



Plate 13. a–e. *Roumegueriella rufula* and anamorph, *Gliocladium* sp. a. Ascus with ascospores. b. Immature asci with ascospores. c. Ascus with ascospores in median focus to show wall ornamentation. d. Conidiophore with conidiogenous cells and developing conidia. e. SEM of ascospore. a–e. CBS 346.85. Scale bars: a–d = 10 μ m; e = 5 μ m.

NOTES.— An attempt to isolate ascospores from the fresh specimen failed. No anamorph was associated with the ascomata on the host. This species is distinguished in *Protocreopsis* by the green hyphae that enclose the ascomata.

ROUMEGUERIELLA Speg., in Roumeguère & Spegazzini, *Rev. Mycol. (Toulouse)* 2: 18. 1880.

Type: *R. muricospora* Speg., a synonym of *R. rufula* (Berk. & Broome) Malloch & Cain.

= *Lilliputia* Boud. & Pat., *Bull. Soc. Mycol. France* 16: 144. 1900. — Type: *L. gaillardii* Boud. & Pat., a synonym of *R. rufula* (Berk. & Broome) Malloch & Cain.

= *Lysipenicillium* Bref., *Unters. Gesamtgeb. Mykol.* 14: 210. 1908. — Type: *L. insigne* Bref., a synonym of *R. rufula* (Berk. & Broome) Malloch & Cain.

Ascomata globose, soft, non-ostiolate, disintegrating at maturity, yellow to reddish-brown, of pseudoparenchymatous tissue; asci saccate, evanescent; ascospores globose, hyaline, ornamented. Anamorph *Gliocladium*-like. On dung and well-rotten debris.

NOTES.— Spegazzini's generic description of *Roumegueriella* stated that the genus stands questionably between 'Sphaeropsideos et Hyphomycetes'; he apparently did not see asci in the type specimen and considered this to be an asexual fungus. However, Hughes (1951) and later Malloch & Cain (1972) reviewed the history of this genus noting that it is a cleistothecial ascomycete. Within the *Hypocreales*, *Roumegueriella* is one of six cleistothecial genera; it is most

closely allied with another cleistothecial genus, *Heleococcum*, both of which were confirmed as members of the *Hypocreales* using molecular data (Rehner & Samuels, 1995). *Roumegueriella* includes two species.

The unispecific genus *Lilliputia* was originally described as a member of the *Tuberaceae* because of its cleistothecial ascomata. Malloch & Cain (1972) were the first to recognize that *L. gaillardii* is a synonym of *Roumegueriella rufula*.

Brefeld based his name *Lysipenicillium* upon *Penicillium insigne* without citing author and publication, simply stating: 'Eine Form von *Penicillium* ist als *P. insigne* fälschlich bezeichnet'. Although two later homonyms of this binomial exist, Brefeld was probably referring to *P. insigne* (G. Winter) Schröter based on *Eurotium insigne* G. Winter as listed below. Brefeld gave a clear description and illustration of *Roumegueriella rufula* including ascomata. The interpretation of *Lysipenicillium* as a possible synonym of *Gliocladium* as suggested by Raper & Thom (1949) is therefore not correct. All epithets described for this fungus in *Gliocladium* include the teleomorph and are therefore regarded as synonyms of *R. rufula*, while the anamorph strictly speaking has not been named.

Roumegueriella rufula (Berk. & Broome) Malloch & Cain, *Canad. J. Bot.* 50: 64. 1972. — Plate 13, a–e.

= *Chaetomium rufulum* Berk. & Broome, *Ann. Mag. Nat. Hist.*, Ser. 4, 11: 348. 1873.

= *Lilliputia rufula* (Berk. & Broome) S. Hughes, *Mycol. Pap.* 42: 2. 1951.

= *Eurotium insigne* G. Winter, in Rabenh., Fungi Europaei no. 1732, 1874

= *Lysipenicillium insigne* Bref., Unters. Gesamtgeb. Mykol. 14: 210, 1908.

= *Lilliputia insignis* (G. Winter) Dennis & Wakefield, Trans. Brit. Mycol. Soc. 29: 145, 1946.

= *Roumegueriella muricospora* Speg., in Roumeguère & Spegazzini, Rev. Mycol. (Toulouse) 2: 18, 1880.

= *Cephalotheca francisci* D. Sacc., Malpighia 12: 206, 1898.

= *Lilliputia gaillardii* Boud. & Pat., Bull. Soc. Mycol. France 14: 144, 1900.

= *Mycogala macrospora* Jaap, Verh. Bot. Ver. Brandenb. 52: 19, 1910.

= *Gliocladium prolificum* Bainier, Bull. Trimestriel Soc. Mycol. France 26: 385, 1910.

= *Gliocladium borysseviczii* Pidopl., Mikrobiol. Zhurn. 12(2): 36, 1950 (also Gribnaya Fl. grub. Kormov: 197, 1953).

Anamorph: *Gliocladium*-like.

Ascomata superficial, without a stroma, solitary or in groups of 2–3, irregularly globose, 450–640 µm diam, dark yellow to reddish brown, non-ostiolate; ascomatal wall thin, of indistinct cells, becoming brittle and breaking down at maturity to expose the ascospores. Interthecial elements lacking. Asci irregularly saccate, 46–66 × 24–35 µm, evanescent at maturity. Ascospores globose, 16–23 µm diam, hyaline, smooth when young, becoming densely echinulate.

