Notes RBG Edinb. 45(3): 549–557 (1988)

SOME BRITISH OMPHALINOID AND PLEUROTOID AGARICS

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ABSTRACT. Two omphalinoid agarics new to Britain, *Gerronema marchantiae* and *Melanomphalia nigrescens*, are described and the distribution of *Phytoconis luteovitellina* and *P. viridis* considerably expanded. The opportunity is taken to make several new combinations at various ranks in *Arrhenia*, and in *Ramicola*.

NEW RECORDS

Gerronema marchantiae Singer & Clemençon in Schweiz Z. Pilzk. 49:119 (1971). Fig. 1A–G.

During an extensive survey of the fungal flora of Shetland (VC 112) several additions to the flora of the British Isles have surfaced. It was on a spring visit that a huge troop of an unfamiliar *Gerronema* was collected amongst *Marchantia polymorpha*, later identified as *Gerronema marchantiae*; a full description is given:

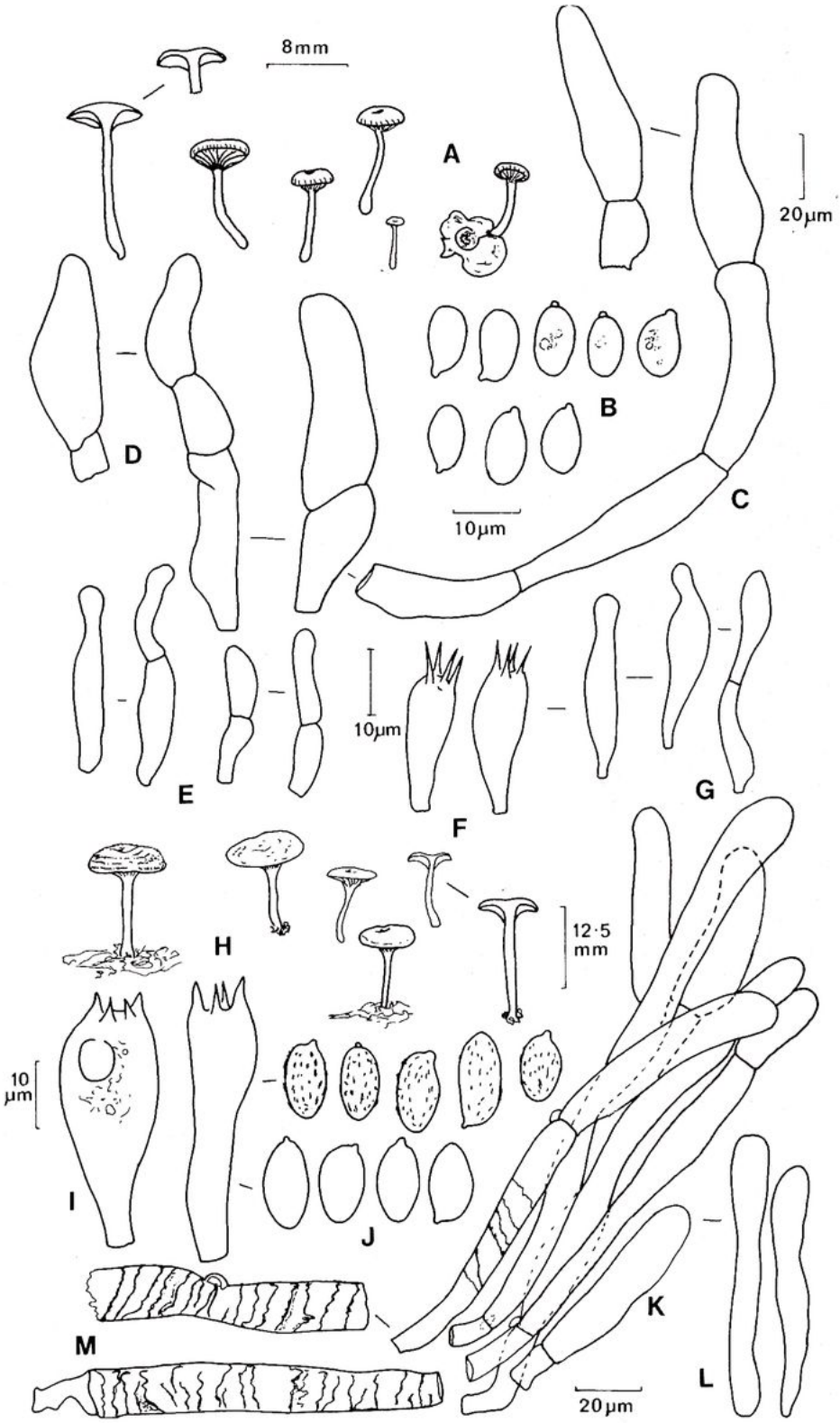
Pileus 2·5–8mm, bright tawny orange to deep apricot with darker almost rust-coloured centre, drying pale apricot or sienna, non-striate or slightly striate with age, margin slightly wavy or even slightly upturned, mottled, hygrophanous. *Lamellae* distinct, deeply decurrent although not arcuate, pinkish orange or peach coloured, whitish then tinged with colour of pileus, finally buff or cream-colour when dry. *Stipe* 8–12×0·5–1(–1·2)mm, similarly coloured to pileus or slightly paler, darker at apex and white at very base, hollow, smooth, with a few hyphal connections attached to old liverwort. *Context* thin, concolorous with pileus; clamp-connections absent. *Odour* and *taste* indistinct. *Spore-print* white.

Spores (8–)9–11×4–5·5μm, elongate, ellipsoid in face- and side-views, hyaline, non-amyloid, acyanophilous, smooth. *Basidia* 4-spored, clavate, hyaline. *Cheilocystidia* and *pleurocystidia* absent; *caulocystidia*, rare, scattered, lageniform, hyaline, thin-walled. *Hymenophoral trama* regular. *Pileipellis* a cutis of filamentous hyphae with slight ornamentation of widest cells, 12·5–17.5μm; end-cells ⩽22·5μm broad.

SCOTLAND: Shetland, Voe, Sae water, 17 vi 1987, *Watling* 19865 (E) (coloured photograph in *Mycologist* 3:42, 1989).

This species is joined with *G. daamsii* Marxmüller & Clemençon in the recently erected section *Hepaticophila* Clemençon. Both species grow with *Marchantia* but the latter possesses numerous bunches of caulocystidia (8–10μm broad). The Shetland collection, in keeping with a placement in *G. marchantiae*, had only rare lageniform cells not more than 4μm broad.

The locality might suggest the fungus is adventitious as it was found on a newly colonized area of peat recently cut by a drainage channel running to a loch from a newly constructed road. Here the peat levelled out and the *Marchantia* formed enormous sheets, as well as just above the high water mark where a line of old *Scirpus* stems had accumulated. This agaric is known from the Alps and Scandinavia (Denmark).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Melanomphalia nigrescens Christiansen in Friesia 1:288 (1936) Fig. 1 H–M.

During fieldwork in South Yorkshire D. J. Jeffries collected an unfamiliar dark *Omphalia* resembling *O. maura*, i.e. *Myxomphalia*. However, the dark olive grey spore-print and ornamented basidiospores indicated the genus *Melanomphalia*. Apparently there is some variation in spore-size in *M. nigrescens* and because this species is so rarely seen the significance of this variation is not known. The Yorkshire material comes within the limits of the taxon. A full description is given:

Pileus 8–15mm diam., hemispherical with depressed centre and recurved margin, snuff-brown to hazel with sepia scales towards centre, darkening with age, scurfy; veil absent. *Lamellae* decurrent, thick, widely spaced, grey, blackening with age. *Stipe* 10–20 × 2–3mm, central, concolorous with pileus, blackening with age. *Context* thin, dark; clamp-connections present. *Odour* and *taste* indistinct. *Spore-print* olivaceous grey.

Spores 10–12(–15) × 6–7μm, elliptic-amygdaliform in side-view, elongate ellipsoid in face-view, irregularly verruculose. *Basidia* 4-spored, clavate, infused with greyish brown pigment. *Cystidia* absent. *Hymenorphoral trama* regular. *Pileipellis* of filamentous hyphae with smooth or irregularly roughened slightly swollen, elongate end-cells, 5–12·5(–17·5)μm broad, some adhering in small, suberect groups.

ENGLAND: Yorkshire, near Doncaster, Sprotborough, Pot Ridings Wood, 3 ix 1987, *D. Jefferies* [*Watling* 20553] (E).

The site in which the present agaric was collected was a limestone tip; this may indicate that the fungus is adventitious, a possibility Moser (1978) and Singer (1986) favour. The groundcover lacked grasses and consisted of very sparse, heavily vesicular-arbuscular infected herbs, and young birch trees; the soil was pH 8·0. In Europe *M. nigrescens* was previously known only from Denmark.

