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Protocreopsis, a new genus of the Hypocreales

Y. Doi*

Summary. A new genus *Protocreopsis* with the type species *P. zingibericola*, sp. nov., is proposed. *P. palmicola*, sp. nov., is also described. Both have primitive stromata, the structure of which separates them from *Hypocreopsis* Karsten.

Protocreopsis Doi, gen. nov.

Stromata subiculi similia, effusa, tenuia, alba vel albobrunnea, marginibus stromatum irregularibus. Perithecia in stromatibus immersa. Asci unitunicati, hyalini, annulis apicalibus praesentibus. Ascosporae 1-septatae, hyalinae, generaliter fusoideae, laevigatae vel verruculosae vel striatae.

Typus generis: *Protocreopsis zingibericola* Doi.

The present new genus is closely related to *Hypocreopsis* Karsten, represented by *H. lichenoides* (Tode) Karsten and *H. rhododendri* Thaxter. Both genera have *Nectria*-type, 1-septate and hyaline ascospores and *Hypocrea*-type (*Homalocrea*-type), thin and effuse or pulvinate stromata. However, *Protocreopsis* can be separated from *Hypocreopsis* by its primitive stromata, which might be called subicula. *Hypocreopsis*, as delimited by Thaxter (1922), has a radiately lobed, orbiculate stroma, and this type of stroma can be considered to be a peculiarly advanced type.

Hypocreopsis rhododendri Thaxter is illustrated in Fig. 3, for a comparison of the characteristics of *Protocreopsis* and *Hypocreopsis*.

Protocreopsis palmicola Doi, sp. nov.

Stromata subiculo similia, effusa, tenuia, alba vel albobrunnea, usque ad 5×15 mm lata, 200–300 μ m crassa, marginibus stromatum irregularibus, in sectione verticali hyphis laxae intertextis; textura superficialis intricata, texturae interioris stromatum simillima. Stromatum hyphae tenues, hyalinae, incrassatae, dense verrucosae, 4–5 μ m diam. Perithecia subglobosa, omnino in stromatibus immersa, 170–220 μ m in diametro verticali. Ostiola ad stroma sine collis cylindricis. Asci unitunicati, 8-spori, claviformes, 55–70 μ m longi, 8–12 μ m diam. annulo apicali instructi. Ascosporae distichae, 1-septatae, hyalinae, subfusoideae, longitudinaliter striatae, 15–18 $\times$ 4–5 μ m. (Fig. 1.)

On rachises of decayed palm leaves.

NEW GUINEA, near Markham Bridge, Lae, 20 Jan. 1970, Doi D.786 (holotype, TNS, F-192958; isotype, PNG).

The stroma of *P. palmicola* is composed of very loosely interwoven hyphae, and the superficial tissue is almost the same as the inner tissue of the stroma. It might be called a subiculum and such a stroma is considered to be primitive. The ascospores of this fungus did not germinate, probably on account of a long interval between their collection and isolation.

