

## ***Astrosphaeriella longispora*, a new tropical species with large ascospores**

Jack D. Rogers<sup>1</sup> & Margaret E. Barr<sup>2</sup>

<sup>1</sup> Department of Plant Pathology, Washington State University, Pullman, WA 99164-6430, USA

<sup>2</sup> 9475 Inverness Road, Sidney, B. C., V8L 5G8, Canada

Rogers, J. D. & M. E. Barr (2003). *Astrosphaeriella longispora*, a new tropical species with large ascospores. – *Sydowia* 55 (2): 355–358.

*Astrosphaeriella longispora* sp. nov. exhibits the longest ascospores known among species of the genus and has large ascomata that are superficial on the substrate. Most *Astrosphaeriella* species inhabit monocots; *A. longispora* is known to occur only on angiosperm wood.

Keywords: *Astrosphaeriella*, Loculoascomycetes, Melanommatales, *Trematosphaeria*, systematics.

In 2001 JDR collected in Costa Rica an undescribed species of *Astrosphaeriella* with ascospores much longer than those described for any other species. In consultation with MEB it was learned that a small collection of an apparently identical fungus had previously been made in Colombia, but had not been described owing to the paucity of the material. Because this fungus is unique in the size of its ascospores, and because two collections are now extant, we describe it here.

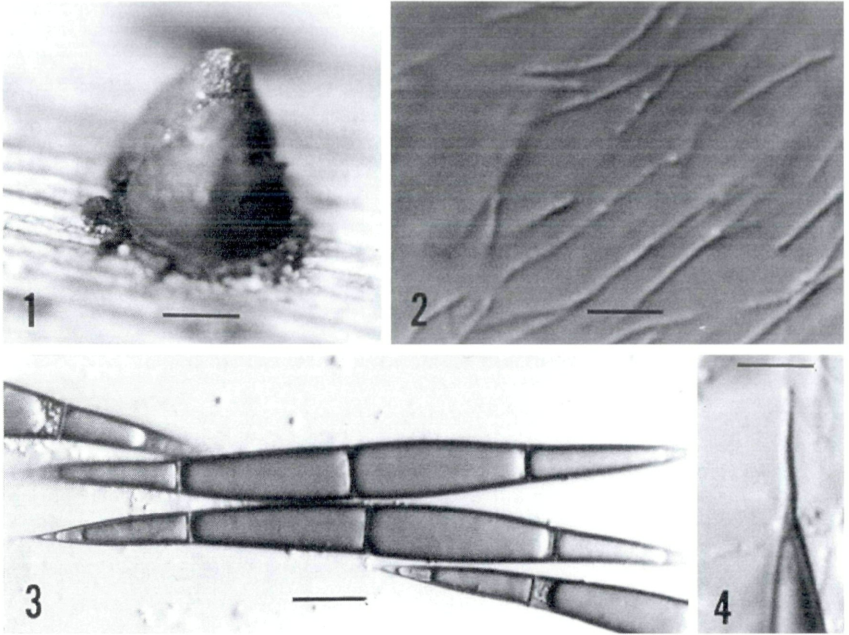
### **Materials and methods**

Asci and ascospores were examined by differential interference microscopy (DIF) and bright field microscopy (BF). Material was mounted in water or Melzer's iodine reagent for microscopic examination. The ascospore dimension range cited is based on data from the two collections considered here. Barr supplied data on the Colombia collection and Rogers supplied data on the Costa Rica collection, i.e. spore dimensions were done on two collections by two persons with different microscopes. Data were pooled; no statistical analysis was performed.

### **Taxonomic part**

***Astrosphaeriella longispora*** J. D. Rogers & M. E. Barr, **sp. nov.** – Figs. 1–4.

Ascstromata conoidea solitaria superficialia 1.5–2 mm alta, 1.5–2 mm diam ad bases, extus et intus nigra, textura ceracea, hamathecio e pseudoparaphysibus



Figs. 1–4. *Astrosphaeriella longispora*. – 1. Ascoma. Note somewhat stellate pattern of radiations from the base. – 2. Pseudoparaphyses. – 3. Ascospores. – 4. Attenuated ascospore apex. – Fig. 1 by photomicrography, Figs. 2–4 by DIF, Figs. 2–4 from water mounts. Scale bars: 1 = 0.8 mm; 2 = 14.4  $\mu$ m; 3 = 14.4  $\mu$ m; 4 = 7.2  $\mu$ m. All figs. from holotype.

angustis composito. Basis ascomatum textura stromatica stellata circumcincta. Ostiola papillata. Asci bitunicati octospori vel aliquando tetraspori, sporis biseriatis dispositis, brevi stipitati, 325–400  $\mu$ m longitudine tota, ca 22  $\mu$ m crassi. Ascosporae brunneolae vel brunneae, tetracellulares, fusoido-inaequilaterales utrinque attenuatae et acutae, leves, (90–)120–133(–147)  $\times$  9–12  $\mu$ m (ave. 15 a holotypo = 130.5  $\times$  9.2  $\mu$ m). Status anamorphosis ignotus.

