
A synopsis of the genus *Berkleasmium* with two new species and new records of *Canalisporium caribense* from *Zingiberaceae* in Thailand

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The genus *Berkleasmium* is reviewed based on the literature and two new species are described from recent collections. A synopsis and key is provided to the 24 accepted species. The new species, *B. nigroapicale* and *B. suthheppuiense* are described from dead pseudostems of *Amomum siamense*, and a morphologically similar fungus, *Canalisporium caribense*, found on the same host species is also reported.

Key words: Hyphomycetes, key, mitosporic fungi, taxonomy.

Introduction

The hyphomycete genus *Berkleasmium* Zobel (Zobel, 1854) was based on *Sporidesmium concinnum* Berk. He named this taxon in honour of Corda illegitimately using the name *B. cordeanum*. The name was corrected to *B. concinnum* by Hughes (1958). Moore (1958) studied similar genera and accepted *Berkleasmium* for sporodochial fungi producing dark coloured dictyospores either on short, simple conidiophores or directly on the hyphae. Moore (1959) accepted ten species in *Berkleasmium* and provided a key to the genus. There are now 24 binomial names in *Berkleasmium* (Table 1). According to Ellis (1971), *Berkleasmium* comprises sporodochial species characterised by narrow, macronematous conidiophores, which are mostly unbranched and closely packed in a sporodochium. Conidiogenous cells are

Table 1. Synopsis of accepted species of *Berkleasium*.

Species and reference	Sporodochia	Conidiophores	Conidia	Substrata
<i>B. abuense</i> Chouhan and Panwar (Chouhan and Panwar, 1980)	Punctiform, raised, black	$22 \times 2.5-4$ μ m, simple or branched, septate, pale brown, smooth	$18-40 \times 16-35$ μ m, subglobose to broadly ellipsoidal, with transverse, longitudinal and oblique septa, olivaceous-brown to dark brown, smooth	Dead twigs
<i>B. concinnum</i> (Berk.) S. Hughes (= <i>B. cordeanum</i> Zobel) (Hughes, 1958; Moore, 1958, 1959; Ellis, 1971)	Punctiform, raised, black, shining	$30 \times 2-5$ μ m, flexuous, unbranched or rarely branched, smooth	$60-124 \times 24-31$ μ m, profile regular, muriform, more than 15 cells, broadly cylindrical, cells large and fairly regular, golden brown	Rotten wood
<i>B. conglobatum</i> (Cooke and Ellis) R.T. Moore (Moore, 1958, 1959)	Black	Short, may or may not be separated from conidium by a septum	$36.5-99 \times 26-47$ μ m, multicellular, cells small and regular, oval to ovate, without subtending cells, deep fuscous to opaque	Old wood
<i>B. correae</i> H.Y. Yip (Yip, 1988)	Absent	$2-5 \times 2-2.5$ μ m, cylindrical or stopper-shaped, medium brown	$26-44 \times 16-24$ μ m, broadly ellipsoidal, with or without protruding hilum, slightly constricted at septa, brown, smooth	Abaxial stellate leaf hairs of <i>Correa lawrenciana</i>
<i>B. corticola</i> (P. Karst.) R.T. Moore (Moore, 1959)	Black	Cylindrical, subhyaline to pale brown	$26.5-34 \times 18.5-26$ μ m, multicellular, with 1 or 2 subtending cells, absent on some conidia, hyaline; primary portion globose, subglobose, ovate or obovate, deep fuscous	Old birch bark
<i>B. granulosum</i> (Durieu and Mont.) R.T. Moore (Moore, 1958, 1959)	Punctiform	Short pedicels which may or may not be separated from the conidium by a septum	$29-66 \times 16.5-18.5$ μ m, profile irregular, multicellular, more than 15 cells, subglobose to oval to irregular cylindrical, composed of heteromorphic cells irregularly ordered, light brown	Old <i>Olea</i> wood
<i>B. inflatum</i> Hol.-Jech. (Holobová-Jechová, 1987)	Punctiform, pulvinate, black, shining	$48 \times 2-4$ μ m, with 1-3 bladdery swelling $6-9.5$ μ m wide	$40-48 \times 19.5-21$ μ m, muriform, ellipsoidal, clavate, obovate or pyriform, with a truncate basal scar, golden brown, smooth	Rotten wood

Table 1. (continued).

Species and reference	Sporodochia	Conidiophores	Conidia	Substrata
<i>B. leonense</i> M.B. Ellis (Ellis, 1976)	Punciform, pulvinate, black	Up to 25 μm long, 1-3 μm thick, simple or branched, hyaline, smooth	20-27 $\times$ 15-17 $\times$ 6-8 μm , muriform, broadly elliptical, flattened, smooth	Dead branches of <i>Ficus</i> sp.
<i>B. lingula</i> R.T. Moore (Moore, 1959)	Dark	Absent	65-89.5 $\times$ 18.5-24 μm , multicellular, without subtending cells, cylindrical to slightly obclavate, sometimes somewhat curved, fuscous	Rotten wood
<i>B. micronesicum</i> Matsush. (Matsushima, 1981)	Pulvinate, dark	Erect, broadly cylindrical, subhyaline to pale brown	30-40 $\times$ 13-16 μm , muriform, cylindrical, medium brown	Dead petioles of <i>Cocos nucifera</i>
<i>B. minutissimum</i> (Peck) R.T. Moore (Moore, 1959)	Dark	Absent	11.5-17 $\times$ 8.5-11.5 μm , less than 15 cells, subglobose to squarish-subglobose to oval- ellipsoid, often strongly constricted at a prominent medial septum, minutely roughened, pale brown	Dead wood
<i>B. moriforme</i> (Peck) R.T. Moore (Moore, 1959)	Superficial, black	Cylindrical, subhyaline to pale brown	23.5-26.5 $\times$ 18.5-22 μm , muriform, with subtending cells either numerous, tending to be amorphous, or represented by a single, large, hyaline, globose to elliptical vesicle, or sometimes absent	Old decorticated apple wood, dead bark of <i>Vitis vinifera</i>
<i>B. nigroapicale</i> (this paper)	Superficial, granular, black, shiny	Up to 22 μm high, inflated to 6.5-10 μm at the apex, non septate, hyaline to very pale brown	24-27 $\times$ 12.5-15 μm , broadly clavate, muriform, constricted at septa, 2 apical rows of cells dark brown, basal rows pale brown	Dead pseudostems of <i>Amomum siamense</i>
<i>B. opacum</i> R.T. Moore (Moore, 1959)	Superficial, black	Absent	52-83 $\times$ 31-41.5 μm , verrucose, subglobose to oval-ellipsoid, elongate conidia sometimes strongly constricted, somewhat amorphous, opaque	Dead wood of <i>Juglans cineria</i> , <i>Quercus</i> sp.

Table 1. (continued).

Species and reference	Sporodochia	Conidiophores	Conidia	Substrata
<i>B. osmaniae</i> P.Rag. Rao and D. Rao (Rao and Rao, 1963)	Superficial, closely packed, black to blackish brown	7.2-7.6 $\times$ 3.6-7.2 μ m, short, simple, cylindrical or short stem like, 1-7 septate, brown to dark brown	18-75 $\times$ 3.6-5.4 μ m at base, 7.2-10.8 μ m wide at apex, dictyosporous, usually with cells arranged in 2-3 rows, irregular, oval- clavate to cylindrical, curved or straight, smooth, with a dome shaped yellowish brown apical cell	Old dead clumps of grass
<i>B. papillatum</i> P.Rag. Rao and D. Rao (Rao and Rao, 1963)	Irregular, superficial	30-56 $\times$ 3-7.5 μ m, simple, 1-5 septate, dark blackish to deep brown, gradually becoming paler towards the fertile apical end	20-30 $\times$ 12-20 μ m, muriform, 5-15 cells arranged in 2-3 rows, attenuated at septa, subhyaline to light brown, papillate at base	Old bamboo thatches
<i>B. parmeliellae</i> Etayo and Diederich (Etayo and Diederich, 1995)	Muculiform, pulvinate, greyish- black	6-9 $\times$ 4-5 μ m, unbranched, narrow, more or less flexuous, smooth	40-55 $\times$ 22-27 μ m, muriform, clavate to ellipsoidal, rounded at the ends, brown	Lichen, <i>Parmeliella</i> <i>testacea</i>
<i>B. phyllostachydis</i> Matsush. (Matsushima, 1983)	Aggregate	(Conidiogenous cells) short	17-25 $\times$ 9-13 μ m, muriform, ellipsoidal to broadly clavate, medium brown, smooth, basal cells cylindrical, pale to pale brown	Stem of <i>Phyllostachydis</i> sp.
<i>B. sansevieriae</i> Bat., J.L. Bezerra and Cavalc. (Batista <i>et al.</i> , 1962)	Epiphyllus, first subepidermal, then superficial, scattered, dark brown	5-13 $\times$ 2.6 μ m, peripheric, parallel, septate or aseptate, subhyaline to olivaceous	15.5-26 $\times$ 10.5-15.5 μ m, oblong, muriform, 3-4 transverse and 1-4 longitudinal septa, brown, verrucose	Living leaves of <i>Sansevieria</i> sp.
<i>B. suthieppuiense</i> (this paper)	Granular, black, shiny	15-17.5 $\times$ 6-6.5 μ m, septate, hyaline to very pale brown, smooth	35-37 $\times$ 22.5-25 μ m, muriform, subglobose, dark brown, septa only visible when immature.	Dead pseudostems of <i>Amomum siamense</i>

Table 1. (continued).

Species and reference	Sporodochia	Conidiophores	Conidia	Substrata
<i>B. talaumae</i> Bat. and Cavalc. (Batista and Cavalcanti, 1964)	Maculiform, hypophyllus, first subepidermal, then superficial, scattered, verrucose, dark brown	Absent	25-51 $\times$ 19-28 μ m, oblong, dictyosporous	Living leaves of <i>Talauma ovata</i>
<i>B. triglochinis</i> (Berk. and Broome) R.T. Moore (Moore, 1959)	Black	4-6 μ m long	10-18 $\times$ 8-14 μ m, tuberculate to more or less scabrid, broadly oval to spherical or pyriform, sometimes slightly constricted at septa, opaque	<i>Triglochin palustre</i>
<i>B. tropicale</i> Morris (Morris, 1972)	Black	13-16 $\times$ 3-4 μ m, septate, hyaline	50-57 $\times$ 28-34 μ m, muriform, flattened, oval, with cells in 3 rows, slightly constricted at septa, brown	Dead wood
<i>B. vogelianum</i> (Syd.) R.T. Moore (Moore, 1959)	Black	A few cells	26.5-39.5 $\times$ 13-18.5 μ m, less than 15 cells, clavate to subclavate to subglobose, base truncate, moderately constricted at septa, fuscous	Young fallen branches and peduncles of <i>Celtis occidentalis</i>

terminally integrated on the conidiophores and are monoblastic, determinate, acrogenous and cylindrical. The conidia are solitary, brown, muriform, clavate or oblong, with rounded ends or irregular, and often have a protruding hilum. Most species are recorded from non-living substrata such as bark or dead wood of various plants (Moore, 1958, 1959; Rao and Rao, 1963; Ellis, 1971, 1976; Morris, 1972; Chouhan and Panwar, 1980; Matsushima, 1981, 1983; Holobová-Jechová, 1987; Yip, 1988). *Berkleasmium correae* H.Y. Yip is also a saprobe, but growing on the abaxial hairs of *Correa lawrenciana*, not invading the underlying leaf tissues. *Berkleasmium sansevieriae* Bat., J.L. Bezera and Cavalc. and *B. talaumae* Bat. and Cavalc. were recorded from living leaves of *Sansevieria* sp. and *Talauma ovata*, respectively (Batista *et al.*, 1962; Batista and Cavalcanti, 1964). *Berkleasmium parmeliellae* has recently been placed into this genus as the first lichenicolous species (Etayo and Diederich, 1995). A synopsis of the 24 accepted species of *Berkleasmium*, which includes the two new species described here is provided in Table 1 and a synoptic diagrammatic representation of all species is provided in Fig. 8.

Nawawi and Kuthubutheen (1989) introduced the genus *Canalisporium* to accommodate *Berkleasmium caribense*, *B. pulchrum* and a new species, *Canalisporium elegans* Nawawi and Kuthub. *Canalisporium* is separated from *Berkleasmium* by its muriform conidia that are complanate with ordered rows of cells, sometimes having darkly pigmented septa. The conidiophores may be macro-, micro- or semi-macronematous (Goh *et al.*, 1998). Recently Goh and Hyde (1999) described *Monodictys melanocephaloides*, a species producing conidia in sporodochioid clumps, superficially resembling colonies of *Berkleasmium*. However, the conidiophores are micronematous, as compared to the macronematous conidiophores of *Berkleasmium*.

During our investigation of saprobic fungi on wild ginger, *Amomum siamense* Craib., we found *Canalisporium caribense* (Hol.-Jech. and Mercado) Nawawi and Kuthub. and two undescribed species of *Berkleasmium*. These are described and illustrated in the present paper. In addition, synopsis of the accepted species in *Berkleasmium* is provided in Table 1, a taxonomic key is given and the new *Berkleasmium* species found on the ginger are described and illustrated.

Taxonomy

Key to accepted species of *Berkleasmium*

1. Associated with algae, lichenicolous, conidia 40-45 × 22-27 µm *B. parmeliellae*
1. Not lichenicolous, conidia other size range 2

Fungal Diversity

2. Conidia mostly longer than 60 μm	3
2. Conidia shorter than 60 μm long.....	6
3. Conidia less than 25 μm wide, 65-89.5 $\times$ 18.5-24 μm , cylindrical to slightly obclavate, fuscous.....	<i>B. lingula</i>
3. Conidia mostly wider than 25 μm , with other combination of characters.....	4
4. Conidia profile regular	5
4. Conidia profile irregular, conidia verrucose, subglobose to oval-ellipsoid, elongate conidia sometimes strongly constricted, opaque, 52-83 $\times$ 31-41.5 μm	<i>B. opacum</i>
5. Conidia broadly cylindrical, cells large, golden brown, 60-124 $\times$ 24-31 μm ...	<i>B. concinnum</i>
5. Conidia oval to ovate, cells small, deep fuscous to opaque, 36.5-99 $\times$ 26-47 μm	<i>B. conglobatum</i>
6. Conidia mostly longer than 28 μm	7
6. Conidia shorter than 28 μm long.....	17
7. Conidia formed in sporodochia	8
7. Conidia not formed in sporodochia, growing on leaf hairs, conidia 26-44 $\times$ 16-24 μm	<i>B. correae</i>
8. Conidia mostly wider than 10 μm	9
8. Conidia less than 6 μm wide, 18-75 $\times$ 3.6-5.4 μm , irregular, oval-clavate to cylindrical, curved or straight.....	<i>B. osmaniae</i>
9. Conidia with more than 15 cells.....	10
9. Conidia with less than 15 cells	16
10. Conidiophores inflated; conidia 40-48 $\times$ 19.5-21 μm , golden brown	<i>B. inflatum</i>
10. Conidiophores not inflated	11
11. Conidiophores with subtending cells, primary portion globose to subglobose to ovate or obovate, deep fuscous; conidia 26.5-34 $\times$ 18.5-26 μm	<i>B. corticola</i>
11. Conidiophores without subtending cells	12
12. Conidia flattened, with cells in three rows, 50-57 $\times$ 28-34 μm	<i>B. tropicale</i>
12. Conidia not as above	13
13. Conidia cylindrical, 30-40 $\times$ 13-16 μm	<i>B. micronesicum</i>
13. Conidia not cylindrical	14
14. Conidia profile regular, subglobose, very dark brown, 35-37 $\times$ 22.5-25 μm , septa only visible when immature	<i>B. suthauptiense</i>
14. Conidia profile irregular.....	15
15. Conidia subglobose to broadly ellipsoidal, with transverse, longitudinal and oblique septa, olivaceous-brown to dark brown, 18-40 $\times$ 16-35 μm	<i>B. abuense</i>
15. Conidia subglobose to oval to irregular cylindrical, light brown, 29-66 $\times$ 16.5-18.5 μm	<i>B. granulosum</i>

16. Conidiophores cylindrical, consisting of a few cells; conidia clavate to subclavate to subglobose, $26.5-39.5 \times 13-18.5 \mu\text{m}$ *B. vogelianum*
 16. Conidiophores absent; conidia oblong, $25-51 \times 19-28 \mu\text{m}$ *B. talaumae*
17. Conidia with more than 15 cells 18
 17. Conidia with less than 15 cells 23
18. Conidia distinctly verrucose, tuberculate to more or less scabrid 19
 18. Conidia not distinctly verrucose 20
19. Conidia verrucose, $15.5-26 \times 10.5-15.5 \mu\text{m}$ *B. sansevieriae*
 19. Conidia tuberculate to more or less scabrid, $10-18 \times 8-14 \mu\text{m}$ *B. triglochinis*
20. Conidia flattened, with cells in three rows, $20-27 \times 15-17 \mu\text{m}$ *B. leonense*
 20. Conidia not as above 21
21. Conidia with subtending cells or in some conidia absent 22
 21. Conidia without subtending cells, $17-25 \times 9-13 \mu\text{m}$ *B. phyllostachydis*
22. Conidiophores cylindrical; conidia $23.5-26.5 \times 18.5-22 \mu\text{m}$ *B. moriforme*
 22. Conidiophores inflated at the apex; conidia $24-27 \times 12.5-15 \mu\text{m}$ *B. nigroapicale*
23. Conidia with cells arranged in 2-3 rows, papillate at base, $20-30 \times 12-20 \mu\text{m}$. *B. papillatum*
 23. Conidia with cells not arranged in rows, not papillate at base, $11.5-17 \times 8.5-11.5 \mu\text{m}$
 *B. minutissimum*

