Research Paper

Volume : 3 | Issue : 7 | July 2014 • ISSN No 2277 - 8179

Aeromycological Study of *Hibiscus Sabdariffa* (Roselle) In Winter Season

Science

KEYWORDS : Aeromycoflora, Hibiscus sabdariffa, Seasonal Variation, Fungal spores.

Seema Sahu	Research Scholar Pt. R.S.University,Raipur (C.G.)
Dr. K. Sharma	Arts & Commerce Girls College Raipur (C.G.)
Dr. S. Patra	Govt. N.P.G College of Science Raipur (C.G.)

ABSTRACT

Aerobiological investigation has been carried out with special reference to diseases on crops, vegetable and fruits etc. The present paper deals with the aero biological work carried out in Hibiscus sabdariffa plant to study fungal spores of aeromycoflora . Aeromycoflora of Hibiscus sabdariffa was studied for one year with the help of Petri plate method. Environmental factor play an important role for the distribution of the fungal spores. Maximum numbers of fungi were isolated from winter season, Moderate from Rainy season and Minimum from summer season. It was observed that fungal population was varying from season to season and month to month. During the investigation period Alternaria, Aspergillus, Cladosporium , Curvularia, Fusarium, Mycelia sterilia, , Penicillium, Rhizopus etc. fungal species were isolated.

INTRODUCTION

Air is the most important content in the planet. Various microbiological factors are occurring in the environment air. Aerobiological studies have been carried out with reference to disease on crops, vegetables, fruits, animals and human beings. Fungal spores are an ever-present component of our atmosphere and can be found in the air at almost any time throughout the year. Fungi require certain environmental conditions and a suitable host for their growth and reproduction. Leaf surface is the plate form of the numerous fungal spores present in the air during suitable habitat these spores are settle down on this having plate form (Sharma K, 2010, 2011). After settle down fungal spores a triangular relationship appears among the microorganism, leaf surface and the environment (Tilak *et. al.* 1981). Many scientists made contribution in study of airborne organisms in the different fields, Sharma (2001) worked on *ocimum sanctum*, Saluja (2005) on *Catharanthus roseus* and Singh (2006) worked on *Mentha arvensis* plant.

MATERIAL & METHODS

Hibiscus sabdariffa (Roselle) plant belongs to the family Malvaceac, is an important annual crop grown in tropical & sub tropical climate in all over world. (Copley, 1975) Chhattisgarh people are grown for vegetable and they are used dry calyx as beverage. It's called amari & jerra bhaji. It also has some medicinal properties (Mohamed et al, 2012).

For study of aeromycoflora over the plants, 5 petriplates containing PDA(potato,dextrose,agar) media were used. The petriplate were exposed over cultivated Hibiscus *sabdariffa* field (Fig 1) for 5-10 mts, then this petriplates were brought in to the laboratory and incubated at $25^{+}1^{0}C$ for 5 to 7 days (Fig 2). After incubation period, number of colonies was counted, identification with the help of available literature and finally identified from authentic authority: National centre of fungal taxonomy Delhi.

RESULT & DISCUSSION –

Soil, Water and Plants are the three major source of airspora present in our nature. The seasonal percentage contributions of aeromycoflora are observed during the investigation period. The members of Anamorphic fungi has shown maximum contribution throughout the year. Agarwal *et al*. (1969) reported that the maximum percentage contribution has shown by Anamorphic fungi in Delhi. During the investigation period maximum percentage contribution showed by *Cladosporium cladosporioides* (30.67%), *Aspergillus niger* (14.00%) **(Table-1).**

Similar results have also reported by various scientists *i.e.* Singh (2006) recorded the maximum percentage contribution shown by *Cladosporium cladosporioides* 24.88% followed by *Curvularia lunata* 6.99%, *Aspergillus japonicus* 6.38% and *Aspergillus niger* 5.60% Raipur. Jadhav and Tiwari (1994), Lall (2008) recorded *Cladosporium cladosporioides* as most contributed fungal species.

Figure : 1 Plant field Hibiscus sabdariffa (Roselle) flowering & fruiting (red calyx)

Figure : 2 Fungal culture in PDA plates

TABLE :1 PERCENTAGE CONTRIBUTION OF FUNGAL COLONIES OF AEROMYCOFLORA OF Hibiscus sabdariffa IN WINTER SEASON

S.N.	NAME OF FUNGI	% Contribution
1.	Mucor hemalis	1.26
2.	Rhizopus oryzae	0.42
3.	Rizopus stolonifer	1.05
4.	Syncephalastrum racemosum	0.21
5.	Ascotrica chartarum	0.21
6.	Emericella nidulans	0.42
7.	Lewia infectaria	1.89
8.	Thielavia terricola	0.63
9.	Acremonium stictum	0.21
10.	Acremonium restrictum	0.21
11.	Alternaria alternate	3.36
12.	Alternaria racticina	1.05
13.	Alternaria humicola	0.21
14.	Aspergillus flavus	4.20
15.	Aspergillus fumigates	3.15
16.	Aspergillus japonicas	0.21
17.	Aspergillus luchensis	0.42
18.	Aspergillus niger	14.0
19.	Aspergillus nidulans	1.05
20.	Aspergillus ochracens	0.42
21.	Aspergillus speluneus	1.05
22.	Aspergillus sydowii	0.42
23.	Aspergillus tamarii	0.21
24.	Aspergillus terreus	1.05
25.	Aspergillus versicolor	3.78
26.	Cladosporium cladosporioides	30.67
27.	Cladosporium sphaerospermum	0.84
28.	Curvularia lunata var. Aeria	4.62
29.	Curvularia oryzae	0.42
30.	Curvularia ovoidea	0.21
31.	Curvularia clavata	2.52
32.	Drechslera indica	0.21
33.	Fusarium chlamydosporum	0.42
34.	Fusarium equiseti	0.42
35.	Fusarium oxisporum	5.04
36.	Fusarium pallidoroseum	1.26
37.	Fusarium solani	1.26
38.	Gilmaniella humicola	0.42
39.	Myrothecium cinctum	1.26
40.	Nigrospora oryzae	0.84
41.	Oidiodedron griseum	0.63
42.	Penicillium chrysogenum	0.83
43.	Penicillium citrinum	0.21
44.	Penicillium funiculosum	2.10
45.	Penicillium frequentans	0.21
46.	Penicilium versicolor	0.21
47.	Penicillium notatum	0.42
48.	Phoma fickeli	0.63
49.	Phoma glomerata	0.63
50.	Phoma herbarum	0.21
51.	Sporidensmim cookei	0.63
52.	Trichoderma hurzianum	0.21
53.	Trichoderma spiralis	0.42
54.	Mycelia sterilia (black)	0.63
55.	Mycelia sterila (gray)	0.42
56.	Mycelia sterila (white)	0.84

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