

KEY TO THE SPECIES OF *ARACHNOCREA*

1. Part-ascospores mostly 3–4  $\mu\text{m}$  wide, ends acute or subacute, slightly spinulose ..... *A. scabrida*
2. Part-ascospores mostly 2–2.5  $\mu\text{m}$  wide, ends acute, smooth-walled ..... *A. stipata*

land, Waitemata City, Waitakere Ranges, Marguerite Track, on *Rhopalostylis sapida*, 21 Mar. 1977, G. J. Samuels 77-25 (NY ex PDD 35883).

ILLUSTRATIONS.— Doi (1972, Fig. 3).

**DIALHYPOCREA** Speg., Bol. Acad. Nac. Ci. 23: 475, 1919.

Type: *D. puiggariana* Speg.

Stromata discrete, tuberculate with protruding perithecial apices, pseudoparenchymatous, yellow-orange, KOH–. Ascumata immersed below a narrow layer of pseudoparenchymatous stromal tissue, few to several produced within each stroma, individual ascumata retaining their integrity at least over the upper half; wall KOH–. Apical paraphyses persisting among the nearly mature asci. Asci cylindrical, apex with a ring. Ascospores one-septate, disarticulating early in the development at the septum, hyaline, spinulose. Anamorph unknown. On decaying branches.

NOTES.— This unispecific genus was established for a species having *Nectria*-like ascumata and one-septate ascospores that separate into part-ascospores as in *Hypocrea*. Weese (1927) placed *Dialonectria puiggariana* in *Neoskofitzia* Schulzer, a genus for which no type specimen exists. *Dialhypocrea* was considered a synonym of *Hypocrea* by Clements & Shear (1931) and Müller & von Arx (1962). Based on an examination of the type specimen, *Dialhypocrea* is accepted in the *Hypocreaceae*, distinguished from *Hypocrea* on the basis of stromal anatomy and perithecia that are nearly free from each other over a large part of their length. Just as Müller and von Arx (1962) were dubious about placing the species in *Hypocrea*, we are doubtful in retaining *Dialhypocrea*. At the very least, the species would be unusual in *Hypocrea* and there is no doubt about the close affinity of *D. puiggariana* with *Hypocrea*. Characters of asci and ascospores of *D. puiggariana* are typical of *Hypocrea*, and the substratum, i.e. rotten, decorticated wood, is also a feature that sets *Hypocrea* apart in the *Hypocreaceae*. If the anamorph of *D. puiggariana* were a *Trichoderma*, then this species should be placed in *Hypocrea*. However, until the anamorph is discovered or DNA sequences of *D. puiggariana* are analyzed, *Dialhypocrea* is retained as a genus distinct from *Hypocrea*.

**Dialhypocrea puiggariana** Speg., Bol. Acad. Nac. Ci. 23: 475, 1919. — Plate 17, a–d.

≡ *Neoskofitzia puiggariana* (Speg.) Weese, Mitt. Bot. Lab. TH Wien 4: 86, 1927.

≡ *Hypocrea puiggariana* (Speg.) E. Müll., in Müller & von Arx, Beitr. Kryptogamenfl. Schweiz 11(2): 645, 1962.

Anamorph: None known.

Stromata densely gregarious, tuberculate, 1 mm diam  $\times$  0.5 mm high, each with 3–20 ascumata. Stromal surface layer ca 30  $\mu\text{m}$  thick, of angular cells 5–15  $\mu\text{m}$  diam with walls to 4  $\mu\text{m}$  thick; cells of the stroma below the ascumata pseudoparenchymatous, tending to *textura epidermoidea* with ca 4  $\mu\text{m}$  thick walls, not sharply distinguished from the surface region; surface region separated from the ascumata by a narrow layer of small, non-pigmented cells. Ascumata globose to subglobose, 260–310  $\mu\text{m}$  high  $\times$  170–200  $\mu\text{m}$  diam, non-papillate, smooth, easily separating from the surrounding stromal tissue at the apex. Asci narrowly cylindrical, 55–87  $\times$  3.5–6.5  $\mu\text{m}$ , 8-spored, apex with a ring; ascospores uniseriate. Part-ascospores dimorphic: distal part conical to subglobose, (3–)3.5–4.5(–5.5)  $\times$  2.5–3  $\mu\text{m}$ ; proximal part wedge-shaped to oblong, (3.5–)4–5(–6)  $\times$  2–2.5(–3)  $\mu\text{m}$ , hyaline, spinulose.

HOLOTYPE.— BRAZIL, São Paulo, in the forest near Apiaty, on fragments of decaying branches, April, 1890, J. Puiggari 186 (LPS).

**HYPOCREA** Fr., Syst. Orb. Veg. 1: 104, 1825.

Type: *H. rufa* (Pers.: Fr.) Fr. (≡ *Sphaeria rufa* Pers.: Fr.).

≡ *Creopus* Link, Handbuch Erk. Gewächse 3: 349, 1833. — Type: *C. gelatinosus* (Tode: Fr.) Link (≡ *Sphaeria gelatinosa* Tode: Fr.), recognized as *Hypocrea gelatinosa* (Tode: Fr.) Fr.

≡ *Chromocrea* Seaver, Mycologia 2: 63, 1910. — Type: *C. gelatinosa* (Tode: Fr.) Seaver (≡ *Sphaeria gelatinosa* Tode: Fr.), recognized as *Hypocrea gelatinosa* (Tode: Fr.) Fr.

Stromata discrete to effused, pseudoparenchyma or highly compacted hyphae, with ascumatal elevations evident or not, stromatal surface variously wrinkled, creased or tuberculate, margins of stromata free from or adherent to the substratum, nearly hyaline, white, yellow, rufous, dark brown to nearly black; ascumata immersed in the stroma, ascumatal wall and stromal tissues KOH+ or KOH–. Asci cylindrical. Ascospores