



***Beltraniopsis rhombispora* and *Hemibeltrania decorosa* from leaf litter in the Atlantic Forest in southern Bahia, Brazil**

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Abstract

Species of the *Beltrania* group are constantly identified in association with a variety of plant debris in Brazil and different localities of the world. Leaf litter samples of *Myrcia splendens* and *Pera glabrata* were collected in the Reserva Biológica de Una, municipality of Una, Bahia state, Brazil, in August 2012, and incubated in moist chambers. Two specimens related to *Beltrania* group were isolated and identified by morphological criteria. This study aimed to describe and illustrate *Beltraniopsis rhombispora* for the first time in Brazil. *Hemibeltrania decorosa* previously reported from Caatinga Biome, Bahia state, has been cited for the first time for Atlantic Forest.

Key words: *Beltrania* group, conidial fungi, diversity, hyphomycetes, taxonomy.

Resumo

Espécies do grupo *Beltrania* são constantemente identificadas em associação com uma variedade de substratos vegetais em decomposição no Brasil e em diferentes localidades do mundo. Amostras de folheto de *Myrcia splendens* e *Pera glabrata* foram coletadas na Reserva Biológica de Una, município de Una, estado da Bahia, Brasil, em agosto de 2012, e incubadas em câmara úmida. Dois espécimes relacionados ao grupo *Beltrania* foram isolados e identificados por critérios morfológicos. Este estudo objetivou descrever e ilustrar *Beltraniopsis rhombispora* pela primeira vez no Brasil. *Hemibeltrania decorosa*, anteriormente, reportada no bioma Caatinga, estado da Bahia, está sendo citada pela primeira vez na Mata Atlântica.

Palavras-chave: grupo *Beltrania*, fungos conidiais, diversidade, hifomicetos, taxonomia.

Introduction

The tribe Beltraniaceae (Family Dematiaceae later Dematiaceae) was created in 1886 by Saccardo to accommodate the genus *Beltrania* Penz. and two species: *B. rhombica* Penz. and *B. querna* Harkn. Beltraniaceae differs from other tribes of the Didymosporae group in having setae mixed with conidiophores and by presence of rostrated acrogenous conidia (Saccardo 1886; Pirozynski 1963).

Pirozynski (1963), at that time, in a review of some genera, showed that *Beltrania*, *Beltraniella* Subram., *Ellisiopsis* Bat., *Beltraniopsis* Bat. & J.L. Bezerra, *Pseudobeltrania* Henn. and *Hemibeltrania*

Piroz. (except *Rhombostilbella* Zimm.) formed a natural group. The author considered the following as taxonomically important characters: internal mycelium, stroma, superficial mycelium, setae and conidiophores, as well as separating cells and conidia.

Kendrick (1980), presented proposals for condensation of genera, and established that representative members of the *Beltrania* group should have, at least, three of the following: 1) dark setae; 2) setae or conidiophores with radially lobed basal cell; 3) cell separation; 4) biconical conidia; 5) conidia with a hyaline equatorial band. Thus, only genera *Beltrania*, *Beltraniopsis*,

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Beltraniella, *Ellisiopsis* and *Pseudobeltrania* would remain in *Beltrania* group. Nowadays, *Ellisiopsis* is considered synonymous with *Beltraniella* (Seifert *et al.* 2011). *Hemibeltrania* and *Rhombostilbella* would be excluded to have only one of the five listed characteristics. In recent years, new genera (*Porobeltraniella* Gusmão and *Maxibeltrania* Rambelli) and new species (*Beltrania pseudorhombica* Crous & Y. Zhang *et al.*, *Beltraniella endiandrae* Crous & Summerell and *Beltraniopsis neolitiseae* Crous & Summerell.) were included in *Beltrania* group (Gusmão 2004; Rambelli 2011; Crous *et al.* 2014a,b,c). It is evident that researches should be realized to elucidate several aspects, such as the taxa excluded and the new genera found.

Species of *Beltrania* group are commonly reported in diversity and fungal succession studies (Maia 1983; Rambelli 2011; Shanthi & Vittal 2012, and others). In Brazil there are constant reports of taxa in the *Beltrania* group (Gusmão *et al.* 2001; Barbosa *et al.* 2009; Almeida *et al.* 2011; Castro *et al.* 2012; Magalhães *et al.* 2013, and others). In specific studies within this group in the Paraná state, Gusmão & Grandi (1996) cataloged five species associated with leaf litter and/or live leaves of *Cedrela fissilis* Vell., and reported two new records to Brazil.

In the southern region of Bahia state only four species of *Beltrania* group have been recorded, such as: *Beltrania rhombica*, *B. querna*, *Beltraniella portoricensis* (F. Stevens) Piroz. & S.D. Patil (Magalhães *et al.* 2013) and *Beltraniella botryospora* Shirouzu & Tokum. (Santos *et al.* 2014). This study aimed to describe and illustrate *Beltraniopsis rhombispora* for the first time in Brazil and to report the first record of *Hemibeltrania decorosa* for Atlantic Forest.

Materials and Methods

Collecting expedition was undertaken on August 2012 to the Reserva Biológica de Una (15°10.630'S and 39°03.478'W), municipality of Una, Bahia state, Brazil. Leaf litter was collected from 10 plants: five from *Myrcia splendens* (Sw.) DC. (Myrtaceae) and five from *Pera glabrata* (Schott) Poepp. ex Baill. (Peraceae). The samples were stored in Kraft paper bags and sent to the laboratório de Diversidade de Fungos of the Centro de Pesquisas do Cacau (Cepec), Comissão Executiva do Plano da Lavoura Cacaueira (Ceplac), Ilhéus, Bahia.

