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***Ommatomyces*, with one new species and one new combination**

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A new species of *Ommatomyces* is described from senescent culms of *Pennisetum purpureum* and *Thysanolaena maxima* collected in Hong Kong. *Didymosphaeria pardalina* may be an earlier name for *Ommatomyces coronatus*, however there are several differences between this species and *O. coronatus*. Until further collections are made we maintain *O. coronatus* and combine *Didymosphaeria pardalina* as a third species of *Ommatomyces*. One of the most important characters of *Ommatomyces* is the short lacerate germ slits that occur at each end of ascospore and separates it from *Cainia* species.

**Key words:** *Amphisphaeria*, *Amphisphaeriaceae*, *Cainiaceae*, graminicolous fungi, new combination, new species.

**Introduction**

*Ommatomyces* is a monotypic genus in the *Cainiaceae* (s.s. Kang *et al.*, 1999) typified by *O. coronatus* Kohlm., Volkm.-Kohlm. and O.E. Erikss. (Kohlmeyer *et al.*, 1995). Its clypeate ascomata are immersed in grass culms and its unitunicate asci are cylindrical with a J+, layered subapical ring. Ascospores are ellipsoidal, brown, bicelled and have short lacerate germ slits at each end, and are surrounded by a mucilaginous sheath (Kohlmeyer *et al.*, 1995).

*Ommatomyces* was introduced and placed in the *Amphisphaeriaceae* by Kohlmeyer *et al.* (1995). Recent studies, however, have shown that *Ommatomyces coronatus* resembles *Cainia* species as the J+ ascal ring is layered. Most genera in the *Cainiaceae* also occur on grasses, which is true for *Ommatomyces* (Kang *et al.*, 1999).

In this study we transfer *Didymosphaeria pardalina* to *Ommatomyces*. We also describe and illustrate a new species, *Ommatomyces terrestris* from two species of grass, *Pennisetum purpureum* Schum. and *Thysanolaena maxima* (Roxb.) Kuntze collected in Hong Kong. The differences between *Ommatomyces coronatus*, *O. pardalina* and *O. terrestris* are listed in Table 1.

## Materials and Methods

Type specimens were loaned from NY and IMS, while fresh material was collected in Hong Kong. Slides of ascospores, asci and sections of ascomata were mounted in distilled water for observation, microphotography and measurement. Ascospore apical rings were stained using Melzer's solution. Sections of ascomata were made on a cryotome and mounted with O.C.T. Compound.

## Taxonomy

### Key to *Ommatomyces* species

1. Ascospores 20-25  $\mu\text{m}$  long ( $\bar{x}$  = 22  $\mu\text{m}$ ), on *Spartina* ..... *O. pardalina*
1. Ascospores 14-23  $\mu\text{m}$  long ( $\bar{x}$  = less than 20  $\mu\text{m}$ ), on other grasses..... 2
2. Papilla surrounded by white halo, ascospores surrounded by a mucilaginous sheath, a marine species on *Juncus* ..... *O. coronatus*
2. Papilla not surrounded by white halo, ascospores with bipolar mucilaginous pads, terrestrial species on other grasses..... *O. terrestris*

### Accepted species

1. *Ommatomyces coronatus* Kohlm., Volkm.-Kohlm. and O.E. Erikss., *Mycologia* 87: 538. 1995.

*Material examined:* U.S.A., North Carolina, on dead standing culms of *Juncus roemerianus* Scheele, 20 June 1993, J. and B. Kohlmeyer JK 5509 (IMS, HOLOTYPE of *Ommatomyces coronatus*, slides).

2. *Ommatomyces pardalina* (Ellis and Everh.) Y.Z. Wang, M.K.M. Wong and K.D. Hyde, **comb. nov.** (Figs. 1-8)

