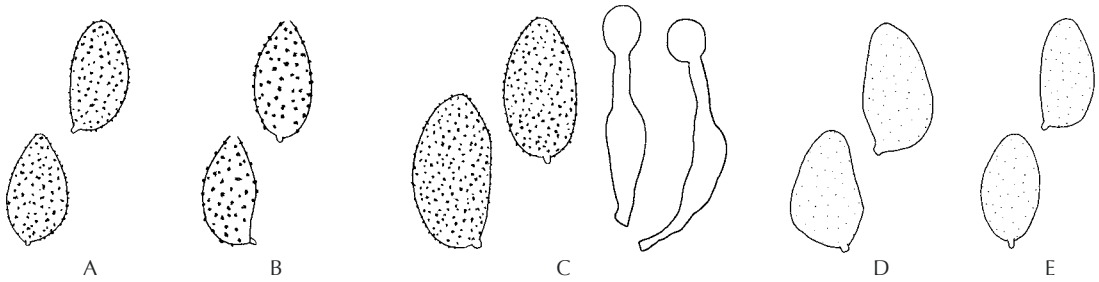
G. tibiicystis (G.F. Atk.) Kühner (*G. mairei* Boutev. & P.A. Moreau)

- Sp narrowly amygdaloid, on av $\leq 6 \mu\text{m}$ wide, in dorsal profile straight to only slightly convex, with acute, triangular apex, mostly outdrawn to a callus (fig. 791A); stem top of young frb translucent and paler than the gills, \pm fibrillose from mycelium at base (not veil). Cap 5–18 mm, when young conical to bell-shaped, expanding to almost plane with a distinct, and often subtransparent umbo, fatty-shiny, red brown when young, then yellow brown to ochre; gills ascending, adnexed-adnate, whitish to pinkish buff when young, becoming yellow brown to red brown; stem 40–100 \times 1.5–3 mm, minutely pruinose (lens!), initially translucent, soon becoming honey-coloured, ochre to beige in exposed parts; veil absent. Sp (7.5–)8.5–11(–11.5) \times 5–6(–6.5) μm , verruculose, with indistinct plage, golden brown to tawny; cheilocystidia 23–55 \times 2.5–10(–12.5) \times 2–3 \times 3–7(–9) μm , with long, thin, \pm attenuated necks that are \pm confluent with the ventral part, occasionally without heads and then \pm fusiform; caulocystidia present over entire stem length, often without heads and appearing \pm vermiform;

pileocystidia occasional. Gregarious or in small groups in bogs and oligotrophic mires, in dry parts, but also on floating mats of *Sphagnum*; summer to autumn with peak in July; occasional in temp.-bore., somewhat oceanic; DK (LC), FI, FO, NO, SE. – BMDS 177:17, FND 23:38 (as *tibiicystis*), R&H 526 (as *tibiicystis*).

G. hybrida Kühner

10. Clamps present at some septa and at base of basidia; sp with an apical germ pore (fig. 791B), faintly dextrinoid. Cap 3-10 mm, broadly conical, then plane to umbonate with reflexed margin, shiny, striate, yellow to fulvous; gills adnexed-adnate, medium spaced to distant, pale yellow to warm ochre; stem 12-30 x 1-1.5 mm, white to pale yellow, distinctly pruinose over entire length and somewhat fibrillose. Sp (7-)9-11 x 4.5-6(-6.5) μm , amygdaloid and \pm angular, with acute apex, fairly thick-walled, verruculose, without plage; cheilocystidia 19-35 x 4-10 x 1.5-2.5 x 2.5-5 μm ; caulocystidia present over entire stem length; pileocystidia \pm scattered. Solitary or in small groups in bogs, peat and moist snow-beds, mostly on *Sphagnum*; summer to autumn; rare in bore.-arc./alp.; FI (LC), FO, IS, NO (LC), SE (LC). – AAF 1:39.
G. stordalii A.H. Sm.
- Clamps absent from all septa; sp without germ pore, without iodine reactions 11
11. Sp distinctly verruculose, rather thick-walled (fig. 791C), not collapsing in mounts of KOH. Cap 5-30 mm, obtusely conical, bell-shaped to convex-umbonate, fatty-shiny, bright yellow to fulvous; gills ascending, adnexed-adnate, pale yellow, then ochre to yellow brown; stem 30-95 x 1.2-2 mm, at base up to 3 mm broad and \pm clavate, whitish to pale yellowish beige or honey-coloured, white silky fibrillose. Sp (9-)11-15(-18.5) x (5-)6-8.5(-9.5) μm , ellipsoid to subamygdaloid, without plage, tawny; cheilocystidia 25-60(-88) x 5-15 x 2-4(-5) x (2-)4-8(-12) μm ; caulocystidia scattered over entire stem length; pileocystidia rare to numerous. Gregarious or in groups in moss, also *Sphagnum*, and among grass, often in wet or moist moss mats at ponds, also in meadows and pastures, grassland and lawns; summer to autumn, very common temp.-arc./alp., but only occasional and locally common in FI; DK (LC), FI (LC), FO, IS, NO (LC, incl. Svb), SE (LC). – AAF 2:51, B&K 5:414, C&D 1218, FND 23:31, Ger 01:382.
G. clavata (Velen.) Kühner (*G. heterocystis* (G.F. Atk.) A.H. Sm. & Singer)
- Sp practically smooth to finely punctate-verruculose, thin-walled, collapsed or not in mounts of KOH 12
12. Sp ≥ 10 μm long, thin-walled (fig. 791D), mostly collapsed in mounts of KOH. Cap 5-17(-26) mm, conical, bell-shaped to convex-umbonate, fatty-shiny, fulvous to ochre; gills ascending, adnexed-adnate, medium spaced to distant, yellow, then warm ochre to cinnamon; stem 15-70 x 1-3 mm, \pm clavate at base, white silky fibrillose. Sp (9.5-)10-12.5(-13) x 5.5-7.5(-9) μm , ovoid-amygdaloid, broadest in the basal part and \pm attenuated towards apex, practically smooth, without plage, golden yellow to yellow amber; cheilocystidia 25-35(-70) x 5.5-12.5 x 2-3(-5) x 2.5-6.5(-10.5) μm ; caulocystidia scattered over entire stem length; pileocystidia rare to occasional. Gregarious in mats of various mosses such as *Calliargon*, *Drepanocladus*, *Philonotis* and *Tomenthypnum*, in moist sites; summer to autumn; common in Svb, elsewhere occasional in arc./alp.; NO (incl. Svb). – AAF 2:49, BMDS 169:18.
G. arctica (Singer) Nezdójm.
- Sp ≤ 10 μm long, thin-walled, but not collapsing 13
13. Sp amygdaloid with narrowing apex and often somewhat angular, on av ≤ 5 μm wide (fig. 791E); cap hemispherical when young, soon expanded and \pm umbonate; among grass in lawns, etc. Cap 5-15(-22) mm, at margin and centre \pm white pruinose, yellow ochre to yellow brown; gills adnexed-adnate or slightly emarginate with a tooth, medium spaced to distant, ochre; stem 18-40 x 1-2(-4) mm, cylindrical or base slightly widened, greyish yellow to honey-coloured, white silky fibrillose, when young with \pm woolly veil remnants. Sp 7-9.5 (-10) x 4-5(-5.5) μm , minutely, but distinctly punctate-verruculose, without plage, pale yellow brown; cheilocystidia 27-43 x 5-7 x 1.5-3 x 2-5 μm ; caulocystidia scattered over entire



Spores and cheilocystidia: A: *Galerina hybrida*, B: *G. stordalii*, C: *G. clavata*, D: *G. arctica*, E: *G. graminea*.

stem length; pileocystidia present. In groups among short mosses and grass, in lawns, pastures, sandy dune grasslands, at roadsides, calciphilous; summer to autumn; very common in temp., common in hemib., rare in bore.; DK (LC), FI (LC), NO (LC), SE (LC). – B&K 5:416, FAD 131B, FND 23:31, R&H 526, ☉.

G. graminea (Velen.) Kühner (*G. laevis* (Pers.) Singer, nom. illeg.)

- Sp ellipsoid-ovoid, not angular, on av $\geq 5.5 \mu\text{m}$ wide (fig. 793A); cap conical when young, expanding with an acute, prominent umbo, among moss in moist forests. Cap 5-14 mm, striate, orange brown, yellow brown to red brown; gills adnate, medium spaced to distant, stem 10-50 \times 1.5-3 mm, cylindrical, yellowish buff to pale brown, pruinose, with fibrillose veil remnants. Sp 8-10 \times 4.5-6.5(-7) μm , practically smooth, without plage, yellow brown; cheilocystidia 28-50 \times 3.5-9 \times 2-2.5 \times 2.5-6 μm , mostly slender with fairly small heads; caulocystidia over entire stem length; pileocystidia present. On litter and on moss-covered logs and stones, in deciduous woods with *Alnus*, *Betula* or *Fagus*; autumn; very rare in temp.-southern bore.; NO (LC, NTr: Steinkjer), SE (Hl: Laholm).

