

Investigation of Bioaerosols in the Working Environment of Dental Firms

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Abstract

In the working environment of dental technicians, the major biological hazard come from occluding molds contaminated by saliva and blood. In addition, bioaerosols from a wide range of sources, like viruses; bacteria ; fungal spores parts of plant and animal cell; its products and toxics are another possible environmental risk factor. Because the high temperature and relative humidity in Taiwan facilitate the production of bioaerosols, the two above-mentioned sources of biological hazards might produce a combined effect and pose a potentially exposure risk for the worker. Therefore, further investigation and identification of the bioaerosols in the working environment is necessary. This research focused on the bioaerosols exist in the working environment of the dental firms and measured indoor temperature, relative humidity, wind velocity, and bioaerosols including bateriars and fungi. Results showed that due to the shortage of pollutants control facilities in the dental firms, supply of fresh air was insufficient and air filtration was not completely effective. Most common fungi found in this study are *Aspergillus*, *Fusarium*, *Penicillium*, and *Yeast*, which might be related with the high relative humidity. Concentrations of bacteria and fungi generally exceed 1000CFU/m³ and the ratio of gram-negative bacteria are high. The groth of gram-positive bacteria might be suppressed by VOCs.

Key words : dental firms, working environment , biological aerosols

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