

## **Título: PRESENCE OF FUNGAL VOLATILE ORGANIC COMPOUNDS IN A CRITICAL HOSPITAL AREA**

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### **Resumo:**

When fungi grow in confined spaces such as critical hospital areas, this causes “hidden contamination” from the release into the atmosphere of fungal volatile organic compounds (FVOCs), produced by metabolism of the fungi or degradation of materials caused by the release of enzymes by the fungi. This contamination cannot be detected by visual inspection. The present study analyzed the air quality in terms of FVOCs in a critical area of a public tertiary hospital, a reference facility for patients with immunosuppression, in the city of Fortaleza, Ceará, Brazil. For this purpose, we collected air samples monthly from September through November 2014 and again from March to May 2015 in the hospital’s intensive care unit (ICU). The samples were collected by aspiration with the aid of an active sampling pump, with flow of 120 mL/min. For one hour, the air was drawn through specific filter cartridges, in duplicate. The FVOCs removed from the air samples were submitted to gas chromatography associated with mass spectrometry. Of the 12 samples, 68% were positive for the presence of FVOCs, with the main compounds being 1-octen-3-ol (34%), 3-methyl-1-butanol (17%) and 2-methyl-1-propanol (17%). According to the literature, the presence of FVOCs indicates the occurrence of microbial growth, and can cause harmful effects on human health and well-being, such as headache, nasal irritation, dizziness, fatigue and nausea. The main FVOC present in the air samples, 1-octen-3-ol, is indicated as causing disturbance of dopamine homeostasis and also is involved in Parkinson’s syndrome (a neurodegenerative disease). The concentration and makeup of FVOCs vary according to the fungal species as well as the growth conditions, such as temperature, nutritional substrate and relative air humidity. Therefore, further studies are necessary to verify the possible risks of these products to the population.

**Palavras-chaves:** airborne fungi, tertiary hospital, 1-octen-3-ol.

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