G. similis Kühner

Key B: Cystidia not tibiiform; pleurocystidia absent

1. Caulocystidia present over entire stem length, rendering the stem \pm pruinose. Frb small, similar to *G. vittiformis*; cap 3-9 mm, conical to convex, pale orange brown, striate to centre; gills adnate, medium spaced to distant, slightly paler than cap; stem 14-35 \times 0.5-1.5 mm, initially evenly brownish orange, finally dark red brown at base, with ring-zone from appressed, fibrillose, white veil remnants; smell and taste farinaceous. Sp 9.5-11(-12.5) \times (5.5-6.5-7.5) μm , ovoid-amygdaloid, verruculose-rugulose, with plage; basidia 2-spored; cheilocystidia 38-47 \times 8-13 \times 4.5-6 μm , lageniform to lageniform-fusiform, numerous; caulocystidia similar. NL. – FND 33:23.

G. caulocystidiata Arnolds

- Caulocystidia only at top of stem, not lageniform-fusiform; stem not pruinose 2
- 2. Sp \pm calyptrate 3
- Sp not calyptrate 9
- 3. In old burnt sites, on burnt peat or soil; sp rugulose-verruculose (fig. 793B). Cap 5-20(-29) mm, bell-shaped to convex-umbonate, when fully expanded depressed around an umbo, when young with incurved margin and with veil remnants at margin, fatty-shiny, faintly striate up to 1/3 of radius, rusty brown to dark ochre brown; gills adnate, coloured \pm like the cap, paler when young; stem 15-35(-80) \times 1-3 mm, pale brown, downwards darker, grey brown with age; veil remnants as minute fibrils, occasionally as a weak ring-zone; smell and taste indistinct. Sp 9-10(-11.5) \times 5-5.5(-6) μm , narrowly amygdaloid-ellipsoid, with perispore leaving an apically outdrawn, smooth part and \pm distinct 'ears', with distinct plage, yellow

brown; cheilocystidia (22-)30-40(-50) × (8-)10-13(-15) × 3-5(-8) μm, lageniform to lageniform-fusiform. Subfasciculate and gregarious among low mosses and other carbonicolous fungi; autumn; rare in hemib.; SE (LC, Vg; Trollhättan, Srm: Österhaninge). – Jordst 17(2), Phil 228d, Sterb 12:17.

G. carbonicola A.H. Sm. (*G. phillipsii* D.A. Reid)

- Not in burnt sites; sp practically smooth to minutely verruculose-punctate 4
- 4. Stem (20-)50-100 × 1-3(-4) mm; cap 6-20(-30) mm 5
- Stem 5-50 × 0.5-1(-2) mm; cap 0.5-15 mm 6

5. Lignicolous on woody debris or needles; veil rather copious; sp somewhat angular with a long, conical apex in front view (fig. 793C). Cap 10-12(-30) mm, expanded with a distinct umbo, dark red brown, striate at margin; gills adnate or with small tooth, yellow brown; stem 20-40(-70) × 1-3(-4) mm, ± widened at base, beige to brown, darkening greyish from base, with weak ring-zone and ± patches and fibrils from veil; smell and taste farinaceous. Sp 10.5-12 × 6.5-7.5 μm, amygdaloid-angular, with a distinct plage, with 'ears' at base and in apical part, tawny to dark rusty brown; cheilocystidia 33-65 × 5-10 × 3-5 × 4-7 μm, subcylindrical to lageniform with blunt to subcapitate apices. Recorded on *Picea*; autumn; very rare in hemib.; NO (Akh: Oslo).

G. subarctica A.H. Sm. & Singer

- Sphagnicolous; veil evanescent, only leaving minute fibrils on stem; sp not angular (fig. 793D). Cap bluntly conical to bell-shaped, expanding to bluntly umbonate, striate almost to centre, shiny, young red brown, becoming yellow brown to ochre brown with a darker and more fulvous umbo; gills emarginate-adnate to slightly decurrent with tooth, yellowish brown; stem 35-100 × 1-3(-4) mm, cylindrical, somewhat undulating, pale yellowish brown with a paler base; smell and taste indistinct. Sp 9-11(-12) × 6-7.5 μm, ellipsoid to broadly ovoid, with a small pore or callus, smooth, with basal 'ears' or with perispore ± loosening around entire basal part, with distinct plage, tawny; cheilocystidia 30-60 × 6-11 μm, variable, mostly lageniform with flexuous necks and acute to subcapitate, rarely capitate apices. In bogs; autumn; rare in hemib.; FI (EH: Siikaneva), NO (LC), SE (LC, Sm: Femsjö). – M&J 1.

G. sphagnicola (G.F. Atk.) A.H. Sm. & Singer

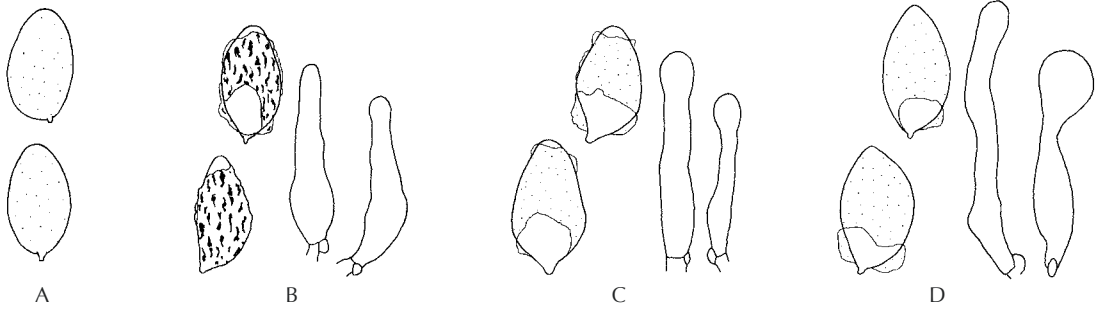
Note: the likewise sphagnicolous *G. farinacea* A.H. Sm. has no veil, a farinaceous smell and taste, and smaller spores, 8-10(-12) × 5-6 μm, and may be distinct, but many species has been described in this complex and observations on smell and taste are generally missing or arbitrary.

6. Sp up to 10-10.5 μm long, weakly to distinctly calyptrate with mostly small blisters, often only near apex and in few sp (fig. 795A). Cap 5-15 mm, broadly conical-paraboloid, expanding to bell-shaped and convex-umbonate, rusty ochraceous brown, fading to yellow brown, striate almost to centre, fatty-shiny; gills adnate to slightly decurrent with a tooth, ochraceous brown to rusty brown; stem 15-35 × 1-1.5(-2) mm, with bulbillose base, with evanescent veil fibrils, pale yellowish at apex, downwards rusty brown; smell and taste farinaceous. Sp (7.5-)8-10(-10.5) × (4.5-)5-5.5(-6) μm, finely verruculose to marbled, tawny; cheilocystidia 30-45 × 6-12 × 5-8 μm, ± lageniform. On various mosses, on the ground in forests and often on moss-covered stumps and logs; common in temp.-suba.; DK (LC), FI (LC), NO (LC), SE (LC). – FND 23:4, M&J 11, Ves 378.

G. hypnorum (Schrank : Fr.) Kühner s. Horak 2005 and de Haan & Walleyn 2006

Note: the likewise small-spored *G. fallax* A.H. Sm. & Singer, occasionally with blisters, and *G. fennica* A.H. Sm (described on a single, dry collection, particular by a cap-like thickening over the spore apex) have similar cystidia and are recorded from NO and FI respectively by Smith & Singer (1964), both growing on *Sphagnum*.

- Sp > 10.5 μm long, distinctly calyptrate 7
- 7. Cap at first narrow and acutely to bluntly conical, expanded with a prominent papilla; stem up to 20 mm long, dark red brown from base; veil relatively well developed. Cap 3-9 mm, striate up to 2/3 of radius, fatty-shiny, ochre brown to yellow brown, with ± veil remnants



Spores and cheilocystidia: A: *Galerina similis*, B: *G. carbonicola*, C: *G. subarctica*, D: *G. sphagnicola*.

at margin; gills rounded to adnate, initially pale yellow, then ochre to yellow brown; stem 5-20 x 0.5-1 mm, cylindrical, often bent, pale yellow brown at top, with veil remnants; smell and taste indistinct. Sp 10.5-13 x 5.5-7 μm , often with blisters at both ends, practically smooth, tawny; cheilocystidia 35-50 x 5-10 x 3-8 μm , lageniform with blunt to somewhat inflated apex. On and among small mosses, on peat, soil and rotting, moss-covered coniferous wood; autumn; occasional in temp.-bore.; NO (LC), SE (LC). – B&K 5:423, M&J 3.

G. calyptrospora Kühner (*G. sahleri* (Quél.) Kühner s. Favre 1948)

- Cap at first bluntly conical-paraboloid, expanding to broadly bell-shaped; stem up to 45 mm long, pale yellow brown to ochraceous brown; veil evanescent 8
- 8. Young cap fulvous to orange brown; taste farinaceous. Cap 3-15 mm, striate up to 2/3 of the radius, fatty-shiny, becoming ochre yellow to yellow brown at centre; gills adnate, ochre yellow to rusty brown; stem 15-45 x 0.5-1.5 mm, often with bulbillose base, pale and becoming \pm yellow ochre or concolorous with the cap, with faint veil remnants. Sp 10-12.5 x 6-6.5 μm , distinctly calyprate, practically smooth (fig. 795B), orange brown to tawny; cheilocystidia 25-45(-70) x 7-10 x 3-8(-10) μm , lageniform with a blunt to inflated apex. On various mosses, e.g. *Dicranum* and *Sphagnum*, gregarious in acid forests, bogs and ericaceous heathland; autumn; common in FI, elsewhere occasional in temp.-arc./alp.; DK (LC), FI (LC), FO, NO (LC, incl. Sv), SE (LC). – B&K 5:411, FND 23:8, IM 79.


G. calypratata P. D. Orton (*G. cerina* A.H. Sm. & Singer var. *calypratata* (P.D. Orton) Arnolds)

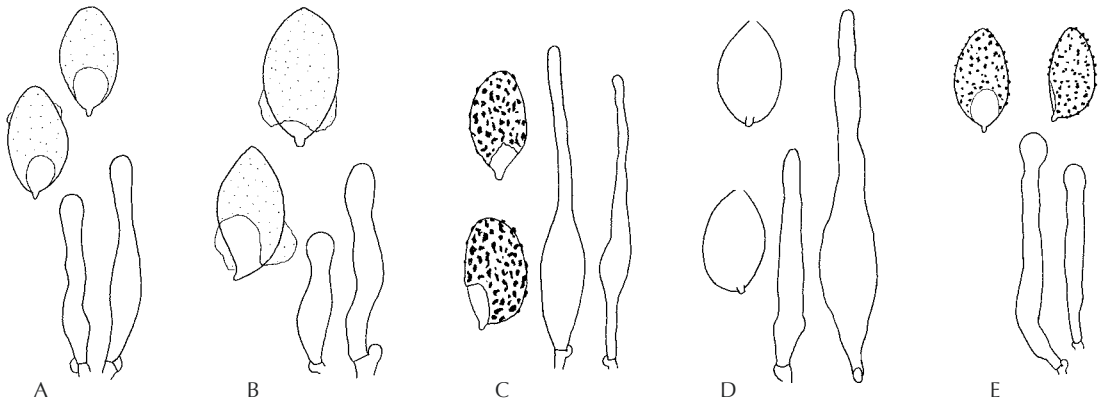
- Young cap yellow brown to tawny; taste not farinaceous. Cap 5-15 mm, fatty-shiny, striate up to 2/3 of the radius, red brown to yellow brown at centre, more ochraceous yellow towards margin; gills adnate, pale ochre to rusty brown; stem 20-45 x 1-2(-3) mm, cylindrical, pale or \pm concolorous with cap, with faint veil remnants. Sp 8.5-12.5 x 5.5-6.5(-7.5) μm , with 'ears' around the apiculus, practically smooth, tawny; cystidia 30-40(-50) x 6-12 x 3-5 x 5-10 μm , variable, in general with \pm inflated ventral part and broad necks with a blunt to clavate-subcapitate apex. Gregarious on mosses like *Polytrichum* and *Dicranum*, also on *Sphagnum* and peat, in bogs, acid forests and ericaceous heathland; late spring to autumn; probably common in temp.-suba.; FI, FO, NO, SE. – FND 23:6.

G. cerina A.H. Sm. & Singer

Note: *G. cerina* has been described with many varieties reflecting considerable variation in shape and size of cystidia and the veil colour, white or yellow. The sphagnicolous *G. leptocystis* V.L. Wells & Kempton, particular by filamentous to narrowly lageniform cheilocystidia with blunt apices, 34-53 x 3.5-6.5 μm , may be just a variety of *G. cerina* or a small variety of *G. sphagnicola* – NO.

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

10. Bryophilous; veil evanescent; sp tawny, practically smooth with distinct plage and occasional tiny blisters see *G. hypnorum* 6
 - Lignicolous or terricolous, in pastures and sand dunes among grass, mosses and herbs; veil substantial; sp without blisters, smooth or ornamented 11
11. Terricolous, among grass and herbs. Cap 5-22(-30) mm, broadly conical or hemispherical, expanding to almost plane, becoming depressed when old, with margin incurved for a long time, not or faintly striate, shiny, slightly viscid when moist, dark yellow brown to dull rusty brown; gills adnexed to adnate or decurrent with a small tooth, pale yellow brown to rusty brown; stem 12-40 x 0.8-3(-5) mm, cylindrical or slightly thickened downwards, often curved, ochraceous brown at top, downwards soon dark reddish brown to bistre, with a pale fibrillose, almost membranous ring or a distinct ring-zone and \pm distinct fibrils and girdles below; smell and taste farinaceous. Sp 7.5-9.5(-10.5) x 4.5-5.5(-6.5) μm , amygdaloid-ellipsoid, rarely outdrawn at apex, coarsely ornamented with warts and crusts, with distinct plage, perispore tightly fitting, only occasionally loosening slightly around apiculus (fig. 795C), tawny; cheilocystidia 33-60(-112) x 6-12.5 x (1-)3(-4) x 4.5-5 μm , narrowly lageniform to lageniform-fusiform with slender necks, rarely subcapitate or rostrate at apex; pileipellis with gelatinized hyphae. Gregarious, in small groups or subfasciculate, among grass and mosses, in natural pastures and sand dunes, calciphilous; summer to autumn; very rare in hemib.; NO (Busk: N. Eiker). – B&K 5:430, C&D 1226, FND 33:20.
G. uncialis (Britzelm.) Kühner
 - Lignicolous or on woody debris, needles, etc. 12
12. Sp almost hyaline, smooth (fig. 795D); frb pale, ochre yellow. Cap 5-10 mm, convex, slightly viscid; gills adnate to decurrent with tooth, yellow; stem 20-45 x 0.5-3 mm, cylindrical or thickened at base, white at top, downwards yellow brown, covered by a fibrillose veil; smell farinaceous. Sp 8-10 x 4.5-5.5 μm , amygdaloid with \pm protracted apex and pore; cheilocystidia 40-53(-60) x 7-11 x 5-6 x 2.5-6 μm , lageniform-fusiform to lageniform. On fallen twigs of *Fagus* and *Picea*; late autumn; very rare in temp.-southern bore.; only with a single record from SE (Hl: Halmstad).
G. pallida (Pilát) E. Horak & M.M. Moser (*Velomyцена* p. Pilát)
 - Sp normally dark for the genus, verruculose (fig. 795E); frb much darker. Cap 3-13 mm, acutely conical, then convex with prominent, acute umbo, striate to umbo, mat, pale cinnamon to chestnut brown; gills adnexed to adnate, rarely with a small tooth, ochre to cinnamon brown, slightly paler than cap; stem 10-40 x 8-1.5(-2.5) mm, cylindrical or somewhat widened at base, yellow brown, soon dark red brown and darker than cap, in lower part \pm fibrillose from veil, occasionally also with a ring-zone; smell and taste indistinct to somewhat farinaceous. Sp 6-9 x 3.5-5(-5.5) μm , amygdaloid-ovoid, with a distinct plage, yellow brown to tawny; cheilocystidia (16-)20-52(-60) x (3-)4-10.5 x 2-5 x 2-6(-8) μm , subcylindrical, lageniform-fusiform, lageniform to lageniform-subcapitate; pileocystidia sometimes present. Gregarious or in small groups on rotting wood of conifers, esp. *Picea* in damp woodland, more rarely on wood of deciduous trees; from spring (rare) to late autumn; common in hemib.-bore. in FI, elsewhere occasional in temp.-bore.; DK (LC), FI (LC), NO (LC), SE (LC). – FAD 123b, Ger 01:380, M&J 4, R&H 528, .
G. triscopa (Fr.) Kühner
13. Basidia 2-spored 14
 - Basidia 4-spored 15
14. Bryophilous; cap yellow brown, ochre at margin; stem with a small ring. Cap 4-18 mm, bell-shaped to convex, \pm umbonate, striate up to 2/3 of the radius; gills ascending-adnate, becoming horizontal, distant, medium spaced to distant, pale brownish, later ochre tawny; stem 20-100 x 1-2.5 mm, pale honey-coloured, darkening to rusty brown from base; smell and taste indistinct. Sp 10-14(-19) x 5-7(-7.5) μm , narrowly amygdaloid, thin-walled at apex,



Spores and cheilocystidia: A: *Galerina hypnorum*, B: *G. calyptrata*, C: *G. uncialis*, D: *G. pallida*, E: *G. triscopa*.

