

Isolation of Fungal Flora from Soil in Summer Season in Kinassery, Palakkad

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Abstract

The multi dynamic of soil and its ability to nurture different microbial source is an intriguing characteristic. Fungal flora is copiously present in the soil. The objective of this research work is to identify the fungal flora in the specific region of Palakkad.

Keywords: *Fungal flora, Palakkad, soil, microbial source*

INTRODUCTION

Soil is a very rich habitat for the growth of microorganisms than other microbial habitats. Among these microbes, fungi are one of the predominant groups present in the soil. Fungi live, multiply and die or disintegrate in the soil and thus they garner rich organic matter, which could be recycled as plant nutrition. Thus developed humus complex is the natural fertilizer melanged with soil and plays a very significant role in the composition of soil. The rhizo sphere is the soil environment directly under the influence of the living roots. There is a close link between plant species and the microbial community structure in the rhizo sphere, and the hypothesis is that bacteria and the fungi have also developed a much unique diversity pattern over time, which may give insights into the microbial evolution. Fungal flora can be seen in copious amount in soil and also in termite soil or fungal mound (Sreeremya, The soil bacterial flora of specific region of Kannadi Panchayat which is Kinassery is studied. Kinassery (10.7288° N, 76.6658° E) is a small Village/hamlet in the Kuzhalmannam Block in Palakkad District of Kerala State, India. It is under the Kannadi Panchayat. It belongs to the Central Kerala Division. It is located 8 Km towards South from District head quarters Palakkad. 9 KM from Kuzhalmannam.293 KM from the State capital Thiruvananthapuram.

Fungi could offer this benefit in comparison with bacteria in wastewater treatment processes. The biomass produced during fungal wastewater treatment has, potentially, a much higher value than that from the bacterial activated sludge process. The fungi can be availed to derive valuable bio chemicals and can also be availed as a protein source. Various high-value bio chemicals are generated by commercial cultivation of fungi under aseptic conditions using expensive substrates. Compared to other places in Palakkad like Chandranagar, Kanjikode, Pudussery etc (Sreeremya, 2018a). Pollution in highway and rural areas are diverse (S.Sreeremya, 2018b). Different microbial diversity was observed not only in soil but also in Euphorbia plant species and other plant species (Srreermya.S,2017).Bacterial flora and fungal flora of the same region can be studied and further assessed (Dr.Sreeremya.S,2020).

Soil when considering the each flora and fauna is different. The most ecologically profound soil type is the termite soil (Sreeremya, (a) 2016). Cellulose utilizing microorganisms are majorly found in soil (Sreeremya et al., 2016c). Fungi is the major category of microbes abundantly isolated (Saravankumari et al., 2014).Other than cellulose, hemicellulose and lignin are the macromolecules majorly present in the soil (Sreeemya (b), 2016). The cellulose content in the sol is mainly assessed by using Congo red dye (Cellulosic assay) (Sreeremya, 2018).

METHODS

COLLECTION OF SAMPLE

Soil samples were collected from Kinassery, (10.7288° N, 76.6658° E) Palakkad.

ISOLATION & MORPHOLOGICAL ANALYSIS

The collected samples were serially diluted and enumerated after 5 days of in cub action in room temperature using colony counter (Upadhyay et al., 2005). The colony counter used in this experiment was LKB 2002 colony counter (Bowman et al., 1975).

MORHOLOGICAL and MICROSCOPIC EXAMINATION

The unique features of the colonies were observed and assessed by morphological examination (Jeris et al., 1973). Then the morphologically examined unique colonies were microscopically examined by LCB staining (Lactophenol cotton Blue) (Boudewijns et al., 2006).

RESULTS

From different regions of Kinassery, Palakkad (10.7288° N, 76.6658° E) Kerala, Soil samples were collected .The soil samples were granular, sparsely humid and appeared brownish to dark brownish in colour. The samples were collected, serially diluted and was spread plated. different soil samples were collected and maintained at 4°C.

Spread plate technique was used for the separation of mixed population of microorganisms so that individual colonies can be isolated. For fungi 10-2, 10-3, 10-4, 10-5, dilution tubes, 1ml of suspension were transferred to petridish and the inoculum was mixed by gentle rotation using L rod. After 4 days of incubation at 25°C mixed population of microorganisms were obtained. Thus single colony of microorganisms was formed unique distinguishable fungal colonies were obtained from soil collected from Kinassery then by inoculating a loop full of each specific colony of fungus to each potato dextrose agarplate. Incubated at for 7 days at 25°C .Three different pure culture of fungus were isolated from three different soil samples and were labeled as (Table1,2).The isolates inoculated on PDA plates were analyzed for their colony morphology and the observations were tabulated in table 1.

Table no: 1 Cultural Characteristic

SAMPLE	COLONY COLOUR	TEXTURE
KI1	White	Glossy
KI2	Brown	Spreaded
KI3	Pink	Smooth

Key: KI –Kinassery, