

## Fungi from palms. XIX<sup>1</sup>. *Caudatispora palmicola* gen. et sp. nov. from Ecuador

Jane Fröhlich & Kevin D. Hyde

Department of Ecology and Biodiversity, University of Hong Kong, Pokfulam Road, Hong Kong

Fröhlich, J. & K. D. Hyde (1995). Fungi from palms. XXI. *Caudatispora palmicola* gen. et sp. nov. from Ecuador. – *Sydowia* 47 (1): 38–43.

The new genus *Caudatispora* is introduced to accommodate a new palm ascomycete with unusual ascospores. *Caudatispora* is related to *Lasiosphaeria* but differs in having fusiform hyaline unicellular ascospores characterised by caudate basal extensions each with a drop of mucilage at its base.

Keywords: Lasiosphaeriaceae, palm fungi, new genus.

During the British Mycological Society expedition to Ecuador in August 1993 we gathered saprobic fungi developing on palms in rainforests in Cuyabeno on the Rio Cuyabeno. One of the ascomycetes we collected had ascospores provided with remarkable basal caudate extensions. We cannot find a suitable genus in which to accommodate this taxon and therefore introduce *Caudatispora* gen. nov. (Lasiosphaeriaceae).

### Taxonomy

***Caudatispora*** J. Fröhl. & K.D. Hyde, gen. nov.

Ascomata brunnea, ostiolata, subglobosa, superficialia, gregaria. Peridium 3-stratis compositum. Paraphyses adsunt. Asci 8-sporei, cylindraceo-clavati, pedunculati, unitunicati, truncati, apparato subapicali praediti. Ascosporae uniseriatae, unicellulares, hyalinae, fusiformes, caudatae.

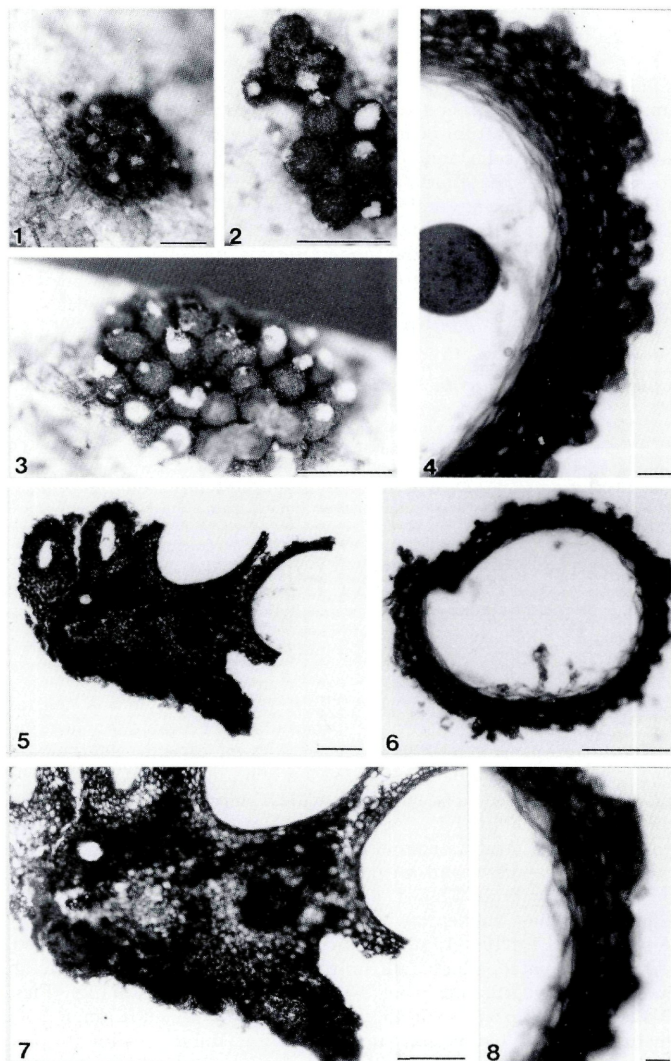
Typus generis: *Caudatispora palmicola* J. Fröhl. & K. D. Hyde.

**E t y m o l o g y.** – from caudatus meaning ‘ending in a tail-like appendage’, in reference to the morphology of the ascospores.

Ascomata brown (with a slight reddish tint) and a central blackened ostiole, subglobose, superficial, gregarious, forming

---

<sup>1</sup> XVIII in *Sydowia* 47: 31–37.