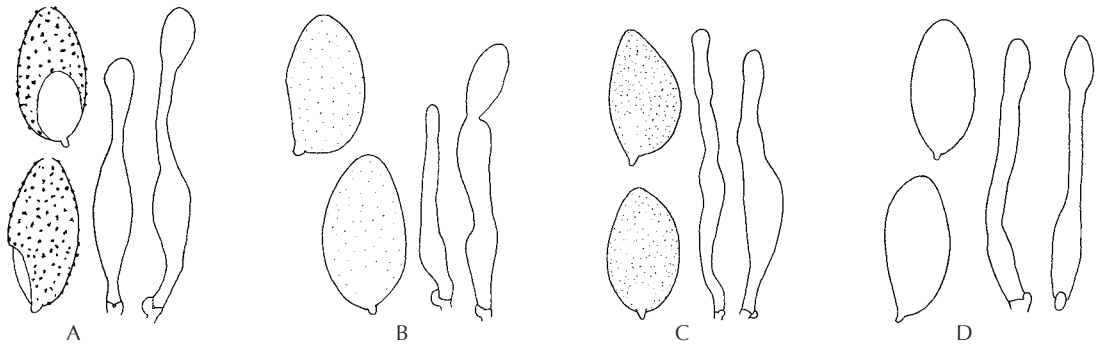
apparently with a pore, finely verruculose, with distinct plage (fig. 796A), tawny; cheilocystidia 35-80 x 6-10(-15) x 3-6 x 3-11 μm , lageniform-capitate. Scattered to gregarious on moss, not *Sphagnum*, in wet sites such as banks of streams and ponds, along margins of bogs; summer to autumn; occasional in hemib.-bore in FI, elsewhere rare in temp.-arc./alp.; DK (DD), FI (LC), IS, NO (LC), SE (LC). – FND 33:29, Ves 378.

G. jaapii A.H. Sm. & Singer (*G. mycenoides* (Fr.) Kühner)

- Terricolous, on naked peat and soil and among wet moss and grass; cap hazel brown to red brown, yellow brown at margin; without a ring. Cap 1-3 mm, broadly conical, expanding to convex and finally depressed, slightly umbonate, striate up to 2/3 of the radius, fatty to viscid, shiny, red brown to hazel brown, yellow brown at margin; gills emarginate to adnate, medium spaced to distant, pale yellow, warm ochre becoming brown, \pm like the cap; stem 20-40 x 1-3 mm, when young with yellow-brown top, becoming evenly ochre brown to red brown from base, somewhat silky fibrillose from veil; smell and taste indistinct. Sp 12-14.5 x 6.5-8(-9) μm , ellipsoid-amygdaloid, marbled, with an indistinct plage (fig. 796B), rather pale yellow brown; cheilocystidia 35-50 x 6-11 x 3-4.5 x 2.5-12.5 μm , lageniform or lageniform-capitate, head often wider than ventral part. Gregarious among wet moss in grass snowbeds, also on naked peat and soil; autumn; rare in suba.-arc./alp.; FI, FO, IS (Na), NO (LC), SE (LC).

G. lubrica A.H. Sm. (*G. pseudotundrae* Kühner, *Naucoria macrospora* J.E. Lange var. *borealis* F.H. Møller)

15. Cystidia variable, often long, not or only narrowly lageniform, some \pm flexuous-cylindrical, some distinctly inflated at apex, then clavate or capitate with tips as wide or wider than basal part 16
 - Cystidia distinctly lageniform to lageniform-capitate 19
16. Cystidia cylindrical-flexuous, irregular, tapering or apically somewhat inflated, often repeatedly 17
 - Many cystidia with considerably inflated, ovoid to globose heads 18
17. Sp verruculose, with a plage (fig. 796C); veil substantial; strictly alpine, in late melting snowbeds with *Polytrichum sexangulare* and *Salix herbacea*. Cap 3-17 mm, broadly conical to hemispherical, expanding to convex-plane, slightly umbonate, with incurved margin when young, mat, striate up to 1/2 of the radius, cinnamon brown to rusty brown; gills adnate, ascending to horizontal, thickish, ochraceous brown to rusty brown; stem 10-22 x 1-2 mm, cylindrical, often bent, yellowish ochre, darkening to dark brown from the base, with a



Spores and cheilocystidia: A: *Galerina jaapii*, B: *G. lubrica*, C: *G. chionophila*, D: *G. pumila*.

cream to beige ring or ring-zone, below with fibrils, veil remnants sometimes present also on cap margin; smell and taste indistinct. Sp 10-12.5(-13.5) × (6-)6.5-8 μm, broadly ellipsoid, amygdaloid to citriform, with callus, tawny; cheilocystidia (30-)42-85(-100) × 5-8(-16) × 2-7 μm, cylindrical or narrowly lageniform, often flexuous and constricted, with blunt apex, rarely more acute or rostrate. In groups; autumn; very rare in arc./alp.; one record from NO (LC, Hord: Ulvik). – FND 2:3.

G. chionophila Senn-Irlet

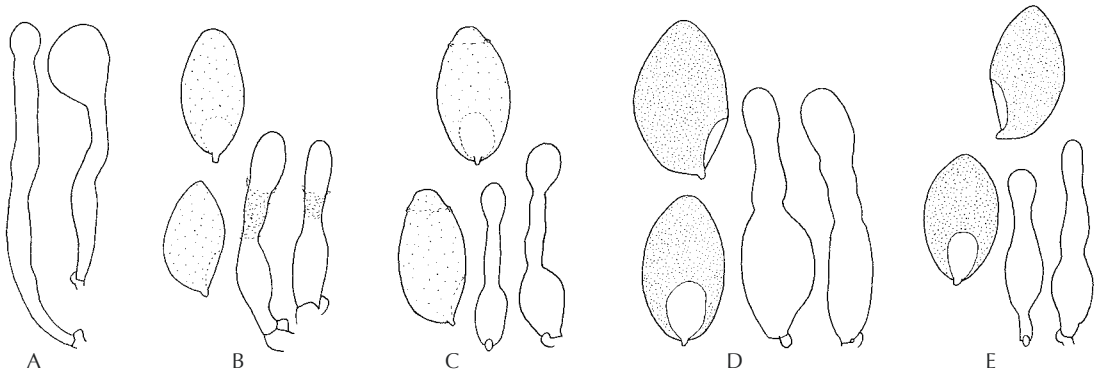
- Sp smooth, without plage (fig. 796D); veil fairly evanescent; in lowland and alpine habitats, on bryophytes such as *Hylocomium*, *Dicranum*, *Ptilidium*, *Polytrichum* and *Racomitrium*. Cap 8-20(-35) mm, hemispherical, conical to bell-shaped, expanding to convex and ± umbonate, striate almost to centre, fatty to viscid and shiny, bright yellow, fulvous to warm yellow brown, at margin often more yellow and centre more rusty brown, white veil remnants often present at margin; gills adnexed-adnate, medium spaced to distant, pale yellow, then rusty yellow brown; stem 20-85 × 1-3 mm, cylindrical or slightly thicker downwards, hollow and often flexuous and brittle, shiny, pale yellow brown, fibrillose from veil remnants; smell and taste indistinct. Sp (8.5-)10-13.5(-15) × (4.5-)5-7(-8) μm, ellipsoid, in frontal view with rounded apex, more amygdaloid in profile, pale fulvous, pale ochre to beige; cheilocystidia 22-60 × 5-11 × (2-)3-5(-7) × (2-)3-8(-10) μm, subcylindrical-sublageniform, with blunt or slightly inflated or beak-like tips with blunt, slightly inflated or rostrate apex, often repeatedly constricted near apex. Bryophilous, often among lichens, in acid forests, ericaceous heathland and mossy, poor grassland; autumn; common in bore.-arc./alp., occasional in temp.-hemib., rare in IS; DK (LC), FI (LC), IS, NO (LC, incl. SvB), SE (LC). – FND 23:12, Ger 01:380, IM 83, ☉.

G. pumila (Pers. : Fr.) M. Lange var. *pumila* (*G. mycenopsis* (Fr. : Fr.) Kühner, *G. vexans* A.H. Sm. & Singer, *G. viscidula* P.D. Orton, *G. nybergii* A.H. Sm.)

18. Sphagnicolous, in bogs; cap yellow to ochre; stem yellowish. Cap 5-11(-16) mm, conical-umbonate, expanding to convex-umbonate, fatty-shiny, striate to the umbo; gills broadly adnate and mostly with a small tooth, ± horizontal, medium spaced to distant, initially white, becoming ochraceous yellow brown; stem 20-40(-70) × 1-1.5(-3) mm, cylindrical or slightly clavate at base, with evanescent veil fibrils; smell and taste farinaceous. Sp 9.5-11(-12) × 5-6(-6.5) μm, amygdaloid, practically smooth, with indistinct plage, yellow brown; cheilocystidia 30-68(-80) × 5-8(-11.5) × 5-7 × 5-12.5 μm, without or with a narrow ventral inflation and many with distinctly inflated, globose tips, some acute or blunt (fig. 797A). Autumn; occasional in hemib.-arc./alp.; FI, NO (LC). – M&J 2.

