
***Dinemasporium* (coelomycetes)**

Junxin Duan^{1,2}, Wenping Wu^{2*} and X.Z. Liu¹¹Institute of Microbiology, The Chinese Academy of Science, Beijing 100085, PR China²Novozymes China, 14 Xinxu Lu, Shangdi Zone, Haidian District, Beijing 100085, PR ChinaDuan, J.X., Wu, W.P. and Liu, X.Z. (2007) *Dinemasporium* (coelomycetes). *Fungal Diversity* 26: 205-218.

Seven species of the genus *Dinemasporium* Lév. are described and illustrated, including *Dinemasporium asetulum* sp. nov., *D. fusiforme* sp. nov., *D. ligongense* sp. nov., *D. sinense* sp. nov. and *D. neottiosporioides* (Agnihotr.) comb. nov. A key to accepted species in the genus is given. The type specimens for all described new species are kept in the herbarium of W.P. Wu in Novozymes China.

Key words: *Dinemasporium*, new species, saprobes**Introduction**

Dinemasporium was erected by Lévillé (1846) with *D. graminum* (Lib.) Lév. as the type species. It is characterized by superficial, cupuliform conidiomata with setae; “phialidic” conidiogenous cells; and hyaline, oblong to allantoid conidia with one setulae at each end (Saccardo, 1884; Sutton, 1980; Nag Raj, 1993). Saccardo (1884) divided the genus into two subgenera: *Eudinemasporium* Sacc. with setulae occurring only at the end of conidia and *Stauronema* Sacc. with the conidia bearing setulae both at the ends and also the middle part. The subgenus *Stauronema* was restated by Sutton (1980) as the well-defined genus *Stauronema*. *Dinemasporium* is a comparatively large heterogeneous genus with 57 published names (including species, variety and forma, of which 7 were accepted species, 9 were listed as synonyms of *Dinemasporium* species, 20 were excluded from *Dinemasporium* and 21 remained to be determined (Sutton, 1980; Nag Raj, 1993). Since then 2 new species and one new combination have been added to the genus (Matsushima, 1995; Furlanetto and Dianese, 1998; Yamaguchi *et al.*, 2005). Some accepted species including *D. strigosum* (Pers.) Sacc., *D. aberrans* B. Sutton, *D. cytosporioides* (Sacc.) B. Sutton, *D. decipens* (De Not.) Sacc., *D. duguetiae* Furlan. & Dianese, *D. lanatum* Nag Raj & R.F. Castañeda., *D. longicapillatum*

*Corresponding author: Wenping Wu; e-mail: WUWP@novozymes.com

Yamaguchi & Masuma were fully described and illustrated (Webster, 1955; Sutton, 1965, 1969, 1980; Morgan-Jones, 1971; Nag Raj, 1978, 1993; Nag Raj and Kendrick, 1986; Nag Raj and Castañeda, 1989; Furlanetto and Dianese, 1998; Yamaguchi *et al.*, 2005). Keys to several accepted species were also provided by Sutton (1980), Nag Raj (1993) and Furlanetto and Dianese (1998).

Only one species, *Dinemasporium strigosum* has a teleomorph (Webster, 1955; Kendrick and Dicosmo, 1979). This teleomorph, *Phomatospora dinemasporium* J. Webster, has immersed perithecia, cylindrical, short-stalked, 4-8 spored asci, and hyaline, smooth, big guttulate, narrowly elliptical to spindle-shaped or slightly inequilateral ascospores that are typically uniseriate in the asci. However, Rappaz (1992) believed that Webster's fungus did not belong to *Phomatospora*. *Phomatospora* has a structured apex to the asci and striately ornamented ascospores, two features not mentioned by Webster (1955), but considered to be very important. In two other typical species of *Phomatospora* the anamorphs are hyphomycetes with holoblastic, sympodial conidiogenous cells, and ellipsoidal to *Fusarium*-like conidia that are quite different to the anamorph of *P. dinemasporium* which produces a coelomycete anamorph with cupulate, gregarious conidiomata, enteroblastic, phialidic conidiogenous cells and allantoid conidia with one setulae at each end. The taxonomic position of *P. dinemasporium* needs to be revised.

During a study on coelomycetes from China, several specimens with cup- or cone-shaped conidiomata bearing setae and producing hyaline, aseptate or septate, appendaged conidia were collected. Preliminary identification showed that they belong to several similar genera including *Dinemasporium* Lév., *Pseudolachnea* Ranoj. and *Stauronema* (Sacc.) Syd., P. Syd. & E.J. Butler (Sutton, 1980; Nag Raj, 1993). Results from a study of these *Dinemasporium* collections from China and of some unidentified specimens in Herbarium IMI are reported in this contribution.

Dinemasporium Lév., Ann. Sci. nat., Sér.3, 5; 274 (1846)

Dendrophoma Sacc., *Michelia* 2:4 (1880)

Pycnidiochaeta Sousa da Câmara, *Agron. Lusit.* 12:109 (1950)

Amphitariospora Agnihothr., *Sydowia* 16:75 (1962, published 1963)

Type species: *D. strigosum* (Pers.) Sacc.