Figs 1-8. Ascumata of *Caudatispora palmicola*. - 1-3. Gregarious ascumata on a collective stroma. - 4, 8. Peridium. - 5, 7. Section through base of ascumata on a common stroma. - 6. Section of ascoma. - Bars: 1-3 = 500  $\mu\text{m}$ ; 5-7 = 100  $\mu\text{m}$ ; 4, 8 = 10  $\mu\text{m}$ .

collectively on stroma. – *Peridium* composed of three strata, an inner stratum comprising several layers of flattened brown-walled cells, a central stratum composed of several layers of thick brown-walled angular cells and an outer stratum of brown-walled cells forming a tuberculate ornamentation. – *Paraphyses* hypha-like, filamentous, tapering and septate. – *Asci* 8-spored, cylindrical-clavate, pedunculate, unitunicate, apically truncate with a subapical ring. – *Ascospores* overlapping uniseriate, unicellular, hyaline (or pale yellow), fusiform, provided with a basal caudate (tail-like) extension.

Type species: *Caudatispora palmicola* J. Fröhl. & K.D. Hyde.

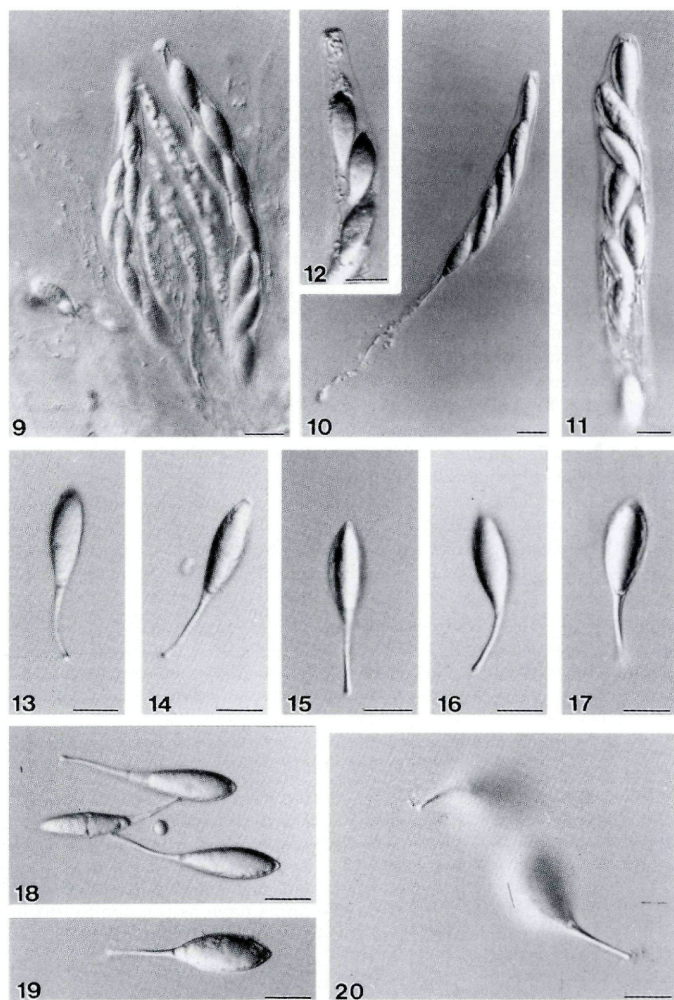
***Caudatispora palmicola* J. Fröhl. & K.D. Hyde, sp. nov. – Figs. 1–20.**

Ascomata brunnea, ostiolata, subglobosa, superficialia, gregaria, 225–275  $\mu\text{m}$  diam, 250–375  $\mu\text{m}$  alta. *Peridium* 25–50  $\mu\text{m}$  crassum. *Paraphyses* 80–134  $\times$  2.5–4.5  $\mu\text{m}$ . *Asci* 123–177  $\times$  10.5–15  $\mu\text{m}$ , 8-sporei, cylindraceo-clavati, pedunculati, unitunicati, truncati, apparato subapicali, 3–5  $\mu\text{m}$  diam, 0.75–1.25  $\mu\text{m}$  alto praediti. *Ascospores* 29–45  $\times$  8–10  $\mu\text{m}$ , uniseriatae, unicellulatae, hyalinae, fusiformes, caudatae.

