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AEROMYCHOFLORA OF PRE AND POST-HARVESTING OVER PADDY FIELD IN KONKAN REGION, MAHARASHTRA.

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Abstract:

Aeromycological population over paddy field was carried out on "SUVARNA"hybrid variety at region. Airborne mycological analysis revealed 22 components of fungal spore typesandInsect parts,Unidentified spores Fungal fragments. During the investigation it was found that the fungal spores occurred were mostly parasitic onpaddy crops, which leads to disease formations. The air monitoring survey was undertaken during *kharif* season. The weather parameters like monthly mean temperature32^{0}C relative humidity51.37% sampling was carried out by operating continuously by using Tilak, air sampler with its orifice kept at a constant height of 1.5 meter above the ground level in the paddy field.The dominant genus was identified was isolated.

Keyword:*Kharif*, disease

Introduction

India is an important center of rice cultivation. The rice harvesting area in the world is largest.The two major rice varieties grown worldwide today are*Oryza sativa*indica and*Oryza sativa* japonica.According to research studies, they owe their origins to two independent events of domestication thousands of years ago. Paddy crop is cultivated in two seasons Kharif and Rabi in Konkan region but Kharif season is main season.Plants and crop fields are main source of airomycoflora.Majority of pathogens,which cause disease are airborne.The impact of diseases at epidemic is enormous and these have for interacting socialamplification (Tilak, 1974). The importance of aerobiology in plant pathology has been proved and started with investigation of Stalkman and Christensen(1946)who made help an intensive study established the relationship between the aerobiology and plant diseases.Airborne fungal spores are of utmost importance in the dissemination of many plant diseases(Mehta 1952,Singh 1989, McCartney 1991)causing

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serious agriculture problems,resulting sometimes in epidemics(Hirst,1991).In plant pathology, short distance transport of spores is more instrumental in causing diseases(Govil, 1992)

Ambhore J. S (2016) During the study over paddy of Seasonal Census and Effect of Environmental Factors on Concentration of *Alternaria* over Paddy Field, Ambhore J. S., Mali V.P, (2007) Perform their investigation on Aeromycoflora Inside a College Library, India Ambhore J.S (2014) an impact of environmental parameters on the atmospheric concentration of *Cladosporium* over paddy at shrivardhan dist. Raigad. (M.S.), Ambhore J.S. (2003) Aeromycological studies over Some crops of Maharashtra, Ph. D. thesis., Dr. B.A.M.U., Aurangabad. Bhagat G.S., Ambhore J.S (2015) Aeromycological Studies over some oilseed crops in Maharashtra., Ph.D. Thesis Shri Jagdishprasad Jhabarmal Tibarewala University, Rajasthan, India. In this investigations they found all types of fungal spores out of these some are found allergic and some are plant pathogenic fungal spores.

The Present Investigation was conducted over the Paddy (*Oryza SativaLinn*) crop to study the spore concentration of airborne, saprophytic and parasitic fungi, their correlation with disease incidence and the effect of meteorological parameters. The spore data taken for the two seasons. Much emphasis was given to collect the detail information of causal information based on the qualitative and quantitative aspects. In addition to that the data of the chief constituent of airspora based on seasonal prediction, the effect of the weather conditions, harvesting operations, dry conditions, vegetation near the crop in the field and fungal material adjacent to the field on other plant material was also studied before and after harvesting of paddy

Material and Methods;

The air sampling was carried out by using volumetric Tilak air sampler. The sampler runs on electric power supply and provides a continuous sampling of air for 7 days. The electric clock fitted in an instrument is synchronized with the drum. Air is sucked through orifice of projecting tube at the rate of 5 liters per minutes and it imprints on the transparent cello tape of the rotating drum coated with the thin layer of petroleum jelly and thus entraps the bio-particles from the air.

