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Research Article

Screening of Leaf Surface Mycoflora Over *Hibiscus sabdariffa* (Roselle) in Winter Season

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Abstract: Fungal spores constitute a significant fraction of airborne bioparticles. The present investigation deals with the study of leaf surface mycoflora of *hibiscus sabdariffa* in winter season with the help of gravity petriplate method. Maximum percentage contribution showed by *Cladosporium cladosporioides* (19.80%), followed by *Fusarium pallidoroseum* (15.84%), *Aspergillus niger* (9.75%) *Cladosporium oxysporum*(4.29%) , ,*Curvularia lunata* (3.93%), *Alternaria alternata* (3.63%), *Aspergillus flavus* (3.30%). Environmental factor on the percentage frequency and contribution of leaf surface mycoflora were also discussed.
Keywords: Leaf Surface mycoflora, *Hibiscus sabdariffa*, Seasonal Variation, Fungal spores.

INTRODUCTION

Aerobiology deals in large parts with bio particles present in air . Some of fungal flora may infect the plants of the standing crop in the field and as a result spreading of diseases occurs. Mycoflora of leaf surface (i.e. Phylloplane) varies in size and diversity depending on the influence of numerous biotic and abiotic factors which affect their growth and survival [1]. Leaf surface is the most suitable platform for airborne microorganisms. On availability of suitable microhabitat, these fungal spores get settled down on this platform and try to colonies on it. Finally a triangular relationship is developed among leaf surface, fungal spores and the environment [2].

MATERIAL & METHODS

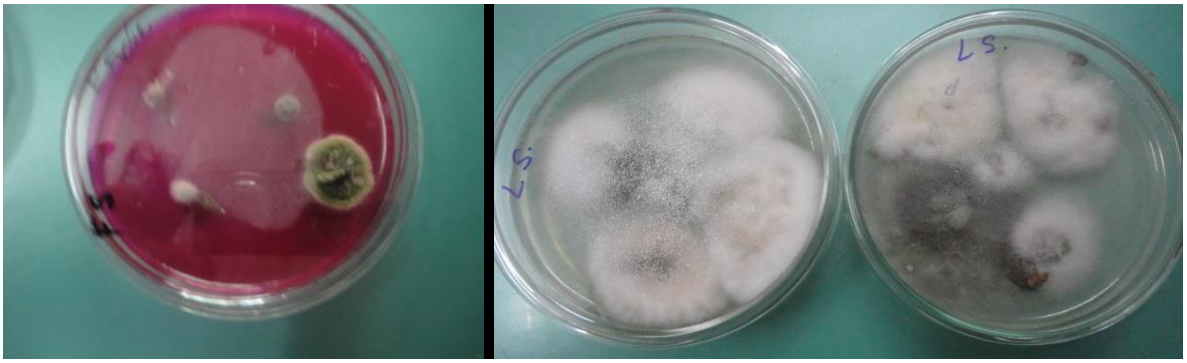
Hibiscus sabdariffa Linn. (Roselle) is a vegetable plant of West African origin [3] being widely cultivated in West Africa, Asia, Austria and many tropical countries. Roselle is a shrub belonging to the family–Malvaceae. The plant is 2.5 to 3.5m tall (Photoplate 1). Chhattisgarh peoples are used as leafy vegetable & its call Amari, jerra, khatta bhaji and also known as Roselle, sorrel etc.

For the isolation of leaf surface mycoflora, leaves of *Hibiscus sabdariffa* plants were sampled randomly at a regular interval of 15 days. Sampled leaves were then placed in sterilized polythene bags and brought in to the laboratory. After that, leaves were placed in 250 ml conical flask is hand shaken for 30 minutes to obtain a homogenous suspension of microorganism. This suspension is used for isolation of leaf surface mycoflora. 0.1ml of this suspension was poured in to petriplates containing PDA media. Petriplates will be at a time in each experiment, and then these petriplates are incubated at 25±10C for 6-7 days [4]. Fungal colonies were counted from each plate, identified and maintained the pure culture (Photoplate 2).

