Neotropical Ascomycetes 7. *Caudatispora biapiculata* sp. nov. from Puerto Rico

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Caudatispora biapiculata, a new species based on Puerto Rico material, is described and illustrated and compared with the only other species in the genus, *C. palmicola*. *Caudatispora* is characterized within the Lasiosphaeriaceae by superficial clusters of reddish brown ascomata and hyaline, ellipsoid ascospores with apiculate ends. *C. biapiculata* differs from the other species in ascospores with wall extensions at the apical and basal ends and in their eventual pale brown coloration and presence of a single septum.

Key Words: Lasiosphaeriaceae, systematics

The genus *Caudatispora* J. Fröhl. & K. D. Hyde was recently described for a single species from Ecuador occurring on palms (Fröhlich & Hyde, 1995). *Caudatispora* is characterized within the Lasiosphaeriaceae by superficial clusters of reddish brown ascomata and hyaline, ellipsoid ascospores with apiculate ends. During several collecting trips to the El Verde Research Area of the Luquillo Experimental Forest in Puerto Rico, a second species was encountered.

Ascomata were mounted in water and replaced with lactophenol containing azure A. Measurements were made of material in water. Ascomata were sectioned at 5 µm for light microscopy using the techniques of Huhndorf (1991) and images were captured using bright field (BF), phase contrast (PH) and differential interference microscopy (DIC). Images were captured to a Power Computing PowerTower Pro 225 Mac OS system with a Scion LG-3 framegrabber from a Dage DC-330 video system mounted on Olympus BH-2 and Wild M5A microscopes or were scanned from color slides using a Polaroid SprintScan 35 Plus scanner. The photographic plates were produced electronically using Adobe Photoshop 3.0.

Caudatispora biapiculata Huhndorf & F. Fernández, sp. nov. Figs. 1–14.

Ascomata numerosa, ovoidea, 250–275 µm diametro, 250–350 µm alta, papillata, pagina ascomatis aspera, fasciculata, stroma basali instructa. Paries ascomatis superficialis textura globosa, in sectione longitudinali 30–50 µm crassus,

distriatus. Asci cylindracei vel clavati, 160–200 × 15–16.5 µm, breviter stipitati, octospori, biseriati vel triseriati. Ascosporae fusiformes extremitatibus apiculatis, 45–63(–72) × 6.2–8.4 µm, hyalinae vel pallide brunneae, interdum uniseptatae, terminalibus basalis appendicibus praeditae.

Type. – UNITED STATES: Puerto Rico, Luquillo Mts., El Verde Research Area, 16-ha Grid, 18°19′0″ N, 65°49′0″ W, 380 m, *Prestoea* petiole, 14 Jan. 1996, S. M. Huhndorf 1873.

Ascomata ovoid; 250–275 µm diameter, 250–350 µm high; numerous; gregarious; superficial, clustered on a basal stroma; short papillate; surface roughened; red-brown with a slightly darker papilla. – Ascomatal wall of *textura globosa* in surface view; in longitudinal section 30–50 µm, 2-layered, composed of polygonal to elongate, pseudoparenchymatic cells, without an external melanized crust; outer cells brown, polygonal, breaking and rupturing on the ascomal surface; inner cells hyaline to brown, flattened, elongate. – Ascomatal apex short, papillate; ostiole circular, with periphyses. – Paraphyses 2–3 µm wide; abundant; persistent; narrow, tapering; with gelatinous coating. – Asci cylindrical to cylindrico-clavate; 160–200 × 15–16.5 µm; short-stipitate (stipe 35–65 µm long); numerous; basal and lateral, lining the peripheral wall of the centrum; unitunicate; apex blunt, with a shallow, refractive, J-, non-fluorescent ring; with 8 biseriate to triseriate ascospores. – Ascospores fusiform, with apiculate ends as elongate extensions of the wall; entire spore including extensions 45–63(–72) × 6.2–8.4 µm, apical extension 2.8–7.5(–10.7) µm long, basal extension 9–13.7(–15) µm long; slightly curved; hyaline, becoming pale brown with wall extensions remaining hyaline; 0(–1) septate; smooth; sheath not seen; with basal, cushion-shaped to tapering appendage.

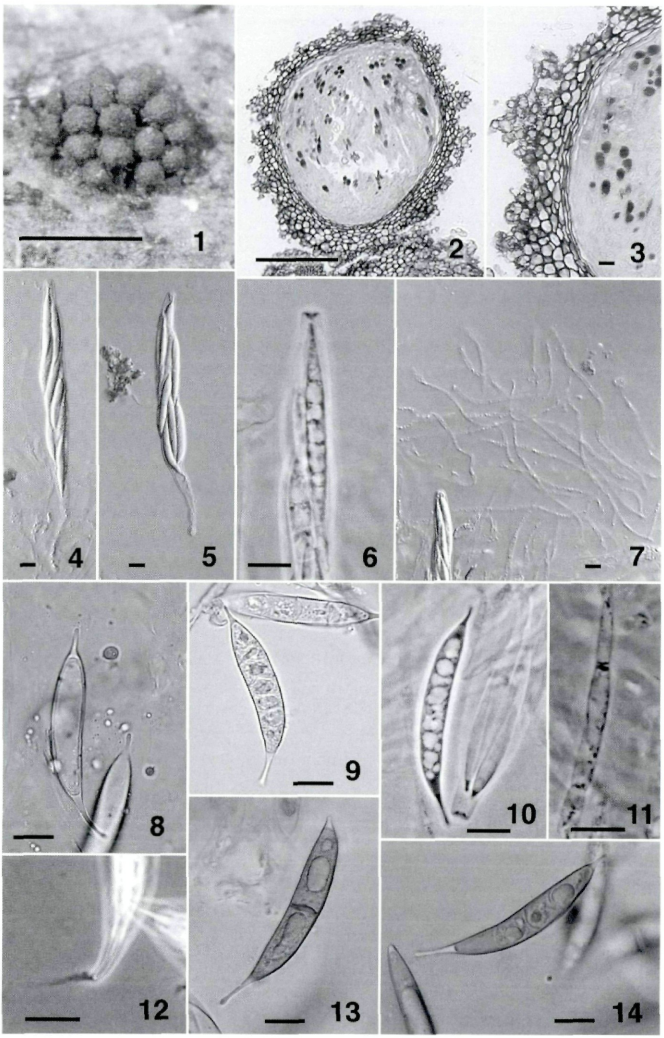
Etymology. – Refers to the ascospore morphology.