Key to accepted species of *Dinemasporium*

- 1. Conidia pale brown to brown.....***D. aberrans***
- 1. Conidia colorless..... 2

Fungal Diversity

2. Conidia 13-27 μm long	<i>D. lanatum</i>
2. Conidia less than 15 μm long	3
3. Conidiomata with two types of setae	<i>D. ligongense</i>
3. Conidiomata with one type of setae	4
4. Conidia without setulae	<i>D. asetulum</i>
4. Conidia with setulae	5
5. Conidia with setulae more than 5 μm long	6
5. Conidia with setulae less than 5 μm long	8
6. Conidia fusiform, straight, 2.5-3.5 μm wide	<i>D. fusiforme</i>
6. Conidia curved	7
7. Conidia 8-12.5 x 1.5-2.5 μm , appendage 6.5-9 μm long	<i>D. strigosum</i>
7. Conidia 8-11 x 2-2.7 μm , appendage 11-20 μm long	<i>D. longicopillatum</i>
8. Setulae less than 2 μm long	9
8. Setulae 1.5-4 μm long	13
9. Conidia more than 6 μm long	10
9. Conidia less than 6 μm long	11
10. Conidia 6-11 x 1.2-1.5 μm	<i>D. sinense</i>
10. Conidia 7-9.5 x 2.5-5 μm	<i>D. duguetiae</i>
11. Conidia 1-1.5 μm wide	<i>D. cytosporoides</i>
11. Conidia 1.5-2.1 μm wide	12
12. Conidia 3.5-5 x 1.5-2 μm	<i>D. affine</i>
12. Conidia 3.5-5.6 x 1.7-2.1 μm	<i>D. neottiosporioides</i>
13. Conidia 8-12.5 x 2.5-3.5 μm	<i>D. rhodophaeum</i>
13. Conidia 4.5-9 x 2-2.5 μm	<i>D. decipiens</i>

***Dinemasporium asetulum* J.X. Duan & W.P. Wu, sp. nov.** (Figs 1-5)

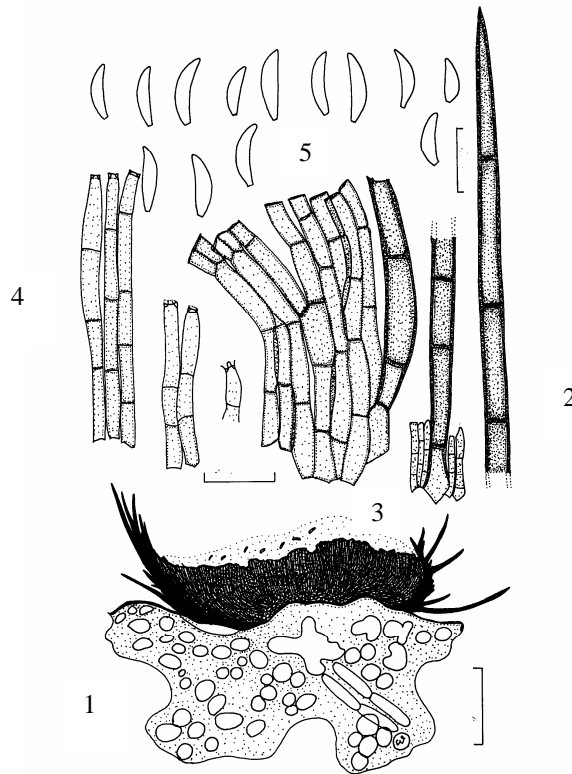
MycoBank: 510713.

Mycelium immersum cum hyphis septatis, ramosis, laevibus, brunneis. *Conidiomata* eustromatica, navicularia usque cupulata, superficialia, dissita, setosa, nigra, 70-150 μm diam; stromata pseudoparenchymata, cum textura angularis et porrecta lateralis. Setae cylindricae, erectae, rectae, vel fleuosae, atro-brunneae ad basim et dilute brunneae ad apicem, 280-420 \times 7-9 μm . *Conidiophora* ramose, septata, cylindrica, dilute brunneae, in basim conidiomati disposita, 35-45 \times 1.5-3 μm . *Cellulae conidiogenae* monophialidicae, integratae, determinatae, plerumque clavatae, cylindricae, inflatae ad apicem, leviae, dilute brunneae, cum minute collo, 7-14 \times 2-3 μm . *Conidia* falcata, curvata, utrimque obtuse, aseptata, levia, hyalina, 7-9 \times 1.5-2 μm .

Mycelium immersed, composed of septate, branched, smooth and brown hyphae. *Conidiomata* eustromatic, scattered or aggregated, superficial, blackish, cupulate to discoid, 70-150 μm diam., basal wall of *textura porrecta*, composed of long, brown cells but with a thin layer of *textura angularis* of brown, isodiametric cells. *Setae* abundant, dark brown at base, pale brown at apex, straight or flexuous, tapered towards the acute apex, smooth, septate, simple, 280-420 \times 7-9 μm . *Conidiophores* septate, branched at the base, pale brown, cylindrical, 35-45 \times 1.5-3 μm , arising from both basal and lateral walls. *Conidiogenous cells* holoblastic, monophialidic, determinate, integrated, formed from the apex of conidiophores, slightly clavate, cylindrical, pale brown, wall thin and smooth, apex wide with prominent collar, 7-14 \times 2-3 μm . *Conidia* hyaline, aseptate, falcate, apex acute, base truncate, wall thin and smooth, 7-9 \times 1.5-2 μm .

Habitat: On rotten wood.

Known distribution: Ghana.



Figs 1-5. *Dinemasporium asetulum* sp. nov. (from holotype specimen). **1.** Vertical section of a conidioma. **2.** Setae. **3.** Vertical section of conidioma wall. **4.** Conidiophores and conidiogenous cells. **5.** Conidia. Scale bars = 20 μm applies to all figs.

Material examined: Ghana: Aburi, Gold Coast Colony, on rotten wood of unidentified plant, 24 May 1949, S.J. Hughes (801), IMI38861 (**holotype**).

