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NIOSH 0800

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CSR

CFU/m<sup>3</sup>

CSR

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ICU

CFU/m<sup>3</sup>

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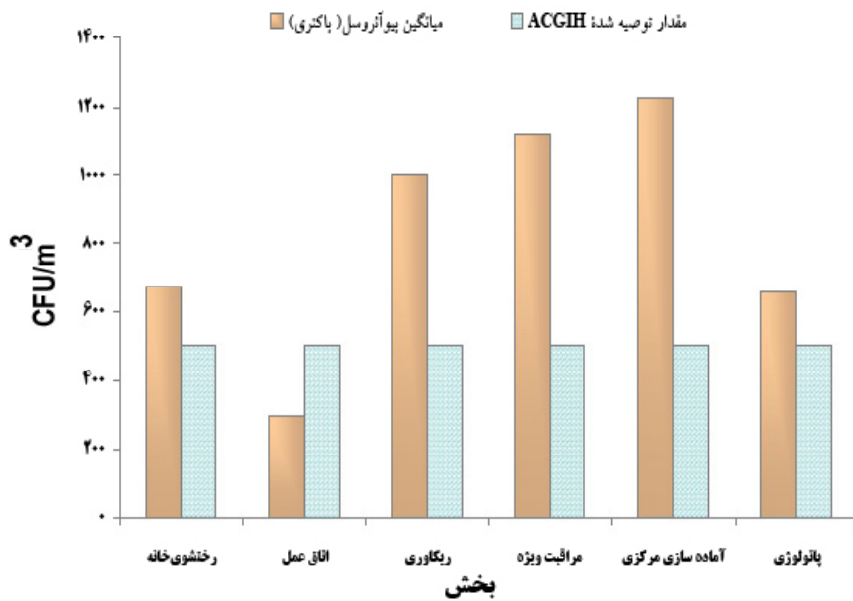
CFU/m<sup>3</sup> ACGIH

CFU/m<sup>3</sup> ACGIH







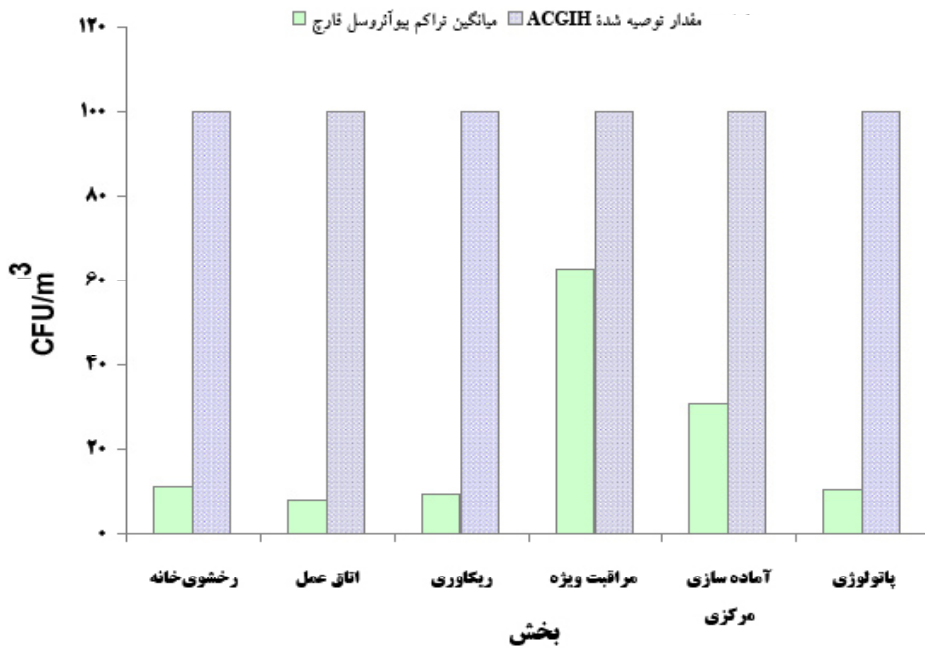


ACGIH مقدار توصیه شده ACGIH

میانگین بیوآئروسل (باکتری) در تمام بخش‌ها از مقدار توصیه شده ACGIH ( $P=0.000$ ) بیشتر بود. (میانگین بیوآئروسل (باکتری) در تمام بخش‌ها از مقدار توصیه شده ACGIH ( $P=0.000$ ) بیشتر بود.)

میانگین تراکم بیوآئروسل فارغ (Bioaerosol Concentration) در تمام بخش‌ها از مقدار توصیه شده ACGIH ( $P=0.000$ ) بیشتر بود. (میانگین تراکم بیوآئروسل فارغ (Bioaerosol Concentration) در تمام بخش‌ها از مقدار توصیه شده ACGIH ( $P=0.000$ ) بیشتر بود.)

