
***Endomelanconium phoenicicola* sp. nov., a new coelomycete from *Phoenix hanceana* in Hong Kong**

Yanna*, Kevin D. Hyde and Teik-Khiang Goh

Fungal Diversity Research Project, Department of Ecology and Biodiversity, The University of Hong Kong, Pokfulam Road, Hong Kong; * email: yanna@graduate.hku.hk

Yanna, Hyde, K.D. and Goh, T.K. (1999). *Endomelanconium phoenicicola*, a new coelomycete from *Phoenix hanceana* in Hong Kong. *Fungal Diversity* 2: 199-204.

Endomelanconium phoenicicola sp. nov., occurring as a saprobe on decaying leaves and petioles of *Phoenix hanceana* in Hong Kong, is described and illustrated. It differs from *E. pini* and *E. nanum*, the two other members of the genus, in having longer conidiogenous cells producing conidia which are dorsiventrally globose to broadly-ellipsoidal, and laterally slightly flattened.

Key words: *Bulgaria*, *Melanconium*, mitosporic fungi, palm fungi, saprotroph, taxonomy.

Introduction

Endomelanconium Petr. was erected based on *E. pini* (Corda) Petr., which was transferred from *Melanconium* Link (Petraek, 1940). Gamundí and Arambarri (1983) introduced a second species, *E. nanum* Gamundí and Aramb. *Endomelanconium* differs from *Melanconium* in having eustromatic, multilocular conidiomata, cylindrical, hyaline conidiogenous cells producing dark brown conidia that have a protruding base, each bearing a longitudinal striation (Sutton, 1980). In *Melanconium*, the conidiomata are acervular, while the branched conidiophores bear annellidic conidiogenous cells, and conidia lack striations (Sutton, 1980). *Endomelanconium* was placed in the monoblastic group of the suborder Blastostromatineae by Sutton (1980), a group characterized by eustromatic conidiomata and holoblastic conidiogenesis. Genera in the Blastostromatineae having unicellular, dark brown, smooth, thick-walled conidia are similar to *Endomelanconium*, for example, *Cymbothyrium* Petr., *Harknessia* Cooke and *Lasmenia* Speg. These three genera, however, differ from *Endomelanconium* in having some other comparable characters. *Lasmenia* has sparingly branched conidiophores bearing

conidiogenous cells, whereas in the other three genera, conidiophores are absent, and the conidiogenous cells are formed from inner cells of the locular walls. *Harknessia* differs from the other genera in having conidia with a cellular, unbranched basal appendage which forms from the conidiogenous cells after rhexolytic conidial secession. In *Cymbothyrium*, *Endomelanconium* and *Lasmenia*, however, conidial secession is schizolytic, and their conidia do not have a basal appendage. In addition, *Cymbothyrium* is distinct in having conidiomata with a clypeus comprising of small-celled, dark brown, rather loose pseudoparenchyma (Sutton, 1980).

We are studying the fungi occurring on tropical palm species and have described several species new to science (Yanna, Hyde and Fröhlich, 1997; Yanna, Hyde and Goh, 1998a, b). In this paper, we describe a further species of *Endomelanconium* from the petioles of *Phoenix hanceana* Naud. from Hong Kong. Our species, *E. phoenicicola* sp. nov., is similar to *E. nanum* and *E. pini* in having eustromatic, multilocular conidiomata, cylindrical, hyaline conidiogenous cells and thick-walled, dark brown conidia which are protruding at the base, with a single longitudinal striation. However, it differs from these two species in having longer conidiogenous cells producing conidia which are dorsiventrally globose to broadly-ellipsoidal, and laterally slightly flattened. In *E. nanum* and *E. pini*, however, conidia are pyriform to limoniform and not flattened. The characters of the three *Endomelanconium* species are compared (Table 1), and a key to these species is provided.

