Key to the species of *Protocrea*

1. Proximal part of ascospores wedge-shaped to ellipsoid, 3.4–3.7 × 2.5–3 µm, hyaline, smooth to very finely spinulose ..... *P. farinosa*
1. Proximal part of ascospores subglobose to oblong, less than 3.5 µm long, hyaline or yellow-green 2

2. Ascospores hyaline, smooth, proximal part oblong, 2.7–3 × *ca* 2.5 µm ..... *P. delicatula*
2. Ascospores pale yellow-green, spinulose, proximal part subglobose, 2.6–3.2 µm diam ..... *P. latissima*

ing as lateral branches of hyphae, unbranched and *Acremonium*-like or producing 2–3 branches, each branch a single phialide, 15–30 × 1.8–3 µm. Conidia subglobose to oblong, 5–10 × 1.5–3.8 µm, smooth, hyaline. Chlamydospores rare, obovate, terminal or intercalary, 6.5–7.8 × 4.5–5.2 µm, verrucose.

Habitat.— On bark of hardwood trees.

Distribution.— Argentina.

Type.— ARGENTINA. Buenos Aires: La Plata, Punta Lara, Boca Cerrada, on trunk of *Ligustrum* sp. in the forest, Apr. 1975, C. E. Gómez (BAFC 24077, holotype – not examined).

Illustrations.— Mercuri & Ranalli (1976, Pl. 1–4).

Notes.— The description given here is paraphrased from the protologue. The illustrations provided with the original description indicate that this is a species of *Protocrea*. The anamorph is strongly suggestive of the anamorphs of *Protocrea farinosa* (Doi, 1972) and *Hypocrea* species such as *H. lactea* (Fr.) Fr. that have effused stromata (Rifai & Webster, 1966b). Mercuri & Ranalli (1976) observed ascomata forming in cultures derived from single ascospores indicating that this species is homothallic.

PSEUDOHYPOCREA Doi, Bull. Natl. Sci. Mus. Tokyo 15: 655. 1972.

Type: *P. citrinella* (Ellis & Everh.) Doi (≡ *Hypocrea citrinella* Ellis & Everh.).

Stroma discrete, discoidal to pulvinate, of compact, intertwined hyphae. Asci cylindrical. Ascospores one-septate, disarticulating into two conical part-ascospores, hyaline, smooth. Anamorph *Acremonium*-like. On bark.

Notes.— Doi (1972) established the unispecific genus *Pseudohypocrea* for a *Hypocrea*-like fungus with ascospores that disarticulate into smooth, distinctly conical part-ascospores. The hyphal nature of the stroma and the conical part-ascospores distinguishes *Pseudohypocrea* from *Hypocrea*. Because no 'true' *Hypocrea* has ascospores comparable to those of *P. citrinella*, it is not necessary to detail stromal anatomy. The smooth, conical part-ascospores and the anatomy of the ascomatal apex are similar to *Hypomyces chrysostomus* and its relatives. In these fungi the ascomata are superficial on a thin subiculum on basidiomata of *Aphyllophorales*, most often members of the *Ganodermataceae*, and their anamorphs are *Acremonium*-like. Only one species of *Pseudohypocrea* is known.

