INCIDENCE OF AIRBORNE FUNGI IN AIR-CONDITIONED ENVIRONMENTS OF TEACHING INSTITUTION OF MACEIO/AL

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Abstract:

Airborne or allergenic fungi include many species that colonized different environments, specially the air-conditioned environments. These fungi can promote sensitivity in susceptible individuals and initiate allergic processes and fungal infections. Children and teenagers remain for a long time in air-conditioned environments such as schools, so it can be predicted that the existing conditions in these environments can affect the incidence of harmful symptoms such as respiratory symptoms, fatigue, headache and mucosal and skin irritation. This study aimed to detect airborne fungi of air-conditioned environments of teaching institutions in Maceio/AL, and to aware about the need of maintaining good air quality standards. The study was developed based on the recommended technical standards of the RE Nº09/ANVISA from January 2003 as an indicators of the air quality of indoor air-conditioned environments. The air sampling was performed in 2013 using the Andersen® linear sampler and petri dishes containing Sabouraud Dextrose Agar with 50mg.l^{-1} of chloramphenicol, then the petri dishes were incubated at 28 ºC for 5 days. Fungi were identified by macromorphology, microculture and identification keys. In total, 128 areas were evaluated: 10 in school A, 12 in School B, 59 in School C and 47 in School D. Based on the results, it was possible to verify that the most frequent species were *Aspergillus sydowii* 7/10 (70%), *Penicillium chrysogenum* 5/10 (50%) and *Aspergillus flavus* 4/10 (40%) in School A; *Penicillium commune* 4/12 (33.3%) and *Penicillium citrinum* 3/12 (25%) in School B; *Cladosporium sphaerospermum* 13/59 (22%), *Cladosporium cladosporioides* 10/59 (17%), *Paecilomyces variotii* 9/59 (15.3%), Mycelia Sterilia 8/59 (14%) and *Curvularia pallescens* 6/59 (10,2%) in School C; *Aspergillus sydowii* 30/47 (64%), *C. sphaerospermum* 24/47 (51%), Mycelia Sterilia 15/47 (32%), *Aspergillus conicus* 14/47 (30%) and *Penicillium. spinulosum* 14/47 (30%) in School D. In this study, fungi that are potentially pathogenic, toxigenic and triggers of allergic process were isolated. Thus, an adequate maintenance of the air-conditioning equipment in these places is necessary, in order to avoid the proliferation of fungi responsible for respiratory infectious diseases and harmful to the health of children, teenagers, and occupants of these buildings.

Keywords: Airborne fungi, air-conditioned environments, air quality, teaching institutions

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