میانگین تراکم بیوآئروسل فارغ (Bioaerosol Concentration) در تمام بخش‌ها از مقدار توصیه شده ACGIH ( $P=0.000$ ) بیشتر بود. (میانگین تراکم بیوآئروسل فارغ (Bioaerosol Concentration) در تمام بخش‌ها از مقدار توصیه شده ACGIH ( $P=0.000$ ) بیشتر بود.)



ACGIH مقدار توصیه شده ACGIH

ICU / CFU/m<sup>3</sup>

(CFU/m<sup>3</sup> L

CFU/m<sup>3</sup> L

(CFU/m<sup>3</sup>)

NIOSH

CFU

(CFU/ m<sup>3</sup> L

ICU

CFU/m<sup>3</sup>

ICU

CFU

(CFU) ICU

CFU/m<sup>3</sup>

CFU/m<sup>3</sup>

CFU/m<sup>3</sup>

(CFU L

L

(CFU

CFU/m<sup>3</sup>

(CFU/m<sup>3</sup> L

(CFU/m<sup>3</sup> L

Scheffe

ICU

(CFU/m<sup>3</sup>)

ACGIH

(CFU/m<sup>3</sup> L

(CFU/m<sup>3</sup>)

(CFU/m<sup>3</sup> L

(CFU/m<sup>3</sup> L

(CFU/m<sup>3</sup> L

(CFU/m<sup>3</sup> L

(CFU/m<sup>3</sup> L

(CFU/m<sup>3</sup> L

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(CFU/m<sup>3</sup> L

CFU

(CFU/m<sup>3</sup> L

(CFU/m<sup>3</sup> L

(CFU/m<sup>3</sup> L

(CFU/m<sup>3</sup> L

(CFU/m<sup>3</sup> L

(CFU/m<sup>3</sup> L

ICU

CFU

(*Bacillus cereus*)

(CFU/m<sup>3</sup> L

CSR



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در سال ۱۳۹۱ با کد ۴۵۷۹ است که با حمایت دانشگاه علوم  
پزشکی و خدمات بهداشتی تهران انجام شده است.



منابع

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## **Evaluation of Bioaerosol in a Hospital in Tehran**

**Negar Darvishzadeh, \*Farideh Golbabaee, Mohammad Reza Pourmand, Farideh Zeini, Abbas Rahimi Foroushani**

Department of Occupational Health, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

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### **Abstract**

**Background and Objectives:** Microorganisms are the agents that can cause disruption in the biochemical and physiological reactions through mechanisms such as infection, allergy or toxic properties in the case of entering human body and if the body's immune system be unable to destroy and eliminate biological agents, illness and even death will occur. This study evaluates air pollution(aerosol and bioaerosol) in different parts of a hospital in Tehran.

**Materials and Methods:** We assessed and evaluated bioaerosols by applying 0800 NIOSH method using Bacterial sampler and specific cultures for bacteria and fungi separately in ICU (intensive care unit), Pathology laboratory, Operating room, Recovery, and CSR (Central Service Room) of a hospital.

**Results:** The assessment showed that the average density of bacteria in the hospital studied was in the range of 1226.88 - 294.47 CFU/m<sup>3</sup>; the highest density was observed in the CSR and the lowest density measured was in the operating room. The bacteria identified included gram-positive bacillus (50.6%), *Staphylococcus epidermis* (20.29%), *Staphylococcus Saprophyticus* (2.6%), *Staphylococcus aureus* (7.03%), other *Staphylococcus* (5.9%) and *Micrococcus* (13.43%). Moreover, it was found that the average density of fungi was in the range of 0-188.45 CFU/m<sup>3</sup>; the maximum density in ICU and the minimum density in operating room and recovery room. The fungi identified included *Aspergillus flavus* (31.65%), *Aspergillus fomisatus* (25.17%), *Aspergillus niger* (15.82%), and *penicillium* (27.33%) .

**Conclusion:** Comparison of bacteria density in different parts of the hospital with the recommended limits of ACGIH (500 CFU/m<sup>3</sup>) showed that density exceeded the limits in all units except in operating room whereas, density of fungi was less than the recommended limits of ACGIH (100CFU/m<sup>3</sup>) in all units of hospital.

**Keywords:** Bioaerosol density, Hospital, Fungi

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\*Corresponding Author: [fgolbabaee@sina.tums.ac.ir](mailto:fgolbabaee@sina.tums.ac.ir)

Tel: +98 21 88951390 Fax: +98 21 88954781595