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Isolation and Identification of Air Micro Flora in Microbiology Laboratory

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Abstract: ***The contaminations of microflora are studied under the heading "Isolation and Identification of microflora in microbiology Laboratory". The research questions are arising to study and understand the viral flora. It It will help to study the zoonotic infection acquired by lab workers and visitors.***

Keywords: microbes, infections

1. Introduction

In our environment different kinds of microbial flora occur. They may be vegetative cells, spores of bacteria, fungi and algae, viruses and protozoa cysts.

The gases, dust particles, water vapors contain various microorganisms. Air servers as transport or dispersal medium for microorganisms. They occur relatively small number in air as compared to soil and water.

The air micro flora can be studied in two different forms:
1) Indoor micro flora
2) Outdoor micro flora

Indoor micro flora- Commonly found microorganisms are fungi and bacteria. The comments genera of fungi are penicillium, aspergillus and staphylococcus, bacillus and clostridium genera of bacteria are found in indoor air in microbiology laboratory.

Outdoor micro flora-The common genera of fungi found in outdoor air are clostridium and sporobolomyces.Besides these two genera aspergillus, alternaria, phytophthora and erysiphe are found. Some forms of yeasts like basidiospores, arcospores are also found. The fragments of mycelium and conidia molds along with bacterial flora like bacillus, clostridium, Sarnia, micrococcus, corynebacterium and achromobacter are widely found.

Abstract

It is a serious problem of micro flora contamination in laboratories and hospitals. The characterization may offer the hope for treatment of some infections acquired in laboratories.

The laboratory contaminants may found on floors, benches, equipments, sinks, media etc. This micro flora can affect nutrients media and storage conditions.

The samples micro flora is isolated identified when standard microbiological manipulations are performed.

2. Background

Most of the microorganisms present in air are harmless but still less than 1% of air born bacteria is pathogenic. Viruses of respiratory tract are also transmitted from the objects contaminated with infectious secretions that after drying become infectious dust.

Air is vector for microorganisms, not a natural environment as it does not contain enough moisture and nutrients to support their growth and reproduction.
The research studies may help to determine the laboratory acquired infection (LAI) and also assist person in laboratories to be careful when performing experiments. It will also help to upgrading the policy on standard operating procedures (SOPs).

3. Methods

Some samples were collected from microbiology laboratory. Those samples were obtained from surfaces of work benches, sinks, windows and doors in four laboratories using sterile cotton swab sticks.

These swabs were inoculated on different Medias. Those were selective Medias like macconkey agar, enrichment media link chocolate agar sabouroud dextrose agar.

The plates were inoculated at 37° c for 24 to 48 hrs. The pure culture were isolated and stored under temperature. The identification was done by gram stating and biochemical tests.

Another method was used to obtain the indoor micro flora in microbiology laboratory was open Petri dish method. The two types of media was used sabouroud dextrose agar and pal sunflower seeds medium. The open culture plates were placed inside the microbiology laboratory for 5 to 10 minutes. These plates were then incubated for 24 to 48 hrs. To obtained growth.

4. Discussion

The commonest microbes were found after both experiments:

Bacteria: Bacillus aureus, Bacillus subtilis, Salmonella typhi and Staphylococcus aureus, B.aureus and B.sutilis-30.77%, B.macerans-15.384%, B. alvei, S.typhi and S.aureus-7.692%.

Commonly found bacteria of Genus Bacilli which are gram positive rod. They have ability to form heat resistant endospores.

Fungi: Penicillium, aspergillus commonly found in indoor micro flora. Clodosporium and sporobolomyces along with aspergillus, alternaria, phytophthora and erysiphe were found in outdoor micro flora.

Yeasts: Basidiospores, ascospores, the fragments of mycelium and conidia molds were commonly found in microbiology laboratory.

5. Conclusion

- Majority number of bacterial and fungal flora found.
- These air microbes are capable of causing various infections like eyes infection, food poisoning, skin lesions, and diarrhea.
- Some of bacterias can cause rhinitis, conjunctivitis.

Research questions

- No viral detection procedure done.
- No samples collected for isolation and identification of viral flora.
- No PCR or cell culture performed.
- Viruses infect all types of life forms, from-animals and plants
- To microorganisms, including bacteria and archaea, and are-commonly passaged and studied in laboratories, which can directly or indirectly cause zoonotic infection of laboratory animals and laboratory workers.

References

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