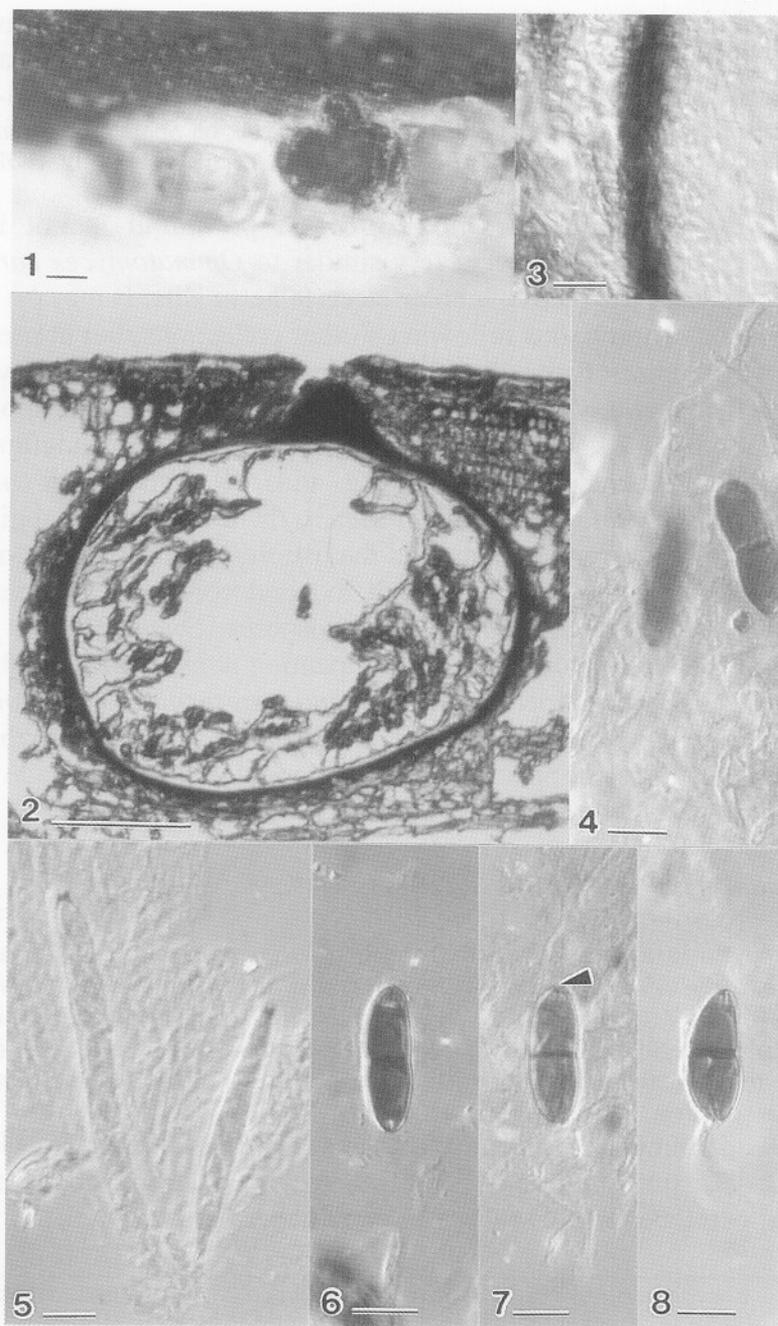
≡ *Didymosphaeria pardalina* Ellis and Everh., *Journal of Mycology* 2: 102 (1886).

≡ *Didymosphaerella pardalina* (Ellis and Everh.) Cooke, *Grevillea* 18: 29 (1889).

≡ *Microthelia pardalina* (Ellis and Everh.) Kuntze, *Revisio Generum Plantarum* 3: 498 (1898).

≡ *Amphisphaeria pardalina* (Ellis and Everh.) M.E. Barr, *Studies in Mycology* 31: 26 (1989).

*Ascomata* immersed beneath blackened clypei on host culm; in section 320-400  $\mu\text{m}$  diam., 325-390  $\mu\text{m}$  high, globose, gregarious, apapillate (Fig. 1). *Ostiole* periphysate. *Peridium* 14-18  $\mu\text{m}$  wide, composed of light reddish-brown to hyaline, compressed rows of cells (Figs. 2, 3). *Paraphyses* narrow, ca. 2  $\mu\text{m}$  in diam., filiform, unbranched. *Asci* 110-155  $\times$  11-14  $\mu\text{m}$  ( $\bar{x}$  = 125  $\times$  13  $\mu\text{m}$ , n = 15), 8-spored, cylindrical, unitunicate, pedicellate, apically rounded, with a J+, wedge-shaped, subapical ring, 3-4  $\mu\text{m}$  high, 3.5-4.5  $\mu\text{m}$  diam. (Fig. 5). *Ascospores* 20-25  $\times$  7.5-10  $\mu\text{m}$  ( $\bar{x}$  = 22  $\times$  8  $\mu\text{m}$ , n = 25),



