NEW TAXA OF ENTOLOMA FROM GRASSLANDS IN DRENTHE, THE NETHERLANDS

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(With 36 Text-figures)

Fourteen new species and three new variaties of Entoloma from grassland vegetations in the province of Drenthe, The Netherlands, are described: E. acidophilum, E. argenteostriatum, E. calthionis, E. chlorinosum, E. cryptocystidiatum, E. cuniculorum, E. defibulatum, E. faringustus, E. occultopigmentatum, E. psilopus, E. tibicystidiatum, E. undulatosporum, E. velenovskyi var. longicystidiatum, E. ventricosum, E. vinaceum var. fumosipes and var. violeipes and E. xanthocaulon. For nomenclatorial reasons one new name is introduced: E. ortonii. Short comments are given on the taxonomical position of some of these new taxa, more will follow in future publications (see References).

During the years 1973–1977 the first author was carrying out a mycosociological and -ecological study of different grassland-communities in the province of Drenthe, situated in the north-eastern part of the Netherlands. This area mainly consists of pleistocene sands and holocene peat, by nature poor in lime and most other minerals and with a low pH (3.5–5). Full results will be published before long, including taxonomic notes on some of the observed macrofungi.

The second author is carrying out an extensive study of the genus Entoloma (Fr.) Kumm. emend. Donk (= Rhodophyllus Quël.) in the Netherlands and adjacent Belgium and Western Germany, with critical regard to the European taxa.

In course of the investigations of the first author numerous collections were made of species belonging to the genus Entoloma, especially in the subgenus Nolanea. The identification of many collections offered great difficulties. Therefore we decided to investigate these Entoloma-collections in cooperation.

After these studies we arrived to the conclusion that the collections contained several new taxa, from which we introduce in this paper 14 new species and 3 new varieties, all belonging to the

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subgenera *Nolanea* and *Entoloma*. Moreover one new name has been introduced for nomenclatorial reasons.

Nine of these taxa will be described extensively in English and illustrations of microscopical details will be given. For the remaining taxa we restrict ourselves to the Latin diagnosis, as descriptions and figures will be given in Arnolds & Noordeloos (1980). The latter publication will contain coloured plates of the species mentioned above and of some other interesting *Entoloma*-species.

The taxonomic position and relationships of the species treated in this paper will be discussed more detailed in Noordeloos, 1980a–c. These papers will also contain keys to the species and varieties which will offer a better opportunity for comparison of the taxa presented here.

**Material and methods**

Taxonomic characters of *Entoloma* and methods of studying them will be discussed by Noordeloos (1980a). For the moment we suffice with some explanations, necessary to interpret and understand the descriptions given below.

1. Typification. — At first all collections had been preserved in the herbarium of the Biological Station at Wijster (WBS). For the sake of safety and accessibility a part of each type has been deposited in the Rijksherbarium at Leiden (L). When a collection consisted of a large number of specimens the major part was designed holotype and deposited at L. From small collections the holotype has been kept at WBS and only one carpophore or fragment in L as isotype. It should be mentioned that the Latin diagnosis has been based on the type-collection only, whereas the English description covers all material studied.

2. Methods and presentation of data. — Colours of fresh carpophores are usually compared with Kornerup & Wanscher (1967), exceptionally with Cailleux & Taylor (1958).

Spores are observed and measured in water, ammoniac 10% or mostly in ammoniacal Congo red solution, under oil-immersion lens (1000–1500 ×). The size relates to the largest length and width, excluding the apiculus (in contrast to Orton, 1960: 162).

The elements of hymenophoral trama have been measured in squash preparations of the gills, which may give different results from measurements on transversal sections.

The pileipellis is always studied on radial sections through the cap.

Drawings are made with camera lucida or drawing prisma.

The following abbreviations have been used:

M 6F7,8: Colours according to Kornerup & Wanscher, comprising 6F7 as well as 6F8.

M 6F7/8: idem, but colour intermediate between 6F7 and 6F8.

Expo: Colours according to Cailleux & Taylor.

L = 21–30, 1 = 3–7: 21–30 entire lamellae per carpophore, 3–7 lamellulae between each pair.

Spores [20/2/1]: 20 spores measured on two carpophores out of one collection.

L–D = 1–3–5 μm: Length minus width between 1–5 μm with an average of 3 μm.

Q = 1.3–1.5–1.7: Ratio of length and width ('quotient') = 1.3–1.7 with an average of 1.5.
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Entoloma acidophilum Arnolds & Noordeloos, spec. nov.


English description, plate and figures in Arnolds & Noordeloos, 1980.

Entoloma argenteostriatum Arnolds & Noordeloos,

spec. nov.—Figs. 1–4


Pileus 9–25 mm broad, conico-convex or convex then expanding to plano-convex, with straight margin, marginal zone often undulating with age, strongly hygrophanous, when moist
dark grey-brown, translucently striate up to centre, drying pale brown-grey, satiny. Lamellae moderately distant, variably inserted, broadly to narrowly adnate, pale brown-grey when young then dingy flesh-coloured. Stipe 23–32 × 1.8–4 mm, cylindrical, sometimes flattened and up to 7 mm broad, grey-brown, paler than cap, silvery striate lengthwise, upper part densely powdered. Flesh in cap thin (1.5 mm), greyish white, firm, in stipe cortex grey-brown (0.5 mm), context greyish white, easily splitting lengthwise. Smell farinaceous when fresh, later more cucumber-like.

Spores [30/3]7.4–9.5(–10.6) × 5.8–6.9(–7.4) μm, Q = (1.15)1.2–1.35–1.5, L–D = 1.1–2.3–3.2 μm, 5–7-angular in side-view, with acute angles. Basidia 29–38(–41) × 8.5–10.6 μm, Q = 3.0–3.3–3.7, clavate, 4-spored. Cystidia none. Hymenophoral trama regular, elements (74–)101–212(–223) × (7.4–)12.7–19.1(–20.1) μm, cylindrical to inflated, mixed with narrow connective hyphae, 2.5–6 μm wide, sometimes faintly encrusted.

Pileipellis a cutis of 4–12(–13) μm wide, cylindrical hyphae with transitions to a trichodermium especially in centre and in young specimens, of clavate or subcylindrical cells, 28–59 × 7.4–10.6(–15) μm, with brown encrusted walls and brownish intracellular granules or clots. Pileitrama regular, hypoderm weakly to distinctly developed, elements inflated, 32–110 × 7–17(–20) μm, deeper trama composed of long, inflated hyphae up to 27 μm wide, mixed with narrow, (1.5–)2.4–5.3 μm wide, cylindrical connective hyphae, entire trama (coarsely) brown-encrusted, in upper pileitrama also scarcely granular-intracellular. Clamp-connections none.

Habitat.—In poor vegetation of short grass with much moss (mainly Polytrichum piliferum) on dry, acid sandy soil.


The size and shape of the spores and double pigmentation place our species in the E. fernandae-complex in section Papillati of subg. Nolanea. It differs from its closest relative E. acidophilum...
nob. which has also a white-striate stipe and fibrilllose flesh in the stipe, by the dark pigmented cap and lamellae, firm flesh in cap and perhaps by the exclusively 4-spored basidia.

*Entoloma fernandae* (Romagn.) Noordeloos, *E. psilopus* nob. and *E. fractum* (Velen.) Noordeloos differ among other things in having a non-striate, smooth stipe.

**Entoloma calthionis** Arnolds & Noordeloos, *spec. nov.*


English description, plate and figures in Arnolds & Noordeloos, 1980.

**Entoloma chlorinosum** Arnolds & Noordeloos, *spec. nov.*


English description, plate and figures in Arnolds & Noordeloos, 1980.

**Entoloma cryptocystidiatum** Arnolds & Noordeloos, *spec. nov.—Figs. 5–10*


Pileus 20–32 mm broad, conico-convex with margin at first narrowly involute then straight, strongly hygrophanous, when moist rather pale grey-brown (M 5D4) with slightly darker centre and slightly paler margin, translucently striate up to centre, on drying considerably expallent with radial streaks to silvery white with ochraceous tinge, conspicuously silky. Lamellae L = 21–23, 1 = 3–5, crowded, free, ventricose, 2.5–4 mm broad, pale brown-grey (M 5D4 to 5C3) without any pinkish tinge. Stipe 47–53 × 1.5–2.5 mm, slender, cylindrical, fistulose, brittle, pale grey-brown, silvery-striate lengthwise (as in E. staurosorum). Flesh in cap thin, brown-grey, in stipe brown-grey. Smell fungoid, weak. Taste inconspicuous.