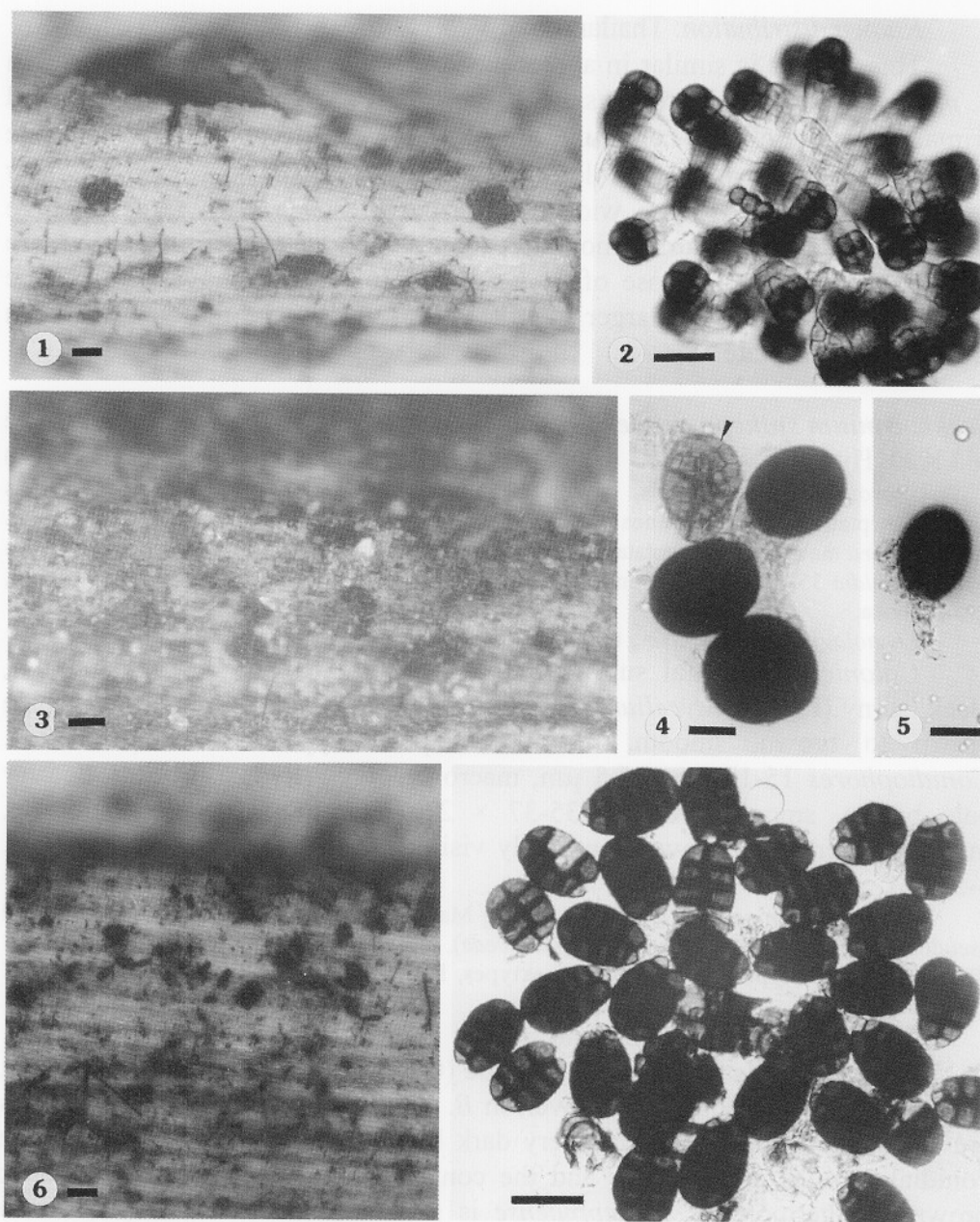
Berkleasium nigroapicale Bussaban, S. Lumyong, P. Lumyong, McKenzie and K.D. Hyde, **sp. nov.** (Figs. 1-2, 8M)