Melanomphalia is currently placed in the Crepidotaceae but even there it holds a rather isolated position. The genus is widely distributed in the Americas, tropical East Africa and Australasia, but concentrated mainly in tropical and warm temperate areas of South and Central America. *M. nigrescens* appears to hold an isolated position even within the genus which was erected for it, but which has been expanded considerably to take in other elements (Singer, 1970; Singer, 1986).

NEW DISTRIBUTIONS AND RECORDS OF OMPHALINOID AGARICS

The omphalinoid agarics described in this section should be sought under *Gerronema* in Clemençon (1982) and under *Omphalina* in Dennis, Orton & Hora (1960).

Phytoconis viridis (Ach.) Redhead & Kuyper in Mycotaxon 31:222 (1988).

This is what has previously been called *O. luteolilacina* (Favre) Henderson and *O. hudsoniana* (Jenn.) Bigelow, and is consistently associated with the

FIG. 1. A–G, *Gerronema marchantiae*. A, sections and habit sketch with one basidioma attached to *Marchantia* thallus; B, basidiospores; C & D, components of pileipellis; E & G, caulocystidia; F, basidia. H–M, *Melanomphalia nigrescens*. H, sections and habit sketch; I, basidia; J, basidiospores; K, group of hyphae of pileipellis forming scurfiness; L, end-cells of pileipellis; M, ornamented hyphae of lower part of pileipellis.

thallus of the lichen *Coriscium* which is itself based on *Endocarpon viride* Ach. *O. hudsoniana* was the name used by Watling when discussing Scottish montane agarics (Watling, 1987 & 1988). Henderson (1950) gave a description of Scottish material when he made the new combination *O. luteolilacina*.

This is a common and widespread agaric in Scotland (Watling, 1987) and is well known in mountain regions, although it can also be found at lower altitudes. There is only one published record of this agaric occurring in England as *O. luteolilacina*, made by Kallio, in Cumberland (Moor House, 3 xi 1967; Heikkila & Kallio, 1969). During the autumn of 1986 in an area well known as being a refugium for vascular plants during the last advance of the ice in the Pleistocene (Watling, 1988) two further collections were made. It is not suggested that the fungus is a remnant of that flora but the record reflects the isolated nature of the habitat. Whilst curating un-mounted material at Edinburgh my colleague, B. J. Coppins located a further collection from Devon. Material examined: England, Durham, Cow Green, on peaty soil with *Coriscium*, 22 ix 1986, *Watling* 20438 (E); Windy Bank Fell, on peaty soil with *Coriscium*, 22 ix 1986, *Watling* 20439 (E). Devon, Dartmoor, Black Tor, on peat, 5 ix 1971, *P. Harrold* 689 (E).

Although the production of the basidiomes is a common phenomenon in Scotland this is of rather rare occurrence southwards, although the sterile foliose thallus can be located as far south as the SW counties of England. It is interesting to speculate how this basidiomycete spreads: by basidiospores which are rarely produced, or by vegetative fragments of thallus.

Phytoconis luteovitellina (Pilát & Nannfeldt) Redhead & Kuyper in Mycotaxon 31:222 (1988).

This is what has previously been called *Omphalina luteovitellina* Pilát & Nannfeldt in British floras and under that epithet was transferred to the genus *Botrydina* by Redhead & Kuyper (1987). This is a common and widespread agaric in Scotland (Watling, 1987) usually above 750m in the high plateaux and mountain ranges; it is also known, although rather rarely, from lower localities in central Scotland, e.g. near Dollar (legit I. Munro, see below). Examination of material at Kew indicates that this agaric is also present in Snowdonia, N Wales. Its distribution can now be extended to include central Wales. A collection from the head waters of the Ystwyth was taken from algal scum-covered rocks in autumn 1987.

Redhead & Kuyper (1987) consider that *Agaricus alpinus* Britzelmayr is in fact a synonym of *P. viridis* and not of *P. luteovitellina*; it was under the name *Omphalina alpina* that it was discussed by Watling (1987 & 1988)
SCOTLAND: Kinross: on permanently damp ledge on vertical outcrop on steep NNE face of Lendrick Hill, 305m above S Quoich Burn, 13 ix 1987, *I. Munro* [*Watling* 20123] (E).
WALES: Cardiganshire, Cwmystwyth, on crags below Giefas, on wet dripping rocks covered in *Botrydina*, 305m, 25 ix 1987, *Watling* 20125 (E).