Sporae [20/2] (8.5–)8.7–10(–10.2) × (7.5–)7.7–8.3 μm, Q = 1.1–1.2–1.3, L–D = 0.4–1.4 μm, 5–6-angular in side-view with rather blunt angles. Basidia 29–37(–38.3) × (7.9–)11.5–12.5 μm, Q = 2.5–2.9(–4.0), usually broadly clavate, 4-spored, mature basidia rather scarce. Basidiolae 24–33 × 10.5–16(–19) μm, Q = (1.75–)2.0–2.9, broadly clavate. Cheilocystidia (8.1–)15.3–37.8(–42.1) × 4.8–7(–7.6) μm, subcylindrical sometimes flexuous, often subcapitate, sometimes with thickened, refringent tip, scattered between basidia, not protruding beyond the hymenium.

HABITAT.—In non-manured hayfield (Calthion palustris) on rather eutrophic wet peaty soil.

Entoloma cryptocystidiatum belongs to subgenus Nolanea; it may be a member of section Paramammosi Romagn. (Romagnesi 1978: 52). The remarkable combination of cylindrical-subcapitate cheilocystidia, rather broad basidiolae and intracellular pigmentation is suggestive of a species in its own right.

Entoloma cuniculorum Arnolds & Noordeloos, spec. nov.—Figs. 11–14


Pileus 12–16 mm broad, bluntly conical or semiglobose then conico-convex or convex with small papilla, with straight margin sometimes exceeding the lamellae, hygrophanous, when moist rather pale grey-brown (Expo E 52) with pale margin (Expo C 52), dark grey-brown striate up to dark grey-brown centre, on drying expellant with radial streaks from centre. Lamellae moderately distant, narrowly adnate, ascending, slightly ventricose up to 3 mm broad, pale grey-brown at first, gradually becoming incarnate from the base. Stipe 20–32 × 1.5–2 mm, cylindraceous, rather pale grey-brown, not striate, at apex finely pruinose. Flesh very thin in cap, dark brown-grey, in stipe concolorous with surface, fairly brittle. Smell rather strongly farinaceous.

Spores [60/3/2] (8.4–)9–11.4(–12.5) × (6.0–)6.2–7.7(–8.2) μm, Q = 1.3–1.45–1.7(–1.8), variable in shape, mostly 5–7-angular in side-view with pronounced angles and large, triangular apiculus. Basidia 31.6–46 × 10.3–12(–13) μm, Q = 2.6–4.2, 4-spared, broadly clavate. Cystidia none. Hymenophoral trama regular with long cylindrical to inflated elements, e.g. 97–193(–236) × (4.5–)7.5–16(–22) μm, intermixed with narrow, cylindrical, 4.3–9 μm wide, finely encrusted connective hyphae. Pileipellis a dry cutis of (4.5–)6–14 μm wide cylindrical hyphae with encrusted walls and diffuse, and/or granular pale brown intracellular pigment. Pileitrama regular, composed of radially arranged, inflated hyphae 7.5–22.5 μm wide, intermixed with narrow, cylindrical, 4.3–9 μm wide connective hyphae, both types with encrusted walls. Clamp-connections none.

HABITAT.—In poor vegetation of moss-interspersed short grass, grazed by rabbits on dry acid, sandy soil.
The large spores easily distinguish this species from *Entoloma fernandae* (Romagn.) Noordeloos and relatives. The finely encrusted trama and connectives suggest relationship with *E. papillatum* (Bres.) Hesler from which it differs among other things in the clampless basidia, double pigmentation and in the pale tinges in pileus and stipe.