Taxonomy

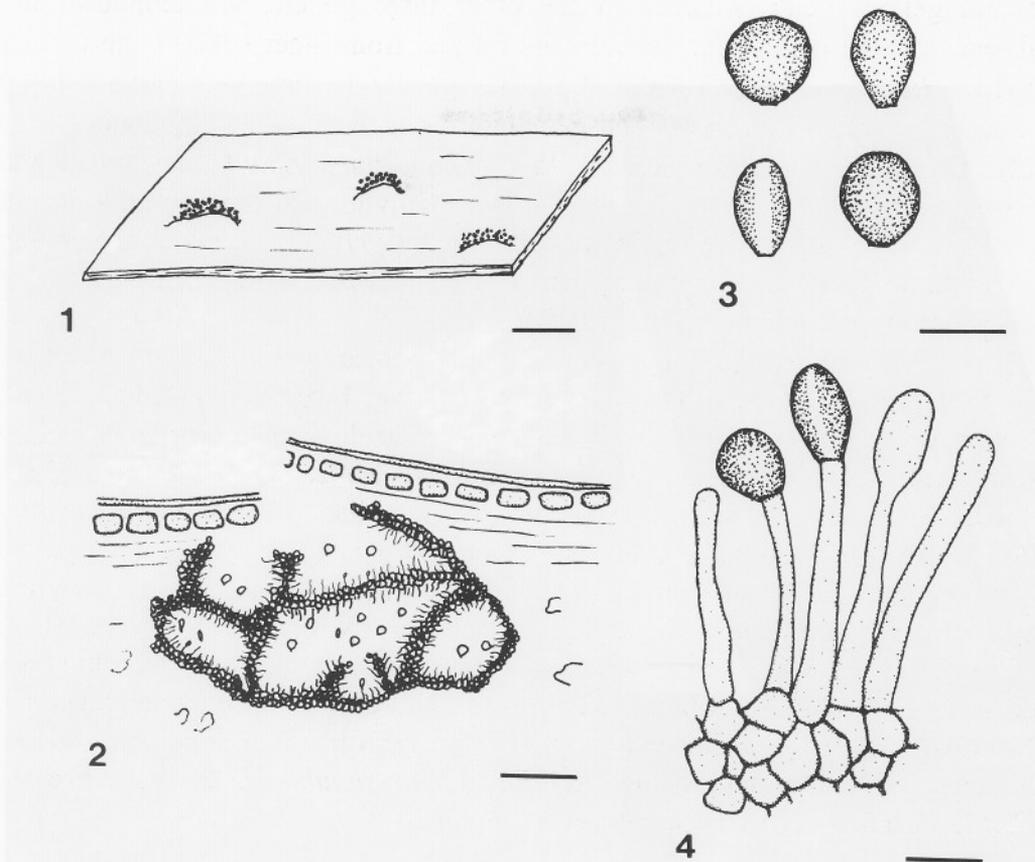
Endomelanconium phoenicicola Yanna, K.D. Hyde and Goh, sp. nov.

(Figs. 1-14).

Etymology: *phoenicicola*, referring to the occurrence of this fungus on *Phoenix*.

Conidiomata eustromatalia, immersa, solitaria, ca 250 µm diam. *Conidiophora* absentia. *Cellulae conidiogenae* discretiae, cylindricae, hyalinae, laeves, 14-25 µm longae, 2-5 µm latae ad basem, 2-4 µm latae ad apicem. *Conidia* unicellularia, subglobosa vel late ellipsoidea, complanata, brunnea, crassitunicata, laevia, striato in longitudinibus singulariter praedita, basi leniter protruda, 9-11 × 10-12 µm.

Mycelium immersed, branched, septate, pale brown, ca 2 µm wide. *Conidiomata* eustromatic, immersed, peridermal to subperidermal, solitary, irregularly multilocular, ca 250 µm diam. *Wall* comprising pale brown, thin-walled *textura angularis*, ca 7 µm, becoming hyaline towards the conidiogenous region. Dehiscence irregular. *Conidiophores* absent. *Conidiogenous cells*, determinate, discrete, cylindrical, tapered slightly towards the apices, hyaline, smooth, thin-walled, formed from the walls of the locules, 14-25 µm high (\bar{x} = 19 µm, n = 25), occasionally wider towards the base, 2-5