Continuous air sampling was done for the period of investigation. Scanning of the slides was done regularly and identification of different spore type was made, simultaneously dry

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material duly infected was also collected from the field and identified by usual mycological methods.

1. Microscopic observation.
2. Comparison with infected materials
.3. Comparison with cultural characters.

Results and Discussion;

During the investigation it was found that the fungal spores occurred were mostly parasitic on paddy crops which leads to disease formation and some of these spores were allergic to human and acts as pollutants, reported by M. Babu (1979). The population of spore's type varied at different sampling period. *Alternaria* spores were trapped in day time as well as night. Tilak and Sriniwasulu (1967) reported to types of *Alternaria* spores, one long and other shorts. During the study influence of spore concentration in post harvesting season is higher than the pre-harvesting period in paddy field.

Hyphal fragment occurred throughout the period of investigation. Maximum concentration observed during post harvesting period. During the investigation it was observed that at the afternoon time concentration is greater as compare to morning and evening. Higher concentration of fungal spore during noon time had been observed earlier (Janakibai & Reddy,1981) The study contributed to greater understanding of composition of the air spore in the cropping season. The pattern also bought out the correlation between the concentration and disease influence in the paddy field.

Airborne fungal fragments are primarily conidiophores of asexual forms. then fungal fragments werecultured it was noted that most of the fungal fragments belongs to *Alternaria*, *Cladosporium* species. They usually grow on leaves when blown through wind current. The seasonal variation of fungal fragments clearly revealed its correlation with meteorological factors like rainfall, temperature, wind velocity, and relative humidity. It was recorded that dry, hot wind weather favor the formation of fragmentation was noted.

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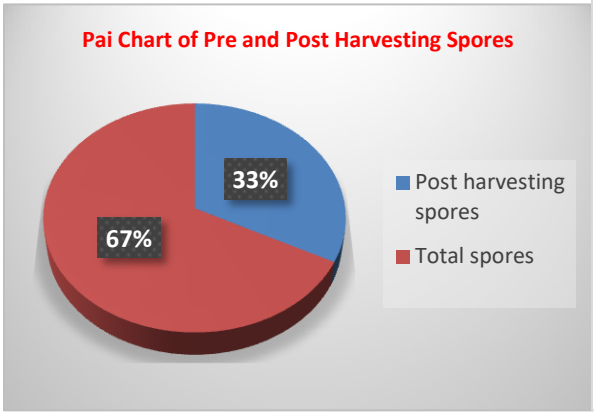