RESULT & DISCUSSION

Fungal spores are not equally distributed in the environment. Their distribution varies according to geographical location and meteorological conditions. During this work 303 fungal colonies, representing 33 species and 14 genera were isolated in winter season. It was observed that seasonal variation affects leaf surface mycoflora of the area. The members of Anamorphic fungi has shown maximum contribution throughout the year. Maximum percentage contribution showed by *Cladosporium cladosporioides* (19.80%), followed by *fusarium pallidoroseum* (15.84%), *Aspergillus niger* (9.75%) *Cladosporium oxysporum*(4.29%), *Curvularia lunata* (3.93%), *alternaria alternata* (3.63%), *aspergillus flavus* (3.30%). Sharma observed that maximum fungal population was observed in winter season [5]. Jadhav reported maximum fungal types during winter over rice field [6]. Singh over Spinach [7], Tiwari and Sharma for leaf surface of *Ocimum sanctum* [8], and Chandel in *Jatropha curcus*[9], also observed maximum fungal types during winter season.

Photoplate 1: *H. sabdariffa* plant ,Collection of leaf in sterilized polythene bag from study area



Photoplate 2: Fungal culture in PDA plates

Table 1: Showing % contribution of leaf surface mycoflora of winter season

S. NO	NAME OF FUNGI	WINTER SEASON				
		NOV.	DEC.	JAN.	FEB.	TOTAL
ZYGOMYCOTINA						
1.	*Mucor hemalis*	-	0.66	0.33	-	0.99
2.	*Rhizopus oryzae*	-	-	0.33	-	0.33
3.	*Rizopus stolonifer*	-	0.66	-	0.33	0.99
4.	*Syncephalastrum racemosum*	-	-	-	0.33	0.33
ANAMORPHIC FUNGI						
5.	*Acremonium stictum*	0.33	0.33	0.33	-	0.99
6.	*Acremonium restrictum*	-	-	.066	-	0.66
7.	*Alternaria alternata*	0.66	-	0.99	0.66	3.63
8.	*Alternaria racticina*	-	0.66	0.99	-	1.65
9.	*Alternaria humicola*	0.66	0.33	0.33	-	1.32
10.	*Aspergillus flavus*	0.99	0.66	1.32	0.33	3.30
11.	*Aspergillus fumigatus*	0.33	0.33	0.66	0.66	1.98
12.	*Aspergillus niger*	3.30	2.64	1.98	1.65	9.57
13.	*Aspergillus tamarii*	0.99	0.33	0.66	0.33	2.31
14.	*Cladosporium cladosporioides*	7.26	5.94	3.30	3.30	19.80
15.	*Cladosporium oxysporum*	1.98	1.32	0.66	0.33	4.29
16.	*Cladosporium sphaerospermum*	0.99	1.32	0.66	0.33	3.30
17.	*Curvularia lunata*	1.65	0.66	0.33	0.66	3.96
18.	*Curvularia clavata*	0.66	0.99	0.66	0.33	2.64
19.	*Fusarium chlamydosporum*	0.66	0.33	-	-	0.99
20.	*Fusarium oxisporum*	0.66	0.66	0.33	0.33	1.98

21.	*Fusarium pallidoroseum*	5.61	4.62	2.64	2.97	15.84
22.	*Fusarium solani*	-	-	0.66	-	0.66
23.	*Gilmaniella humicola*	-	0.66	0.33	-	0.99
24.	*Oidiodedron griseum*	0.33	0.66	0.33	0.33	1.65
25.	*Penicillium funiculosum*	0.33	0.66	0.66	0.33	1.98
26.	*Penicilium versicolor*	-	0.33	0.66	0.33	1.32
27.	*Phoma epicoccina*	-	0.66	0.33	-	0.99
28.	*Phoma fickeli*	0.99	0.66	0.66	0.66	2.97
29.	*Phoma herbarum*	0.66	0.33	0.33	0.33	1.65
MYCELIA STERILIA						
30.	Mycelia sterilia (black)	0.33	0.33	-	-	0.66
31.	Mycelia sterila (gray)	0.33	0.33	0.66	-	1.32
32.	Mycelia sterila (red)	0.66	0.33	0.33	0.33	1.65
33.	Mycelia sterile (white)	0.66	0.99	0.33	0.33	2.31

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