Sporodochia punctiformis, pulvinata, atra, nitida. *Mycelium* immersum ex hyphis ramosis, septatis, pallide brunnea vel brunnea, laevibus, $1.5-2.5 \mu\text{m}$ crassis compositum. *Conidiophora* macronemata, eseptata, hyalina vel pallide brunnea, usque ad $22 \mu\text{m}$ longa, $2.5-5 \mu\text{m}$ crassa, apice ad $6.5-10 \mu\text{m}$ inflata. *Conidia* $24-27 \times 12.5-15 \mu\text{m}$, solitaria, late clavata, muriformia, in septis constricta, laevia; cellulis apicalibus atro-brunneis, cellulis basilaribus pallide brunneis.

Etymology: epithet referring to the dark coloured conidial apex.

Colonies on natural substratum in the form of sporodochia, granular, black, shiny (Fig. 1). *Mycelium* immersed in the substratum, composed of pale brown to brown, smooth, branched, septate hyphae $1.5-2.5 \mu\text{m}$ wide. *Conidiophores* up to $22 \mu\text{m}$ high, $2.5-5 \mu\text{m}$ diam (inflated to $6.5-10 \mu\text{m}$ at the apex), macronematous, non-septate, hyaline to pale brown, smooth. *Conidia* $24-27 \times 12.5-15 \mu\text{m}$, solitary, broadly clavate, muriform, constricted at the septa, the two apical rows of cells are usually dark brown, basal rows pale brown, smooth (Figs. 2, 8M).

Material examined: THAILAND, Chiang Mai, Doi Suthep-Pui National Park, on dead pseudostems of *Amomum siamense* (Zingiberaceae), 15 October 2000, B. Bussaban CMUZS2 (PDD 74415, **holotype**, designated here; **extypes**, living culture in BCC 8220 and HKUCC 7909).



Figs. 1-7. *Berkleasmium nigroapicale* (from holotype), *B. sutheppuiense* (from holotype) and *Canalisporium caribense*. **1-2.** *B. nigroapicale*; **1.** Portion of colony on natural substratum. **2.** Squash-mount of a sporodochioid clump showing conidia. **3-5.** *B. sutheppuiense*; **3.** Portion of colony on natural substratum. **4.** Mature conidia and immature conidium (arrowed). **5.** Solitary conidiophore bearing conidium. **6-7.** *Canalisporium caribense*; **6.** Portion of colony on natural substratum. **7.** Squash-mount of a sporodochioid clump showing conidia. Bars: 1, 3, 6 = 100 μ m; 2, 5, 7 = 20 μ m; 4 = 10 μ m.

Known distribution: Thailand.

This species is similar in appearance to *B. moriforme* (Moore, 1959). In *B. moriforme*, pale coloured basal cells are said to subtend the dark coloured primary portion of the conidium. *Berkleasium nigroapicis* also has pale coloured basal cells and dark coloured apical cells. However, in *B. nigroapicis* the conidia are 12.5-15 µm wide, whereas in *B. moriforme* the conidia are wider (18.5-22 µm). Furthermore, the conidiophores of *B. nigroapicis* are smaller, and similar to those of *B. inflatum* (Holobová-Jechová, 1987). The conidia of *B. inflatum* are larger (40-48 × 19.5-21 µm) and the conidiophores are longer and septate.

Berkleasium suthheppuiense Bussaban, S. Lumyong, P. Lumyong, McKenzie and K.D. Hyde, **sp. nov.** (Figs. 3-5, 8T)

Sporodochia punctiformis, pulvinata, atra, nitida. *Mycelium* immersum ex hyphis ramosis, septatis, pallide brunnea vel brunnea, laevibus, 2-2.5 µm crassis compositum. *Conidiophora* macronemata, septata, hyalina vel pallide brunnea, 15-17.5 µm longa, 6-6.5 µm crassa. *Conidia* 35-37 × 22.5-25 µm, solitaria, subglobosa, muriformia, septa obscure, laevia, atro-brunnea.