G. norvegica A. H. Sm. (*G. gibbosa* J. Favre nom. nud.)

- On soil and herbal debris; in swampy sites; cap rusty brown with ochre to yellow margin; stem yellowish at top, red brown to dark brown downwards. Cap 5-20 mm, conical



Spores and cheilocystidia: A: *Galerina norvegica*, B: *G. lacustris*, C: *G. allospora*, D: *G. harrisonii*, E: *G. paludosa*.


to bell-shaped, with papilla to bluntly umbonate, expanding to convex-plane or slightly depressed around the umbo, \pm fatty-shiny, striate up to $1/3$ of radius, initially with faintly incurved margin and often faint veil remnants; gills adnexed-adnate or with a decurrent tooth, \pm horizontal, medium spaced to distant, yellow to ochre brown; stem 15-30(-60) \times 1-2(-3) mm, cylindrical or subbulbous at base, often curved or flexuous, with faint fibrils and sometimes patches from veil; flesh brittle; smell indistinct, taste subfarinaceous. Sp (7-) 9-10(-12.5) \times (4-)5-5.5(-6) μm , ovoid-amygdaloid with conical to rounded apex, practically smooth, faintly marbled, with indistinct plage, without a callus (fig. 797B), pale yellow brown; cheilocystidia (29-)35-55(-70) \times (3-)6-7(-15) \times 2-6(-7) \times (2-)5-9(-22.5) μm , variable, some lageniform, some clavate and mostly with long, narrow base, some narrowly lageniform with inflated, ovoid, cylindrical or rarely rostrate tips, some also subcylindrical or subutriform, sometimes with a collar of incrustations under inflated tip. Gregarious, in moist sites with *Salix*, *Alnus* and *Populus*, in regularly inundated places and dried-up pools, on soil, peat, on and among dead parts of *Scirpus*, *Carex* and *Juncus*; late autumn; very rare in temp.-suba.; IS (Au), NO (AA: Froland), SE (Vg: Vänersnäs, HI: Lindberg). – FND 23:13, 33:32, Jordst 12(1), M&J 5.

G. lacustris A.H. Sm. (*G. tundrae* A.H. Sm. & Singer, *Naucoria permixta* P.D. Orton, *G. p.* (P.D. Orton) Pegler & T.W.K. Young, *G. cephalescens* (T.J. Wallace) Pegler & T.W.K. Young)

19. Sp apically with a faint, band-like thickening (fig. 797C); cheilocystidia with thin necks and mostly a distinctly set, small head. Cap 5-18 mm, bluntly conical to bell-shaped, expanding to convex or almost plane, \pm umbonate, fatty-shiny, striate up to $2/3$ of the radius, with red-brown centre, more yellow at margin, young margin with evanescent veil; gills emarginate-adnate or with a small tooth, honey-coloured, yellow to rusty ochraceous; stem 15-45 \times 1-2.5 mm, cylindrical or base slightly thicker, honey yellow to ochre, with evanescent veil fibrils; taste and smell indistinct. Sp (8-)9.5-12.5(-13.5) \times 5-6.5(-7) μm , ovoid to amygdaloid, at apex often tapering and rounded, practically smooth, with plage, yellow brown; cheilocystidia (25-)30-50(-70) \times 4-10.5(-13.5) \times 2-5 \times 2-7(-9.5) μm , lageniform-capitate, occasionally without heads or rostrate or with secondary heads. In small groups among moss on old *Picea* stumps and litter, also recorded on dead or lightly burnt *Sphagnum* in bogs and on *Sphagnum girgensohnii*, in swampy, acid *Picea* forests; autumn; occasional, but locally common in bore.-suba.; FI (LC), NO (LC), SE (LC). – FND 23:30, IM 81, M&J 4.

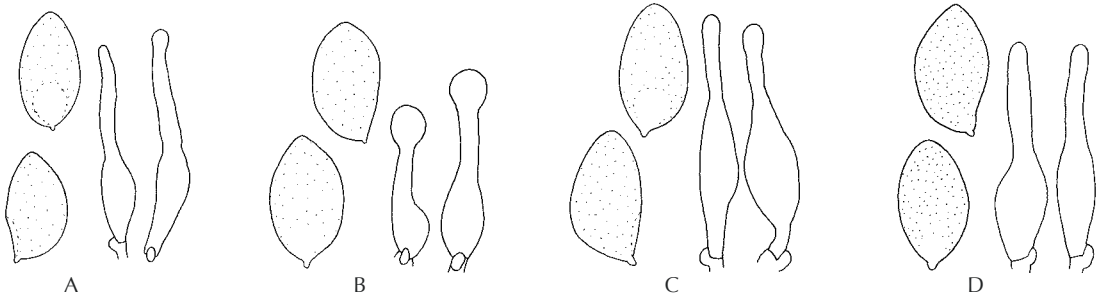
G. allospora A.H. Sm. & Singer (*G. luteofulva* P.D. Orton)

- Sp without apical thickenings; cystidia with generally broader necks, attenuated to blunt or when capitate with more gradually inflated at apex

20. Among *Anthelia juratzkana* and *Polytrichum sexangulare* in late melting alpine snow-beds. Cap 5-15(-25) mm, broadly conical to hemispherical, expanding to almost plane or slightly depressed, initially with incurved margin, mat, striate up to 2/3 of the radius, deep yellow brown to red brown, margin pale from veil remnants; gills emarginate-adnate, \pm horizontal, whitish, warm ochre to yellow brown; stem 5-20 x 1-2 mm, cylindrical, white pruinose at top, yellow brown, bistre from base upwards, with fibrils from veil, occasionally a fibrillose ring-zone; smell and taste indistinct. Sp 11.5-16 x (7.5-)8-9.5(-10.5) μm , ovoid to broadly amygdaloid-ellipsoid, thick-walled, practically smooth, marbled, with plage, callus absent (fig. 797D), tawny; cheilocystidia 45-75 x 7-14 x 3-6 x 2.5-12(-16) μm , lageniform with blunt to inflated apex. Gregarious; autumn; occasional in arc./alp.; FI (DD), FO, IS, NO (LC, incl. Svb), SE (LC). – AAF 1:43.
G. harrisonii (Dennis) Bas & Vellinga (*G. antheliae* Gulden)
- Bryophilous, in forests, bogs, fens and oligotrophic mires 21
21. Sphagnicolous 22
- Not sphagnicolous (but *G. cephalotricha* with almost tibiiform cystidia, occasionally on *Sphagnum*) 23
22. Veil well developed, forming a white ring-zone on the stem and \pm remnants on cap margin and lower part of stem; spring to autumn. Cap 10-28 mm, conical to bell-shaped, expanding to broadly convex, with an acute to rounded umbo, mat, finely felty-scurfy, becoming striate up to 2/3 of the radius, yellow brown to red brown, when young covered by white veil fibrils and appearing greyish brown, with a brim of white veil remnants at margin when young; gills adnate or with a small decurrent tooth, yellow brown to rusty brown; stem 30-120 x 1-4 mm, cylindrical, evenly honey-coloured to yellow brown, paler than cap; smell and taste faintly farinaceous. Sp (7.5-)9-12.5 x 5-7(-8) μm , broadly amygdaloid, often tapering at apex, with a tiny callus, marbled to weakly verruculose, with a distinct plage, with callus (fig. 797E), yellow brown to tawny; cheilocystidia 20-35(-52) x 5-12.5 x 5-8 μm , lageniform to lageniform-capitate. Gregarious or in small groups, on *Sphagnum* in bogs and oligotrophic mires, in dry parts, but also on floating mats, also in wet meadows and swampy forests; very common in temp.-suba., occasional in arc./alp.; DK (LC), FI (LC), FO, NO (LC), SE (LC). – B&K 5:419, C&D 1221, FND 23:14, Ger 01:378, Ves 379, .
- G. paludosa*** (Fr.) Kühner
- Veil evanescent; late autumn. Cap 15-30 mm, when young conical, expanding convex-umbonate, striate almost to the centre, ochre to yellow brown at margin, at centre more red brown, with fugacious veil at the margin when young; gills ascending-adnate, pale beige to yellow brown; stem 30-100 x 1-3 mm, cylindrical or thickened at base, pale beige to yellowish ochre, with scanty veil fibrils; smell and taste faintly farinaceous. Sp (8-)9-11.5(-12.5) x 5-6(-7) μm , amygdaloid to citriform, practically smooth, marbled, with a faint plage (fig. 799A), ochre to pale yellow brown; cheilocystidia (22-)30-40(-68) x 4-9(-13) x 3-4 x 3-7(-12.5) μm , lageniform to lageniform-capitate. Gregarious in bogs, oligotrophic mires and swampy, acid forests; common in hemib.-bore. in FI, elsewhere occasional in hemib.-suba., rare in temp. and arc./alp.; DK (DD), FI (LC), IS (Na), NO (LC), SE (LC). – B&K 5:425, M&J 7.

G. sphagnum (Pers. : Fr.) Kühner

23. Cystidia distinctly apically inflated (fig. 799B); sp with plage only visible in profile view; smell and taste farinaceous. Cap 5-15 mm, bluntly conical to bell-shaped, expanding to convex, honey-coloured to dull yellow brown, paler towards margin, striate almost to centre, when young with evanescent veil remnants at margin; gills ascending-adnate, pale beige to dull yellow brown; stem 28-60 x 0.5-1.5 mm, cylindrical, slightly clavate to bulbillose at base, evenly buff to hyaline grey brown, with evanescent veil fibrils. Sp (8-)8.5-11.5(-12.5) x 5-6.5 μm , amygdaloid, practically smooth, pale ochre to pale yellow brown; cheilocystidia 21-44 x (2.5-)6-8.5(-10) x 2-3 x 2.5-8(-10) μm , lageniform-capitate, sometimes nearly tibiiform. In small groups on bryophytes such as *Dicranum*, *Polytrichum*, *Ptilidium* and *Hypnum*, also



Spores and cheilocystidia: A: *Galerina sphagnum*, B: *G. cephalotricha*, C: *G. mniophila*, D: *G. pseudomniophila*.

on *Sphagnum* in forests, not in bogs and mires; autumn; common in bore.-suba, occasional in temp.; DK (DD), FI, FO, NO (LC). – FND 23:11.