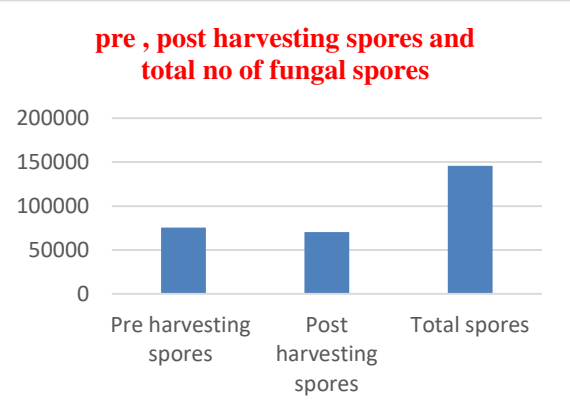

Table -1 Total number pre and post harvesting of fungal spores

Sr. No.	Spore type	Pre- harvesting	Post-harvesting	Total
1	*Albugo* Pers. ex. S. F. Gray.	1016	1206	2222
2	*Cunninghamella* Matr.	662	814	1476
3	*Calospora* Nitschke.	612	514	1126
4	*Celidium* Tul.	112	236	348
5	*Chaetomium* Kunz ex. Fr.	1246	216	1462
6	*Cucurbitaria* Gray Not. ex. Grev.	1246	986	2232
7	*Xylaria* Hill ex. Grev.	1114	1224	2338
8	Smut spores	1642	1246	2888
9	*Alternaria* Nees.	1426	1324	2750
10	*Aspergillus* Michel ex Link.	6258	8256	14514
11	*Biospora* Corda.	4212	3214	7426
12	*Cephaliophora* Thaxt.	3642	3456	7098
13	*Cercospora* Fr.	6212	5214	11426
14	*Cladosporium* Link	2356	2026	4382
15	*Corynespora* Guessow	2112	1856	3968
16	*Curvularia* Boed.	5214	6214	11428
17	*Fusariella* Sacc.	3212	2986	6198
18	*Fusarium* Link.	2656	2124	4780
19	*Helminthosporium* Link.	5216	4212	9428
20	*Heterosporium* Klotzsch.	2324	1296	3620
21	*Nigrospora* Zimm.	5626	4878	10504
22	*Torula* (Pers) Link.	2120	1822	3942
23	Fungal fragments	8522	9232	17754
24	Unidentified spores	5625	4586	10211
25	Insect parts	1258	1102	2360
	Total no of spores	75641	70240	145881

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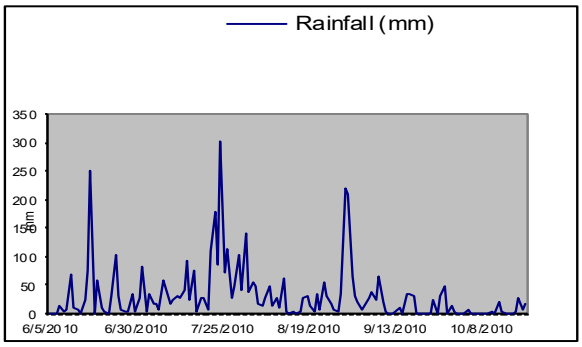