Notes: Placement of *Dinemasporium asetulum* might be argued against due to morphological differences from other members of the genus including its basal stroma of *textura porrecta*, dark coloured conidiophores and conidiogenous cells, and asetulate conidia. However, at present there is no other genus in which this species could be better included.

***Dinemasporium decipens* (De Not.) Sacc., Michelia 2:282 (1881).**

Excipula decipiens De Not., Atti. Accad. Tor. ser. 2, 10:170 (1849)

Dinemasporium acerinum Peck, 26th Rep.: 77 (1874)

Dinemasporium robiniae W.R. Gerard, Annual Rep. New York State Mus. 25: 88 (1871); Syll. Fung. 3: 685 (1884)

Mycelium immersed, composed of septate, branched, smooth and brown hyphae. *Conidiomata* stromatic, scattered to gregarious, superficial, black, cupulate to discoid with lateral prosenchymatic wall of *textura porrecta* composed of hyaline to pale coloured, septate hyphae in the inner layer and brown, septate hyphae in the outer layer; basal wall of *textura angularis* composed of pale brown to hyaline and thin-walled cells in the upper layer and of brown, thick-walled and isodiametric cells in the lower layer, 150-600 µm diam. *Setae* brown to dark brown, tapering to an acute or rounded apex, unbranched, septate, wall thick and smooth, arising from the outer layer of basal stroma and sometimes from the outer layer of lateral excipulum, 55-230 × 4.5-8.5 µm. *Conidiophores* hyaline, smooth-walled, septate, branched at the base, cylindrical, formed from the upper cells of basal stroma, 10-30 × 1.5-2.5 µm. *Conidiogenous cells* enteroblastic, phialidic, hyaline, determinate, cylindrical with a slightly tapered apex, apical channel minute and collarete not prominent, 8-20 × 1.5-2.5 µm. *Conidia* hyaline, aseptate, eguttulate or guttulate, naviculate, curved or straight, wall smooth, ends obtuse, 5.5-8 × 2.5-3 µm, setulae straight or curved, unbranched, 1.5-4 µm long.

Description and illustration: Nag Raj (1993), Wu (1993).

Habitat: On dead culms of herbaceous plants; dead twigs and rotten wood.

Known distribution: Canada, China, Commonwealth of Independent States (Former U.S.S.R.), Czechoslovakia, Italy, U.S.A. (Nag Raj, 1993).

Material examined: China: Shaanxi Province, on dead branch of *Acer* sp., 11 October 1992, Wu Wenping, Wu1533; China: Hebei, Shijiazhuang, on dead branched of *Sophor japonica* L., 10 September 1990, Wu Wenping, Wu1529; China: Shaanxi Province, on dead branches of *Syringa* sp., 3 October 1992, Wu Wenping, Wu1512; China: Shaanxi Province, Xian, on unidentified hosts, 10 October 1992, Wu Wenping, Wu1537, Wu1541, Wu1546; China: Liaoning Province, on unidentified hosts, 8 Aug. 1993, Wu Wenping, Wu0571.

Notes: *Dinemasporium decipens* is a common species on dead twigs and wood of many deciduous trees such as *Acer*, *Ailanthus*, *Fraxinus*, *Robinia*, etc. It has a wide distribution (Nag Raj, 1993).

Dinemasporium acerinum Peck reported in China by Teng (1963) and Wu (1993) should be transferred to *D. decipiens*. The type specimen of *D. decipiens* (IMI94869, slide ex Herb. K) was examined by us and found to be identical to our collections in all characters. The type specimen of *D. robiniae* W.R. Gerard (IMI94857, slide ex Herb. K) was also examined and it was concluded that it is conspecific with *D. decipiens*.

***Dinemasporium fusiforme* W.P. Wu & J.X. Duan, sp. nov.** (Figs 6-9)

MycoBank: 510714

Mycelium immersum cum hyphis septatis, ramosis, laevibus, brunneis. *Conidiomata* eustromatica, navicularia usque cupulata, superficialia, dissita, setosa, nigra, 150-350 µm diam; stromata pseudoparenchymata, cum textura angularis et porrecta lateralis. *Setae* cylindricae, erectae, rectae, atro-brunneae ad basim et dilute brunneae ad apicem. *Conidiophora* ramosae, septata, cylindrical, hyalinae, in basim conidiomati disposita, 10-30 × 2-3.5 µm. *Cellulae conidiogenae* monophialidicae, integratae, determinatae, cylindricae, lageniformiae, inflatae ad apicem, laeves, hyalinae, cum minute collo, 7-16 × 2.5-3.5 µm. *Conidia* fusiformia, curvata, utrimque obtuse, aseptata, levia, guttulate, hyalina, 8.5-10.5 × 2.5-3.5 µm, utrimque 1 setulo non ramose praedita, 7-11 µm longa.

Mycelium immersed, composed of septate, branched, smooth and brown hyphae. *Conidiomata* eustromatic, separate or rarely aggregated, superficial, black, at first conical and closed, then opening out to become flattened cupulate or conical, 150-350 µm diam, basal wall of textura angularis, reduced, composed of hyaline to pale brown, irregular, isodiametric cells in 1-3 layers; periclinal wall of *textura porrecta*, formed by brown to dark brown, thick-walled, elongated hyphal cells and tending into textura angularis towards the inner layers and the base. *Setae* dark brown to blackish at base, pale brown at apex, simple, septate, straight, cylindrical, tapering towards an acute or obtuse apex. *Conidiophores* hyaline, branched at the base, septate, cylindrical, 10-30 × 2-3.5 µm, formed from the inner layer of basal and the lower part of lateral wall. *Conidiogenous cells* integrated, determinate, hyaline, terminal, subcylindrical, cylindrical, lageniform, with a wide opening, wall thin and smooth, collarete minute, channel wide, periclinal thickening distinctive, 7-16 × 2.5-3.5 µm, tapering to 2-2.5 µm at the apex. *Conidia* holoblastic, hyaline, aseptate, fusiform, straight or rarely slightly curved, ends acute to obtuse, wall thin and smooth, guttulate, 8.5-10.5 × 2.5-3.5 µm; setulae simple, straight or curved, one each end, 7-11 µm.

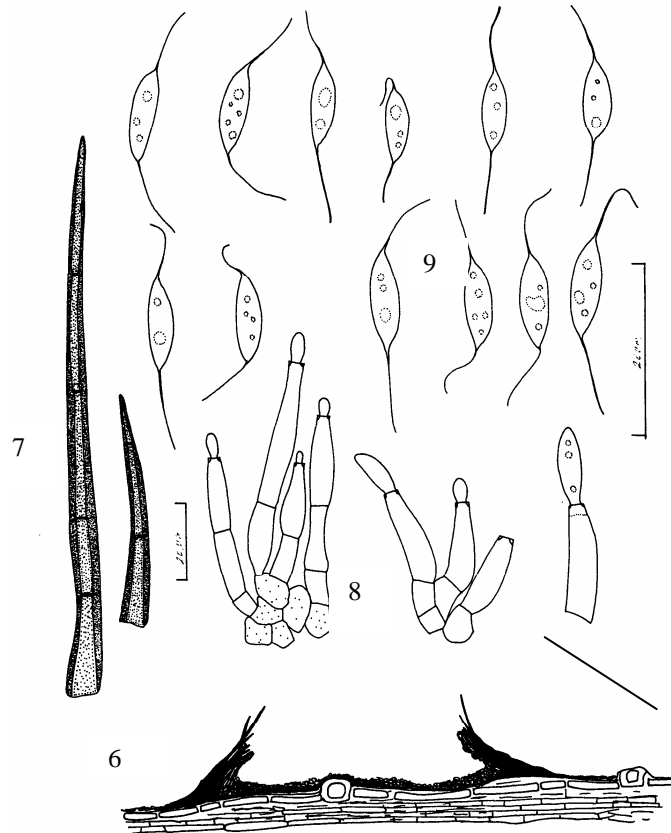
Habitat: On rotten wood.

Known distribution: Sierra Leone.

Material examined: Sierra Leone: Bumpe, on rotten wood of *Chasmopodium candatum*, 21 Oct. 1954, IMI58513 (**holotype**).

Notes: *Dinemasporium rhodophaeum* Speg. and *D. strigosum* are similar to *D. fusiforme*. However, *D. rhodophaeum* has naviculate to subfusiform conidia with a much shorter appendage (2-6 µm long) (Nag Raj, 1993). In *D.*

strigosum, the conidia are naviculate and narrower (1.5-2.5 μm wide) (Sutton, 1980). Conidiomata of *D. fusiforme* are different from those in other species of *Dinemasporium* showing similarity with fruit bodies in the genus *Pseudolachnea* Ranoj where they have a wide flattened base and at first are thin conical and then open to become flattened, cupulate or truncate cone with periclinal setae (Sutton, 1980).



Figs 6-9. *Dinemasporium fusiforme* sp. nov. (from holotype). **6.** Vertical section of a conidioma; **7.** Setae. **8.** Conidiophores and conidiogenous cells. **9.** Conidia. Scale bars = 20 μm applies to all figs.

***Dinemasporium ligongense* W.P. Wu, J.X. Duan & X.Z. Liu, sp. nov.**

MycoBank: 510715

(Figs 10-15)

Mycelium immersum cum hyphis septatis, ramosis, laevibus, brunneis. Conidiomata eustromatica, navicularia usque cupulata, superficialia, dissita, setosa, nigra, usque 2 mm longa et 1 mm crassae; stromata pseudoparenchymata, cum textura angularis et porrecta lateralis. *Setae inconspicuae* cylindricae, curvata, septatae, laeves vel interdum, atro-brunneae ad basim et dilute brunneae ad apicem, 0-1 septata, 25-40 \times 1-1.5 μm . *Setae conspicuae* cylindricae, erectae, rigidae, atro-brunneae ad basim et dilute brunneae ad apicem, 110-750 \times 3-5 μm .

Conidiophora ramose, septata, cylindrical, hyalinae, in basim conidiomati disposita. *Cellulae conidiogena*e monophialidicae, discretatae, determinatae, cylindricae vel inflatae ad apicem, laeves, hyalinae, cum minute collo, $8-16 \times 1-1.8 \mu\text{m}$. *Conidia* naviculata, curvata, utrimque obtuse, aseptata, levia, eguttulata, hyalina, $6.3-8 \times 1.2-2 \mu\text{m}$, utrimque 1 setulo non ramose praedita, $2.5-4 \mu\text{m}$ longa.

