

TITLE: MONITORING OF AIR MICROBIAL LOAD FROM A DENTAL CLINIC AND MICROBIOLOGY RESEARCH LABORATORY: FUNDAMENTALS FOR CONTAMINATION CONTROL

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ABSTRACT:

Droplet and aerosols formed during the dental procedures as well as in microbiology research laboratories can disperse microorganisms that represent contamination and infection risks in workplace. The objective of this study was to evaluate the microbial and fungal load from a dental clinic and a microbiology research laboratory. To determine the microbial load in air from a microbiology research laboratory, Petri dishes (90x15mm) with culture medium *Trypticase Soy Agar* (TSA) were held open for 15 and 30min and by air microbiological monitoring system (MAS 100 NT[®], Merck Millipore) with 500 and 1000L of air collections. The evaluation of the microbial load from a dental clinic was performed before and after business hours, in two distinct places, to verify the air contamination in dental environment by bacteria and fungi. The culture mediums utilized were TSA (total aerobic bacteria), *BCYE Agar* (*Legionella* spp.), *Mannitol Salt Agar* (Mn) – *Staphylococcus* spp. and *Sabouraud Dextrose Agar* (Sb) – fungi. The results obtained from different techniques for collecting air samples from microbiology research laboratory demonstrated contamination by microorganisms in 30min of exposure of the dishes (12 and 3CFU) and in 1000L of air (58 and >300CFU/m³) in sink and workbench regions, respectively. Furthermore, the results related to collection of air samples from a dental clinic pointed out the presence of fungi, filaments and yeasts in all culture mediums utilized (TSA: 163 and 126CFU/m³, Sb: >300CFU/m³ and Mn: 2 and 59CFU/m³). In sum, the results showed a better recovery of air microbial load through equipment usage. Moreover, the fungi presence was more often than the bacteria one. However, the air microbial contamination from a dental clinic was lower before than after business hours.

Keywords: dental clinics, biosafety, air microbiology, contamination.

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