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Santa Catarina Island mangroves 4 – xylophilous basidiomycetes

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Abstract — Itacorubi, Ratones, Rio Tavares and Saco Grande are natural mangrove forests in the western part of Santa Catarina Island, in southern Brazil. Thirty-three basidiomycetes were identified during a survey of xylophilous basidiomycetes in these mangrove forests from May 2005 to August 2006. The species are distributed among 9 families and 24 genera. Fifteen species are new records from mangrove forests of the world and eight species are recorded for the first time from the State of Santa Catarina. The complete checklist is available on http://www.mycotaxon.com/resources/weblists.html.

Key words — Neotropics, fungal taxonomy, white-rot fungi

Introduction

Close to 35% of mangrove forests, one of the world's threatened major tropical ecosystems, have been lost in the last twenty years (Valiela et al. 2001). These ecosystems occur worldwide on sheltered shores, mainly in the tropics, and their distribution is closely related to basic features of the marine environment, mainly salinity (Chapman 1977).

Plant diversity is low in mangrove forests (Alongi 2002, Lana 2004), with about 70 species of trees and shrubs known from all over the world (Duke 1992). New World mangrove forests are composed of nine tree species representing *Avicennia* (4 spp.), *Rhizophora* (3 spp.), *Laguncularia* (1 sp.), and *Conocarpus* (1 sp.) (Cintrón & Schaeffer-Novelli 1980).

Along the South American Atlantic coast, the austral limit of mangroves is at the city of Laguna, Brazil, located at latitude of 28º55' S, in the State of Santa Catarina (Cintrón & Schaeffer-Novelli 1980). These ecosystems are well represented in Brazil, which includes one of the six largest mangrove forests in the world (Lacerda 1984).

Mangrove species diversity is well known for animals and plants but poorly known for other organisms such as fungi (Macintosh & Ashton 2002). Most mangrove fungi refer mainly to 'marine fungi', which grow and sporulate exclusively in marine or estuarine habitats (Kohlmeyer & Kohlmeyer 1979). Little is known about terrestrial fungi in mangrove forests (Hyde & Lee 1995).

Previous studies on Santa Catarina Island mangroves have revealed interesting data on myxomycetes and fungi taxonomy (Trierveiler-Pereira et al. 2008a, b; Baltazar et al. 2009b).

Of the 112 total xylophilous basidiomycetes recorded from mangrove forests around the world (Baltazar et al. 2009a), Brazilian mangroves are the best known primarily due to the research of Campos et al. (2003) and Sotão et al. (1991, 2002, 2003). The present study is the first basidiomycete survey carried out in southern Brazil mangrove forests.

Materials and methods

Santa Catarina Island is located in the central-east of the State of Santa Catarina (27°35' S and 48°32' W) in the Florianópolis municipality. Mangroves are found only on the western shores of the island, where there are low-energy (i.e. little wave action) sites. The four largest mangroves on the island are: Ratones (29°30'00" S, 48°27'00" W), Saco Grande (28°37'30" S, 48°27'30" W), Itacorubi (27°34'14" S, 48°30'07" W) and Rio Tavares (27°38'40" S, 48°30'17" W). The mangrove tree species from these areas are *Avicennia schaueriana* Stapf & Leechm. ex Moldenke, *Laguncularia racemosa* C.F. Gaertn. and *Rhizophora mangle* L. The most common species is *A. schaueriana*, also known as black-mangrove or "siriúba" (Souza-Sobrinho et al. 1969).

During 26 field trips to the Santa Catarina Island mangroves, from May 2005 to August 2006, 265 xylophilous basidiomycete specimens were collected. Whenever possible, the host species was identified. Microscopic characters were examined and measured using light microscopy, in mounts of 1% aqueous phloxine solution (plus 1% or 5% KOH) and Melzer's reagent (Ryvarden 1991). Drawings were made with the aid of a camera lucida. Vouchers are preserved in Herbarium FLOR (Holmgren & Holmgren 1998).

Results

Thirty-three xylophilous basidiomycete species representing nine families were identified in the surveyed areas. Most species were recorded from dead wood; however, four species [*Fuscoporia gilva* (Schwein.) T. Wagner & M. Fisch., *Cerocorticium molle* (Berk. & M.A. Curtis) Jülich, *Cymatoderma dendriticum* (Pers.) D.A. Reid, *Schizophyllum commune* Fr.] were also collected from living trees. *Avicennia schaueriana*, with twenty-three recorded species, was the most

common host. *Phellinus allardii* (Bres.) S. Ahmad and *Perenniporia ohiensis* (Berk.) Ryvarden were only collected on *Laguncularia racemosa*, whereas *Hexagonia hydnoides* (Sw.) M. Fidalgo was collected on *Rhizophora mangle*. *Fuscoporia gilva*, *Cerocorticium molle*, *Pycnoporus sanguineus* (L.) Murrill, and *Schizopora paradoxa* (Schrad.) Donk were gathered on all three host trees.

In this survey, the Itacorubi mangrove forest had the highest species diversity with twenty-five species. Seven species [*Auricularia fuscosuccinea* (Mont.) Henn., *Cerocorticium molle*, *Pycnoporus sanguineus*, *Trametes elegans* (Spreng.) Fr., *T. villosa* (Sw.) Kreisel, *Schizophyllum commune, Schizopora paradoxa*] were found in all four mangrove forests. Most of the identified species have a cosmopolitan or pantropical (both with 14 spp.; 42.4%) distribution, and five species (15.15%) are neotropical.

The complete checklist of the xylophilous basidiomycetes in Santa Catarina Island mangroves is available on http://www.mycotaxon.com/resources/weblists.html.

Conclusions

In their comprehensive study, Baltazar et al. (2009a) reported 112 xylophilous basidiomycetes species from mangrove forests. This study adds 15 species (13.4%) to that list for a total of 127 species. In addition, four species are recorded for the first time from Brazilian mangrove forests. Furthermore, we add 8 new records to the basidiomycete mycota in the State of Santa Catarina, which has been studied for twenty years with 157 recorded species (Drechsler-Santos et al. 2008).

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