**Entoloma defbullatum** Arnolds & Noordeloos, *spec. nov.*

Figs. 15–18


Pileus 19–21 mm broad, at first conico-campanulate, then flattened without papilla, with margin straight, slightly undulating with age, sometimes splitting; hygrophanous, when moist dark grey-brown (M 6F5), paler towards margin (M 6E5, 6D4), darker translucently striate up to centre, drying expallent brown-grey, opaque. Lamellae L = 16–21, l = 3–7, moderately distant, narrowly adnate to almost free, ventricose, up to 4 mm broad, pale grey-brown then tinged incarnate pink, especially near edge. Stipe 28–40 × 2 mm, straight, cylindrical, narrowly fistulose, rather dark greyish brown (M 6E5), finely striate under lense, base white tomentose, apex sometimes finely pruinose. Flesh in cap thin, concolorous with surface, in stipe cartilagineous, hyaline, grey-brown. Smell and taste cucumber-like or farinaceous-rancid.

Spores [40/2/2] (6.5–)6.7–7.9(–8.1) × (5.3–)5.6–6.8(–7.0) μm, Q = 1.1–1.2–1.3(–1.4), rounded-angular in side-view, subglobular to broadly ellipsoid in outline. Basidia 28.3–34.8(–37.7) × 7.7–10.2 μm, Q = (2.7–)3.3–4.3(–4.6), rather broadly clavate, 4-spored. Cystidia none. Hyphennorphal trama (sub)regular, elements 170–320 × 7.5–16(–20) μm, cylindrical, mixed with narrow connective hyphae. Pileipellis a poorly differentiated cutis of (2.8–)5–12–15(–15) μm wide, cylindrical, repent hyphae. Pileitrama regular, elements 159–269 × 10–21(–25) μm, cylindrical to inflated, mixed with narrow, cylindrical connective hyphae. Pigmentation of two kinds; membranal pigment encrusting the hyphae of pileipellis and pileitrama, often coarsely so, especially the narrow hyphae of pileipellis and the connective hyphae in pileitrama, also finely encrusting the connective hyphae of the hymenophoral trama; intracellular-granular pigment in large clots in pileipellis and rarely also in pileitrama. Clamp-connections none.

Habitat.—In poor vegetation of moss and short grass, on rather moist to rather dry acid peat or humus-rich sand.

The two pigmentation-types, clampless basidia, expanding cap and small spores indicate close relationship with the *Entoloma fernandae*-complex. *Entoloma defibulatum* differs from all species in this group in the rather rounded-angular spores with $Q = 1.2$ on the average.

Microscopical characters show also some resemblance with *E. ortonii* (= *Nolanea farinolens* Orton), but the latter species has clamped basidia, only finely encrusting pigments and moreover a more robust stature and distinctly white-striate stipe.
Entoloma farinogustus Arnolds & Noordeloos, spec. nov.


English description, plate and figures in Arnolds & Noordeloos, 1980.

Entoloma occultopigmentatum Arnolds & Noordeloos, spec. nov.


English description, plate and figures in Arnolds & Noordeloos, 1980.

Entoloma ortonii Arnolds & Noordeloos, nom. nov.

Entoloma psilopus Arnolds & Noordeloos, spec. nov.

Figs. 19–22


Etymology: ψιλός, smooth: — ποιεως, foot, stipe.

Pileus 8–22 mm broad when young conical soon expanding, finally flattened, non papillate, sometimes with weak umbo, often slightly depressed in centre when old, with straight margin, hygrophanous, when moist grey-brown to dark grey-brown, sometimes with slight reddish tinge (M 6E6, 6E6/6F6, 6E6/7E6), transluently striate up to centre, on drying expallent to pale grey-brown (M 6C4, 5C4), glabrous, usually dull. Lamellae moderately crowded to rather distant, narrowly to broadly adnate, ventricose, white then salmon-pink or incarnate, at base (very) slightly tinged brown (M 7A4/7B4, 7B4, 6B4). Stipe 15–38 x 1–2.5(-3) mm, cylindrical, straight or slightly flexuous, solid then fistulose, pale to rather dark grey-brown (M 4C4, 6C4, 6C4/D4, 6D5/E6), glabrous, non striate. Flesh thin-membranaceous in cap, rather firm or fragile in stipe, concolorous with surfaces. Smell weakly to distinctly farinaceous-rancid. Taste farinaceus.

Spores [95/10/5] (6.8–)7.2–9.1(–10.1) x 5.7–7.0(–7.4) μm, Q = 1.15–1.3–1.4, L–D = 1.1–1.7–2.0, 5–6-angled in side-view with pronounced angles. Basidia (21–)23–37(–42.5) x 8.5–11.5(–13.6) μm, Q = (1.8–)2.2–3.5(–4.1), broadly clavate, mainly 4-spored, but in all collections 2-spored basidia occur (in Arnolds 3734 numerous, slenderly clavate, Q = 5). Cystidia none. Hymenophoral trama regular, elements cylindrical to weakly inflected, (55–)76–217 x 7.6–21 μm, mixed with narrow-cylindrical, 3–6.2 μm wide hyphae. Pileipellis a poorly differentiated cutis of 2.9–8 μm wide, cylindrical hyphae with transitions to a trichodermium, especially in centre of cap, composed of cylindrical to clavate elements, 22–70 x 6–11(–17) μm, with brown-encrusted walls and intracellular pigment present as brown clustered granules or clots. Pileitrama regular, hyphae long cylindrical to inflated, up to 25 μm wide. Clamp-connections absent.

Habitat.—In open moss-rich grasslands on very dry sand poor in humus (Spergulo-Corynephoretum), in poor grassland on dry humus-rich sand (Violion caninae), and in heath of Erica tetralix (Ericetum tetralicis) on moist loamy sand. Always on strongly acid, very oligotrophic soils.

Entoloma psilopus is very closely related to *E. fernandae* which differs in the weakly hygrophanous pileus which is minutely squamulose, especially at centre and which is only obscurely striate at margin.

**Entoloma tibiicystidiatum** Arnolds & Noordeloos, *spec. nov.*

Figs. 23–26

Pileus 10–15 mm latus, irregulariter plano-convexus, non papillatus, hygrophanus, pallide griseo-fuscus, striatus, in sicco ochraceo-griseus. Lamellae moderate distantes, subliberae, angustae, pallide salmoneo-fuscus. Stipes usque ad 38 × 2 mm, cylindraceus, pallide griseo-fuscus, argenteo-striatus. Odore farinaceo. Sporae (7.7–)7.9–10.5(–11.0) × (6.4–)6.8–9.0 μm, Q = 1.0–1.1–1.2(–1.3), (4–)5–6-angulatae, isodiame-}


Pileus 10–15 mm broad, irregularly plano-convex without papilla, margin straight, hygrophanous, when moist rather pale grey-brown, translucently striate, drying ochraceous grey. Lamellae almost free, thin, fairly distant, pale salmon-pink. Stipe up to 38 × 2 mm, slender, cylindrical, pale grey-brown, silvery striate lengthwise. Smell farinaceous.

Spores [20/2] (7.7–)7.9–10.5 (–11) × (6.4–)6.8–9 μm, Q = 1.0–1.1–1.2 (–1.3), L–D = 0–0.6–1.1 μm, (4–)5–6-angled in side-view, rounded-isodiometrically. Basidia 21–30 (–35) × 10.5–12.5 μm, Q = 1.9–2.4 (–3.3), broadly clavate, 4 (rarely 2)-spored. Cheilocystidia scattered, (17–)20–35 × 6–8 × 2.5–5 μm, tibiiform, rarely subcylindrical-subcapitate, thin-walled, often with hyaline mucous cap covering the tip. Pleurocystidia none. Hymenophoral trama regular, elements (113–)150–320 × 10–27 μm, cylindrical or inflated, constricted at septa. Pileipellis a poorly differentiated cutis of 2.5–5 (–8) μm wide cylindrical hyphae, gradually passing into trama. Pileitrama regular, elements cylindrical or inflated, up to 31 μm wide. Pigment membranal and often encrusting the walls of hyphae in pileipellis and pileitrama.

Habitat.—In poorly fertilized hayfield (Calthion palustris) on wet, in winter inundated, peaty soil.


The type of pigmentation and the spores of E. tibiicystidiatum suggest a close relationship with E. sericeum, but it differs from the latter in the presence of cheilocystidia with a remarkable shape.

