

TITLE: PATHOGENIC MELANIZED FUNGI IN DRINK WATER FROM A RURAL COMMUNITY OF AMAZONAS

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ABSTRACT:

The melanized fungi belong to a heterogeneous group of fungi, widely distributed in nature, preferentially in tropical and subtropical regions. These fungi are associated with important infections such as Eumycetoma, Chromoblastomycosis and Phaeomycosis, in addition to other clinical manifestations. However, there are still gaps regarding the ecology of these microorganisms, with few reports on the possible environmental sources for the occurrence of these mycoses, especially in the Amazon region, which has a favorable climate to the development of these fungi. In this way, this work had as objective to evaluate the presence of melanized fungi in samples of drinking water of a rural community of Amazonas. A total of 77 water samples were collected in Lago do Limão Community, Iranduba/Amazonas. For the isolation of the fungi, 500mL of water were filtered through nitrocellulose membranes with 0.22 µm pore. Membranes were incubated at 30°C in NSA Agar and Sabouraud Agar for up to 10 days and after growth, the melanized colonies were picked up in Sabouraud Agar. The isolates were submitted to morphology and molecular analysis by amplification of the ITS region with the V9G and LS266 primers and sequencing with primers ITS1 and ITS4. Melanized fungi were isolated from 11 water samples, being identified the species *Hortaea werneckii* (5), *Exophiala oligosperma* (1), *Curvularia lunata* (1) and *Curvularia* sp. (2). The importance of water as a route of exposure of pathogenic fungi is not well known. However, it is known that some fungi are able to survive in this environment, such as species of melanized fungi that can be extremely resistant to various environmental conditions, even surviving water treatment processes. The study demonstrated the presence of melanized fungi considered pathogenic in water used for human consumption, evidencing this substrate as a possible reservoir of these fungi. The genus *Curvularia* is associated with cases of keratitis. The occurrence of this fungus in this type of water can be an important source for infection in the eye. The fungus *Hortaea werneckii*, the etiological agent of Tinea nigra, is generally described in saline environment and not in freshwater as found in this study. Thus, this work shows the importance of environmental studies to elucidate the ecology of fungi with medical importance.

Keywords: melanized fungi, drinking water, Amazonas, health

Development Agency: FAPEAM, CAPES and FIOCRUZ