*Holotype*. – ECUADOR: Oriente, Napo Province, Rio Cuyabeno, Cuyabeno, rain forest, on dead rachis of *Phytelaphus* sp., Aug 1993, K. D. Hyde E113, BRIP 22586. Syntype at the Biology Department, Catholic University, Quito, Ecuador.

*Etymology*: from palm and -cola, meaning 'dwelling on'.

*Ascomata* brown with a slight reddish tint and a central blackened ostiole, superficial, tuberculate, gregarious, forming collectively on stroma (Figs. 1–3); in vertical section 225–275  $\mu\text{m}$  diam, 250–375  $\mu\text{m}$  high (mean = 262.5  $\times$  300  $\mu\text{m}$ ,  $n = 10$ ), subglobose (Figs. 5–7). – *Peridium* 25–50  $\mu\text{m}$  wide, comprising three strata, an inner stratum composed of several layers of flattened brown-walled cells, a central stratum composed of several layers of thick, brown-walled angular cells and an outer layer of cells filled with brown amorphous material (Figs. 4, 6). – *Paraphyses* 80–134  $\times$  2.5–4.5  $\mu\text{m}$ , hypha-like, filamentous, septate, tapering, numerous (Fig. 9). – *Asci* 123–177  $\times$  10.5–15  $\mu\text{m}$  (mean = 142  $\times$  13  $\mu\text{m}$ ,  $n = 25$ ), 8-spored, cylindrical-clavate, pedunculate, unitunicate, apically truncate with an iodine-negative subapical ring, 3–5  $\mu\text{m}$  diam, 0.75–1.25  $\mu\text{m}$  high (Figs. 9–12). – *Ascospores* 29–45  $\times$  8–10  $\mu\text{m}$  (mean = 38  $\times$  8.2  $\mu\text{m}$ ,  $n = 50$ ) inclusive of tail, overlapping uniseriate, unicellular, hyaline (to pale yellow), fusiform, provided with a basal caudate (tail-like) extension 8.5–8  $\times$  1–2  $\mu\text{m}$  (mean = 8.4  $\times$  1.56  $\mu\text{m}$ ,  $n = 50$ ), with a mucilaginous drop at its base (Figs. 13–20).



Figs 9–20. Interference contrast micrographs of *Caudatispora palmicola*. – 9. Squash illustrating asci and paraphyses. – 10–12. Asci. Note the subapical ring. – 13–20. Ascospores with basal caudate extension provided at the tip with a drop of mucilage. – Bars = 10  $\mu\text{m}$ .

Known distribution. – Ecuador.

Known hosts. – *Jessenia*, *Phytelaphas*.

Material examined. – ECUADOR: Oriente, Napo Province, Rio Cuyabeno, Cuyabeno, rainforest, 0°00', 76°00', on dead rachis of *Phytelaphas* sp., Aug. 1993, K. D. Hyde E113, BRIP 22586 (holotype) & Biology Department, Catholic University, Quito, Ecuador (syntype); on dead rachis of *Jessenia* sp., Aug. 1993, J. Fröhlich 164, Biology Department, Catholic University, Quito, Ecuador.

*Caudatispora* is best included in the Lasiosphaeriaceae (*sensu* Barr, 1990), as it shares many characteristics with genera in this group including *Lasio-sphaeria* Ces. & De Not. Ascospores with cellular slimy appendages are common in this family [e.g. *Lasio-sphaeria ovina* (Pers.: Fr.) Ces. & De Not., *L. immersa* Karst.] and a swollen apical part is characteristic of species belonging in *Cercophora* Fuckel (Lundqvist, 1972). In *Cercophora*, however, the ascospores normally develop a coloured swollen part and also septa in the tail part. Paraphyses in *Caudatispora* are typical of those of the Lasiosphaeriaceae, which are usually straight, noticeably tapered and are usually not held in a gelatinous matrix. Asci are also typical of the family which are cylindrical or cylindrical-clavate and provided with a refractive apical apparatus and sometimes with a subapical globule. In many lasiosphaeriaceous taxa the ascomata are also superficial and often clustered, although the stroma in *Caudatispora* is unusual. The peridium in the Lasiosphaeriaceae is like that of *Caudatispora* being three-layered, the outer layer being composed of relatively large cells. There is presently no genus within the Lasiosphaeriaceae (Lundqvist, 1972; Barr, 1990) that would suitably accommodate this new palm ascomycete, and therefore *Caudatispora* is introduced.