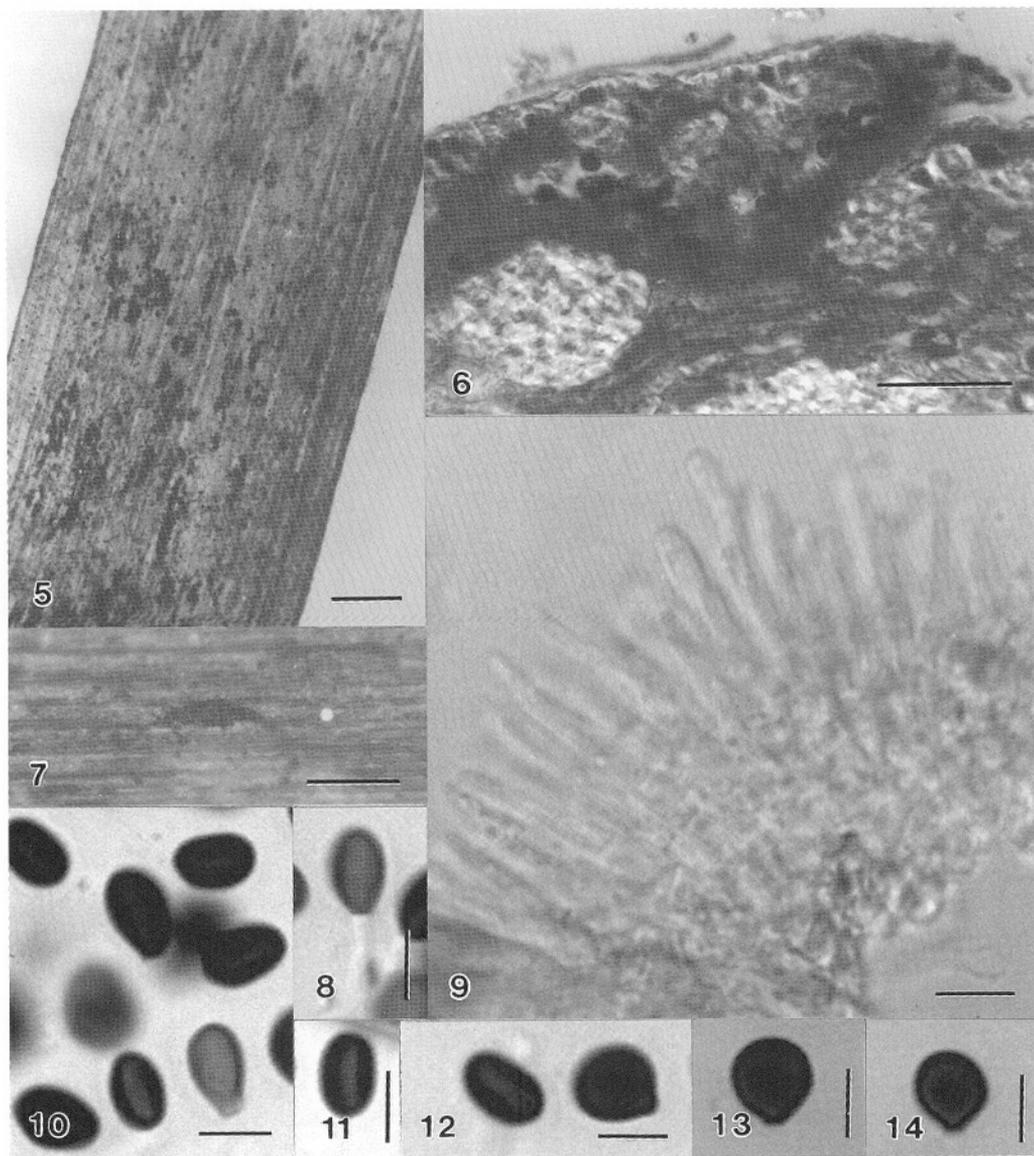


Figs. 1-4. *Endomelanconium phoenicicola*, diagrammatic representation from holotype. **1.** Conidiomata on host surface. **2.** Section through multilocular conidiomata. **3.** Conidia. Note the protruding base and longitudinal striation. **4.** Conidigenous cells and developing conidia. Bars: 1 = 200 μm , 2 = 100 μm , 3-4 = 10 μm .

μm wide at the base (\bar{x} = 3.25 μm , n = 25), and 2-4 μm wide at the apex (\bar{x} = 2.88 μm , n = 25). *Conidia* aseptate, dorsiventrally globose to broadly-ellipsoidal, laterally slightly flattened, ellipsoidal, hyaline to pale brown when immature, dark brown when mature, thick-walled, smooth, base often slightly protruding, with a longitudinal striation, 9-11 \times 10-12 μm (\bar{x} = 10.33 \times 11.23 μm , n = 25), 6-8 μm thick (\bar{x} = 6.63 μm , n = 25) and 2-3 μm wide at the protruding base (\bar{x} = 2.6 μm , n = 25).

