

Analysis of fungal pathogens in the environment of Branicki Palace in Białystok, Poland

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ABSTRACT

Introduction: People spend about 90% of their time indoors. Most health problems associated with indoor air quality are caused by fungi. It is estimated fungi account for 70% of total indoor air microbial pollution.

Purpose: To analyze fungal pathogens isolated from indoor air of Branicki Palace in Białystok, Poland

Materials and methods: The research mycological material consisted of air collected from various rooms in Branicki Palace. Humidity and temperature of the tested rooms were also measured. The monitoring of airborne fungi pollution was done using a SAS SUPER 100 (pbi international) with international measure standards (EN 50081-1, EN 500 50082-1). Biological monitoring of wall surface contamination was performed using the Count-Tact applicator with Count-Tact plates.

Results: A total of 1140 CFU per m³ of air were cultured in autumn and 580 CFU in winter. From

the walls, a total of 124 CFU were cultured in autumn and 397 CFU in winter. CFU values in the investigated rooms ranged from 10 to 220 (mean 47 CFU) in autumn, and from 10 to 90 (mean 29 CFU) in winter. The most commonly isolated pathogens were: *Candida albicans*, *Aspergillus* sp., *non-Candida albicans*, and *Penicillium* sp.. The number of colonies isolated from the walls of all rooms in winter was greater than in autumn. The most commonly isolated pathogens were: *Aspergillus* sp. and *C. albicans* in autumn; *C. albicans* and *non-C. albicans* in winter.

Conclusions: In winter, the number of colonies isolated from walls in all rooms was significantly greater compared with autumn. *Candida albicans*, *Aspergillus* sp. and *Penicillium* sp. were the most commonly isolated fungal air pathogens, regardless of season. *C. albicans* and *Aspergillus* sp. were most commonly isolated from walls in autumn, while *C. albicans* and *non-C.albicans* in winter.

Key words: fungi, air pollution, Branicki Palace
