

Comparison of *Aspergillus* species-complexes detected in different environmental settings

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ABSTRACT

Purpose: Samples from different environmental sources were screened for the presence of *Aspergillus*, and the distribution of the different species-complexes was determined in order to understand differences among that distribution in the several environmental sources and which of these species complexes are present in specific environmental settings.

Methods: Four distinct environments (beaches, poultries, swineries and hospital) were studied and analyzed for which *Aspergillus* complexes were present in each setting. After plate incubation and colony isolation, morphological identification was done using macro- and microscopic characteristics. The universal fungal primers ITS1 and ITS4 were used to amplify DNA from all *Aspergillus* isolates, which was sequenced for identification to species complex level. SPSS v15.0 for Windows was used to perform the statistical analysis.

Results: Thirty-nine isolates of *Aspergillus* were recovered from both the sand beach and poultries, 31 isolates from swineries, and 80 isolates from hospital environments, for a total 189 isolates. Eleven species complexes were found total. Isolates belonging to the *Aspergillus Versicolores* species-complex were the most frequently found (23.8%), followed by *Flavi* (18.0%), *Fumigati* (15.3%) and *Nigri* (13.2%) complexes. A significant association was found between the different environmental sources and the distribution of the several species-complexes ($p < 0.001$); the hospital environment had a greater variability of species-complexes than other environmental locations (10 in hospital environment, against nine in swine, eight in poultries and seven in sand beach). Isolates belonging to *Nidulantes* complex were detected only in the hospital environment, whereas the other complexes were identified in more than one setting.

Conclusion: Because different *Aspergillus* complexes have different susceptibilities to antifungal drugs, and different abilities in producing mycotoxins, knowledge of the species-complex epidemiology for each setting may allow preventive or corrective measures to be taken toward decreasing professional workers or patient exposure to those agents.