Etymology: epithet referring to the place of origin, Doi Suthep-Pui.

Colonies on natural substratum in the form of sporodochia, granular, black, shiny (Fig. 3). *Mycelium* immersed in the substratum, composed of pale brown to brown, smooth, branched, septate hyphae 2-2.5 µm wide. *Conidiophores* 15-17.5 × 6-6.5 µm, macronematous, septate, hyaline to very pale brown, smooth. *Conidia* 35-37 × 22.5-25 µm, solitary, subglobose, muriform, very dark brown, septa only visible when immature, smooth (Figs. 4-5, 8T).

Material examined: THAILAND, Chiang Mai, Doi Suthep-Pui National Park, on dead pseudostems of *Amomum siamense* (Zingiberaceae), 15 October 2000, B. Bussaban CMUZS43 (PDD 74416, **holotype**, designated here; **extypes**, living culture in BCC 8222 and HKUCC 7909).

Known distribution: Thailand.

This species is similar to *B. abuense* (Chouhan and Panwar, 1980) in that the conidia are subglobose. However, in *B. suthheppuiense* the conidial profiles are regular and the conidia are very dark brown, whereas in *B. abuense* the conidial profiles are irregular and the conidia are olivaceous-brown to dark brown. Furthermore, *B. suthheppuiense* is similar to *B. corticola* (P. Karst.) Moore (1959) in conidial size, shape and colour. While the conidial profile of *B. corticola* is also regular, the conidia usually have one or two subtending cells.

