

Title: INCIDENCE OF PATHOGENIC FILAMENTOUS FUNGI IN AIR SAMPLES OF 3 HOSPITALS OF MACEIO/AL

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Abstract:

Environments that use air conditioning are propitious for the proliferation of filamentous fungi, and therefore should be routinely monitored to verify if the physical, chemical and biological parameters meet the standards. As result of a correct maintenance, fewer amounts of pathogenic filamentous fungi are expected on these environments, which results in a lower risk for the occupants of acquiring health problems. From air samplings collected in 2013, the air quality of three hospitals of Maceio/AL was analyzed taking into account the Resolution N° 09 of ANVISA and the NR-32 of the MTE (Brazilian Ministry of Labor and Employment) for health care environments. The Andersen® linear sampler was used to collect air samples from 102 locations: 52 of Hospital A (Surgery unit and Oncology ward), 42 of Hospital B (Administration area, Surgery unit, ICU, and beds) and eight at Hospital C (ICU). In order to evaluate the bioaerosol levels, petri dishes containing Sabouraud Dextrose Agar with 50mg.l-1 of Chloramphenicol were incubated at 28 °C for 5 days. Fungi were identified based on macromorphology, microculture exams and identification keys. The most common genera found in this study was *Penicillium* sp (23.7%) and *Acremonium* sp (14.0%) at hospital A; *Cladosporium* sp (13.0%) at hospital B; *Penicillium* sp (27.0%), *Aspergillus* sp (15.9%), and *Cladosporium* sp (12.6%) at hospital C. The most abundant species were *Penicillium piceum* 17/52 (32.69%) and *Mycelia sterilia* 13/52 (25%) at Hospital A; *Penicillium citrinum* 17/42 (40.47%), *Aspergillus fumigatus* 14/42 (33.33%) and *Aspergillus flavus* 10/42 (23.8%) at hospital B; *Aspergillus sydowii* 3/8 (37.5%) and *Mycelia sterilia* 3/8 (37.5%) at Hospital C. On account of the high rates of pathogenic fungi detected in this study, patients and occupants of these environments are susceptible to develop allergies and severe respiratory diseases caused by the presence of fungi spores. This study warns for the importance of a proper maintenance and cleaning of the air conditioning equipment, in accordance to the Order 3.523 of the Brazilian Ministry of Health which establishes the implementation of the PMOC (Maintenance Operation and Control Plan), which aims to minimize the occurrence of aggravations to health and to hospital infections by pathogenic bacteria and fungi due to the lack of maintenance of these equipment according to the legislation in force.

Keywords: bioaerosols, hospital environments, indoor air quality, pathogenic filamentous fungi

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