Redhead (pers. comm.) has pointed out to me that in error I indicated (Watling, 1988) that *Botrydina* contained a cyanobacteria. The phycobiont in this lichen and in *Corscium* is in fact *Coccomyxa* which is a member of the Chlorophyta and therefore not directly capable of nitrogen fixation. Certainly they are known to fix CO_2 and therefore add photosynthate to the

ecosystem, even at low temperature (Heikkila & Kallio, 1966). Perhaps in parallel to some of the other biotrophs in montane areas, e.g. *Pezizella ericae* D. J. Read with Ericaceae, they may also make available from humus otherwise locked-up proteinaceous nitrogen fractions.

Omphalinoid members of the genus Arrhenia

In the forthcoming part of the British Fungus Flora the genus *Arrhenia* is taken in the expanded form outlined by Redhead (1984) and hinted at by Corner (1966), Kühner & Lamoure (1972), and Moser (1978). For over a century the genus *Arrhenia* was monotypic with *A. auriscalpium* Fr., a species of montane and arctic areas. However, it has long been known that a continuous morphological series could be identified ranging from *A. auriscalpium* to *Leptoglossum*, a genus at one time placed in the Cantharellaceae (see Dennis, Orton & Hora, 1960), and to a small group of small grey, pleurotoid fungi segregated out by Kühner & Lamoure (1972) into the genus *Phaeotellus*. The series continues further into a second small group of agarics with parallel pigmentation and anatomy formerly associated with *Omphalina* Quél.

Species of *Phaeotellus* were placed in *Pleurotellus* in the *New Check List of British Agarics and Boleti* (Dennis, Orton & Hora, 1960) but the concept for the latter genus adopted therein was very heterogeneous. This Orton (1969) later recognized, and Singer (1975, 1986) and Moser (1978) etc. maintain *Leptoglossum* as distinct from *Arrhenia* but include in the former the dull-coloured species of *Omphalina* referred to above. Undoubtedly they are all congeneric and the necessary transfers are made herein.

Arrhenia griseopallida (Desm.) Watling, **comb. nov.**

Basionym: *Agaricus griseopallidus* Desmazières, Plantes Cryptogamique du Nord de la France, Exsic. Crypt. series 1 Fasc. 3, No. 120, (1826).

Syn.: *Omphalina griseopallida* (Desm.) Quelét, Enchiridion Fungorum 44 (1886) [also placed in *Omphalia* in 1872 by the same author].

Leptoglossum griseopallida (Desm.) Moser, Kleine Kryptogamenflora, ed. 3, 127 (1978), nom. inval. (Art. 33.2).

Arrhenia rickenii ([Singer ex] Hora) Watling, **comb. nov.**

Basionym: *Omphalina rickenii* Hora in Trans. Brit. Mycol. Soc. 43:454 (1960).

Syn.: *Leptopus rickenii* Singer in Lilloa 22 (1949): 735 (1951), nom. nud.

Leptoglossum rickenii (Hora) Singer, Agaricales in Modern Taxonomy, ed. 3, 280 (1975).

Misidents: *Omphalina muralis* (Sow.: Fr.) Quélet, 1872 s. Ricken in Die Blätterpilze 388 (1915), Romagnesi etc.

O. rustica Quélet s. Kühner & Romagnesi, Flore Analytique des Champignons Supérieurs de France 127 (1953), Moser etc.

Cantharellus helvelloides Bulliard s. Quélet, Enchiridion Fungorum 139 (1886).

C. cupulatus Fries s. Rea, British Basidiomycetae 545 (1921).

Now that *Arrhenia* has expanded it is worth giving some recognition to the configuration of the hymenophore by separating the various distinct morphological forms into taxonomic groupings. It is therefore proposed to recognize the following new taxa, two of which are new combinations:

Arrhenia Fr. subgenus **Arrhenia**

This contains only the type-species, *A. auriscalpium* Fr., with its stalked, ear-like basidiomata. It is not known as yet from the British Isles.

Arrhenia subgenus **Leptoglossum** (P. Karsten) Watling, **comb. et stat. nov.**
Basionym: *Leptoglossum* P. Karsten, Rysslands Hattsvampar 1:242 (1879).
Type: *Agaricus muscigenus* Fr.