Habitat. – On decaying palm petioles.

Anamorph. – None known.

Known distribution. – United States (Puerto Rico).

Other material examined. – UNITED STATES: Puerto Rico. Luquillo Mts., El Verde Research Area, ca 350 m, palm petiole, 9 Feb. 1996, G. J. Samuels 8041 & H.-J. Schroers (BPI); Luquillo Mts., El Verde Research Area, 16-ha Grid, NE of 05.02.12, 18°19′26″ N, 65°49′0″ W, 379 m, *Prestoea* petiole, 15 Jan. 1996, S. M. Huhndorf 1890; 16-ha Grid, 18°19′ N, 65′ W, hanging palm petiole, W of tree #181, 25 Jan. 1997, S. M. Huhndorf 3123, with F. Fernández; Luquillo Mts., Bisley Watershed 3, down slope on Quebrada 2 to Quebrada 3, palm petiole, 28 Jan. 1997, F. Fernández (S. M. Huhndorf 3162); Luquillo Mts., Bosque Estatal Guilarte, Monte



Guilarte, palm petiole, 23 Jan. 1997, S. M. Huhndorf 3102, 3104, with F. Fernández, D. J. Lodge, & S. Cantrell (F).

Culture. – Seven-day-old colonies on MEA 4 cm diam, dark brown, mycelium mostly immersed, sparse, margin effuse. Aerial mycelium sparse, moist, brown. Reverse light brown. No anamorph produced, ascomal initials observed. Seven-day-old colonies on CMA 3.5 cm diam, light brown, mycelium mostly immersed, sparse, margin effuse. Aerial mycelium sparse, moist, light brown. Reverse light brown. No anamorph produced, ascomal initials observed. Three-month-old colonies on MEA formed mature ascomata, identical to those formed in nature.

Caudatispora biapiculata resembles *C. palmicola* J. Fröhl. & K. D. Hyde in its clustered reddish-brown ascomata formed on a common basal stroma on a palm host (Fig. 1). However, in one collection (Samuels 8041), ascomata form in a large mass but arise separately on the substrate probably due to the hardness of that particular piece of petiole. The formation of a basal stroma is not unusual for the Lasiosphaeriaceae being found in one genus in the family (*Lasiosphaeriella* Sivan.) and several in the related family Nitschkiaceae (*Bertia* De. Not., *Nitschkia* G. H. Otth *ex* P. Karst.).

The wall structure of *C. biapiculata* also closely resembles that given for *C. palmicola*. The wall is two layered composed of an inner layer of compressed cells and an outer layer of globose cells. The cells in this outer layer break and slough off on the outer ascomal surface giving a roughened appearance to the ascomata (Figs. 2, 3). This roughened outer surface is given as a third wall layer in *C. palmicola* (Fröhlich & Hyde, 1995).

The major difference between the two species is in the morphology of the ascospores. The ascospores of *C. biapiculata* are equipped with apiculate wall extensions at the apical and basal ends (Figs. 8–10, 12–14), differing from the single, longer, basal extension of the ascospores of *C. palmicola* (Fröhlich & Hyde, 1995). The ascospores of *C. biapiculata* also differ in their eventual pale brown coloration and the occasional presence of a single septum (Fig. 13).

Fig. 1–14. *Caudatispora biapiculata*. – 1. Ascomata on substrate. – 2. Longitudinal section through ascoma. – 3. Longitudinal section through ascomatal wall. – 4, 5. Asci. – 6. Ascus apex with refractive ring. – 7, 11. Paraphyses. – 8–10, 13, 14. Ascospores. – 12. Ascospore with mucilaginous drop at the end of the basal extension. – 1 = macroscopic view; 2, 3, 8, 9 = BF; 6, 10–12 = PH; 4, 5, 13, 14 = DIC. – Scale bars: 1 = 1 mm; 2 = 100 µm; 3–14 = 10 µm. – Figs. 1–7, 9, 10, 13, 14 from holotype SMH 1873; 8 from SMH 3123; 11, 12 from SMH 3102.

In both species a mucilaginous drop forms at the end of the basal extension (Fig. 12).

Ascospores of *C. biapiculata* germinated readily and within 3 months the teleomorph formed in malt agar culture plates. The ascomata that formed in culture were identical to those on the natural substrate. No anamorph was observed on malt or water agars.

At the present time the genus is maintained in the Lasiosphaeriaceae. This species is being included in molecular analyses of the genera in that family and the other families in the Sordariales.

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