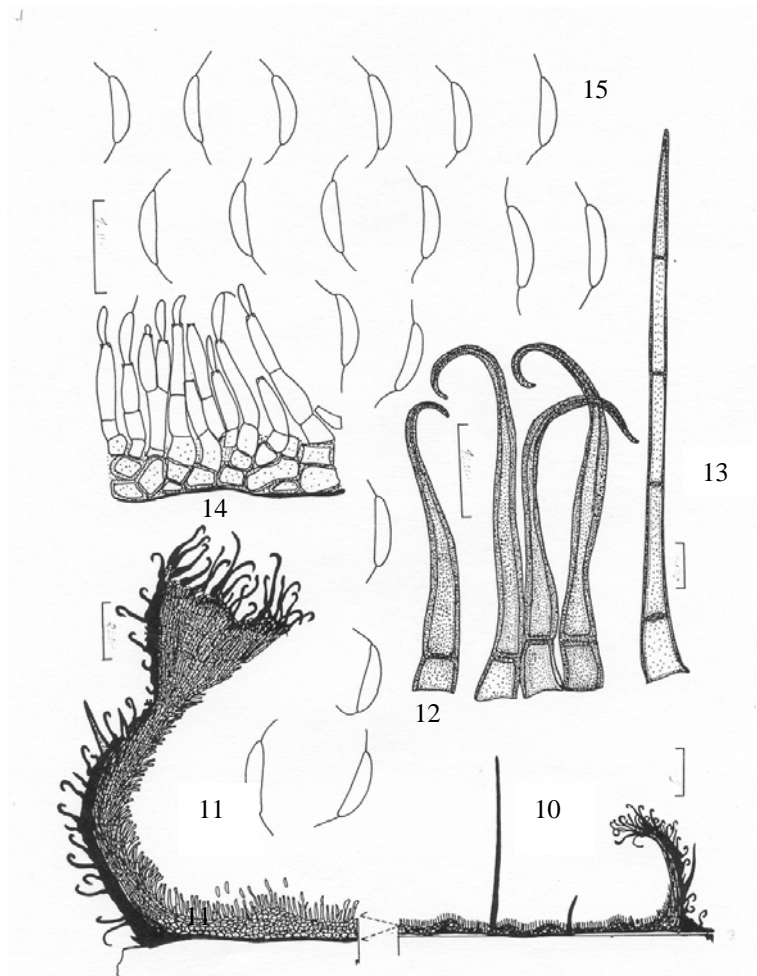
Mycelium immersed, composed of septate, branched, smooth and brown hyphae. *Conidiomata* eustromatic, superficial, scattered or aggregated, naviculate, cupulate to discoid but oblong to ovoid shaped in top view, black, up to 2 mm long and 1 mm wide; lateral wall of *textura porrecta* formed by hyaline to pale brown cells in the inner layer and brown to dark brown cells in the outer layer, the apex of the outer wall extended into brown but becoming pale brown at the apex, aseptate or 1-septate, curved *inconspicuous setae* that are $25-40 \times 1-1.5 \mu\text{m}$; basal stroma of *textura angularis* with brown, isodiametric cells which are hyaline in the upper layer. *Conspicuous setae* brown to black at the base, tapered and paler towards the subacute apices septate, straight, rigid, cylindrical, tapering, apex acute or obtuse, wall thick and smooth, $110-750 \times 3-5 \mu\text{m}$, arising from the outer layer of basal and lateral walls. *Conidiophores* hyaline, septate, simple to branched, aseptate or septate, wall smooth, cylindrical, originating from the upper cells of basal stroma and also inner layer of lateral walls. *Conidiogenous cells* enteroblastic, phialidic, determinate, integrated, hyaline, wall smooth, cylindrical with minute periclinal thickenings in the collarete zone, collarete inconspicuous, $8-16 \times 1-1.8 \mu\text{m}$. *Conidia* hyaline, aseptate, naviculate, curved or straight, smooth-walled, ends obtuse, $6.3-8 \times 1.2-2 \mu\text{m}$, with a $2.5-4 \mu\text{m}$ long and unbranched setula at each end.

Habitat: On dead culms of herbaceous plant.

Known distribution: China.

Material examined: China: Hebei Province, Chengde, on dead culms of unidentified herbaceous plant, 12 September 1991, Wu Wenping, Wu910508a (**holotype**); China: Hebei Province, Chengde, on dead culms of herbaceous plants, 12 September 1991, Wu Wenping, Wu910503, Wu910517; 05 October 1991, Wu Wenping, Wu0535, Wu0536, Wu0555; China: Yunnan Province, Kunming, 09 March 1994, Wu Wenping, Wu0559a.

Notes: *Dinemasporium ligongense* differs from all other species in the genus by its two types of setae on conidiomata. Several species including *D. decipiens*, *D. rhodophaeum*, *D. affine* Speg. and *D. aberrans* have similar conidial morphology to *D. ligongense* (Sutton, 1965, 1980; Nag Raj, 1993). However, the conidia in *D. aberrans* are pale brown to brown with longer setulae ($5.5-7 \mu\text{m}$); the conidia of *D. affine* are smaller ($3.5-5 \times 1.5-2 \mu\text{m}$) with shorter setulae ($1.5 \mu\text{m}$ long); the conidia of *D. rhodophaeum* are larger ($8-12.5 \times 2.5-3.5 \mu\text{m}$), the conidia of *D. decipiens* are wider ($2-2.5 \mu\text{m}$) (Grove, 1937; Sutton, 1969, 1980; Nag Raj, 1993).



Figs 10-15. *Dinemasporium ligongense* sp. nov. (from holotype). **10-11.** Vertical section of a conidioma. **12-13.** Two types of setae. **14.** Conidiophores and conidiogenous cells. **15.** Conidia. Scale bars = 20 μ m applies to all figs.