G. cephalotricha Kühner (*G. mniophila* (Lasch : Fr.) Kühner var. *cephalotricha* (Kühner) De Haan & Walley)

- Cystidia with a blunt to slightly inflated apex; plage visible, but faint; smell and taste indistinct 24
24. Cap dull brown to olive brown, becoming remarkably pale on drying; gills cream when young, becoming beige and dull brown. Cap 5-15(-20) mm, paraboloid to bluntly conical-convex, with obtuse top, not or weakly umbonate, generally not much expanding, fatty-shiny, striate to 2/3 of the radius, margin with faint veil remnants when young; gills ascending-adnate; stem 17-50(-65) x 1-2(-3) mm, cylindrical or somewhat clavate at base, whitish, then pale honey-coloured to pale brownish, with scattered evanescent veil fibrils. Sp (8-)9.5-12.5 x 5-6.5(-7) μ m, amygdaloid, practically smooth, finely marbled, with a faint plage (fig. 799C), pale yellow brown; cheilocystidia (27-)33-50(-70) x 6-10(-12) x (2.5-)3-5 x 3-6(-7) μ m, lageniform with a blunt apex or apex slightly clavate to subcapitate. In groups on bryophytes such as *Dicranum*, *Hylocomium* and *Polytrichum*; summer to late autumn; common in temp.-suba., occasional in arc. / alp.; DK (LC), FI (LC), FO, IS, NO (LC, incl. Svb), SE (LC). – C&D 1222, FAD 131A, FND 23:9, NJB 19:702.

G. mniophila (Lasch : Fr.) Kühner

- Cap brownish ochre to cinnamon brown; gills young ochre, becoming ochraceous brown. Cap 5-15(-20) mm, conical, bell-shaped to convex, striate to 2/3 of the radius; gills ascending, adnexed to adnate; stem 30-50 x 1-2(-3.5) mm, cylindrical, \pm clavate at base, nearly hyaline, cream to pale yellow brown, slightly darker in lower part, with traces of veil fibrils. Sp 9.5-12(-14) x (5.5-)6-7(-7.5) μ m, amygdaloid, \pm protracted at apex, practically smooth, marbled, with almost inconspicuous plage (fig. 799D), yellowish; cheilocystidia 33-47 x 8.5-12 x 3.5-7 x 3.5-10 μ m, lageniform, with blunt, clavate or subcapitate apex. In groups on various mosses, in nutrient-poor alpine heathland, *Salix herbacea* snow-beds and in grassland; late summer to autumn; occasional in arc. / alp.; FO, NO (LC, incl. Svb). – FND 23:10 (as *mniophila* var. *pseudomniophila*)

G. pseudomniophila Kühner

Key C: Cystidia not tibiiform; pleurocystidia present

1. Caulocystidia present at stem top only; stem not pruinose, generally 2-5(-15 mm) thick; veil present, mostly substantial and leaving fibrils or patches on stem or forming a membranous ring or a ring-zone 2
- Caulocystidia present over entire stem length; stem \pm pruinose, in most species

0.5-2 mm thick; veil absent or evanescent, occasionally forming a tiny, fibrillose ring on stem

7

2. Cystidia as metuloids (fig. 801A), appearing thick-walled from adhering mucilage or utriform or broadly lageniform (fig. 801B). 3
 - Cystidia lageniform-fusiform, thin-walled, with acute, blunt to subcapitate apex 5
3. Cheilo- and pleurocystida as metuloids (fig. 801A). Cap 6-20 mm, conical to bell-shaped, expanding to \pm plane, but retaining a central papilla or umbo, with straight margin, fatty-subviscid, striate up to 2/3 of the radius, bright ochre brown with darker, rusty brown centre; gills adnate to decurrent with a small tooth, medium spaced to distant, lageniform, ventricose, \pm ochre, then rusty brown; stem 12-35 \times 1-2(-4) mm, cylindrical or slightly thicker downwards, often flexuous-curved, deep brownish ochre at top, downwards darkening to date brown, finely silky fibrillose to girdled in lower part, occasionally with a weak ring-zone; smell and taste faint, farinaceous-raphanoid. Sp 8-10.5 \times 4-5 μm , in mainly 2-spored frb 9.5-13 \times 5-6.5 μm , ovoid-amygdaloid, attenuated towards apex, verruculose, with distinct plage, yellow brown; basidia 4-spored, less often 2-spored, or mixed 1-2-3-spored; metuloids 40-75 \times 10.5-22 \times 6-9.5 \times 6-8 μm , lageniform to subutriform, numerous; caulocystidia at top of stem similar; pileocystidia absent; gelatinized hyphae present in pileipellis. Gregarious to subfasciculate, often connected to buried particles of wood, on rotting straw, living fern rhizomes, in manured gardens, also in forests on dry sandy soil and in wet alder thickets, also found in flower pots, greenhouses and cellars; autumn to late autumn; rare or overlooked in temp., probably adventive in NO and SE; DK (DD), in NO (LC), SE (LC). – C&D 1224, FAD 127H, FND 33:33.

G. nana (Petri) Kühner

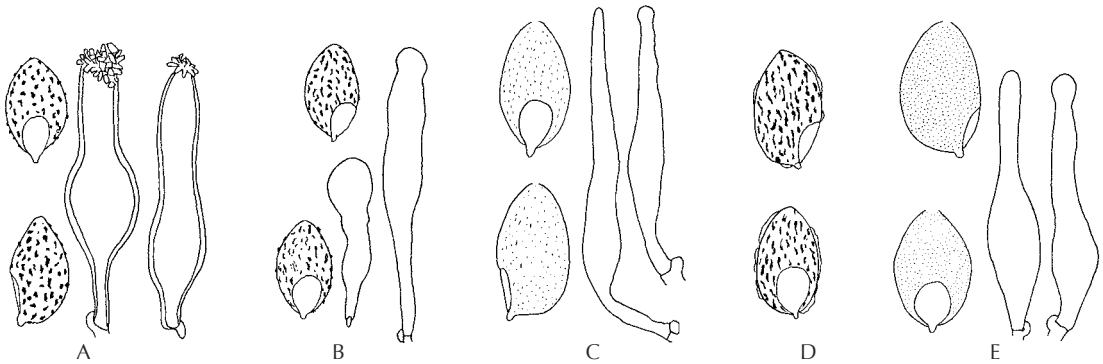
- Metuloids absent, cystidia thin-walled, but adhering mucilage may be present, utriform or broadly lageniform 4
4. Basidia 4-spored; cystidial walls without mucilage (fig. 801B). Cap 10-25(-30) mm, convex with a prominent umbo, with incurved margin when young, striate to 1/3 of the radius, ochre to rusty brown with darker centre, with yellowish veil fibrils at margin when young; gills ascending, adnexed to adnate with a decurrent tooth, medium spaced to distant, yellowish to rusty brown; stem 15-35 \times 1.5-3(-5) mm, \pm widened at base, \pm concolorous with cap, darkening to date brown from base, with a yellowish, fugacious ring-zone and fibrils and patches below; smell and taste indistinct to somewhat farinaceous. Sp 7.5-8.5(-10) \times 4.5-5.5 μm , amygdaloid-citriform, with callus, rugulose, with distinct plage, tawny; cheilocystidia 30-58 \times 5-12(-20) \times (3.5-)-6-8.5(-15) \times 6-9.5(-13) μm ; pleurocystidia numerous. Late autumn, in moist sites on old, mossy stumps (*Salix*, *Alnus*), scattered to gregarious or fasciculate; UK. – C&D 1225, FND 33:34, 35.

G. salicicola P.D. Orton

- Basidia 2-spored; cystidial walls and tops with \pm adhering mucilage. Cap 5-10(-15) mm, hemispherical to bell-shaped, expanding to plane or depressed with a small umbo, with straight margin, slightly viscid, striate up to 2/3 of the radius, centre dark red brown, more yellow to orange brown towards margin; gills adnexed-adnate to slightly emarginate, medium spaced to distant, broad, at first bright ochre, then rusty ochraceous brown; stem 15-20 \times 1-1.5 mm, slightly bulbous at base, beige, dark brown towards base, when young with a velar ring-zone at top, white fibrillose in lower part; smell and taste indistinct to faintly raphanoid. Sp (7.5-)-8.5-10(-11) \times (4.5-)-5-5.5(-6) μm , amygdaloid, verruculose-rugulose, with a distinct plage, rusty brown; cheilo- and pleurocystidia 35-60 \times 12-20 \times 8-13 μm , numerous. In marshy scrubs, esp. *Salix* scrubs, on rotting wood, in acid woods, also in flower pots; late winter and early spring; very rare; DK (DD). – FND 33:18.