Ascstromata conoid, solitary, superficial, 1.5–2 mm high, 1.5–2 mm diameter at the bases, exterior and interior black, texture waxy, with hamathecium composed of narrow pseudoparaphyses. Base of ascomata surrounded by stellate stromatal tissue. – Ostioles papillate. – Asci bitunicate, eight-spored or sometimes four-spored, the spores biseriate in arrangement, short-stipitate, 325–400  $\mu$ m total length, about 22  $\mu$ m wide. – Ascospores brownish to brown, four-celled, fusoid-inequilateral with both ends attenuated and acute, smooth, (90–)120–133(–147)  $\times$  9–12  $\mu$ m (ave. 15 from holotype = 130.5  $\times$  9.2  $\mu$ m).

Anamorph. – unknown.

Etymology. – for the long ascospores of the fungus.

Specimens examined. – COSTA RICA: Puntarenas, Santa Elena, Monte Verde, on decaying angiosperm wood, 15 July 2001, J. D. Rogers, INBio holotype. COLOMBIA: 57 mi from Florencia on Florencia Altamira Road, Intendencia Caqueta, on decaying wood, 20 Jan 1976, K. P. Dumont CO 3152, NY.

### Discussion

Among described species of *Astrosphaeriella*, *A. longispora* seems most closely to resemble *A. venezuelensis* M. E. Barr & D. Hawksw. in the acutely attenuated ascospore apices (Hawksworth, 1981; Hawksworth & Boise, 1985; Hyde & Fröhlich, 1998). The ascospores of *A. venezuelensis*, however, are much shorter and narrower [(70–)72–80(–83) × (5–)6.5–7.5(–8.5) μm]. The large, superficial ascomata of the holotype collection occurred on angiosperm wood in a predominantly bamboo area of a cloud forest. A perhaps artificial distinction is sometimes made between *Trematosphaeria* Fuckel and *Astrosphaeriella* Syd. & P. Syd., the former usually occurring on wood and the latter on monocot tissue. However, Hyde & Fröhlich (1998) described *T. abuensis* Panwar, Srivastava & Gehlot from palm (*Phoenix*) and Barr (1990) cited *A. uberina* (Ellis & Everh.) K. D. Hyde & J. Fröhl. [as *Javaria shimckii* (Ellis & Everh.) M. E. Barr] from wood. Moreover, *Trematosphaeria* ascospores generally lack acute attenuated apices. Thus, we are comfortable with the assignment of our fungus to *Astrosphaeriella* at this stage of our understanding of these genera.

*Astrosphaeriella* can be accommodated in the family Platystomaceae of the order Melanommatales of the Loculoascomycetes (Barr, 1990) or family Lophiostomataceae (including family Platystomaceae, but excluding family Massarinaceae) (Barr & Huhndorf, 2001).

### Acknowledgments

PPNS 0359. Department of Plant Pathology 1767, Washington State University, College of Agriculture and Home Economics. This study was supported in part by National Science Foundation grant DEB-9813304 to J. D. Rogers and by funds provided by Costa Rican National Biodiversity Institute (INBio) to J. D. Rogers. We thank Michael J. Adams and D. A. Glawe, Washington State University, for aid with photography and for scrutinizing the manuscript, respectively.

### References

- Barr, M. E. (1990). Melanommatales (Loculoascomycetes). North American Flora (series 2, Part 13). – 129 pp.
- & S. M. Huhndorf (2001). Loculoascomycetes. – In: McLaughlin, D. J. & al., The Mycota 7 Part A. Systematics and Evolution. Springer-Verlag, Berlin, Heidelberg: 283–305.

- Hawksworth, D. L. (1981). *Astrosphaeriella*, a misunderstood genus of melanommataceous pyrenomycetes. – Bot. J. Linnean Soc. 82: 35–59.
- Hawksworth, D. L. & J. R. Boise (1985). Some additional species of *Astrosphaeriella*, with a key to members of the genus. – Sydowia 38: 114–124.
- Hyde, K. D. & J. Fröhlich (1998). Fungi from palms XXXVII. The genus *Astrosphaeriella*, Including ten new species. – Sydowia 50: 81–132.

(Manuscript accepted 22<sup>nd</sup> march 2003)

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

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Sydowia](#)

Jahr/Year: 2003

Band/Volume: [55](#)

Autor(en)/Author(s): Rogers Jack D., Barr Margaret E.

Artikel/Article: [Astrophaeriella longispora, a new tropical species with large ascospores. 355-358](#)