***Dinemasporium neottiosporioides* (Agnihotr.) W.P. Wu, comb. nov.**

MycoBank 510716

(Figs 16-19)

Amphitariospora neottiosporioides Agnihotr., Sydowia 16:75 (1962)(1963)

Mycelium immersed, composed of septate, branched, smooth and brown hyphae. *Conidiomata* superficial, black, scattered or rarely aggregated, cupulate, 80-120 μ m diam, basal wall of *textura angularis* composed of hyaline to brown, thick- or thin-walled cells, lateral wall of *textura porrecta* and composed of hyaline to dark brown, long, septate and branched hyphae. *Setae* few, straight, tapered towards a acute apex, simple, septate, dark brown, arising

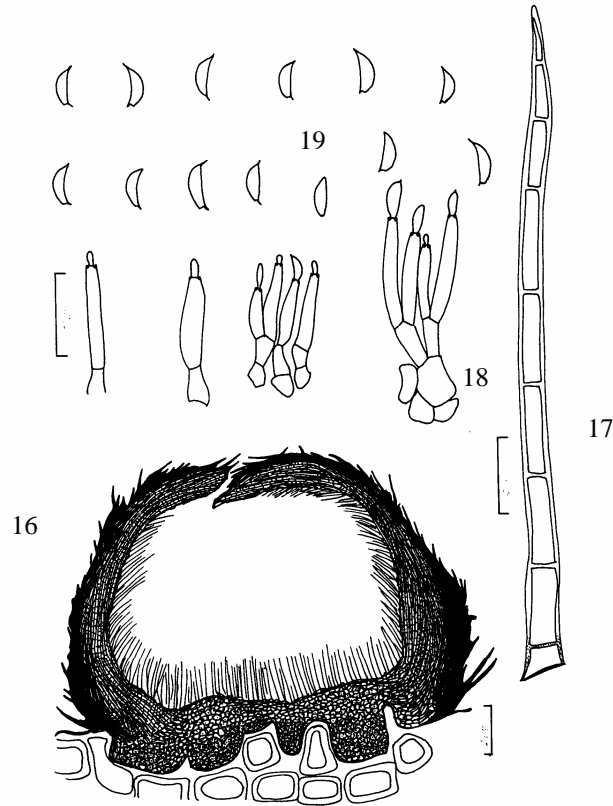
from the outer layer of lateral and basal wall, wall thick and smooth, $75-210 \times 6-9 \mu\text{m}$. *Conidiophores* hyaline, aseptate or septate, branched or unbranched, cylindrical, wall smooth, $10-14 \times 1.2-1.8 \mu\text{m}$, formed from inner layer of both lateral and basal wall. *Conidiogenous cells* enteroblastic, phialidic, determinate, integrated, hyaline, apical, cylindrical, straight, wall smooth, apex wide with a prominent collar or not, $7-10 \times 1.2-2 \mu\text{m}$. *Conidia* hyaline, aseptate, naviculate to fusiform, curved, apex acute, base truncate, $3.5-5.6 \times 1.7-2 \mu\text{m}$, bearing one setulae of $0.5-1 \mu\text{m}$ long at each end.

Description and illustration: Agnihotrudu (1962).

Habitat: On dead twig.

Known distribution: India.

Material examined: India: Jocklai, on *Camelia sinense* L., 10 December 1957, V. Agnihotrudu & G.C.S. Barua (no.1, 160), IMI201221 (**holotype**); 10 February 1976, G.C.S. Barua (no2), IMI201222.



Figs 16-19. *Dinemasporium neottiosporioides* (from holotype specimen). **16.** Vertical section of a conidioma. **17.** Setae. **18.** Conidiophores and conidiogenous cells. **19.** Conidia. Scale bars = $20 \mu\text{m}$ applies to all figs.

Notes: Sutton (1977) concluded that *Amphitariospora* Agnihotr. was a synonym of *Dinemasporium*, based on a study of the type specimen, but a valid combination has not been made to date. The setose excipuliform fructifications, branched, septate phialidic conidiophores and setulae conidia in *A. neottiosporioides* are typical of *Dinemasporium* (Sutton, 1977) and a comparative study with other species in the genus *Dinemasporium* shows it differs from all other described species by its smaller conidia with shorter appendages (Agnihotrudu, 1962; Sutton, 1965, 1969, 1980; Nag Raj, 1993).

***Dinemasporium sinense* W.P. Wu, J.X. Duan & X.Z. Liu, sp. nov.**

MycoBank: 510717

(Figs 20-24).

Mycelium immersum cum hyphis septatis, ramosis, laevibus, brunneis. *Conidiomata* eustromatica, navicularia usque cupulata, superficialia, dissita, setosa, nigra, usque 0.3-1.2 mm longa et 200-500 μm crassae; stromata pseudoparenchymata, cum textura angularis et porrecta lateralis. *Setae* cylindricae, erectae, rectae, atro-brunneae ad basim et dilute brunneae ad apicem, 200-600 \times 5.5-8 μm . *Conidiophora* ramosa, 1-septata, cylindricae, hyalinae, laevibus, in basim conidiomati disposita, 7-12 \times 1.2-2 μm . *Cellulae conidiogenae* monophialidicae, integratae, determinatae, cylindricae, inflatae ad apicem, laeves, hyalinae, cum minute collo, 5-12 \times 1.2-2 μm . *Conidia* naviculatae, curvata, utrimque obtuse, aseptata, levia, guttulata, hyalina, 6-11 \times 1.2-1.5 μm , utrimque 1 setulo non ramosa praedita, 0.5-1.2 μm longa.