**Figs. 1-8.** *Ommatomyces pardalina* (from holotype). **1, 2.** Vertical sections through ascomata. **3.** Peridium. **5.** Asci with J+ subapical ring stained with Melzer's reagent. **4, 6-8.** Ascospores. Note the radiating lacerate germ slits in 7 (arrowed). Bars: 1-2 = 100  $\mu\text{m}$ ; 3, 5, = 20  $\mu\text{m}$ ; 4, 6-8 = 10  $\mu\text{m}$ .

uniseriate, oblong-ellipsoidal, reddish-brown, bicelled, slightly constricted at the septum, ends with several short lacerate germ slits radiating inwards, up to 2.5-4  $\mu\text{m}$  long, surrounded by narrow mucilaginous sheath (Figs. 4, 6-8).

*Material examined:* U.S.A., Louisiana, Point à la Hache, on *Spartina cynosuroides* Roth (as *S. polystachya* Willd., Gramineae), 17 May 1886, A.B. Langlois (NY 429, HOLOTYPE of *Didymosphaeria pardalina*).

*Notes:* Type material of *Didymosphaeria pardalina* is not in perfect condition. The taxon is, however, very similar to *Ommatomyces coronatus* as the ascospores have distinctive bipolar lacerate germ slits. It may be that these taxa prove to be synonymous following further collections, but at present there are several differences that indicate two separate species are involved. In *O. coronatus* a distinctive white halo occurs around the ostiole, ascospores are on average shorter (17-23  $\mu\text{m}$ ), and are surrounded by a mucilaginous sheath which is extended and pad-like at the ends (Kohlmeyer *et al.*, 1995). *Ommatomyces coronatus* is found on *Juncus* in the intertidal region. In *O. pardalina* there is no white halo around the ostioles, ascospores are on average longer and although the material is not in good condition it appears that a mucilaginous sheath occurs around the ascospores. *Ommatomyces pardalina* occurs on dead stems of *Spartina*, but no mention is made of the habitat (Ellis and Everhart, 1886). Considering that *Spartina cynosuroides* (= *S. polystachya*) is a marine species (Kohlmeyer and Kohlmeyer, 1979) it is probable that *O. pardalina* is also a marine species. Until further collections are made we prefer to maintain *O. coronatus* and *O. pardalina* as separate species.

3. *Ommatomyces terrestris* Y.Z. Wang, M.K.M. Wong and K.D. Hyde, **sp. nov.** (Figs. 9-18)