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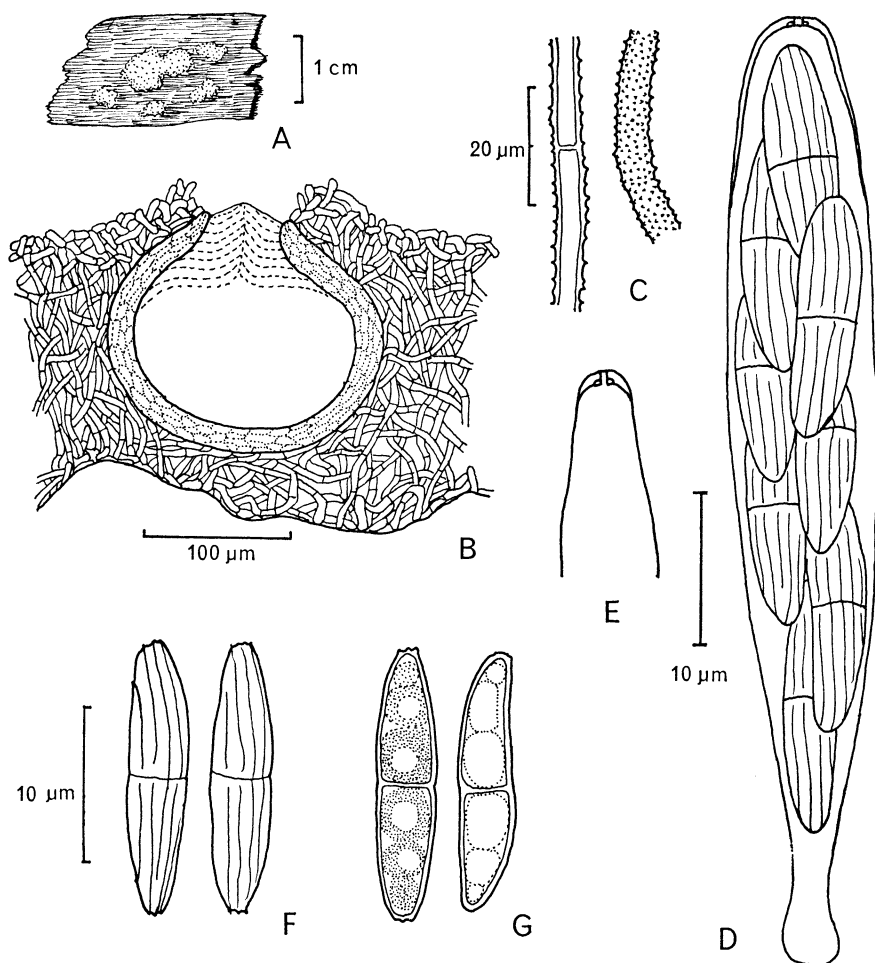


FIG. 1. *Protocreopsis palmicola*. **A**, habit; **B**, vertical section of stroma; **C**, hyphae of stroma; **D**, ascus and ascospores; **E**, apical structure of ascus; **F**, **G**, ascospores. Drawn from the holotype.

***Protocreopsis zingibericola* Doi, sp. nov.**

Stromata irregulariter effusa vel pulvinata, laeviter colliculata, alba vel albo-straminea, 500–600 μm crassa, marginibus stromatum irregularibus, protuberationibus perithecialibus, ostiolis brunneis maculatis, in statu pulvinato 0.5–1 mm diam. in statu effuso usque 3×8 mm ornata. Texturae superficierum stromatum globosae vel texturarum angularium similes, cellulis parietibus tenuibus usque 6–8 μm diam. instructae. Texturae interiores stromatum intricatae, hyphis incrassatis 6–7 μm diam. instructae. Perithecia in stromatibus immersa, subglobosa, 300–400 μm in diametro verticali. Asci unitunicati, 8-spori, claviformes, 180–220 μm longi, 24–27 μm diam., annulis apicalibus praesentibus. Ascosporae distichae, 1-septatae, hyalinae, fusoidae, laeves, interdum circum septa valde constrictae, 65–80 $\times$ 9–11 μm . (Fig. 2.)