This comprises species with a rugose, veined or netted hymenium and rather irregular, variable shaped basidiomata.

Arrhenia subgenus **Phaeotellus** (Kühner & Lamoure) Watling, **comb. et stat. nov.**
Basionym: *Phaeotellus* Kühner & Lamoure in Botaniste 60:24, 1972.
Type: *Agaricus acerosus* Fr.

This comprises species with distinct gills.

Section **Phaeotellus**

This comprises species with pleurotoid habit and well-developed gills.

Section **Omphalariae** Watling, **sect. nov.**

Basidiomata griseo-fuligineus hygrophanous; pileus pruinatus vel rugulosus; stipes nudus vel minute pruinatus; lamellae anastomosoideae; hyphis haud fibuligerus, vel fibuligerus; cystidia nulla.

This section covers the omphalinoid element in subgenus *Phaeotellus*. Type species *Agaricus griseopallidus* Desm.

THE PLEUROTOID CREPIDOTUS HAUSTELLARIS AND ITS ALLIES

Crepidotus haustellaris (Fr.: Fr.) Kummer is undoubtedly more closely related to the complex including *Naucoria centunculus* (Fr.) Kummer than to other members of the genus *Crepidotus*. The structure of the basidiospores and pileipellis are all in keeping with *N. centunculus*, the former being elliptic-phaseoliform, thin-walled and lacking a germ-pore and the pileipellis a disrupted hymeniform palisade; members are also apparently paravelangiocarpic and not gymnocarpic. Bearing these features in mind *Crepidotus haustellaris* was transferred by Watling (1987) to the then currently considered valid genus *Simocybe* to be associated with the closely related *C. rubi* (Berk.) Sacc. previously transferred by Singer (1962).

Unfortunately Kuyper & Bas (1987) have demonstrated unequivocally that *Simocybe* is the correct name for *Phaeocollybia* Heim, 1931 and that *Ramicola* Velenovský, 1929 is the correct genus for members of the *Naucoria centunculus* group. There is no doubt that *N. centunculus* is quite different from the true members of the genus *Naucoria* based on *Agaricus escharoides* viz. *Alnicola* Kühner, with their roughened, amygdaliform, snuff-brown basidiospores. Romagnesi (1962) related *N. centunculus* to *Agrocybe*.

As any account of pleurotoid fungi must include *Crepidotus haustellaris* it is necessary to assemble a series of new combinations.

A summary of the genus *Ramicola* is provided below.
Ramicola Velenovský in Mykologia 6:76 (1929)
Type (originally monotypic): *R. olivacea* Velenovský, loc. cit. (= *R. rubi* (Berk.) Watling).

Ramicola centunculus (Fr.) Watling, **comb. nov.**
Basionym: *Agaricus centunculus* Fr., Syst. Mycol. 1:262 (1821).
Syn.: *Naucoria centunculus* (Fr.) Kummer, Der Führer Pilzk. 78 (1871).
Simocybe centunculus (Fr.) Karsten, Rysslands Hattsvampar 1:420 (1879).
Hylophila centunculus (Fr.) Quélet, Enchiridion Fungorum 100 (1886).
Agrocybe centunculus (Fr.) Romagnesi in Bull. Soc. Mycol. Fr. 78:342 (1962) with newly described form (f. *filopes* nomen nudum).
Ramicola centunculus (Fr.) Kühner & Romagnesi, Flore Analytique de Champignons Supérieurs de France 236 (1953) nom. inval. (Art 33.2).

Ramicola haustellaris (Fr.: Fr.) Watling, **comb. nov.**
Basionym: *Agaricus haustellaris* Fr.: Fr., Syst. Mycol. 1:274 (1821) sanctioned by Fries who referred to 'A Flurstedlensis *Batsch C.I.p.* 171 (icon pessuma). A. resupinat. *With. p.* 304. A. haust. *Fr. Obs.* 2.*p.* 232.'
Syn.: *Crepidotus haustellaris* (Fr.: Fr.) Kummer, Der Führer Pilzk. 74 (1871).
Ramicola haustellaris (Fr.: Fr.) Kühner & Romagnesi, Flore Analytique des Champignons Supérieurs de France 236 (1953), nomen sed non planta.
Agrocybe haustellaris (Fr.: Fr.) Romagnesi in Bull. Soc. Mycol. Fr. 78:342 (1962).
Simocybe haustellaris (Fr.: Fr.) Watling in Biblio. Mycol. 82:39 (1981).
Type data: Europe, Sweden, August–October c.1821. Amongst rotting branches of poplar (*Populus*) etc. No authentic material at UPS; no plate cited (but see above).