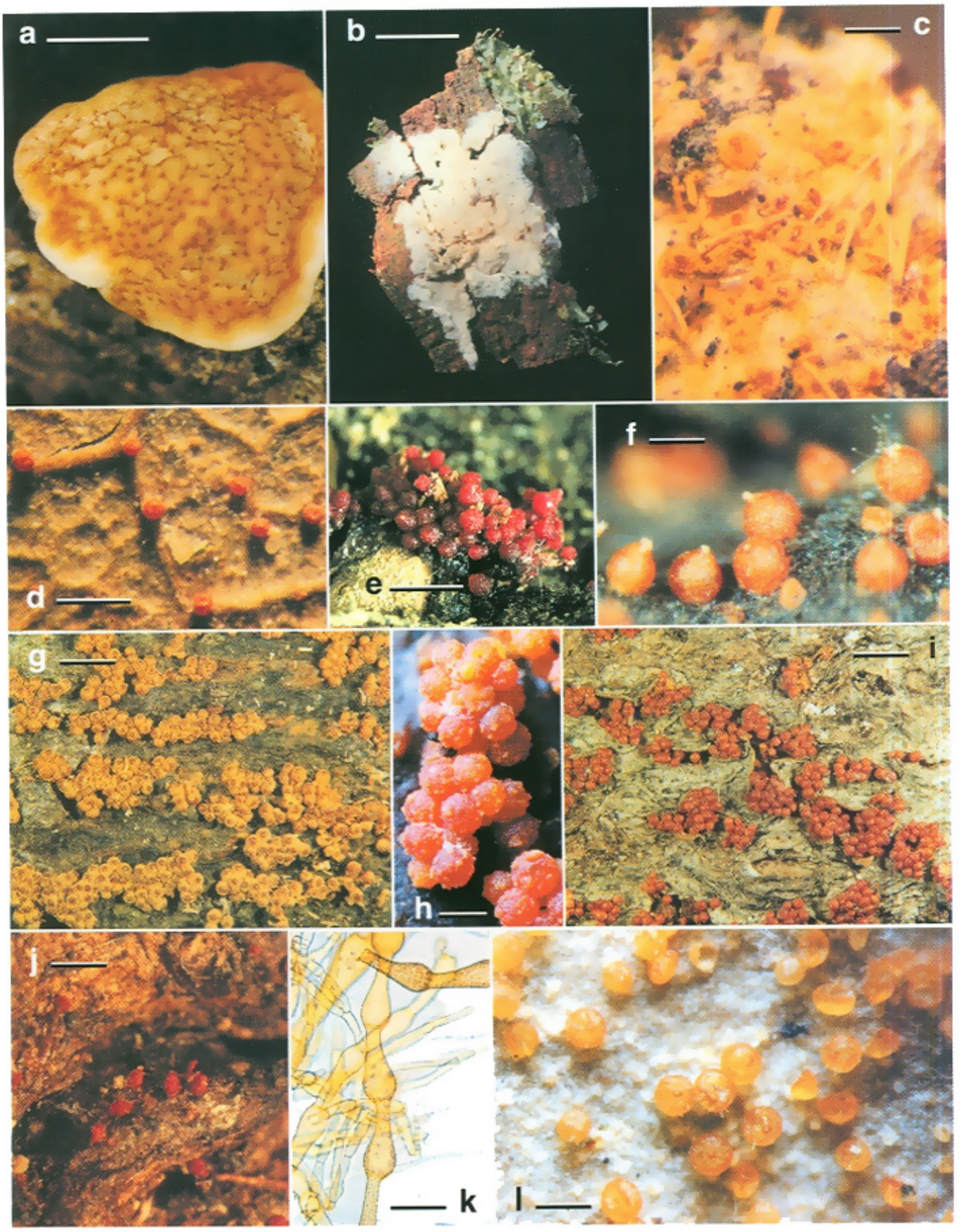
Pseudohypocrea citrinella (Ellis & Everh.) Doi, Bull. Natl. Sci. Mus. Tokyo 15: 655. 1972.— Plate 20, b; Plate 21, d–i; Plate 22, a.

≡ *Hypocrea citrinella* Ellis & Everh., Bull. Torrey Bot. Club 6: 108. 1876.
≡ *Hypomyces citrinellus* (Ellis) Seaver, Mycologia 2: 79. 1910.
≡ *Arachnocrea citrinella* (Ellis) Z. Moravec, Bull. Trimestriel Soc. Mycol. France 72: 165. 1956.

Anamorph: *Acremonium*-like.