The most striking characteristic of *Caudatispora palmicola* is the caudate extension of the ascospores (Figs. 13–20). The tail-like extension is continuous with the spore wall and releases a drop of mucilage from its tip. This is sticky and the ascospores adhere to the glass slide or coverslip. It was not possible to germinate the ascospores or to isolate this taxon.

We are aware of only one other ascomycete (*Adomia avicenniae* Schatz) with such a striking tail-like appendage as the one found in the ascospores of *Caudatispora*. *Adomia avicenniae* Schatz has remarkably similar ascospores, but these are larger (46–69 x 8–12 µm, inclusive tail-like extension) and brown. *Adomia avicenniae* was described by Schatz (1985) from intertidal *Avicennia* from Australian and Egyptian mangroves. The asci in *Adomia* also differ in having a persistent apical cap, as compared to a subapical refractive ring in *Caudatispora*. The ascomata of *Adomia* are also immersed beneath a

clypeus, while those of *Caudatispora* are superficial and clustered. Because of these differences and differences in habitat, we can only conclude that *Adomia* and *Caudatispora* are unrelated. The identical ascospore structure is probably an example of convergent evolution.

Caudate ascospores are also found in species scattered amongst other families. Ascospores of *Camillea leprieurii* Mont. (Xylariaceae) are drawn out at the base into very long tails (Laessøe & al., 1989). In the discomycete *Loramycetes macrospora* Ingold & Chapman (Loramycetaceae) the ascospores have a very long cordate appendage and are surrounded by a very thick mucilaginous sheath (Scheuer, 1988). In *Rebentischia unicaudata* (Berk. & Broome) Sacc. and *R. massalongi* Sacc. (Tubeufiaceae), caudate extensions are found at the base of the setate brown ascospores (Barr, 1980). Evanescent caudate appendages are also found at the tips of *Melanconis thelebola* (Fr.) Sacc. (Melanconidaceae) ascospores (Munk, 1957).

### Acknowledgments

The Department of Botany of the University of Hong Kong is thanked for the award of a scholarship to visit Ecuador. Special thanks are conveyed to Dr J. Hedger and Gordon Dickson who organised the expedition and to Dr J. Lodge who was coordinating our group. The cooperation of various members of the Biology Department of the Catholic University, Quito, especially Dr W. Penaloza, T. de Vries, M. Gavilanes, R. Viteri and B. Olgaard is appreciated. We would also like to thank the Ecuadorean Ministry of Agriculture for permission to work in the reserve and the British Mycological Society for financial support and all other persons involved in the success of the expedition. Finally, we owe a debt of gratitude to the people of Cuyabeno, the Sekoya, for their warm welcome and constant support throughout the study period. In Hong Kong Miss Helen Leung and Mr. A.Y.P. Lee are thanked for technical and photographic assistance.

### References

- Barr, M. E. (1980). On the family Tubeufiaceae (Pleosporales). – Mycotaxon 12: 137–167.
- (1990). Prodrum to nonlichenized, pyrenomycetous members of class Hymenoascomycetes. – Mycotaxon 39: 43–184.
- Laessøe, T., J. D. Rogers & A. J. S. Whalley (1989). *Camillea, Jongiella* and light-spored species of *Hypoxyton*. – Mycol. Res. 93: 121–155.
- Lundqvist, N. (1972). Nordie Sordariaceae S. Lat. – Symb. Bot. Upsal. 20: 1–374.
- Munk, A. (1957). Danish Pyrenomycetes. A preliminary flora. – Dansk Bot. Arkiv 17(1): 1–491.
- Schatz, S. (1985). *Adomia avicenniae*: a new ascomycetous genus from Red Sea and Australian mangroves. – Trans. Br. Mycol. Soc. 84: 555–559.
- Scheuer, C. (1988). Ascomyceten auf Cyperaceen und Juncaceen im Ostalpenraum. – Biblioth. Mycol. 123: 1–274.

(Manuscript accepted 6th January 1995)

# ZOBODAT - [www.zobodat.at](http://www.zobodat.at)

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Sydowia](#)

Jahr/Year: 1995

Band/Volume: [47](#)

Autor(en)/Author(s): Fröhlich Jane, Hyde Kevin D.

Artikel/Article: [Fungi from palms. XIX. Caudatispora palmicola n.gen. et spec. from Ecuador. 38-43](#)