Microorganisms in Air

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Isolation of microorganism from air

- Atmosphere(The layer nearest to the earth)contains all major groups of microbes ranging from algae to the .viruses

Microbes Found in Air- In addition to gases, dust particles and water vapour, air also contains .microorganisms

There are vegetative cells and spores of bacteria, fungi and algae, viruses and protozoan cysts.

Since air is often exposed to sunlight, it has a higher temperature and less moisture. So, most of these microbial forms will die •

Environmental factors that affect air microflora include atmospheric temperature(There is a progressive increase in the death rate with an increase in temperature from -18℃ to 49℃), humidity(Low and high relative humidity cause the death of most .microorganisms) , air current

Air current is also important in the dispersal of microorganisms as it carries .them over a long distance .

In still air the particles with microorganisms tend to settle down. But a gentle air can .keep them in suspension for long periods

Air is not a medium in which organism • grow but is a carrier of particulate matter ,dust particles,spores ect

Air is mainly transport medium for• microorganisms. They occur in small numbers in .air when compared with soil or water

The microflora of air can be studied under two • .headings outdoor and indoor microflora

- Air is not a natural environment for microorganisms as it doesn't contain enough moisture and nutrients to support their growth .and reproduction

- One of the most common sources of air-1 .microflora is the soil microorganisms found in water may also be-2released into the air in the form of water droplets-from plant or animal surfaces 3

- The main soures of airborne microorganism is-4 human beings. by activities like coughing, sneezing, talking and laughing.

They are different methods to isolate microorganismsolid impingement-1
liquid impingement-2

There are several methods designed for the enumeration , of microorganisms in air. The most important ones are solid and liquid impingement

It is not collects and counts all the microorganisms in the air sample tested. Some microbial cells are destroyed. and some entirely pass through in all the processes

:Impingement in liquids.

In this method, the air drawn is through a, very small opening tube and bubbled through the liquid. The organisms get trapped in the liquid medium. Aliquots of the liquid then plated to determine microbial content ,

:Impingement on solids

In this method, the microorganisms are, collected on the solid surface of agar medium. Colonies develop on the medium where the organism impinges.

Aim…….to isolate microoganism from air

Materials

Petri dishes
Slides
Cover slips
Czapek dox agar
Nutrient agar
Distilwater
Gramstain
Aniline blue
Glycerol
Microscope
Incubator
Colony counter

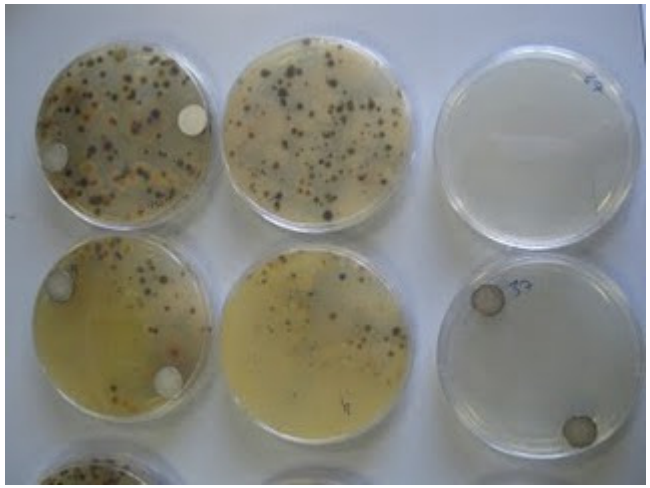
Procedure

Pour melted ,cooled Czapek dox agar-1 ,
With steptomycen and nutrient agar in petri
.dishes .allow them to solidify-2 remove
cover and expose the petri dishe-3
.for 5-10minute at
differnet location .cover the lid and incubate
the plate-4

Czapek dox agar in25℃ for7days,and- 5,
nutrient agar in 35℃ for 24-48 hours .

Observation

observe the plates and count the distribution of-1,fungal and bacterial colonies on Czapek dox agar .and nutrient agar record your result for the total number of-2 colonies using colony counter and fungi each plate .



Bacterial count

$$\text{Percentage occurrence} = \frac{\text{number of colonies of indivdiual species}}{\text{Total number of colonies of all species}}$$