HABITAT.— On various kinds of detritus including goose dung, damp paper, mushroom compost, nematodes, decaying seaweed, and rotting grass clippings.

DISTRIBUTION.— Belgium, England, France, Germany, India, Ireland, Japan (Udagawa *et al.*, 1994), Mexico, Taiwan (Yaguchi *et al.*, 1997), United States (California, Maine).

TYPES.— GERMANY. 'Auf Gänsemist in meinem Pilz-Cultur-Kasten. Halle a/S. im Juli 1873', Rabenhorst, Fungi Europaei no. 1732 (BPI, isotype of *Eurotium insigne*, none with good ascomata); Schleswig-Holstein: Reinbek bei Bergedorf, 'auf abgeschnittenem, faulendem Gras, 25 X. 1908, leg. Otto Jaap,' Jaap, Fungi Selecti Exs. no. 3961 (BPI, isotype of *Mycogala macrospora*). BELGIUM. Malmedy, 'in foliis et ramentis dejectis putrescentibus prope Malmedyanum et recentissime, aut. 1879, proxime Toloxam lectis' (isotype of *Roumegueriella muricospora*, not seen). FRANCE. Angers, 'dans la tannée ancienne d'une serre à Palmiers, inter frustulis caldario Andegavensi, Aprili 1900,' Revisio Reliquiae Libertianae (FH – Patouillard 4575, holotype of *Lilliputia gaillardii*).

ADDITIONAL SPECIMENS EXAMINED.— IRELAND. Rathmines Co., Dublin, on [herbivore] dung, 23 May 1935, S.W. Webb (BPI, as *Mycogala macrospora*). SWITZERLAND. Isolated from female *Globodera rostochiensis* buried in soil (CBS 346.85).

ILLUSTRATIONS.— Bainier (1910, Pl. 21, anamorph only); Brefeld (1912, Taf. VII, Figs. 1–7, as *Lysipenicillium insigne*); Hughes (1951, Fig. 12, as *Lilliputia rufula*; Pl. I, Fig.

5–9, as *Chaetomium rufulum*, *Cephalotheca francisci*, *Eurotium insigne*, *Gliocladium prolificum*, and *Lilliputia gaillardii*); Rabenhorst (1874, as *E. insigne*); Udagawa *et al.* (1994, Fig. G).

NOTES.— Hughes (1951) and Malloch & Cain (1972) accounted for the various synonyms of *Roumegueriella rufula*. Hughes (1951) illustrated the variability in ascospore size and presented a detailed account of the specimens of the fungus known up to that time. The anamorph was described in detail by Bainier (1910) as *Gliocladium prolificum*.

A second species was described in *Roumegueriella* as *R. pulchella* Udagawa *et al.* (1994). Although similar to *R. rufula*, *R. pulchella* is differentiated by the small, ellipsoid ascospores, 6.5–8 × 4–5 µm, and the lack of an anamorph.

SELINIA P. Karst., Meddeland. Soc. Fauna Fl. Fenn. 1: 57, 1876

[= *Hypocreopsis* G. Winter, Hedwigia 14: 26, 1875, non P. Karst. 1873]. — Type: *S. pulchra* (G. Winter) P. Karst. = *Hypocreopsis pulchra* G. Winter.

= *Winteria* Sacc., Michelia 1: 281, 1878. Type: *Winteria pulchra* '(G. Winter)' Sacc., a nomenclatural synonym of *S. pulchra* (G. Winter) P. Karst.

= *Seliniana* O. Kuntze, Revis. Gen. Pl. 2: 869, 1891. — Type: *Seliniana pulchra* '(G. Winter)' O. Kuntze, a nomenclatural synonym of *S. pulchra* P. Karst.

Ascomata immersed in stromata, up to five immersed in each stroma, stromata of two parts, external part reddish-brown, of non-descript, small, heavily pigmented cells, internal tissue of *textura epidermoidea*, thin-walled. Ascomata becoming crumpled, ostiolate, with a white, granular opening. Asci clavate, 8-spored. Ascospores ellipsoid, unicellular, hyaline, thick-walled, smooth. Anamorph phialidic. On dung.

NOTES.— *Selinia* was described as a new name for *Hypocreopsis* G. Winter 1875, a later homonym of *Hypocreopsis* P. Karst. 1873. Winter considered his new genus to be similar to *Hypocrea* but differentiated by the few ascomata in each stroma, the distinct form of the asci and ascospores, and the presence of numerous paraphyses. Although paraphyses are described, they were not seen in the specimens examined of *S. pulchra*. Despite the soft-textured, light to bright-colored ascomata, several characteristics of the genus *Selinia* are unusual for members of the *Hypocreales*, specifically the thick-walled ascospores with nerve-like markings

Plate 14. a–f. *Selinia pulchra*. a. Ascomata on natural substratum. b. Median section of ascomata. c. Section of stroma surrounding ascomata. d. Close-up of ascomatal apex. e. Asci with ascospores. f. Asci with ascospores in fluorescence microscopy. a–f. F 48-978 – FLAS. Scale bars: a, b = 500 µm; c, e, f = 50 µm; d = 100 µm.