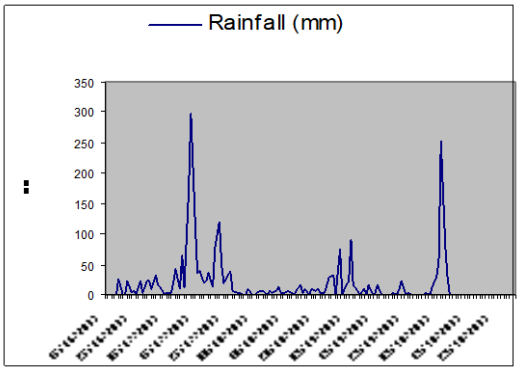

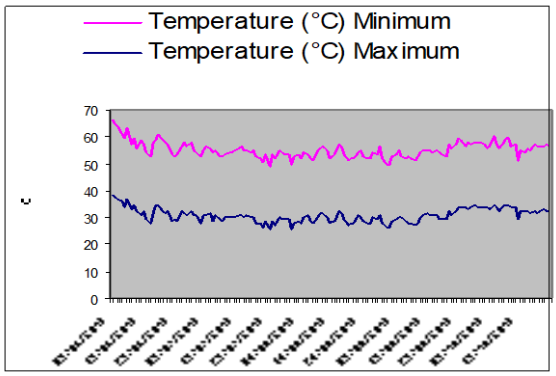

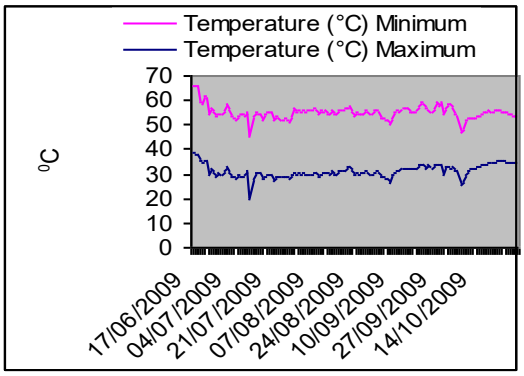

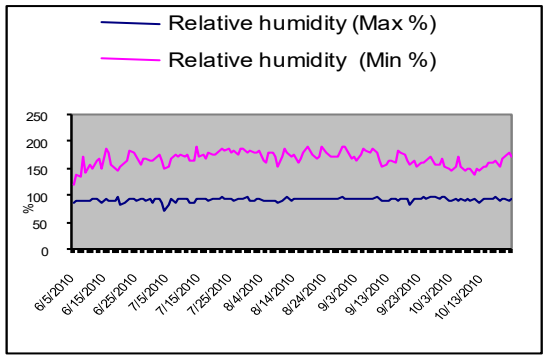

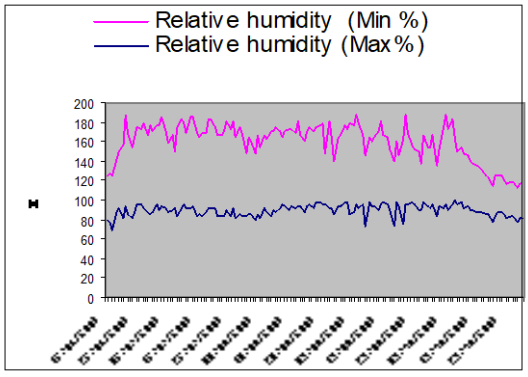

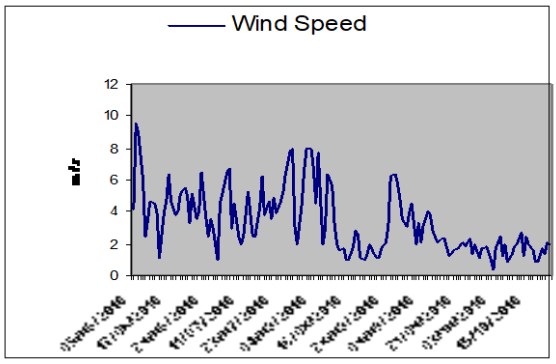

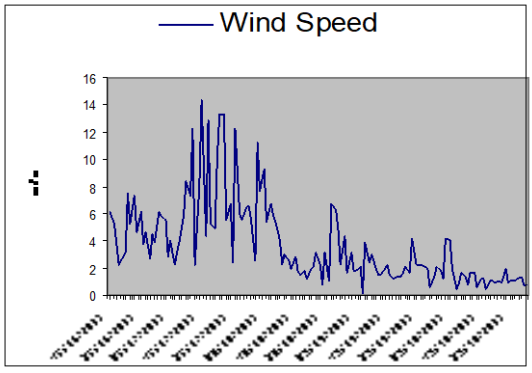

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REFERENCES;

1)Ambhore J.S. (2015)An impact of environmental parameters on concentration of *Alternaria* over paddy field at Shrivardhan.

2)Ambhore J.S.& S.R.Kale current states of fungal disease spore rice crop in Konkan , Maharashtra, Bionanofrontier vol.8(2) July-December 2015, 190-92

3) Hirst J. M. (1991) Aerobiology in Plant Pathology, Grana- 30-25-29

4) Janakibai and Reddy (1981) The fungus aorspora of Vishakhapattanam , Prac Indian ana ,Science Area & TB 730-747

5) MC Carney H.A. (1991)- Aeroborne dissemination of plant fungal pathogens J. Appl. Bacterial Syrop Suppl. 70, 395-98

6) Mehta K. C. 1952- Further studies on cereal rust in India. Indian Journal Science Monographs 181-368

7) Singh N. I. (1990) Aerobiology and crop diseases in Manipur, Frontier Botanist II & III

8) Tilak, S. T. (1974): Aerobiology in Maharashtra. Dr. S. Patil Comm. Vol. M. V. M. Patrica. **9**: 131-135

9) Tilak, S. T. and Srinivasulu, B. V. (1967): Airspora of Aurangabad. *Ind. Jour. of Microbio.***7**: 167-170