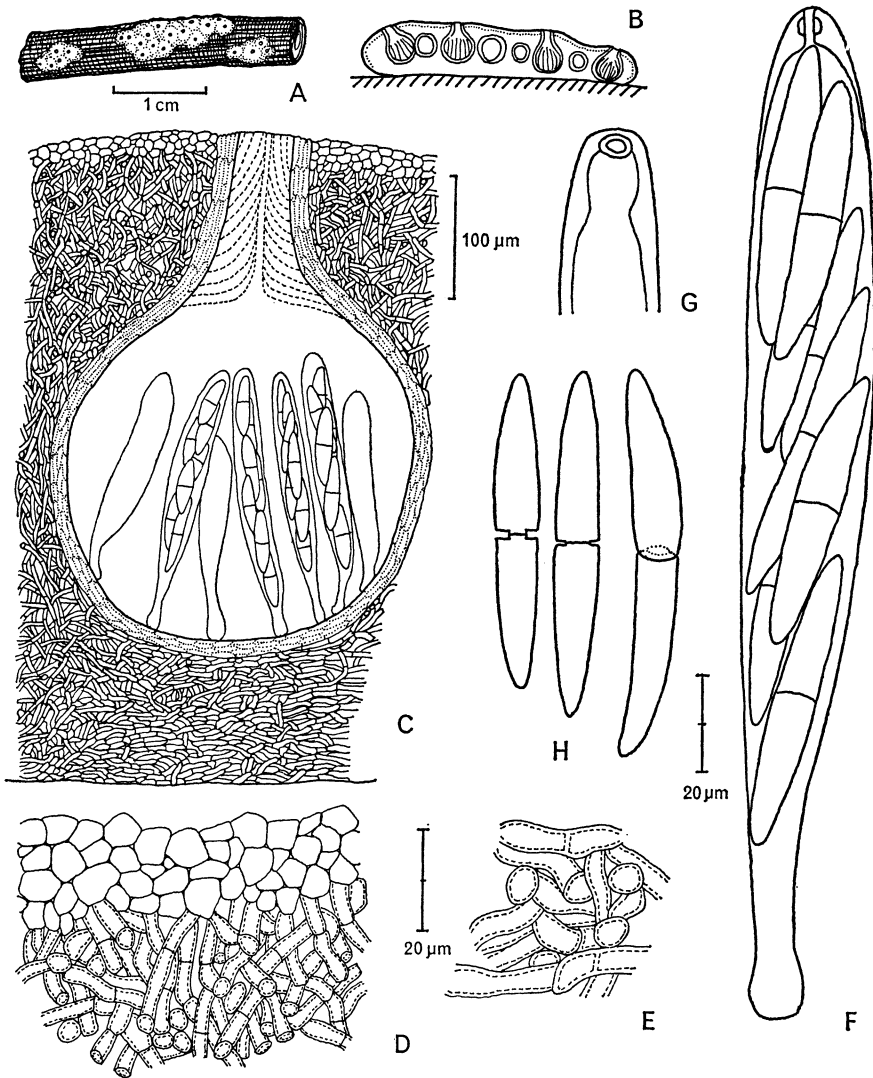


FIG. 2. *Protocreopsis zingibericola*. **A**, habit; **B**, **C**, vertical section of stroma; **D**, vertical section of superficial tissues of stroma; **E**, vertical section of inner tissue of stroma; **F**, ascus and ascospores; **G**, apical structure of ascus. **H**, ascospores. Drawn from the holotype.

On decayed stems and leaves of a species of *Zingiberaceae* in tropical lowlands.

NEW BRITAIN. Rabaul, 1 Jan. 1970, *Doi* D.685 (holotype, TNS, F-192961; isotype, PNG); *ibidem*, 1 Jan. 1970, *Doi* D.681 (TNS, F-192960); *ibidem*, 2 Jan. 1970, *Doi* D.708 (TNS, F-192959).

The present species and *P. palmicola* have white or pale brown, thin and irregularly effused stromata. As these look like mere mycelial masses, not forming any fruitbodies, they may be easily overlooked.

Heim (1953) described the ascospores of *Hypocreopsis lichenoides* (Tode)