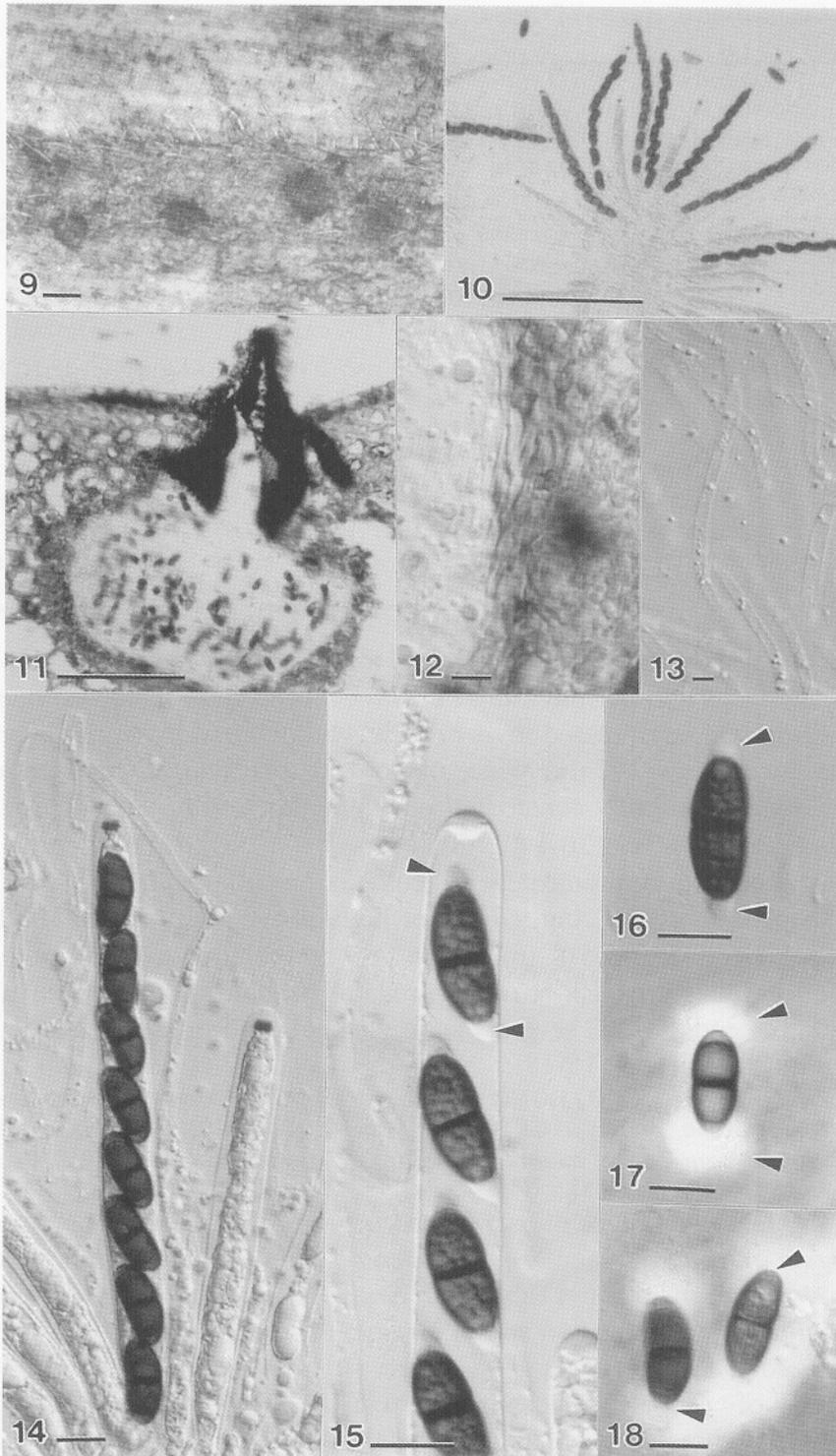
*Etymology:* *terrestris*, referring to the habitat, this taxa occurs on terrestrial grasses.

*Ascomata* 125-135  $\mu\text{m}$  in diam., 105-125  $\mu\text{m}$  alta, immersa, subglobosa, ostiolata. *Asci* 120-140  $\times$  8-14  $\mu\text{m}$ , 8-spore, cylindrici, unitunicati, pedicellati, apparatu apicale ca. 2  $\mu\text{m}$  alta, 4  $\mu\text{m}$  in diam. praediti. *Ascosporeae* 14-20.5  $\times$  5.5-8  $\mu\text{m}$ , uniseriatae, oblong-ellipsoideae, olivacea-brunneae, quttulatae, ad apex cum multi-brevis germen fissurae, cum bipolaris mucilaginoso praeditae.

*Ascomata* immersed beneath blackened clypei on host culm (Fig. 9); in section 105-125  $\mu\text{m}$  high, 125-135  $\mu\text{m}$  diam., irregularly globose, solitary to gregarious, papillate (Fig. 11). *Papilla* erect, tapering, from 125  $\mu\text{m}$  wide near

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**Figs. 9-18.** *Ommatomyces terrestris* (from holotype). **9.** Colony on natural substratum. **10.** A cluster of asci with both mature (darkened) and immature (hyaline) ascospores. **11.** Vertical section through ascoma. Note the presence of clypeus around the neck. **12.** Peridium, which comprises compressed cells. **13.** Paraphyses. **14.** Asci, with the J+ subapical rings stained with Melzer's reagent. **15-18.** Ascospores. Note the mucilaginous pads in Figs. 15-16 (arrowed) and in Figs. 17-18 (spreading in Indian Ink; arrowed). Bars: 9-10 = 100  $\mu\text{m}$ ; 11 = 50  $\mu\text{m}$ ; 12, 14-18 = 10  $\mu\text{m}$ ; 13 = 5  $\mu\text{m}$ .