G. heimansii Reijnders

5. Basidia 2-spored; stem rigid and becoming very dark from the base upwards. Cap 5-23 mm,



Spores and cheilocystidia: A: *Galerina nana*, B: *G. salicicola*, C: *G. badipes*, D: *G. marginata*, E: *G. pseudomycesis*.

hemispherical to convex, faintly striate, fatty-sticky to viscid when moist, ochre to yellow brown, when young with white veil remnants at margin; gills adnexed to adnate with a tooth, cream to ochre or rusty brown; stem 2-50 x 1.5-3(-4) mm, pale at top, darkening to chestnut brown from base, with \pm distinct veil remnants, at the most with a fibrillose ring-zone and patches and fibrils below; smell indistinct; taste farinaceous to bitter. Sp (7.5-)9.5-12 x (5-)5.5-7 μ m, amygdaloid to narrowly amygdaloid, minutely verruculose-rugulose, with a distinct plage, with a minute apical pore (fig. 801C), yellow brown to tawny; cheilocystidia 35-90 x 7-12(-15) μ m, 2-3 μ m or up to 9 μ m broad at apex when subcapitate, lageniform-fusiform; pleurocystidia similar, numerous; gelatinized hyphae present in pileipellis. Single to subfasciculate, on woody and herbaceous litter, rhizomes of ferns; late summer to autumn; occasional in temp.-suba., rare in arc./alp.; DK (LC), FI (LC), IS, NO (LC), SE (LC). – B&K 5:410, FAD 131F, Ger 01:378, M&J 8. – Poisonous, contains γ -amanitin.

G. badipes (Pers.) Kühner (*G. cedretorum* (Maire) Singer var. *bispora* A.H. Sm. & Singer)

- Basidia 4-spored; stem more soft and fleshy, darkening from base less pronounced 6
- 6. Sp rugulose-verruculose, with a slightly loosening perispore, yellow brown, 7.5-10.5(-13) x 4.5-6.5(-7) μ m (fig. 801D); lignicolous or terricolous. Cap 5-30(-70) mm, generally hemispherical with incurved margin when young, rarely conical, expanding to convex or slightly depressed, rarely umbonate, sticky to viscid and shiny when moist, striate at margin, ochre, yellow brown to red brown; gills adnate or with a small decurrent tooth, pale yellowish to yellow brown; stem 20-70 x (1-)2-5(-10) mm, cylindrical or thicker downwards, becoming fistulose, silky white fibrillose below a membranous ring or a distinct ring-zone, beige at top, downwards greyish brown to dark brown; smell faintly farinaceous; taste mild. Sp amygdaloid, ellipsoid to \pm citriform, with a callus, with a distinct plage; cheilocystidia 28-77(-95) x (5-)8-18 μ m, tapering to 2-4 μ m, apex up to 8 μ m broad when subcapitate, lageniform-fusiform; pleurocystidia similar, numerous; pileipellis with an upper layer of gelatinized hyphae. Gregarious to clustered, generally on rotting coniferous wood such as stumps, branches, duff, chips and sawdust, but also common on larger trunks of deciduous wood, also appearing non-lignicolous when growing in pastures and coastal ericaceous heaths, among grass, bryophytes, herbs and *Calluna*; summer to autumn; very common in temp., common in hemib.-suba., rare in arc./alp.; DK (LC), FI (LC), FO, IS, NO (LC), SE (LC) – B&K 5:417, C&D 1228, 1229, Ger 01:378, R&H 527, Ves 379, \odot . – Strongly poisonous, contains α -, β - and γ -amanitins.

G. marginata (Batsch) Kühner s.l.

Note: Probably a species complex; many names in the complex are on record from the Nordic countries, e.g. *G. unicolor* (Vahl) Singer, *G. praticola* (F.H. Møller) P.D. Orton, *G. autumnalis* (Peck) A.H. Sm.

& Singer, *G. helvoliceps* (Berk. & M.A. Curtis) Singer, but distinctive differences are lacking and further studies are needed in the complex.

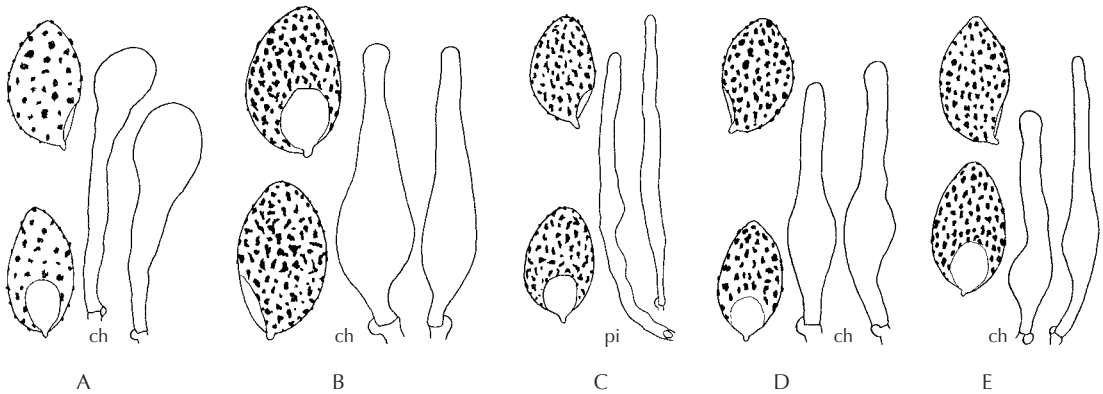
- Sp practically smooth, with tightly fitting perispore, deep tawny, (8.5-)10-11(-15) x (6-)6.5-8(-10) μm (fig. 801E); in moist, grassy-mossy habitats in suba.-arc. / alp. Cap 5-40(-55) mm, hemispherical with incurved margin when young, expanding to convex or slightly depressed, rarely conical or umbonate, fatty-viscid and shiny when moist, faintly striate at margin, dark red brown to yellow brown; gills adnate or with a small tooth, when young pale yellow brown to ochre, then cinnamon brown; stem 20-50(-80) x 1-4(-6) mm, cylindrical or slightly thicker downwards, becoming hollow, with a thin, membranous ring or ring-zone, below white silky fibrillose, pale yellow brown at top, turning brown to bistre from base; smell farinaceous; taste farinaceous, mild. Sp ovoid to broadly amygdaloid, marbled to minutely rugulose, with a distinct plage and tiny apical pore; cheilocystidia 37-65(-100) x 6-13(-19) μm , tapering to 3.5-6 μm , but up to 10 μm at apex when subcapitate; pleurocystidia scattered, sometimes few; pileipellis with a thin layer of gelatinized hyphae. Gregarious, sometimes forming arcs or rings, among grass and moss in moist, eutrophic sites such as snow-beds, marshes, fens, arctic wet tundra, possibly parasitic (dead, brown moss observed); summer-autumn; common in suba.-arc. / alp.; FI (LC), FO, IS, NO (LC, incl. SvB), SE (LC). – AAF 1:41, B&K 5:418, M&J 8, NJB 19:694, ☉.
G. pseudomycenopsis Pilát (*G. moelleri* Bas)

- 7. Cap somewhat fleshy, weakly striate up to about half the radius, \pm scurfy-subscaly at centre; stem up to 3.5 mm broad at base; cystidia utriform or cylindrical-capitate with large heads, abruptly set apart and mostly equally wide as or wider than the ventral part (fig. 803A). Cap 10-22 mm, bluntly conical to bell-shaped, then convex, mat, honey-coloured, yellow brown to tawny; gills adnate, pale beige to dark yellow brown; stem 30-60 x 1-2(-3.5) mm, sometimes thicker at base, \pm white pruinose over the entire length, pale brown at top, dark red brown to blackish brown downwards, with yellow to brown fibrils from the base to near the top; smell indistinct; taste bitter. Sp 10-11.5(-12.5) x 6-7.5 μm , amygdaloid-citriform, verruculose-cracked, with a distinct plage, tawny; cheilo- and pleurocystidia 45-73 x 7.5-22 x 5-9.5 x 8-25 μm , with a strongly elongate basal part, numerous; pileo- and caulocystidia similar, but longer. In moist coniferous and mixed forests, on moss covered, rotting stumps and trunks of deciduous trees (*Betula*, *Alnus*), often reported from coniferous wood; autumn; very rare in bore.-suba.; FI (EH, SoL). – Bres 785, Fav 60:4.1.
G. pruinatipes A.H. Sm. (*Gymnopilus laricicola* J. Favre)

- Cap membranous and distinctly translucently striate-subsulcate to the centre, smooth; stem 0.5-2 mm thick; cystidia lageniform-fusiform 8

- 8. Pileocystidia present 9
- Pileocystidia absent 10

- 9. Pileocystidia lageniform-fusiform, numerous, visible on cap of young, fresh frb (lens!). Cap 3-10 mm, paraboloid, bluntly conical to bell-shaped, distinctly striate-subsulcate to the top, shiny, ochre with a red-brown centre and striae; gills ascending-adnate, pale ochre when young, then yellow brown to red brown; stem 25-50 x 0.5-1.5 mm, pale yellow to ochre at top and brightly red brown from base upwards, generally without visible veil remnants; smell and taste indistinct. Sp 10-13(-16.5) x (6-)7.5-9 μm , amygdaloid, often with outdrawn apex, distinctly verruculose, with a plage (fig. 803B), tawny; basidia 2-spored; hymenial cystidia 42-70 x 12.5-16.5 μm , 2.5-5 μm at apex, lageniform-fusiform with a blunt to subcapitate apex; pileo- and caulocystidia similar. Gregarious or in small groups on bryophytes, esp. *Polytrichum* and *Dicranum*, occasionally *Sphagnum*, in acid forests, lichen heathland, grassland, bogs, on soil and on moss-covered rotting wood; summer to autumn; common in temp.-suba., occasional in arc. / alp.; DK (LC), FI (LC), FO, IS, NO (LC), SE (LC). – B&K 5:407, 420 (as *pruinatipes*), FND 33:24, Ger 01:371.
G. atkinsoniana A.H. Sm.



