

## **HEMIBELTRANIA (ANAMORPHIC FUNGI - HYPHOMYCETES) FROM THE STATE OF BAHIA, BRAZIL**

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**(*Hemibeltrania* (anamorphic fungi – Hyphomycetes) from the state of Bahia, Brazil)** – *Hemibeltrania malaysiana*, found on decaying leaves of *Byrsonima sericea* (Malpighiaceae) in the “Campo Rupestre” vegetation, is described with a character emendation and illustrated. A key to the known species is also presented.

**Key words:** anamorphic fungi, microfungi, *Beltrania*-complex, taxonomy.

**(*Hemibeltrania* (fungos anamórficos – Hyphomycetes) no estado da Bahia, Brasil)** – *Hemibeltrania malaysiana*, encontrada sobre folhas caídas de *Byrsonima sericea* (Malpighiaceae) em vegetação de Campo Rupestre, é descrita com uma emenda e ilustrada. Uma chave para as espécies conhecidas é apresentada.

**Palavras-chave:** fungos anamórficos, microfungos, complexo-*Beltrania*, taxonomia.

### INTRODUCTION

In the course of an inventory of microfungi growing on plant debris, in the “Campo Rupestre” vegetation in the State of Bahia, an interesting species of *Hemibeltrania* was found. Microfungi are considered to be those fungi with relatively small to microscopic reproductive structures and, as such, represent many taxonomic groups. Most of the Chytridiomycota, Zygomycota, Ascomycota, some Basidiomycota and all of the anamorphic fungi are considered microfungi (ROSSMAN, 1997).

PIROZYNSKI (1963) proposed the genus *Hemibeltrania* to accommodate two species, *Hansfordia cinnamomi* Deighton and *Mammaria nectandrae* Bat. & Maia. It has been characterized by conidiophores with lobed basal cell and polyblastic, sympodial, terminal conidiogenous cells.

Nine species are included in *Hemibeltrania*, namely: *H. cinnamomi* (Deighton) Piroz. (PIROZYNSKI, 1963), *H. convallariae* H. D. Shin & U. Braun (SHIN & BRAUN, 1998), *H. cymbiformis* Zucconi (ZUCCONI, 1992), *H. decorosa* R. F. Castañeda & W. B. Kendr. (CASTAÑEDA & KENDRICK, 1991), *H. echinulata* P. M. Kirk (KIRK, 1983), *H. laxa* G. R. W. Arnold & R. F. Castañeda (CASTAÑEDA & ARNOLD, 1985), *H. malaysiana* Matsush. (MATSUSHIMA, 1996), *H. nectandrae* (Bat. & Maia) Piroz. (PIROZYNSKI, 1963) and *H. saikawae* R. F. Castañeda, W. B. Kendr. & J. Guarro (CASTAÑEDA *et al.*, 1998).

Two species, *H. mitratae* P. M. Kirk and *H. navicularis* B. C. Sutton were placed in other genera. The first one is synonym of *Dactylaria mitrata* Matsush. and the latter was segregated in the genus *Subramaniomyces* Varguese & Rao (CASTAÑEDA *et al.*, 1998).

According to KENDRICK (1980), *Hemibeltrania* was segregated from the “*Beltrania*-complex” because the conidia are not biconic and do not have a hyaline transverse band at the subequatorial zone. Species in the

“*Beltrania*-complex” have been collected many times in Brazil: *Beltraniopsis esembeckiae* Bat. & Bez. (BATISTA & BEZERRA, 1960), *Beltraniella japonica* Matsushima, *B. portoricensis* (Stevens) Piroz. & Patil, *Beltrania rhombica*, *Beltraniopsis ramosa* Castañeda and *Pseudobeltrania cedrelae* Henn. (GUSMÃO & GRANDI, 1996), *Beltraniopsis miconiae* Gusmão & Grandi (GUSMÃO *et al.*, 2000), and *Beltrania malaiensis* Wakefield (GUSMÃO *et al.*, 2001; GRANDI & GUSMÃO, 2002).

### MATERIAL AND METHODS

Dead leaves were collected and used as substrate for the isolation of anamorphic fungi. The washing technique with 20 serial changes of sterile distilled water was applied to the leaves (HARLEY & WAID, 1955). Leaf fragments were put in moist chambers at room temperature for development of reproductive structures. Identification was based on slide mountings prepared with PVL resin (polyvinyl alcohol and lactophenol) with cotton-blue (TRAPPE & SCHENCK, 1982). Details of fungal characteristics were studied, measured, described and illustrated. Permanent slides were deposited in the “Herbário da Universidade Estadual de Feira de Santana” (HUEFS).

### TAXONOMY

*Hemibeltrania malaysiana* Matsush., *Matsushima Mycological Memoirs* N° 9, Kobe, p. 12. 1996. (Fig. 1).

Conidiophores solitary or in groups, arising from lobed basal cells, erect, straight, smooth, unbranched, base brown and light brown at the apex, 14.8-167.5 x 3.4-5.6 µm; conidiogenous cells polyblastic, terminal, integrated, sympodial, denticulate, light brown, 15-18 x 3.7-5 µm; conidia solitary, ellipsoid to navicular, simple, smooth, with a pro-

tuberant hilum at the proximal end, hyaline to subhyaline, 15.3-19 x 4.3-5.6  $\mu\text{m}$ .

