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Study and characterization of airborne microbial communities in indoor air of an urban polyclinic

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Bioaerosols in the medical environment have been identified as suspected agents for the transmission of nosocomial infections, and the COVID-19 pandemic serves as a concrete example. This study aims to provide a qualitative and quantitative estimation of bioaerosols within a polyclinic located in the northern part of Algiers, Algeria. It also involves analyzing the influence of the sampling duration and period on the variability of bioaerosols within different rooms of the polyclinic. The passive sampling technique carried out the measurement of airborne bacteria in five rooms of the polyclinic. Two sampling times were chosen, 30 and 60 min with three sampling periods of two days each. The bacterial bioaerosols were characterized by MALDI TOF-MS.The bacterial bioaerosol concentration was notable in the five rooms of the polyclinic, reaching a medium-risk level. There was no significant difference (P =0.847-1.116) observed in the sampling duration, and similarly results for the sampling period (P=0.093 -0.798). *Staphylococcus*, *Bacillus* and *Raoultella* were the most dominant defined bacteria. These bacteria can have a harmful effect on the health of patients and workers of the polyclinic.

Keywords: Bioaerosol, Bacteria, Passive sampling, MALDI-TOF MS, Polyclinic