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BIOAEROSOL Y EVALUACIÓN DE LA CALIDAD DEL AIRE EN DOS CENTROS
HOSPITALARIOS UBICADOS EN LEÓN, GUANAJUATO, MÉXICO

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Abstract

Microbiological contamination in hospitals is of main concern since bacteria and fungi constitute a threat on the spreading of nosocomial infections. Airborne micro - organisms in hospitals can cause negative health effects in immune-compromised people. Hence, it is very important to determine the density and types of microorgan - isms which live in the hospital environment. This study was aimed to measure the fungal and bacteria loads from air samples, as well as to identify them at the level of genus or species in two different hospitals of León, Guanajuato, Mexico. Micro - bial identification was run by molecular and standard microbiological techniques. Concentration of bacteria and fungus present in the air is reported in terms of the number of colony forming units per cubic meter of air (CFU/m³). Both hospitals were considered contaminated, since microbial density was significantly higher than the acceptable level reported by the World Health Organization (WHO 1990). Hospital 1 presented bacterial density values ranging from 40 to 280 CFU/m³. While, fungal density values ranging from 56 to 408 CFU/m³. Hospital 2 showed fungal density values ranging from 32 to 442 CFU/m³, and bacteria density val - ues ranging from 90 to 548 CFU/m³. Bacterial identification revealed 9 genera, and fungal identification showed 17 genera in hospital 1 and 17 bacterial genera, 22 fungal genera in hospital 2. The predominant bacteria were *Escherichia coli*, *Enterobacter cancerogenus*, and bacteria of *Acinetobacter* genera. *Fusarium* and *Penicillium* were the most common fungal isolates. Likewise, fungus such as *Microporus audouinii*, *Cladosporium oxysporum*, *Mucor ramosissimus*, *Alternaria arborencens* and *Cryptococcus albidus* were found as medically important fungi. The identification and quantification of bioaerosols of these hospitals could be used to take action toward the reduction of bioaerosol concentration in order to protect the people who generally use hospital.

Keywords

Bioaerosols, bacteria, hospital, air quality, bioparticles.

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