Entoloma undulatosporum Arnolds & Noordeloos, spec. nov.

Figs. 27–29


Pileus 15–23 mm broad, convex then expanding, not umbonate, with straight margin, hygrophanous, when moist blackish brown (M 5F6) with slightly paler margin, translucently striate at margin only, drying from centre to grey-brown (M 5D4), satiny, very finely radially rugulose. Lamellae narrowly adnate, moderately distant, rather thick, ventricose, up to 5 mm broad, pale grey-brown (M 5D4) with incarnate grey edge. Stipe 22–27 × 1.8–2.8 mm, relatively
short, cylindrical, paler and slightly more brown than moist cap (M 5D5), glabrous, slightly white tomentose at base, narrowly fistulose. Flesh thin in pileus, relatively firm, brittle in stipe. Smell and taste distinctly farinaceous.

Spores [30/2] (7.7–)7.9–10.8 (–12.0) × (5.7–)6.0–6.8 (–7.5) μm, Q = (1.25–)1.3–1.4–1.6 (–1.7), rather variable in shape, ellipsoid to elongate in outline, irregularly 6–9-angled-gibbose, thin-walled, with small apiculus. Basidia 25–32 × 9.6–11.5 μm, Q = 2.5–3.3, 4-spored, rather broadly clavate. Cystidia none. Hymenophoral trama regular, with cylindrical to slightly inflated elements, (113–)160–378 (–400) × 17–27 (–32) μm, sometimes slightly constricted at septa, colourless, hyaline, thin-walled. Pileiellis a poorly differentiated cutis of 3.8–15 μm wide cylindrical hyphae, gradually passing into trama. Pileitrama regular, hyphae cylindrical to inflated up to 35 μm wide. Pigment diffuse, sometimes granular, intracellular in pileiellis and upper pileitrama. Clamp-connections numerous in hymenium, rare in trama.

HABITAT.—Poorly manured meadow (*Lotio-Cynosuretum*) on dry, humus-rich sandy soil.


The characteristic shape of the spores, the pigmentation and clamped basidia distinguish *E. undulatosporum*, a good species in a somewhat isolated position in subgenus *Nolanea*. Its general appearance places the species in section *Papillati*, but within this section it does not seem to be closely related to any of the other species on account of its hyphae with exclusively intracellular pigment.

**ENTOLEMA VELENOVSKYI NOORDELOOS var. longicystidiatum**

Arnolds & Noordeloos, var. nov.—Figs. 30–33


Pileus 18–24 mm broad, convex with narrowly involute margin, expanding to plano-convex with small umbo, strongly hygrophanous, when moist dark grey-brown at centre, paler brown towards margin, translucent striate up to centre, drying dull grey-ochre. Lamellae moderately distant, adnexed, ventricose, thickish, flesh-coloured brown (M 5C5/5D5), more pinkish towards edge. Stipe 20–46 × 1.5–2 mm, slender, cylindrical, pale grey-brown, glabrous. Flesh membranaceous. Smell and taste not noted (inconspicuous?).

Spores [20/2] (10.1–)11–15.9 (–16.3) × (7.2–)7.9–9.6 (–10.6) μm, Q = (1.2–)1.3–1.5–1.7, L–D = (2.1–)3.2–4.5–6.4 μm, rather irregularly angled, ellipsoid to elongate in outline, 5–6–(8–)angular in side-view. Basidia 28.7–41.5 × 9–14 μm, Q = 2.2–3.7, broadly clavate, 4-spored, a few 2-spored. Cheilocystidia mixed with basidia, (50–)70–149 × (6.2–)7.4–15.9 × 2.7–4.2 μm, slenderly lageniform to fusiform, rarely subcylindrical, with gradually tapering, pointed or rounded apex, thin-walled, hyaline, often with colourless granules in plasma. Hymenophoral trama regular, with long, cylindrical to slightly inflated elements, 167–290 (–405) × 16–27 μm, narrowing towards septa or not, intermixed with narrow, cylindrical connective hyphae 3.5–10 μm wide. Pileiellis a weakly differentiated cutis of radially arranged, repent, 2.5–10.5 μm wide hyphae, with diffuse or granular intracellular pigment. Pileitrama regular, elements cylindrical to strongly inflated, 206–270 × 10.8–29 μm, with dispersed intracellular pigment. Clamp-connections frequent in hymenium, rare in hymenophoral trama.

