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Ecological Study of Aeromycoflora Near Sugar Industry Area

KEYWORDS: Aspergillus niger, Chhattisgarh, sugar industries.

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ABSTRACT *A total of 17 species belonging to 6 genera of fungi were isolated from sugar industry area Kurud Chhattisgarh during April 2013 to November 2013 in three intervals. The mycoflora were isolated by using serial dilution method. Identification of the mycoflora was made with the help of authentic manuals of fungi. The most common among them viz; Aspergillus flavus, Aspergillus fumigatus, Aspergillus niger, Aspergillus terreus, Penicillium chrysogenum, Penicillium frequentans, Trichoderma viride, Fusarium oxysporum, Fusarium solani, Curvularia clavata, Curvularia lunata, and Rhizopus stolanifer were isolated.*

INTRODUCTION

The most important crop from which sugar can be produced in commercial quantity are sugarcane. India is a largest sugar producing country. Fungi are very useful organisms in biotechnology. They are important experimental organisms easily cultured, occupy little space, multiply rapidly and have a short life cycle. Fungal spores constitute a significant fraction of airborne bioparticles. Aerobiology deals in large parts with bio particles present in air. Many scientists made contribution in study of airborne organisms in the different fields; Singh (2006) studied on *Mentha arvensis* plant, Gupta & Sharma (2012) on monument and Luka et al. (2014) at hospital area. Sugar factory effluent, when discharged into the environment, posses a serious health hazard to the rural and semi urban populations that uses stream and river water for agriculture and domestic purposes, there are several reports of fish mortality and damage to the paddy crops in these areas due to wastewaters entering agricultural land (Baruah *et al.,* 1993). The aim of this study is to find out aeromycoflora of selecting site.

METHODOLOGY

Some area of Chhattisgarh S.S.K. Limited (located in Kurud Dist Raipur) was selected for aeromycological study. The fungal flora were analyzed and identified by employing serial dilution technique. The serial dilution was selected for pour plate method and all the plates were incubated at 28±100C for 7 days. After the incubation period different types of fungal colonies were obtained. Single colonies were isolated and maintained on potato dextrose agar slants at ± 40C (Agrawal and Hasija 1986).

Ecological study

For ecological studies, at the end of the incubation period percentage frequency and percentage contribution of isolated fungal flora was calculated (Jadhav & Tiwari 1994) with the help of the following formula:

$$\text{PERCENTAGE FREQUENCY} = \frac{\text{No. of observation in which a species appeared}}{\text{Total no. of observation}} \times 100$$

$$\text{PERCENTAGE CONTRIBUTION} = \frac{\text{Total no. of colonies of individual species in all Observation taken together}}{\text{Total no. of colonies in all species}} \times 100$$

RESULTS AND DISCUSSION

The result of the experiment depends on the distribution of myco-organism in relation to host specificity, airspora and meteorological factors. The pattern of distribution of fungal population was varying in different month during the investigation period. The fungal genera observed were *Cladosporium, Fusarium, Aspergillus, Curvularia, Penicillium & Rhizopus.* It was revealed that *Aspergillus niger* was dominent throughout the period. Seventeen fungal species representing six genera were isolated during the present investigation.*A. flavus*(100 %), *A. niger* (100 %) found with maximum frequency. Month wise percentage contribution of each class of leaf surface mycoflora was also observed. Maximum percentage contribution was observed in the month of July and minimum percentage abundance was observed in the month of September. Similar observation has been recorded by Tiwari& Sahu (1991), Chandel (2014). Sharma (2001) have been reported that *Aspergillus*, *Alternaria, Clasdosporium* and *Curvularia* were dominant species on study area.

CONCLUSION

Fungal diversity is very important because of their economic importance as well as their Pathogenicity. So on the basis of reported fungus and their ability of degradation and enzymatic activity of fungal strain they may use in commercial sector.

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