

## ***Lauriomyces acerosus*: a new record for the Americas**

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### **Abstract**

The genus *Lauriomyces* is characterized by solitary or synnematosous pigmented conidiophores containing acropetal chains of unicellular and hyaline conidia formed in an adherent head. The aim of the present study was to report a new record of *Lauriomyces acerosus* growing on the litter of *Lafoensia pacari* in southern Bahia, Brazil. The collections were carried out from October 2018 to July 2019. Twenty fallen leaves were collected in different stages of decomposition. The leaf samples were carefully washed in running water and incubated in humid chambers. The structures of the fungus were assembled in PVLG resin and observed under a light microscope. The identification was carried out by specific bibliographies. And based on morphology, it was possible to identify the fungus as *L. acerosus*, a new report of this species for the American continents

**Keywords:** Biodiversity, *Lafoensia pacari*, litter, taxonomy.

## ***Lauriomyces acerosus*: novo registro para as Américas**

### **Resumo**

O gênero *Lauriomyces* é caracterizado por conidióforos pigmentados solitários ou sinnematosos contendo cadeias acropetais de conídios unicelulares e hialinos formados em uma cabeça aderente. O objetivo do presente estudo foi relatar um novo registro de *Lauriomyces acerosus* crescendo na serapilheira de *Lafoensia pacari* no sul da Bahia, Brasil. As coletas foram realizadas no período de outubro de 2018 a julho de 2019. Foram coletadas 20 folhas caídas em diferentes estágios de decomposição. As amostras de folhas foram cuidadosamente lavadas em água corrente e incubadas em câmaras úmidas. As estruturas do fungo foram montadas em resina PVLG e observadas ao microscópio de luz. A identificação foi realizada por bibliografias específicas. E com base na morfologia, foi possível identificar o fungo como *L. acerosus*, um novo relato dessa espécie para os continentes americanos.

**Palavras-chave:** Biodiversidade, *Lafoensia pacari*, serapilheira, taxonomia.

The genus *Lauriomyces* was introduced by Castañeda-Ruiz & Kendrick (1990) with the type species *Lauriomyces pulcher* RF Castañeda and WB Kendr and characterized by solitary (or synnematosous), pigmented conidiophores bearing acropetal chains of unicellular and hyaline conidia (Castañeda-Ruiz & Kendrick, 1990). According to Castañeda-Ruiz & Kendrick (1990), *Haplographium* Berk. & Br. and *Lauriomyces* RF Castañeda showed no difference in same type of conidiogenesis and a coloration between the base and the conidiophore apex. However, *Lauriomyces* was distinguished from *Haplographium* by the persistent chains of conidia and conidia of *Haplographium* are aggregated in mucilage (Castañeda-Ruiz & Kendrick, 1990). Currently, twelve accepted taxa for *Lauriomyces* (i.e. *L. acerosus*, *L. basitruncatus*, *L. bellulus*, *L. catenatus*, *L. cylindricus*, *L. ellipticus*, *L. glumateus*, *L. heliocephalus*, *L. pulcher*, *L. sakaeratensis*, *L. synnematicus* and *L. ventricosus*) have been described and listed in an on-line database to index all

scientific names in MycoBank and Index Fungorum (Index Fungorum, 2019; <http://www.indexfungorum.org/Names/Names.asp>; Crous *et al.*, 2004; <http://www.mycobank.org>). The fungi are mainly distinguished by the shape and size of the conidia (Castañeda & Kendrick, 1990), which are aseptate, smooth, clavate or obclavate to fusiform, cylindrical or ellipsoid.

*Lauriomyces* species are cosmopolitan fungi occurring on different continents of both hemispheres. For example, *L. bellulus* was previously reported in Switzerland (Crous & Wingfield, 1994) and Japan (Ohnuki *et al.*, 2009). In the Americas, *L. heliocephalus* was found in Brazil (Piccolo & Silva, 1996). In addition, Thai new species (*L. sakaeratensis*, *L. cylindricus*, *L. ellipticus*, *L. glumateus*, *L. basitruncatus*,) have been described in the Kingdom of Thailand (Somrithipol, Kosol & Gareth-Jones, 2006; Somrithipol & Jones, 2007; Somrithipol *et al.*, 2017).

*Lafoensia pacari* A. St. Hil., is a species of plant in the family Lythraceae (Order Myrtales and found in the Atlantic Forest of southern Bahia, Brazil (CNCFlora, 2020). Based on the IUCN Red List of Threatened Species, the plant is also classified as “Least Concern” (REDLIST, 2020; iucnredlist.org/species/35582/9936410). The aim of present study was to report a new record of *L. acerosus* growing on the litter of *L. pacari* in southern Bahia, Brazil. Illustrations and line drawings of microstructures are presented.

Fungal specimens collected at the Cocoa Research Center - CEPEC, a department of the Executive Committee of the Cacao Plantation Plan - CEPLAC, of the Ministry of Agriculture, Livestock and Supply - MAPA. The area is located at km 22 of Jorge Amado highway, in the municipality of Ilhéus- Bahia, Southern Bahia, Brazil.

The collections were carried out during a period in October 2018 to July 2019 in a delimited area of 200m<sup>2</sup>. Twenty fallen leaves in different decomposition stages were randomly collected. The samples were placed in Kraft paper bags and transported to the Fungal Biodiversity Laboratory of the CEPEC-CEPLAC, Ilhéus-Bahia in Brazil (Latitude: 14° 47' 20" S and Longitude: 39° 02' 58" W).

