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Effects of Human Activities on Concentrations of Culturable Bioaerosols in Indoor Air Environments

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Abstract

We studied the effects of human activity on concentrations of fungal and bacterial bioaerosols in indoor air environments. We conducted measurement experiments for concentrations of bioaerosols and aerosol particles in test chambers with people performing various activities inside. We found that the number of people and human activities had positive correlations with the concentrations of bacterial bioaerosols. However, the concentration of fungal bioaerosols was not influenced by human presence or activities. The findings regarding the concentrations of fungal and bacterial bioaerosols and the effects of human presence and activities will be useful for studying control methods against bioaerosols.

Keywords

Bioaerosol; Airborne Bacteria; Airborne Fungi; Anthropogenic bioaerosol; Human activity

INTRODUCTION

Bioaerosols are airborne biological particulate matter (Górny et al., 1999). The diameter of bioaerosols ranges from 0.3 μm to 100 μm (Cox & Wathes, 1995), and in particular breathable bioaerosols (size range from 1 to 10 μm) are of primary concern (Heyder et al., 1986).

Bioaerosols are readily transported through the air and can remain in air environments because of their small size and light weight (Beggs, 2003; Hinds, 1982). Bioaerosols, which can be inhaled or attached to human bodies in their airborne state, have been known to be etiological agents for

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