**Table 1.** Comparison of species of *Ommatomyces*.

	<i>O. coronatus</i> Kohlm., Volkm.- Kohlm. and O.E. Erikss. (1995)	<i>O. pardalina</i> (Ellis and Everh.) Y.Z. Wang, M.K.M. Wong and K.D. Hyde	<i>O. terrestris</i> Y.Z. Wang, M.K.M. Wong and K.D. Hyde	
Host	<i>Juncus roemerianus</i>	<i>Spartina cynosuroides</i> (as <i>S. polystachya</i> )	<i>Thysanolaena maxima</i> (holotype)	<i>Pennisetum purpureum</i>
Habitat	Marine	Probably marine	Terrestrial	Terrestrial
Asci	120-175 × 12-15 µm	110-155 × 11-14 µm	120-140 × 8-14 µm	100-130 × 8-14 µm
Ascospores	17-23 × 7-9 µm ( $\bar{x}$ = 19.5 × 8 µm, n = 96), surrounded by mucilaginous sheath extending at the ends	20-25 × 7.5-10 µm ( $\bar{x}$ = 22 × 8 µm, n = 25), with remnants of a sheath	14-20.5 × 5.5-8 µm ( $\bar{x}$ = 18.9 × 7.8 µm, n = 25), with bipolar mucilaginous pads	14-19 × 5.5-6.5 µm ( $\bar{x}$ = 17.2 × 6.2 µm, n = 25), with bipolar mucilaginous pads

the base to 25 µm wide near the apex, and about 160 µm high (Fig. 11). *Ostiole* central, conical, non-periphysate. *Peridium* 10-60 µm wide, composed of yellowish-brown, compressed rows of cells, with a broad hymenial layer (Figs. 11, 12). *Paraphyses* 2-4 µm wide, up to 160 µm long, cellular, smooth to slightly flexuous, slightly constricted on septa, tapering to a round apex *ca.* 1 µm wide (Fig. 13). *Asci* 120-140 × 8-14 µm ( $\bar{x}$  = 135.5 × 11.7 µm, n = 15), 8-spored, cylindrical, unitunicate, pedicellate, apically rounded, with a J+, wedge-shaped, subapical ring, *ca.* 2 µm high, 4 µm diam. (Figs. 10, 14, 15). *Ascospores* 14-20.5 × 5.5-8 µm ( $\bar{x}$  = 18.9 × 7.8 µm, n = 25), uniseriate, oblong-ellipsoidal, greenish-brown, guttulate, bicelled, slightly constricted at the septum, ends with several short lacerate germ slits, with bipolar mucilaginous pads (Figs. 15-18).

*Material examined:* HONG KONG, New Territories, Nam Chung, on senescent culms of *Thysanolaena maxima*, 27 July 1999, M.K.M. Wong [HKU(M) 12514, HOLOTYPE]; *ibid.*, New Territories, Nam Chung, on senescent culms of *Pennisetum purpureum*, 27 July 1999, M.K.M. Wong [HKU(M) 12513].

*Notes:* The size ranges of asci and ascospores of *Ommatomyces* species on *Pennisetum purpureum* and *Thysanolaena maxima* are different from, but overlap with each other (Table 1). Such differences, however, are not considered to separate the two specimens into different species.

*Ommatomyces terrestris* resembles *O. coronatus* in having similar dimensions of asci and ascospores (Table 1). However, ascospores of *O. terrestris* have bipolar mucilaginous pads, rather than being enveloped by a

sheath. The white halo around the ostiole in *O. coronatus* is lacking in those of *O. terrestris*. Moreover, *O. coronatus* appears to be an obligate marine species as it was only found exclusively in the base of the culms of *Juncus* that were consistently submerged in marine waters (Kohlmeyer *et al.*, 1995), whereas *O. terrestris* is found only in the terrestrial habitat associated with culms of *Pennisetum* and *Thysanolaena*.

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