Teleomorph: unknown.

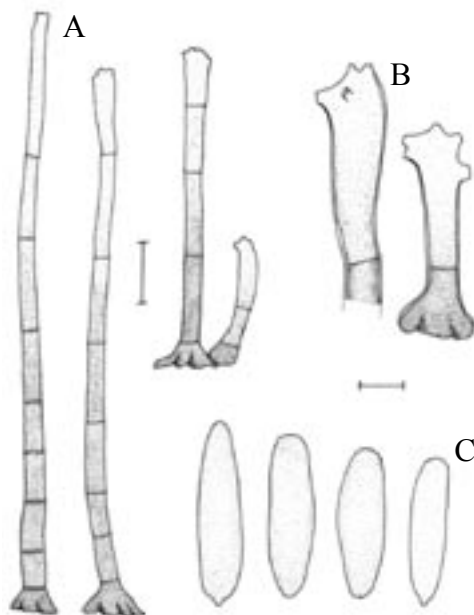


Fig 1. *Hemibeltrania malaysiana*. A. Conidiophores. B. Conidiogenous cells. C. Conidia. Bars A= 10 $\mu\text{m}$ ; B-C= 5 $\mu\text{m}$ .

Known distribution: Brazil (CASTAÑEDA *et al.*, 2003), Malaysia (MATSUSHIMA, 1996).

**Material examined - BRAZIL: Bahia:** Rui Barbosa, Serra do Orobó, on decaying leaves of *Byrsonima sericea* DC. (Malpighiaceae), 11/08/2000, L.F.P. Gusmão s.n. (HUEFS42793) (permanent slides).

MATSUSHIMA (1996) described *H. malaysiana* with the conidia “cylindric and narrowing at the ends”, however, the present specimen is clearly not cylindrical, but ellipsoid to navicular. The description provided by MATSUSHIMA (1996) is not incorrect, but the term proposed now contem-

plates his description and a character emendation is included in the description of *H. malaysiana*.

The species most similar to *H. malaysiana* are *H. echinulata* and *H. laxa* but they are easily differentiated principally due to the shape and size of conidia (Table 1). Above all, *H. echinulata* does not have a lobed basal cell, but an echinulate conidia, while *H. laxa* has smooth, obclavate to navicular conidia.

*H. malaysiana* was previously collected in Brazil, in rain forests, by CASTAÑEDA *et al.* (2003); however, these authors did not describe and illustrate the Brazilian specimen.

Table 1. Comparison of *Hemibeltrania* described species.

Species	Conidia		Conidiophores
	Size ( $\mu\text{m}$ )	Shape	Size ( $\mu\text{m}$ )
<i>H. cinnamomi</i>	12-16 x 10-12	obovoid	up to 250 x 4-5
<i>H. convallariae</i>	14-24 x 10-15	oval	up to 2000 x 13-23
<i>H. cymbiformis</i>	21-24 x 3-4.5	cymbiform	up to 140 x 2.2-4.5
<i>H. decorosa</i>	17-22 x 3.5	fusiform	up to 250 x 4-6.5
<i>H. echinulata</i>	12-14 x 5.5-7	ovoid	140-300 x 3.5-5
<i>H. laxa</i>	13-17 x 2-3	obclavate to navicular	50-350 x 3-7
<i>H. malaysiana</i>	13-20 x 3-5	ellipsoid to navicular	up to 400 x 4-7
<i>H. nectandrae</i>	15-23 x 10-13	limoniform	up to 250 x 4-6
<i>H. saikawae</i>	14-19 x 2.5-3	clavate to cylindrical	10-155 x 2-3

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#### Key to known species of *Hemibeltrania*

1. Setae present.....□ 2
1. Setae absent.....□ 4
  2. Conidia cymbiform, echinulate, shortly spicate at the apex..... *H. cymbiformis* 3
  2. Conidia smooth or slightly echinulate..... 3
3. Conidia clavate to cylindrical, colourless, smooth, nipple-like at the apex..... *H. saikawae*
3. Conidia fusiform, pale brown, smooth to slightly echinulate..... *H. decorosa*
4. Conidiophores without lobed basal cells; conidia ovoid, echinulate..... *H. echinulata*
  4. Conidiophores with lobed basal cells..... 5
5. Conidia obclavate to navicular, not nipple-like at the apex..... *H. laxa*
5. Conidia not as above.....□ 6
  6. Conidia obovoid..... *H. cinnamomi*
  6. Conidia limoniform, oval or ellipsoid to navicular..... 7
7. Conidia limoniform.....□ *H. nectandrae*
7. Conidia oval or ellipsoid to navicular..... 8
  8. Conidia ovoid 14-24 x 10-15  $\mu\text{m}$ ..... *H. convallariae*
  8. Conidia ellipsoid to navicular 13-20 x 3-5  $\mu\text{m}$ ..... *H. malaysiana*

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