

DBT -STAR College Project –Fungal Culture Methods

SUMMURY

Under DBT –star college project (2013-14), the 03(three) students conducted the DBT- star project entitled, ‘To Culture, Isolation and Identification of fungi from leaf surfaces’. In their observation/ findings, they reported the fungal species from three different garden plants namely *Bryophyllum pinnata*, *Annona squamosa*, and *Croton sp.* And the fungal species were *Aspergillus flavus*, *A.niger*, *Mycelia sterilia*, *A. fumigates*, *A. flavus etc.*

It was further reported that the fungal species, *Aspergillus* were the most predominant species in all three plant leaves surfaces.

Project Supervisor

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DBT PROJECT

Fungal Culture Methods

Aim- To Culture, Isolation and Identification of fungi from leaf surfaces.

Introduction:

Fungi are found everywhere, its incidence is variable and variously occurs in water, in soil, in air, and even in an Antarctic too i.e. in snow also. The term aerobiology was first coined by the American plant pathologist, “Fred Cambell meier” in 1930. So the term aerobiology came in to existence since 1930 to denote the airborne fungal spores, pollen grains and for other airborne micro-organism. Therefore, aerobiology deals with the study of airborne fungal spores, pollen grains, and other airborne micro-organism. The outdoor environment (extramural) is never completely free from the incidence of microbial propagules, which are collectively called as “air spora”.

Material and Methods:

Media Preparation:

A. Composition of Potato Dextrose Agar Medium:

Potato (peeled)	-250 gm
Dextrose	-15 gm
Agar	-15 gm
Distilled water	-1000 ml

B. Artificial media

Czapek-Dox-Agar medium:

Elective agar proposed by Czapek., (1903), Dox.,(1910) for the cultivation of fungi and bacteria. It is an artificial media that constitute following growth elements/ingredients.

1) Sucrose(C12G22011)	- 30.0 gms.
2) Dihydrogen Potassium phosphate(KH ₂ PO ₄)	- 30.0 gms.
3) Magnesium sulphate (MgSO ₄ .7H ₂ O)	- 0.50 gms.
4) Potassium chloride (KCl)	- 0.50 gms.
5) Agar-Agar	- 5.0 gms.
6) Double distilled water	- 1000 ml.

Several methods are employed to study the phylloplane flora. 1. Direct method-which includes direct observations, impression of films and scanning microscopy. 2. Culture method-which includes plating, spore fall, leaf washing and leaf impression, of these serial dilution method and leaf impression methods are the two commonly employing technique. In this experimental work leaf impression with cello-tape touching method were employed.

For this experiment petri-plates containing media were touched with the cello-tape containing /receive the fungal spores from both the leaf surfaces/ phylloplane. These plates were then incubated in biological incubator at 28⁰C. The fungal isolates were obtained on potato-dextrose-agar and Czepedox-Agar media, and were then incubated and observed for two days, later sub-cultured to obtain pure fungal colonies. The grown colonies of 2-4 days up to maturity were continuously observed. Slides were made and identified under trinocular research microscopes. For staining lacto-phenol and cotton blue were used.

Observation table:

S.N.	Name of Pant.	Name of Fungi.
1.	<i>Bryophyllum pinnata.</i>	<i>A. flavus, A. niger, Mycelia sterilia.</i>
2.	<i>Annona sqamosa.</i>	<i>A. fumigatus, A. niger, Mycelia sterilia.</i>
3.	<i>Croton sp.</i>	<i>A. flavus, A. niger, Mycelia sterilia.</i>

Results and Discussions:

From the observations, it has been observed that, the leaf surfaces of these plants have the fungal flora of common occurrence, and the most of the species from *Aspergillus* genus.

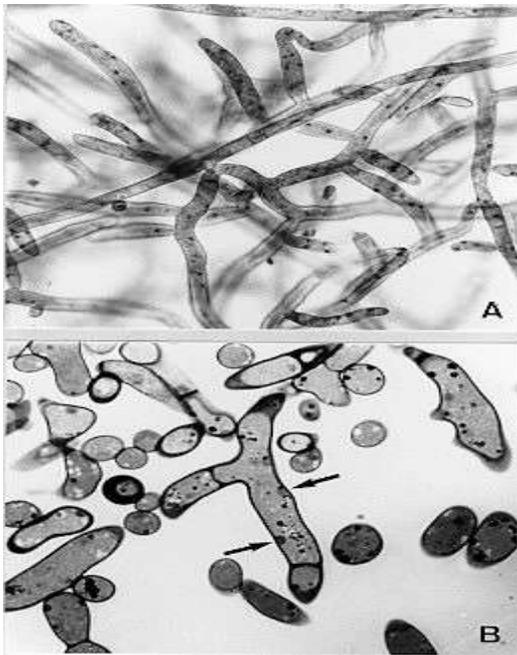
It was further reported that the fungal species, *Aspergillus* were the most predominant species in all three plant leaves surfaces.



Aspergillus flavus



Aspergillus fumigatus



Mycelia sterilia



Aspergillus niger

Number of Students involved in project-03.

Name of Students

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Head of the Department

(Dr.K.G.Dube)

Signatures

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