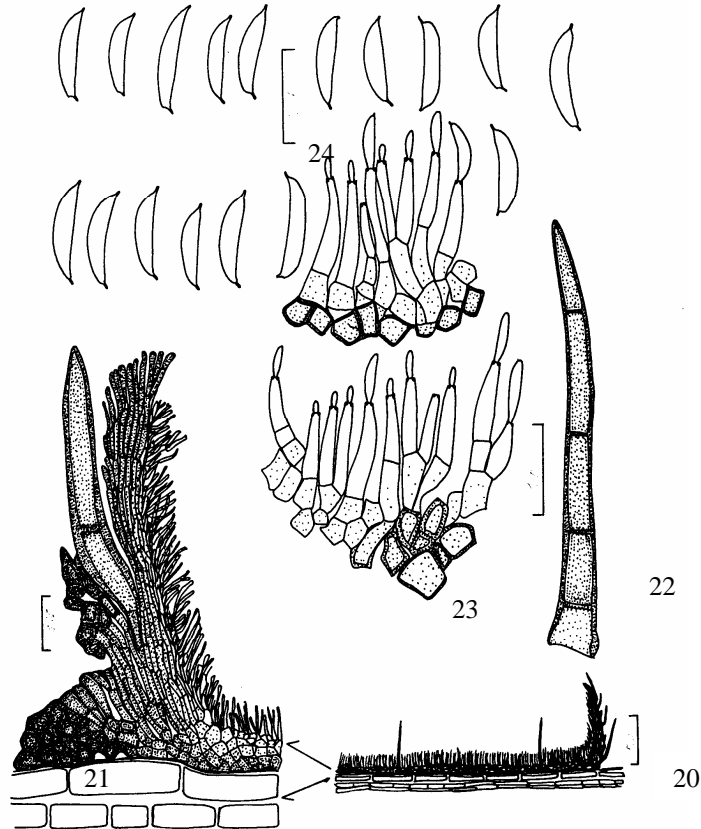
Mycelium immersed, composed of smooth-walled, brown, branched, septate hyphae. *Conidiomata* eustromatic, unilocular, superficial, scattered to aggregated, setose, black, naviculate, cupulate to discoid, ellipsoid to spherical on the top view, 0.3-1.2 mm long and 200-500 μm wide; basal wall of textura angularis composed of brown, thick-walled, isodiametric cells that are hyaline and thin-walled on the upper layer; lateral wall of textura prismatica with thick-walled, brown to dark brown, elongated cells, well developed or poorly developed. *Setae* dark brown, paler towards the apex, septate, simple, wall thick and smooth, straight, cylindrical, tapered towards the acute or obtuse apex, 200-600 \times 5.5-8 μm . *Conidiophores* hyaline, 1-septate, branched, wall thin and smooth, cylindrical, 7-12 \times 1.2-2 μm , formed from the basal part of the conidiomata. *Conidiogenous cells* enteroblastic, monophialidic, determinate, integrated, hyaline, thin- and smooth-walled, cylindrical with a marked periclinal thickening around the apical channel, the collar is inconspicuous, 5-12 \times 1.2-2 μm . *Conidia* hyaline, aseptate, naviculate, end rounded, curved, wall smooth and thin, 6-11 \times 1.2-1.5 μm , with one setulae 0.5-1.2 μm long.

Habitat: On dead culms of grasses.

Known distribution: China.

Material examined: China: Hebei Province, Chengde, on dead culms of unidentified grass, 12 September 1991, Wu Wenping, Wu525 (**holotype**); China: Hebei Province, Chengde, on dead culms of unidentified grass, 12 September 1991, Wu Wenping, Wu0552; 11 September 1991, Wu Wenping, Wu0521, Wu0551, Wu0553.

Notes: *Dinemasporium cytosporioides* is the only species similar to *D. sinense*. However, the conidia of *D. cytosporioides* are smaller ($3.5\text{-}5 \times 1 \mu\text{m}$), as are the conidiomata ($120\text{-}150 \mu\text{m}$ diam.).



Figs 20-24. *Dinemasporium sinensis* sp. nov. (from holotype). **20-21.** Vertical section of a conidioma. **22.** Setae. **23.** Conidiophores and conidiogenous cells. **24.** Conidia. Scale bars = 20 μm applies to all figs.

***Dinemasporium strigosum* (Pers.) Sacc., Michelia 2:281 (1881)**

Peziza strigosa Pers.: Fr., Syst. Mycol. 2:103 (1882)

Dinemasporium graminum (Lib.) Lév., Ann. Sci. nat., 3 Sér., 5:274 (1846)

Other synonyms see Sutton (1980) and Nag Raj (1993).

Mycelium immersed, composed of septate, branched, smooth and brown hyphae. *Conidiomata* eustromatic, superficial, black, cupulate, ellipsoid to spherical in top view, $150\text{-}800 \mu\text{m}$ in diam; basal stroma of *textura angularis* composed of hyaline to brown, isodiametric cells; lateral wall of *textura prismatica* to *textura porrecta* formed by brown, thick-walled cells that are

hyaline towards the inner layer. *Setae* brown to black, simple, septate, cylindrical with a acute or obtuse apex, wall thick and smooth, $100-850 \times 3-6.5 \mu\text{m}$, arising from basal part of conidiomata or sometimes from lateral excipulum. *Conidiophores* hyaline, septate, branched or unbranched, cylindrical, wall thin and smooth, $10-30 \times 1.5-2.5 \mu\text{m}$. *Conidiogenous cells* enteroblastic phialidic, determinate, hyaline, cylindrical, apex with narrow channel and a inconspicuous collar, $8-20 \times 1.5-2.5 \mu\text{m}$. *Conidia* hyaline, aseptate, wall thin and smooth, naviculate to fusiform, curved or straight, ends rounded, eguttulate or guttulate, $8-12.5 \times 2-2.5 \mu\text{m}$, with a single, unbranched setulae at each end, $6.5-9 \mu\text{m}$ long.