Spores, cheilocystidia and pileocystidia: A: *Galerina pruinatipes*, B: *G. atkinsoniana*, C: *G. perplexa*, D: *G. vittiformis* var. *vittiformis* f. *tetraspora*, E: *G. vittiformis* var. *vittiformis* f. *bispora*.

Note: several varieties and forms have been described, and the complex needs revision based on molecular studies; f. *quadrispora* Gulden is a 4-spored form with smaller sp 9-11 x 5.5-6.5(-7) μm ; rare – IS (Au, Na), NO.

- Pileocystidia narrower and more seta-like, but thin-walled (fig. 803C), mostly rather few. Cap 7-15 mm, conical, bell-shaped to convex, striate up to 2/3 of radius, yellow to orange brown with paler, more yellow margin; gills adnexed; stem 30-60(-80) x 1-2 mm, pale yellow to ochre, darkening to red brown at base, veil absent or as minute fibrils; smell and taste indistinct. Sp 7.5-10.5 x 5-6.5 μm , broadly amygdaloid, distinctly verruculose, with a plage; hymenial cystidia 50-75 x 9-12, apex 3-4 μm wide; caulocystidia similar; basidia 4-spored; pileocystidia (24-)45-60(-80) x 3.5-7(-10) μm , with apex 2.5-3 μm wide, narrowly fusiform to narrowly lageniform. In small groups on mosses (*Rhytidiadelphus*), among grass, in forests, pastures and grassland; autumn; rare in temp.-middle bore.; DK (DD), IS (Hveragerdi), NO (LC), SE. – FND 2:4, 33:25.

G. perplexa A.H. Sm.

10. Veil absent; smell and taste indistinct 11
 - Veil present, as fibrils or a tiny fibrillose ring on the stem, often also at cap margin; smell and taste farinaceous 12
11. Pleurocystidia numerous; sp distinctly verruculose (fig. 803D). Cap 5-20 mm, conical to paraboloid, expanding to bell-shaped and convex, rarely umbonate, distinctly striate to sulcate almost to the centre, fatty-shiny, young dark rusty brown, then yellow brown, ochre to yellow between striae and towards margin; gills ascending-adnate, young pale yellow, then ochre, yellow brown to rusty brown; stem 20-100 x (0.5-)1-2 mm, densely pruinose, \pm evenly yellow brown, later becoming red brown to chestnut brown from base. Sp 8-10.5(-11) x 5.5-7 μm , ovoid to ellipsoid-amygdaloid, often with tapering apex, distinctly verruculose, with a plage, tawny; hymenial cystidia 31-80 x 6-14(-18), apex 2.5-6(-10) μm , lageniform-fusiform, with a blunt to subcapitate apex; caulocystidia similar. In groups on mosses, such as *Rhytidiadelphus*, *Drepanocladus*, *Racomitrium*, *Hypnum* and *Hylocomium*, often in fairly eutrophic and dry sites, also in more moist sites on *Paludella* and *Tomenthypnum*, in forests, grasslands, dunes, fens; summer to autumn, very common in temp.-bore., common in suba.-arc. / alp.; DK (LC), FI (LC), FO, IS, NO (LC), SE (LC). – B&K 5:434, C&D 1220, FND 33:21, IM 87, Ves 378, \odot .

G. vittiformis (Fr.) Singer var. *vittiformis* f. *tetraspora* A.H. Sm. & Singer var. *vittiformis* f. *bispora* A.H. Sm. & Singer (*G. muricellospora* G.F. Atk., *G. rubiginosa* (Pers.: Fr.) Kühner s. Kühner 1972) has a pale, ochraceous brown, fulvous brown to yellow-brown

cap, contrasting a red-brown to chestnut-brown stem, 2-spored basidia and sp 10-13 x 5.5-7 μm (fig. 803E). Apparently rare; FO, IS (Au, Na), NO. – B&K 5:433 (as *vittiformis* var. *pachyspora*)

Note: several varieties and forms have been described, and the complex needs revision based on molecular studies.

- Pleurocystidia very few; sp faintly ornamented with an indistinct plage. Frb similar to *G. vittiformis*; cap 10-15 mm; gills ascending-adnate, broad, medium spaced; stem 30-50 x 1-2 mm, pruinose; veil absent. Sp 7.5-9.5 x 6-7 μm , broadly amygdaloid, tawny; basidia 4-spored; cheilocystidia 30-45 x 8-12 μm , apex 4-5 μm wide, lageniform-fusiform. Bryophilous; very rare and little known species. – Fl.

G. karstenii A.H. Sm. & Singer

12. Stem with a tiny, fibrillose ring in the upper part, pruinose above and \pm fibrillose below the ring. Cap 4-13 mm, conical-convex, ochre, tawny to rusty brown, striate to the centre; gills ascending-adnate, broad, medium spaced to distant, ochre brown to rusty brown; stem 15-30 x 0.5-1(-1.5) mm, gradually becoming evenly rusty brown from base. Sp (10-)11.5-13(-14) x (6.5-)7.5-8.5 μm , amygdaloid, verruculose, with a plage, tawny; basidia 2-spored; cheilo-, pleuro- and caulocystidia lageniform-fusiform. In wet moss, along brooks, ponds and small mires, in acid sites; late summer to autumn; rare in middle bore.-suba.; NO (Oppl: Sel, and Nordl: Tysfjord).

G. annulata (J. Favre) Singer

Note: a 4-spored form with broadly amygdaloid, verruculose, tawny sp, 8.5-10.5 x 5.5-7 μm , awaits formal description. In small groups, on bryophytes, in mossy, moist sites, in fens and late-melting *Salix herbacea* snow-beds, eutrophic sites; autumn; rare in suba.- arc./alp.; IS, NO (incl. Svb). The similar *G. caulocystidiata* Arnolds (p. 791) lacks pleurocystidia.

- Ring absent, veil present as fibrils on stem and often as white brim at cap margin; stem not appearing pruinose in lower part. Cap 3-8 mm, hemispherical, conical to convex, distinctly striate, fatty-shiny, red brown to ochraceous brown, paler at margin; gills adnate, medium spaced to distant, beige, ochre to red brown; stem 15-30 x 0.5-1 mm, yellow to ochre, more red brown downwards. Sp (8.5-)9-11 x 5-7 μm , ovoid to broadly amygdaloid, verruculose, with plage, tawny to yellow brown; hymenial cystidia 42-68 x 8-20 μm , at apex 2.5-7.5 μm wide, lageniform-fusiform with a blunt to subcapitate apex; caulocystidia similar, numerous at stem top, more scanty in basal half. Gregarious in moss cushions, esp. *Racomitrium*, but not growing directly on the moss, on silt and sand in moist pioneer habitats; late summer to autumn; occasional in suba.-arc./alp.; IS (Au, Na), NO (LC). – B&K 5:428.

G. minima (Peck) A.H. Sm. & Singer (*G. terrestris* V.L. Wells & Kempton)

Hebeloma (Fr.) P. Kumm.

JAN VESTERHOLT

Hebelomina Maire

Frb collybioid to tricholomatoid, with viscid cap and often with raphanoid or sweetish smell. Cap slightly hygrophanous or not, glabrous, rarely tomentose, viscid to dry, whitish, pinkish buff, clay buff, cinnamon, umber or sepia. Gills emarginate or adnate, white to pale greyish or pale buff, becoming clay buff to brown, in some species exuding droplets. Stem minutely to coarsely floccose, at least at the top, in many species discolouring brown from the base. Universal veil present or absent, in one species membranous; partial veil cobweb-like or absent. Smell raphanoid in most species, in other species sweetish, like marzipan, cocoa, soap, tea or fruit or indistinct. Taste raphanoid, indistinct or bitter. Sp deposit clay buff to brown.

Sp ellipsoid, amygdaloid or almost citriform, almost smooth to rugose or verrucose under light microscope, SEM shows a fine to coarse ornamentation of branched ridges, in some species with a loosening perispore, dextrinoid or without iodine reactions, a positive reaction best observed after