Stromata discrete, scattered, pulvinate or discoidal, broadly attached or with margins slightly raised, 0.5–1.5 mm diam, surface smooth, outlines of ascomata not evident, ostiolar openings somewhat darker than the surrounding stromatal tissue, relatively few ascomata in each stroma with considerable sterile tissue separating the individual ascomata, pale yellow, KOH–. Stroma surface of intertwined, 5–6 µm wide hyphae, with *ca* 1.5 µm thick walls. Internal stromatal tissue homogeneous, of intertwined, 6–7 µm wide hyphae, with 1.5–2 µm thick walls. Ascomata pyriform to subglobose, 380–410 µm high × 265–285 µm diam, apex of narrow, brick-like cells, *ca* 3 µm wide, that merge with the periphyses. Asci cylindrical, (90–)100–160(–192) × (2.5–)5–6.5(–8.5) µm, apex thickened, sessile, ascospores uniseriate. Part-ascospores monomorphic, conical, (6–)10–12(–15) × (2.5–)3.5–4.5(–6.5) µm, hyaline, smooth.

Anamorph known only from culture. Conidiophores often arising from thick-walled hyphal elements, unbranched or irregularly branched, each branch a single phialide; phialides 15–40 µm long, 2–3 µm wide at the apex. Conidia ellipsoid to fusiform, 6–12 × 2–2.5 µm,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non-septate, hyaline, smooth, accumulating in hyaline drops of liquid at the apex of each phialide.

HABITAT.— On decaying wood and bark.
DISTRIBUTION.— Temperate and tropical America, Indonesia, Japan, Republic of China; probably cosmopolitan in warmer latitudes.

HOLOTYPE.— UNITED STATES. New Jersey, on dead *Vaccinium corymbosum*, 618 (NY).
ADDITIONAL SPECIMENS EXAMINED.— GUYANA. Cuyuni-Mazaruni Region, VII; Mazaruni Subregion, VII-2; vic. Chinoweing Village, 05°43′ N, 60°18′ W, elev. 450 m, 15 Feb 1987, G.J. Samuels G.J.S. 87-14, Guayana 4727 (NY). INDONESIA. Eastern Dumoga-Bone National Park, on twig of recently dead tree, Sept 1985, G.J. Samuels 2223, det. Y. Doi (BPI 744450). PUERTO RICO. Caribbean National Forest, Pal Hueco, off Rte. 186, 22 Nov. 1992, S.M. Huhndorf 209 & D.J. Lodge, det. G.J. Samuels (BPI 802549; NY); TAIWAN. Fushan Botanical Garden, on twig, 1995, M.-L. Wu, det. G.J. Samuels (BPI 744454). THAILAND. Saraburi Province, Khao Yai National Park, 11 Aug 1997, G.J. Samuels 8372 & P. Chaverri (BPI 745704). VENEZUELA. Territorio Federal Amazonas, Neblina base camp, on dead twig, 27 Jan 1985, A. Rossman 2390 (BPI 745892).

ILLUSTRATIONS.— Doi (1972, Fig. 4); Ellis & Everhart (1892, Pl. 11, Figs. 4–7).
SPECIMEN ILLUSTRATED.— TAIWAN. Fushan Botanical Garden, on twig, 21 Apr 1994, M.L. Wu F3-II-T6, det. G.J. Samuels (BPI 744474, TMTC).