Description and illustration: Webster (1955), Sutton (1980), Nag Raj (1993).

Habitat: On dead grasses, dead twigs and rotten wood.

Known distribution: Worldwide (Sutton, 1980; Nag Raj, 1993)

Material examined: On many different substrata and widely distributed in China. Specimens no. Wu0501, 0502, 0503, 0505, 0506, 0507, 0508, 0509, 0510, 0511, 0513, 0514, 0518, 0519, 0520, 0527, 0530, 0532, 0538, 0539, 0543, 0545, 0548, 0550, 0554, 0557, HMAS33611(S), HMAS01437, HMAS06649, HMAS33255(S) and distributed in Beijing, Fujian, Hebei, Jiangsu, Liaoning, Shaanxi, Yunnan.

Notes: A full account of this species was given by Webster (1955), Sutton (1977, 1980) and Nag Raj (1993). A comparison between *D. strigosum* and some closely related species including *D. longicapillatum* Y. Yamaguchi & Masuma was given by Yamaguchi et al. (2005). In the Chinese literature, the species was reported under the name *D. graminum* var. *strigosulum* Karsten on Gramineae (Teng, 1963; Tai, 1979). Webster (1955) restudied Karsten's specimens of *D. graminum* var. *strigosulum* and confirmed it did not belong to the genus *Dinemasporium*. For this reason, Webster pointed out that there was no foundation for maintaining *D. graminum* var. *strigosulum*. Teng's specimens of *D. graminum* var. *strigosulum* in HMAS were reexamined by us and all of them meet the description of *D. strigosum* as given by Sutton (1980).

Acknowledgments

We are indebted to Dr. Eric H.C. McKenzie (New Zealand Fungal Herbarium (PDD), Landcare Research, Auckland) for kindly reviewing the manuscript.

References

- Agnihotrudu, V. 1962 (1963). Notes on fungi from North-east India XIV--A new genus of Discellaceae from Assam. *Sydowia* 16: 73-76.
- Furlanetto, C. and Dianese, J.C. (1998). Some coelomycetes from Central Brazil. *Mycological Research* 102: 19-29.
- Grove, W.B. (1937). British stem- and leaf-fungi (Coelomycetes) 2: 1-406.

- Kendrick, B. and Dicosmo, F. (1979). Teleomorph-anamorph connections in Ascomycetes. *The Whole Fungi* 1: 283-359.
- Léveillé, J.H. (1846). Description des champignons de l'Herbier du Museum de Paris. *Ann. Sci. nat., Sér. 3*, 5: 249-304.
- Matsushima, T. (1995). *Matsushima Mycological Memoirs* no. 8. Matsushima Fungus Collection, Kobe.
- Morgan-Jones, G. (1971). A new species of *Dinemasporium* from Ontario. *Canadian Journal of Botany* 49: 1363-1365.
- Nag Raj, T.R. (1978). Genera coelomycetum. XIV. *Allelochaeta*, *Basilocola*, *Ceuthosira*, *Microgloeum*, *Neobarclaya*, *Polynema*, *Pycnidiochaeta*, and *Xenodomus*. *Canadian Journal of Botany* 56: 686-707.
- Nag Raj, T.R. (1993). *Coelomycetous anamorphs with appendage bearing conidia*. Mycologue Publications. Canada.
- Nag Raj, T.R. and Castañeda Ruiz, R.F. (1989). *Dinemasporium lanatum* anam. sp. nov. from Cuba. *Canadian Journal of Botany* 67: 2527-2529.
- Nag Raj, T.R. and Kendrick, W.B. (1986). On *Dinemasporium aceanum* Petrak. *Mycotaxon* 25: 15-18.
- Rappaz, F. (1992). *Phomatospora berkeleyi*, *P. arenaria* and their *Sporothrix* anamorphs. *Mycotaxon* 45: 323-330.
- Saccardo, P.A. (1884). *Sylloge Fungorum*. Vol. 4.
- Sutton, B.C. (1965). Typification of *Dendriphoma* and a reassessment of *D. obscurans*. *Transitions of the British Mycological Society* 48: 611-616.
- Sutton, B.C. (1969). *Minimidium setosum* n. gen. n. sp. and *Dinemasporium aberrans* n. sp. from west Africa. *Canadian Journal of Botany* 47: 2095-2100.
- Sutton, B.C. (1977). The Coelomycetes VI. *Mycol. paper* 141: 1-253.
- Sutton, B.C. (1980). *The Coelomycetes*. CMI, Kew.
- Tai, F.L. (1979). *Sylloge Fungorum Sinica*. Beijing, Acad. Press.
- Teng S.C. (1963). *Fungi of China*. Beijing, Acad. Press.
- Webster, J. (1955). Graminicolous pyrenomycetes V. Conidial state of *Leptosphaeria michotii*, *L. microspica*, *Pleospora vagans* and the perfect states of *Dinemasporium graminum*. *Transitions of the British Mycological Society* 38: 347-365.
- Wu W.P. (1993). Notes on some coelomycetes with conidia bearing setulae. *Acta Mycologica Sinica* 12: 34-40.
- Yamaguchi, Y., Masuma, R., Tomoda, H. and Omura, S. (2005). A new species of *Dinemasporium* from sugar cane on Irabujima island, Japan. *Mycoscience* 46: 367-369.

(Received 25 August 2006; accepted 27 March 2007)