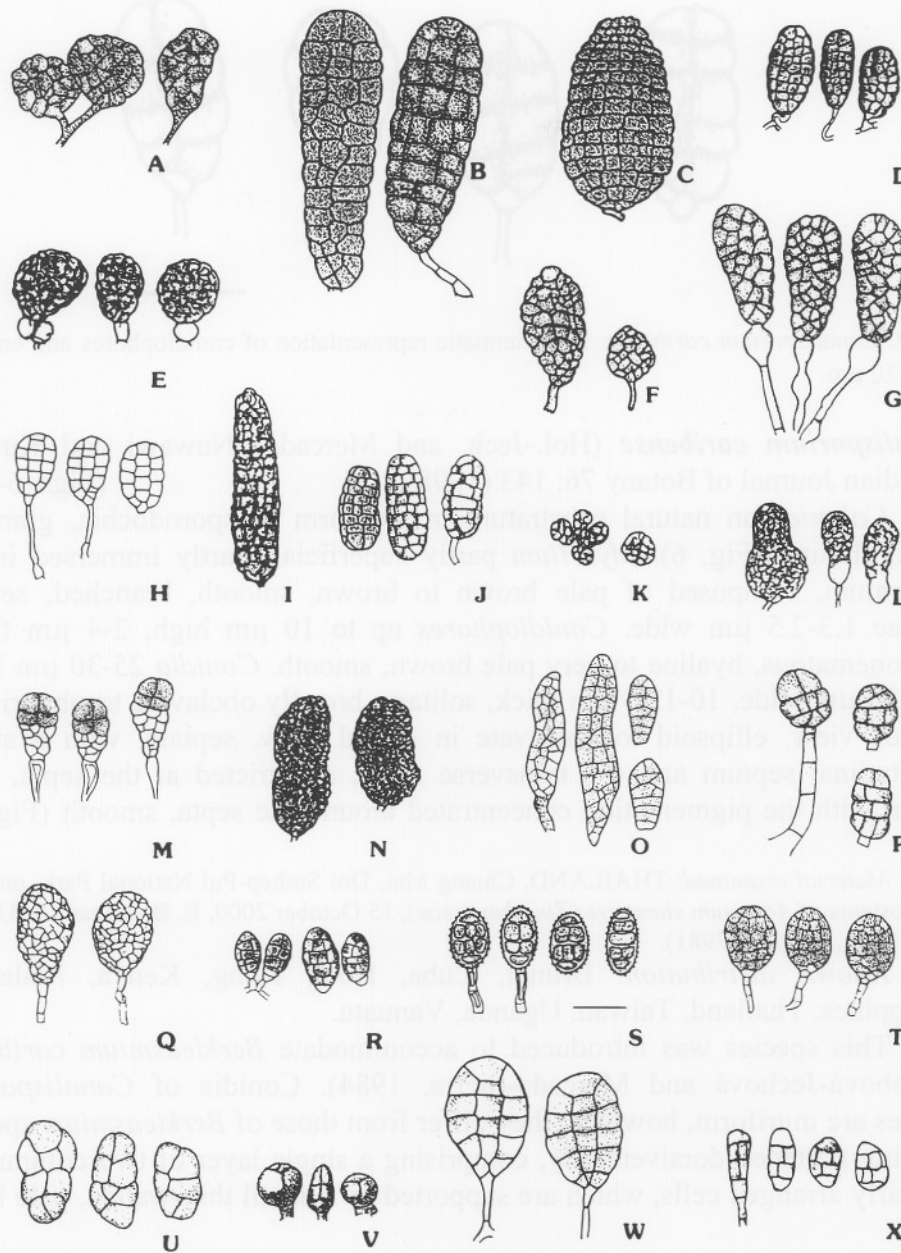


Fig. 8. Conidiophores and conidia of *Berkleasmium* spp. **A.** *B. abuense*. **B.** *B. concinnum*. *B. conglobatum*. **C.** *B. conglobatum*. **D.** *B. correae*. **E.** *B. corticola*. **F.** *B. granulosum*. **G.** *B. inflatum*. **H.** *B. leonense*. **I.** *B. lingula*. **J.** *B. micronesicum*. **K.** *B. minutissimum*. **L.** *B. moriforme*. **M.** *B. nigroapicale*. **N.** *B. opacum*. **O.** *B. osmaniae*. **P.** *B. papillatum*. **Q.** *B. parmeliellae*. **R.** *B. phyllostachydis*. **S.** *B. sansevieriae*. **T.** *B. sutheppuiense*. **U.** *B. talumae*. **V.** *B. triglochinis*. **W.** *B. tropicale*. **X.** *B. vogelianum*. Bar = 20 μ m.

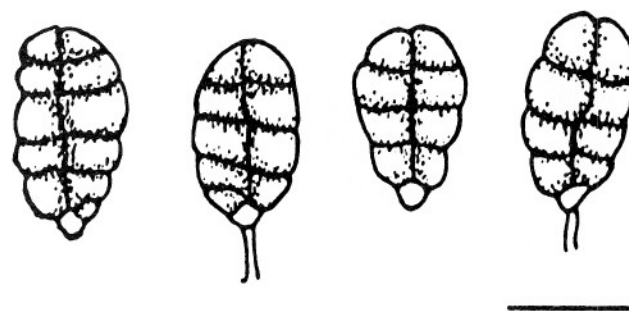


Fig. 9. *Canalisporium caribense*. Diagrammatic representation of conidiophores and conidia. Bar = 20 μ m.

Canalisporium caribense (Hol.-Jech. and Mercado) Nawawi and Kuthub. Canadian Journal of Botany 76: 143 (1998). (Figs. 6-7, 9)

Colonies on natural substratum in the form of sporodochia, granular, black, shining (Fig. 6). *Mycelium* partly superficial, partly immersed in the substratum, composed of pale brown to brown, smooth, branched, septate hyphae 1.3-2.5 μ m wide. *Conidiophores* up to 10 μ m high, 2-4 μ m thick, macronematous, hyaline to very pale brown, smooth. *Conidia* 25-30 μ m long, 12.5-20 μ m wide, 10-12.5 μ m thick, solitary, broadly obclavate to obpyriform in face view, ellipsoid to obclavate in lateral view, septate, with a single longitudinal septum and 4-6 transverse septa, constricted at the septa, dark brown with the pigmentation concentrated around the septa, smooth (Figs. 7, 9).

Material examined: THAILAND, Chiang Mai, Doi Suthep-Pui National Park, on dead pseudostems of *Amomum siamense* (Zingiberaceae), 15 October 2000, B. Bussaban CMUZS14 (BCC 8221, HKUCC 7981).

Known distribution: Brunei, Cuba, Hong Kong, Kenya, Malaysia, Philippines, Thailand, Taiwan, Uganda, Vanuatu.

This species was introduced to accommodate *Berkleasmium caribense* (Holobová-Jechová and Mercado-Sierra, 1984). Conidia of *Canalisporium* species are muriform, however, they differ from those of *Berkleasmium* species in being flattened dorsiventrally, comprising a single layer of two columns of regularly arranged cells, which are supported by a small thin-walled, pale basal cell.

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