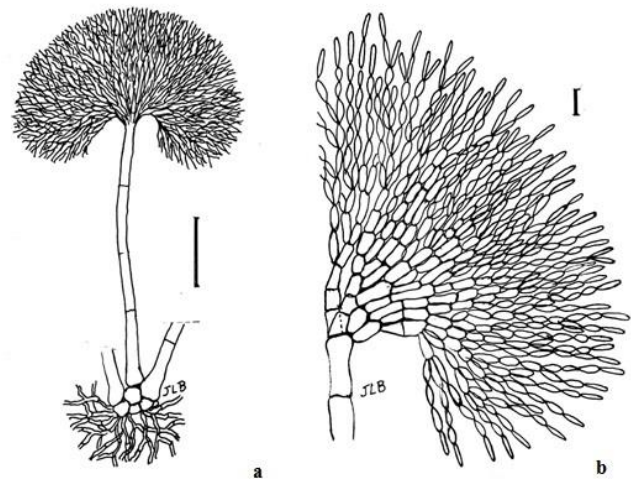
The samples were immediately placed in improvised sieves, transferred in plastic containers, gently washed in running water for one hour to remove impurities. Then, the samples were placed in plastic boxes lined with soaked foams and opened daily for air renewal for fifteen minutes, following the techniques described in Castañeda-Ruiz, Gusmão, Heredia-Abarca e Saikawa (2006). After 48 hs, the incubated material was daily observed under a binocular scope (Motic SMS-168) for 30 days. Any fungi found on the leaves were transferred by using a thin needle to be mounted between slides and coverslip in a permanent mounting medium (PVLG resin: polyvinyl alcohol + lactoglycerol) (Morton, Bentivenga & Wheeler, 1993). Morphological characterization was observed and described at light microscope (Leica DM 500) and identification by the specific bibliographies i.e. (Somrithipol, Kosol & Gareth-Jones, 2006; Somrithipol & Jones, 2007; Somrithipol *et al.*, 2017).

Morphologically, the fungus was identified as *L. acerosus*, according to the description provided by Somrithipol *et al.* (2017). It was first described on a dead leaf from Nakhon Rhasima Province, Thailand with 13 May 2008, C. Chamo, CC0030 in BBH and BCC33373 as the collected date, the collector, the herbarium code, and the ex-type living culture code, respectively.

Description based on the Brazilian material:

*Lauriomyces acerosus* Somrithipol, Suetrong & E.B.G. Jones, Cryptog. Mycol. 38 (2): 265 (2017) (Fig. 1a-b).

Mycelium immersed. Stroma and hyphopodia missing. Setae absent. Conidiophores macronematous and mononematous, 50-80 µm long, 3-4 µm wide, showing primary cylindrical, thin-walled, smooth hyaline branches. Ramoconidia and conidia holoblastic, schizolytic, unicellular, hyaline, smooth-walled forming acropetal chains. Conidia not septate, elongated, cylindrical conidia with subacute extremities, tapered, 4-5 µm long and 1.0-1.2 µm wide. *Sexual morph*: not observed.



**Figure 1.** *Lauriomyces acerosus*. **a:** Schematic drawing of conidiophores and mycelium; **b:** Schematic detail of a conidial head showing ramoconidia and conidia. Bars: a = 40 µm; b = 4 µm. (P.S.Miranda 8).

Geographic distribution: Thailand (2017) and Brazil (in this paper).

Material examined: BRAZIL. Bahia: City of Ilhéus, CEPLAC, on decaying leaves of *Lafoensia pacari* (S 14 ° 45 '26 " , W 39 ° 14' 23"; S 14 ° 45' 25 " , W 39° 14' 23"), 26.X.2018, P.S.Miranda (CEPEC2524); 03.XII.2019, P.S.Miranda (CEPEC2525).

The Brazilian material fits well with the characteristics of *L. acerosus*, although it presents slightly smaller conidiophores (50-80 × 3-4 µm) than those of the original description (up to 110 × 4-5 µm) (Somrithipol *et al.*, 2017). *Lauriomyces acerosus* differs morphologically from other *Lauriomyces* species by its cylindrical conidia with subacute extremities, and differs from the species registered in Brazil: *Lauriomyces heliocephalus* has somewhat truncated or slightly rounded conidia at both ends; and *L. sakaeratensis* has truncated conidia. *Lauriomyces heliocephalus* was originally described by R.F. Castañeda & Kendr (1990) in Cuba, on *Alchornea latifolia* leaf. In Brazil, this species was reported in the state of São Paulo by Piccolo & Silva (1996) in leaves of *Alchornea triplinervia* litter and later in Bahia (Gusmão & Maia, 2006), Piauí (Silva, Santa Izabel & Gusmão, 2014), Ceará (Santa Izabel & Gusmão, 2018) and Amapá (Monteiro, Sarmento & Sotão, 2019). *Lauriomyces sakaeratensis* described by Somrithipol, Kosol & Jones (2006) on fallen leaves of *Dipterocarpus costatus* in Thailand was first reported in Brazil (state of Bahia) on leaves and petioles submerged by Barbosa & Gusmão (2011), and on *Cedrela odorata* litter (state of Pará) (Santos, Sotão, Monteiro, Gusmão & Gutiérrez, 2018).

Due to not obtaining culture of our fungus, a DNA characterization was not possible.

Morphologically, we report *Lauriomyces acerosus* for the first time for the Brazilian mycota and for the Americas (the totality of the continents of North and South America).

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