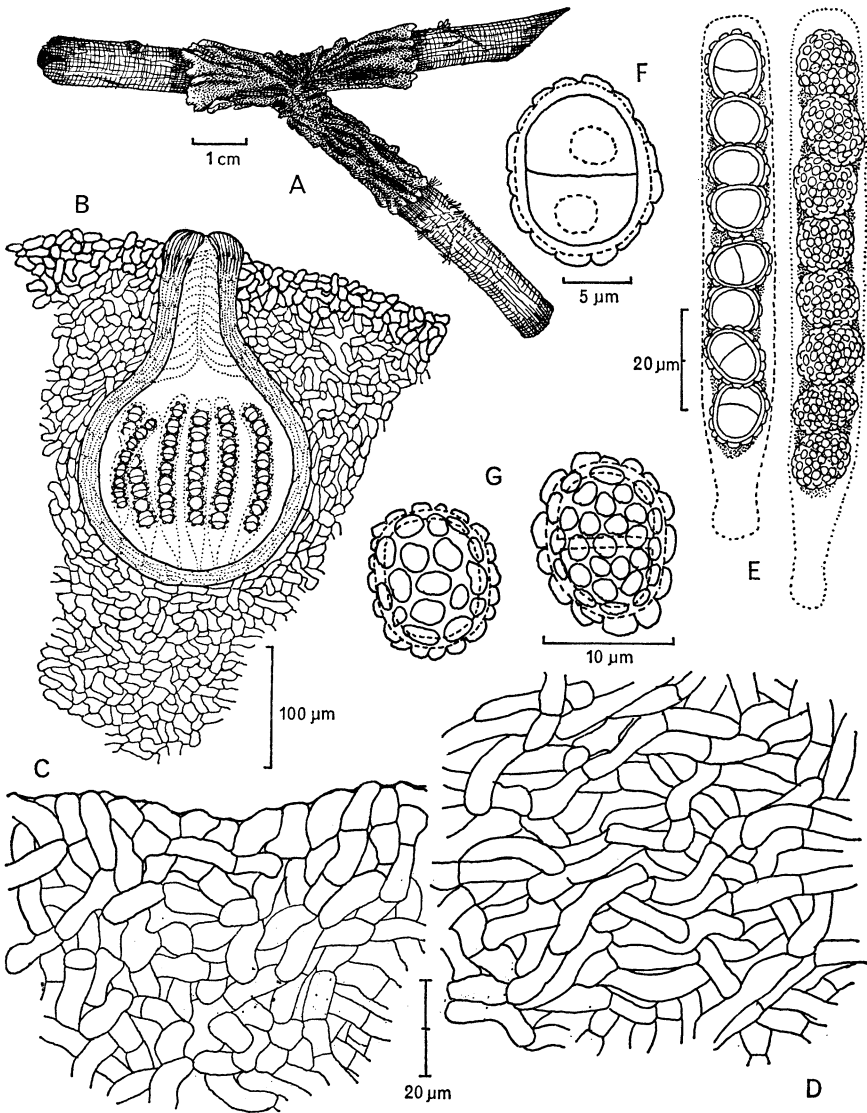


FIG. 3. *Hypocroopsis rhododendri*. **A**, habit; **B**, vertical section of stroma; **C**, vertical section of superficial tissues of stroma; **D**, vertical section of inner tissue of stroma; **E**, asci; **F**, **G**, ascospores. Drawn from an isotype (Reliquiae Farlowianae 11410 in TNS).

Karsten as 1-septate or aseptate, hyaline, elongated elliptic, smooth, and $18.9\text{--}29.5 \times 5.3\text{--}8.7 \mu\text{m}$. Such ascospores are apparently of *Nectria*-type. The ascospores of *P. palmicola* and *P. zingibericola* are also of *Nectria*-type, and similar to those of *Hypocroopsis lichenoides*—the warts of ascospores in *H. rhododendri*, the striation in *P. palmicola*, and the larger size and strong constriction at the septa in *P. zingibericola* are considered to be characteristics only for classification at species level.

Comparing the structure of stromata of *H. rhododendri* with those of *P. zingibericola*, the superficial tissue of the latter is of *textura globulosa*-type close to *textura angularis*-type, while that of the former species is almost the same as that of the inner tissue of the stroma. Although the presence of a superficial layer which is clearly differentiated from the inner tissue of the stroma are generally considered to be evidence of an advanced type of stroma, the stromata of *Protocreopsis* are very friable and more or less resemble subicula. Therefore, the stromata of *Protocreopsis* cannot be considered to be advanced. On the other hand, the superficial tissue of *H. rhododendri* has almost the same tissue-type as the inner tissue of the stroma, except that it is composed of slightly thick-walled hyphae, but the stromata of *H. rhododendri* as well as *H. lichenoides* are palmately lobed and orbiculate, and persistent. Therefore, the stromata of *Hypocreopsis* are considered to be peculiarly advanced. Thus, the genus *Protocreopsis* can be separated from *Hypocreopsis* by the characteristics of stromata.

Batista & Ciferri (1957) reported *Hypocrea bromeliicola* Batista, Nascimento & Ciferri from Brazil. This species has white, pulvinate stromata and 1-septate, hyaline, fusoid and constricted, and smooth ascospores measuring $30-42 \times 5.5-8 \mu\text{m}$. This species resembles *P. zingibericola* and it may be classified as a species of *Protocreopsis*.

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