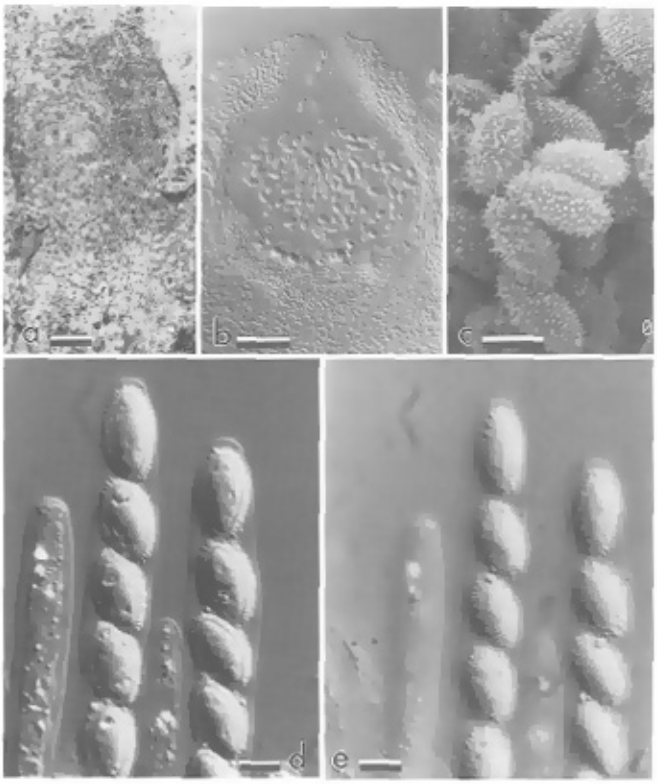

Plate 23. a–e. *Rogersonia striolata*. a. Surface view of stroma and immersed ascomata evident as darkened apices. b. Median section of ascoma. c. SEM of ascospores. d. Apical portion of asci with ascospores in median focus. e. Apical portion of asci with ascospores in off-median focus to show ascospore ornamentation. a–e. Holotype – BPI 749257. Scale bars: a = 1 mm; b = 50 µm; c = 5 µm; d, e = 10 µm.

ROGERSONIA Samuels & Lodge, Sydowia 48: 250. 1996.

Type: *R. striolata* Samuels & Lodge

Subiculum indefinitely effused, light-colored. Ascomata caespitose, numerous, partly to completely immersed throughout the subiculum, pale yellow, papillate, becoming cupulate upon drying. Ascomatal apex free, formed of clavate cells. Subiculum and ascomatal anatomy as in *Hypomyces*. Ascospores non-septate, broadly ellipsoid, hyaline, transversely striate. Anamorph unknown. On decaying woody substrata.

NOTES.— *Rogersonia* is unique within the *Hypocreaceae* in having ascomata immersed in an indefinitely effused, hyphal subiculum combined with the conspicuously transversely striate ascospores. The indefinitely effused subiculum in which numerous ascomata of *R. striolata* are aggregated is similar to the effused stromata of polyporicolous species of *Hypomyces*. In ascomatal anatomy, especially the ascomatal apex, *Rogersonia* is similar to that observed in several agaricicolous species of *Hypomyces* (Rogerson & Samuels, 1994). The combined features of the subiculum and the ascomatal anatomy suggest that *Rogersonia* is related to *Hypomyces*, however, there are significant differences. Species of *Hypomyces* are fungicolous while there is no indication of a fungal host for *R. striolata*. Asci of *Hypomyces* typically have an apical discharge mechanism and ascospores of *Hypomyces* are typically one-septate, apiculate and warted. In species of *Hypomyces* having non-septate ascospores, the ascospores are fusiform rather than broadly ellipsoid. Striate ascospores are otherwise unknown in *Hypomyces* and transversely striate ascospores are otherwise unknown in the *Hypocreaceae*. The relatively large, broadly ellipsoid, conspicuously ornamented ascospores of

Plate 22. a. *Pseudohypocrea citrinella*. **b.** *Rogersonia striolata*. **c.** *Sphaerostilbella lutea*. **d.** *Calonectria* sp. **e.** *Corallomycetella repens*. **f.** *Cosmospora vilior*. **g.** *Lanatonectria mammiformis*. **h.** *Nectria cinnabarina*. **i.** *Neonectria coccinea*. **j, k.** *Ophionectria trichospora*. k. Hyphae from living culture of anamorph, *Antipodium spectabile*. **l.** *Pseudonectria rousseliana*. a. Photograph by Mei-Li Wu, BPI 744474. b. BPI 749255. c. Holotype of *Sphaerostilbe lutea* – FH. d. Holotype of *Nectria venusta* – S. e. CUP–MJ 822. f. BPI 1107402. g. Huhndorf 2002. h. Photograph by J.-F. Magni, specimen A 9827. i. BPI 551493. j. G.J.S. 4829a – NY. k. Type culture of *Antipodium spectabile*, ATCC 28509; l. Photograph by J.-F. Magni, A9491. Scale bars: a, c–e, j = 1 mm, b = 2.5 mm, f, l = 250 µm, g = 2 mm, h = 500 µm, i = 2 mm, k = 10 µm.