HABITAT.—In poor hayfield (*Cirsio-Molinietum*), extensively grazed by sheep, on moist, peaty soil.

— 33. Cheilocystidia.
The cheilocystidia are much longer and more slender than in typical *E. velenovskyi* (see Noordeloos, 1979: 258). In addition the average spore is much longer. Macroscopically our collection is very close to the type. For the time being we consider our collection a variety of *E. velenovskyi*.

On account of the absence of any membranal and/or encrusting pigment this taxon does not seem to be closely related to *E. mammosum*.

### Entoloma ventricosum Arnolds & Noordeloos, *spec. nov.*


### English description, plate and figures in Arnolds & Noordeloos, 1980.

### Entoloma vinaceum (Scop. ex Fr.) Arnolds & Noordeloos, *comb. nov.*

*Agaricus vinaceus* Scop. ex Fr., Epicrisis: 157. 1838 (basionym).

### Entoloma vinaceum var. fumosipes Arnolds & Noordeloos, *var. nov.*

Figs. 34–36


Pileus 8–19 mm broad, at first semiglobose then convex with flattened or slightly depressed centre, margin involute, hygrophanous, when moist rather pale brown (M 6D6), dark brown striate up to dark brown centre (M 6C3), drying pale brown-grey (M 6D3), glabrous. Lamellae L = 19–24, 1 = 1–3(-5), rather broadly adnate, rather crowded, ventricose, up to 5 mm broad, thin, pale greyish pink (M 6B3) with pale grey edge (M 6B2). Stipe 16–23 × 1.5–2.7 mm, slightly tapering towards base, pale grey-brown (M 5C4), distinctly finely silvery-striate lengthwise, base white-tomentose. Flesh in centre of cap relatively thick (up to 2.5 mm), firm, white, in stipe firm, non fibrillose. Smell and taste weak, sweetish.
Spores [20/2] (5.9-)6.3–6.8(–7.4) × 5.1–6.2(–6.8) µm, Q = (1.0–)1.1–1.15–1.2(–1.3), L–D = 0–1(–1.7) µm, subglobe to broadly ellipsoid in outline, rounded many-angled in side-view, thin-walled, conglobiphel, especially when young. Basidia 26–36.2 × 9–10.2 µm, Q = 2.7–3.1–3.5, broadly clavate, 4-spored. Hymenophoral trama regular, elements (64–)100–190(–212) × (6.4–)7.4–13.8(–16) µm, cylindrical to weakly inflated. Pileipellis a thin cutis of more or less radially arranged loose, cylindrical 2.3–3.5 µm wide hyphae with slightly to distinctly gelatinizing-desintegrating walls. Pileitrama subregular, composed of rather short, inflated elements 40–110 × 12.5–23 µm. Pigment diffuse intracellular in upper pileitrama and in pileipellis. Clamp-connections frequent in hylum, lamellae and pileitrama, scarce in pileipellis.

**Habitat.**—In poor vegetation rich in mosses (mainly *Polytrichum piliferum*) on dry acid sand-dunes (*Spergulo-Corynephoretum*).


*Entoloma vinaceum* var. *fumosipes* differs from typical *E. vinaceum* in the consistently grey-tinged stipe also in mature specimens. (Compare also *E. vinaceum* var. *violeipes* nob.) In typical *E. vinaceum* young specimens tend to have a grey-tinged stipe, but in mature specimens the yellow colour is unmistakable. As there is no significant microscopical difference between *E. vinaceum* var. *vinaceum*, var. *fumosipes* and var. *violeipes* we treat these taxa at the varietal level.

**Entoloma vinaceum** var. *violeipes* Arnolds & Noordeloos, **var. nov.**


English description, plate and figures in Arnolds & Noordeloos, 1980.

**Entoloma xanthocaulon** Arnolds & Noordeloos, **spec. nov.**


**Etymology.** ξάνθος, yellow; κανθάρος, stipe.

English description, plate and figures in Arnolds & Noordeloos, 1980.
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