Holotypus: HONG KONG, New Territories, Tai Mo Shan, Twisk, on a dead petiole of *Phoenix hanceana* (Arecaceae), 21 Feb. 1998, Yanna YAN 217 (HKU(M) 10023).

Other materials examined: HONG KONG, New Territories, Tai Mo Shan, Twisk, on dead leaves of *Phoenix hanceana* (Arecaceae), 25 July 1998, Yanna (HKU(M) 10539); *ibid.*, 17



Figs. 5-14. *Endomelanconium phoenicicola* (from holotype). **5, 7.** Conidiomata on host surface. **6.** Section through multilocular conidiomata. **8-9.** Conidiogenous cells and conidia. **10-14.** Conidia. Note the protruding base and a longitudinal striation. Bars: 5 = 1 mm, 6 = 100 μ m, 7 = 200 μ m, 8-14 = 10 μ m.

Aug. 1998, Yanna (HKU(M) 10570); *ibid.*, dead petioles, 17 Aug. 1998, Yanna (HKU(M) 10576, 10580).

Endomelanconium nanum was recorded to coexist with *Bulgaria nana* Cash and to be its anamorph (Gamundí and Arambarri, 1983). However, a teleomorph is unknown for *E. pini* or for the new species.

Key to *Endomelanconium* species

1. Conidia pyriform to limoniform, not flattened..... 2
1. Conidia distinct dorsiventrally globose to broadly-ellipsoidal, and laterally slightly flattened, 9-11 × 10-12 µm..... *E. phoenicicola*
2. Conidiogenous cells cylindrical, slightly attenuated at the apex, 7.9-10.5 × 4.1-4.7 µm; conidia 7.2-10 × 3.8-5.8 µm..... *E. nanum*
2. Conidiogenous cells lageniform, distinctly attenuated at the apex, 7-16 × 3-7 µm; conidia 11.5-13.5 × 6.5-7.5 µm..... *E. pini*

Table 1. Synopsis of characters of *Endomelanconium* species.

| | <i>E. nanum</i> (Gamundí and Arambarri, 1983) | <i>E. phoenicicola</i> | <i>E. pini</i> (Sutton, 1980) |
|----------------------------|---|--|---|
| Conidiogenous cells | | | |
| Size | | | |
| Length | 7.9-10.5 µm | 14-25 µm | 7-16 µm |
| Width | 4.1-4.7 µm | 2-5 µm | 3-7 µm |
| Shape | Cylindrical | Cylindrical | Lageniform |
| Colour | Hyaline | Hyaline | Hyaline |
| Conidia | | | |
| Size | 7.2-10 µm long, 3.8-5.8 µm wide | 10-12 µm long, 9-11 µm wide, 6-8 µm thick | 11.5-13.5 µm long, 6.5-7.5 µm wide |
| Shape | Pyriform to limoniform | Dorsiventrally globose to broadly-ellipsoidal and laterally slightly flattened | Pyriform to limoniform |
| Colour | Dark brown | Dark brown | Dark brown |
| Septation | 0 | 0 | 0 |
| Host | Plant debris | <i>Phoenix hanceana</i> | <i>Abies pectinata</i> , <i>A. alba</i> , <i>A. excelsa</i> |

Acknowledgements

The University of Hong Kong is thanked for the award of a Postdoctoral Fellowship to T.K. Goh and Postgraduate Studentship to Yanna.

References

- Gamundí, I.J. and Arambarri, A.M. (1983). *Bulgaria nana* Cash y su anamorfo *Endomelanconium* (Helotiaceae, Ombrophiloideae) (x). *Revista de la Facultad de Agronomía Universidad nacional de La Plata*, 59: 17-23.
- Petrak, F. (1940). *Mykologische Notizen XIII*, *Annales Mycologici*. 38: 181-267.
- Sutton, B.C. (1980). *The Coelomycetes*. Commonwealth Mycological Institute, UK.
- Yanna, Hyde, K.D. and Fröhlich, J. (1997). A new species of *Appendicosopora* from Hong Kong. *Mycoscience* 38: 395-397.
- Yanna, Hyde, K.D. and Goh, T.K. (1998a). *Koorchaloma novojournalis* sp. nov., a new sporodochial fungus from Hong Kong. *Fungal Diversity* 1:193-197.
- Yanna, Hyde, K.D. and Goh, T.K. (1998b). *Staurophoma calami*, a new coelomycete from Hong Kong. *Sydowia* 50: 139-143.