Ramicola laevigata (Favre) Watling, **comb. nov.**
Basionym: *Naucoria centunculus* var. *laevigata* Favre in Mat. Flore Crypt. Suisse 10 (3):138 (1948).
Syn.: *Agrocybe laevigata* (Favre) Romagnesi in Bull. Soc. Mycol. Fr. 78:356 (1962) [not 1952 as in Watling (1981)].
Simocybe laevigata (Favre) Orton in Notes RBG Edinb. 29:78 (1969). [Watling (1981) made an unnecessary combination].
Type data: Europe, Switzerland, La Chenalotte, July–September 1932–1944. On herbaceous material in wet areas. Type (in G) fragmentary (Monthoux, in litt) notes in G consulted.

Ramicola obscura (Romagnesi) Watling, **comb. nov.**
Basionym: *Naucoria centunculus* var. *obscura* Romagnesi in Bull. Soc. Mycol. Fr. 58:149 (1944).
Syn.: *Simocybe centunculus* var. *obscura* (Romagnesi) Singer, Agaricales in Modern Taxonomy, ed. 2, 588 (1962).
Simocybe obscura (Romagnesi) Reid in Trans. Brit. Mycol. Soc. 82:224 (1984).

Ramicola reducta (Fries) Watling, **comb. nov.**
Basionym: *Agaricus (Collybia) reductus* Fr., Syst. Mycol. 1:133 (1821): see Monogr. Hymenomyc. Suec. (Consolid. ed.) 1:379 (1857).

Syn.: *Naucoria reducta* (Fr.) Sacc., Syll. Fung. 5:849 (1887).
Simocybe reducta (Fr.) Karsten in Rysslands Hattsvampar 1:429 (1879). [Watling (1981) made an unnecessary combination.]
Agrocybe reducta (Fr.) Romagnesi in Bull. Soc. Mycol. Fr. 78:342 (1962), nom. inval. (Art. 33.2).
Type data: Europe, Sweden. No authentic material in UPS; based on plate in Icones Select. Hym. II: 24 t. 125, f.3. (1874).

Ramicola rubi (Berk.) Watling, **comb. nov.**
Basionym: *Agaricus rubi* Berkeley in Hookers' English Flora 5(2):102 (1836).
Syn.: *Crepidotus rubi* (Berk.) Sacc., Syll. Fung. 5:881 (1887).
Naucoria rubi (Berk.) Singer in Sydowia 6:348 (1952).
Simocybe rubi (Berk. apud Hooker) Singer in Sydowia 15:72 (1962).
Naucoria effugiens Quélet, Champ. Jura Vosges 2:307 (1873).
Hylophila effugiens (Quélet) Quélet, Fl. Mycol. France 86 (1888).
Agrocybe haustellaris f. *effugiens* (Quélet) Romagnesi in Bull. Soc. Mycol. Fr. 78:343 (1962).
Ramicola olivacea Velenovský in Mykologia 6:76 (1929), fide Svrček (1966).
Misidents.: *Crepidotus haustellaris* (Fries: Fries) Kummer, sensu Pilát, fide Dennis, Orton & Hora, 1960.
Naucoria haustellaris (Fries: Fries) sensu Kühner & Romagnesi, 1953, fide Dennis, Orton & Hora, 1960.
Type data: Europe, England, Margate, on sticks especially bramble (K).
Favre (1948) considered that *Ramicola olivacea* was very probably a small, thin-fleshed form of *Naucoria centunculus*.

Ramicola sumptuosa (P. D. Orton) Watling, **comb. nov.**
Basionym: *Naucoria sumptuosa* P. D. Orton in Trans. Brit. Mycol. Soc. 43:324 (1960).
Syn.: *Simocybe sumptuosa* (P. D. Orton) Singer in Sydowia 15:74 (1962).
Agrocybe sumptuosa (P. D. Orton) Romagnesi in Bull. Soc. Mycol. Fr. 78:342 (1962).
Naucoria centunculus var. *luxurians* Romagnesi in Bull. Soc. Mycol. Fr. 58:149 (1942).
Type data: Europe, British Isles, Surrey, Mickleham, Juniper Hall, on trunk of beech (*Fagus*), 12 x 1952, *Orton* 53 (K, E).

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