In the laboratory, samples were washed for one hour in running water and incubated at 25°C in moist chambers (Castañeda Ruiz *et al.* 2006a, with modifications). The samples were examined at regular intervals for the presence of conidial fungi. Reproductive structures were located on the substrates with a dissecting microscope and removed to a glass slide where they were mounted in polyvinyl alcohol, lactic acid and glycerol (PVLG) resin (Silva & Grandi 2011). Morphological characters were used to identify species (Ellis 1971; Castañeda Ruiz & Kendrick 1991; Matsushima 1993; Seifert *et al.* 2011) and the permanent slides were deposited in Herbarium CEPEC. Pictures of fungi were obtained using DP25 camera attached to the microscope with Imaging Software Cellsens - 2.3 version, build 7045 and Combine ZP 1.0 version.

Results and Discussion

1. *Beltraniopsis rhombispora* Matsush., Matsushima Mycological Memoirs 7: 44 (1993).

Fig. 1

Setae absent. Conidiophores macronematous, mononematous, setiform, single, branched or not, smooth-walled, erect to slightly flexuous, septate, arising from lobated basal cell, brown to subhyaline towards the apex, apical cell slightly inflated, 69.6–204 tall, 4–6.4 µm wide at the base. Conidiogenous cells polyblastic, discrete, sympodial, lateral and intercalate, denticulate, pale brown, 5.4–9.4 × 4–5.6 µm. Separating cells

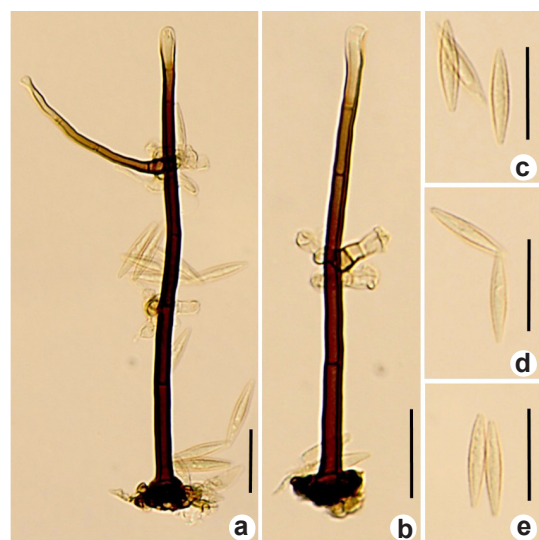


Figure 1 – *Beltraniopsis rhombispora* – a-b. conidiophores; c-e. conidia. Scale bars: a-e = 20 µm.

absent. Conidia solitary, smooth, simple, biconic, 0-septate, not rostrate, transverse band absent, pale olivaceo, $18.6\text{--}22 \times 3.4\text{--}4.2 \mu\text{m}$.

Material examined: Una, 26.VIII.2012, on decomposing leaves of *Pera glabrata*, *M.V.O. dos Santos 26* (CEPEC 2442).

Geographical distribution: Peru (Matsushima 1993), Brazil (this paper).

Comments: The examined material has setiform conidiophores bigger and wider ($70\text{--}130 \times 3.5\text{--}5 \mu\text{m}$) and conidia bigger [$12\text{--}(15\text{--}21) \mu\text{m}$] than those in the original description (Matsushima 1993).

Beltraniopsis rhombispora is similar to *B. aquatica* R.F. Castañeda & M. Stadler by having lateral conidiogenous cells, conidia without rostrum and transverse band and separating cells absent. However, *B. aquatica* has conidiophore with inflated basal cell, and conidia brown, fusiform to navicular, slightly constricted in the middle region, smooth or minimally verruculose (Castañeda Ruiz *et al.* 2006b).

Currently, the genus has nine species (Batista & Bezerra 1960; Matsushima 1971; 1993; Pirozynski 1972; Castañeda Ruiz & Arnold 1985; Rambelli & Ciccarone 1985; Gusmão *et al.* 2000; Castañeda-Ruiz *et al.* 2006b; Crous *et al.* 2014b). *Beltraniopsis esenbeckiae* Bat. & J.L. Bezerra (Batista & Bezerra 1960) and *B. miconiae* Gusmão & Grandi (Gusmão *et al.* 2000) have been described in Brazil, and *B. ramosa* R.F. Castañeda has previously been found in Brazil (Gusmão & Grandi 1996). This is the second record of *B. rhombispora* in the world and the first record of this species in Brazil on *Pera glabrata* leaf litter.

2. *Hemibeltrania decorosa* R.F. Castañeda & W.B. Kendr., Univ. Waterloo Biol. Ser. 35: 57 (1991)

Descriptions and illustrations: Castañeda Ruiz & Kendrick (1991); Almeida *et al.* (2011).

Material examined: Una, 26.VIII.2012, on decomposing leaves of *Myrcia splendens*, *M.V.O. dos Santos 18* (CEPEC 2434).

Geographical distribution: Cuba (Castañeda Ruiz & Kendrick 1991), Mauritius (Dulyamode *et al.* 2001) and Brazil (Almeida *et al.* 2011).

Comments: The first record of this species in Brazil was on leaf litter of an unidentified dicotyledonous in Caatinga Biome, Bahia state (Almeida *et al.* 2011). The examined material has conidiophores bigger and wider than those in the description presented by Almeida *et al.* (2011). *Hemibeltrania decorosa* is distinguished from other species of the genus, especially *H. saikawae* and *H. cymbiformis*, by morphology and peculiarities of the conidiophores and conidia, respectively.

Hemibeltrania decorosa was initially reported in Cuba on leaf litter of *Myrcia cerifera* L. (Myricaceae) (Castañeda Ruiz & Kendrick 1991). This is the first report of the species in the Atlantic Forest and on *Myrcia splendens* leaf litter.

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