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**EFFICIENCY OF AIRFREE P AIR CLEANER ON THE REDUCTION OF
AIRBORNE MICROORGANISMS IN CLOSED ENVIRONMENT.**

AIM

The main goal of this study was to verify an air cleaner (Airfree P) efficiency on the reduction of bacteria and fungi suspended in the air in closed environments. The study intended to analyze the airborne microbial charge in room 1070 of the Industrial Microbiology Laboratory of INETI, during the functioning period (36 days) of the referred device.

METHODOLOGY

Protocol

The device was installed in room 1070 of the Industrial Microbiology Laboratory (LMI) after 11 days of regular utilization without any kind of cleaning or disinfection. That room has an approximate area of 60 m² (645.8 sq ft) and is characterized as being a Molecular Biology laboratory. The average frequency to this room was 7 to 9 people per day.

The test had 54 days duration. The device was turned on November 4th 2005 and turned off December 9th 2005. The air sample collections were made all Monday and Friday.

One air sampler (Merck's MAS-100) was used for air sampling having samples been taken in 3 different points in the room. From each point, 100 liters of air were collected. The count of the microorganism in suspension in the air was done in 9 cm (3.5 ") diameter Petri dishes.

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For bacteria, Trypona Soya Agar (TSA) Oxoid culture medium in Petri dishes were used and Petri dishes were incubated at 30°C (86F) for 3 days. For fungi, Malt Extract Agar (MEA) Difco culture means in Petri dishes were used and Petri dishes were incubated at 25°C (77F) for 5 to 7 days.

The results were expressed in **colonies forming unity (c.f.u.) of existing microorganisms per m³** of air in the room. Each value represents the arithmetic average of three samples.

RESULTS

The results are presented on the graphic of **figure 1**:

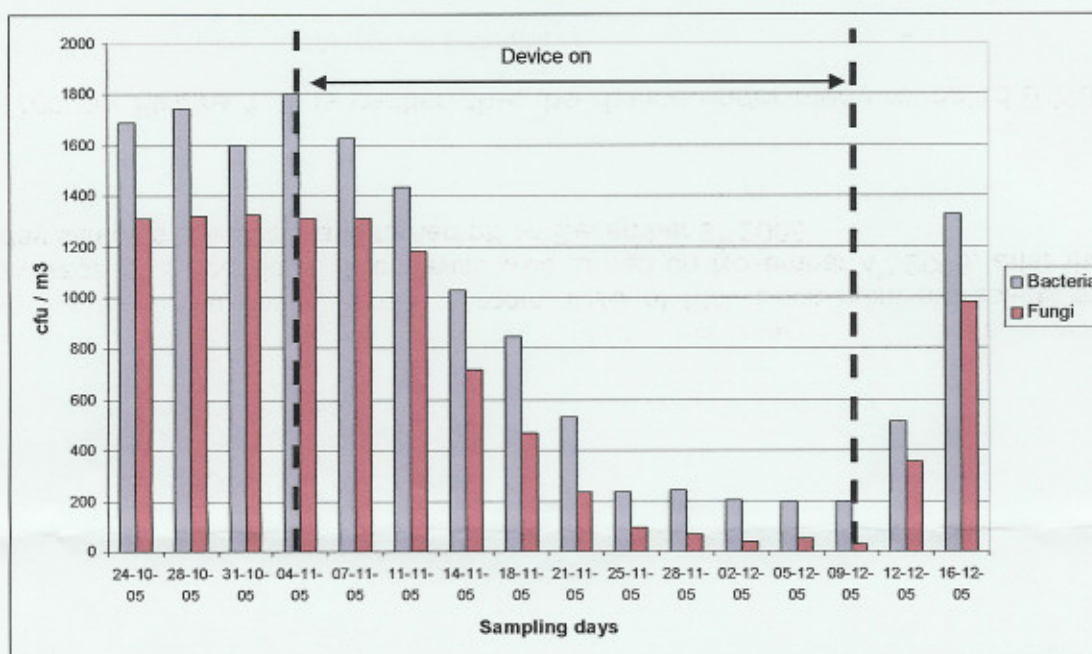


Figure 1.- Effect of Airfree P sterilizer , on the maintenance of the microbial level in the air in the environment of room 1070 of LMI. Each point represents the average of 3 countings. The device was turned on November 4th 2005, after that day samples collection, and turned off on December 9th 2005.

Through **Figure 1**, it is verified that the device under study revealed a high efficiency in airborne microbial reduction.

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To better specify the study of the device efficiency, the percentage reduction values are stated in **Table 1 and 2**.

Table 1. The initial and final counts of airborne bacteria charges and its correspondent reduction percentage for the tested device.

Initial Counting (cfu/m³) Average 2 readings	Final Counting (cfu/m³) Average 2 readings	Reduction (%)
1700	200	88

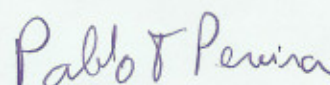
Table 2. The initial and final counts of airborne fungi charges and its correspondent reduction percentage for the tested device.

Initial Counting (cfu/m³) Average 2 readings	Final Counting (cfu/m³) Average 2 readings	Reduction (%)
1318	50	96

The results testify and confirm the high efficiency in the reduction of bacteria and fungi in the environment air under the studied conditions.

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Head of LMI



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