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**Fungal and mycotoxins burden in clinical environment –
A public health concern**

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Indoor air quality assessment in sensitive environments such as healthcare facilities is a fundamental issue. Fungal contamination assessment and control in clinical environments is presently a required and vital part of prevention strategies against hospital-acquired infections. However, little is known concerning mycotoxins presence in clinical environment.

This study intends to assess 10 Primary Health Care Centers (PHCC) applying a multi-approach protocol using active sampling methods (air sampling) and passive ones (surface swabs, settled dust and filters from Heating, Ventilation and Air-Conditioning Systems (HVAC)) for fungal burden assessment. Additionally, mycotoxins were analysed to clarify about the fungal burden presence in the PHCC assessed. Air samples of 250 liters, filters from HVAC, surface samples and settled dust were collected in each PHCC. Quantification and morphological identification by culture-based methods and molecular detection of the toxigenic *Aspergillus* sections *Flavi*, *Fumigati*, *Circumdati* and *Versicolores* were performed. Mycotoxins in the air samples, filters from HVAC and settled dust samples were analyzed by an LC-MS/MS system. Separation and detection was carried out using high performance liquid chromatograph (HPLC) Nexera (Shimadzu) with a mass spectrometry detector API 4000 (Sciex).

Fungal load in air ranged from 4 to 1064 CFU.m⁻³ being *Chrysonilia sitophila* the most prevalent (84.13%). *Aspergillus* spp. was observed on air samples (1.06 %), being section *Versicolores* the most prevalent (43.24%). In surface samples, the fungal contamination ranged from 0 to 3x10⁵ CFU.m⁻² and the most prevalent fungal species was *Phoma* sp. (22.22%). The fungal contamination in HVAC filters ranged from 0 to 7.95x10⁴ CFU.m⁻³ and the most prevalent species found was *Penicillium* sp. (88.27%). In settled dust the fungal contamination ranged from 0 CFU.g⁻¹ to uncountable. *C. sitophila* was the most prevalent species (57.42%).

Regarding mycotoxins results (ng/g): In the air samples were detected fumonisins B₁ (2 samples, < 4.3), B₂ (6 samples, < 2.8-8.8) and B₃ (1 sample, < 3.9), roquefortine C (1 sample, <0.7) and ochratoxin A (9 samples, < 0.6-2.25) and B (1 sample, < 0.8) and in the filter samples, fumonisin B₂ (3 samples, <7 .6-21.4), ochratoxin A (1 sample, 6.70), mycophenolic acid (1 sample, 40.3) and sterigmatocystin (1 sample, < 2.9) were detected. In the settled dust samples were detected roquefortine C (1 sample, < 2.2), griseofulvin (1 sample, < 1.2), mycophenolic acid (2 samples, 2.47-4.28) and sterigmatocystin (1 sample, 2.28).

Considering the obtained data is proposed that fungal and mycotoxins assessment should be always performed in order to guarantee an accurate risk characterization in this occupational environment.

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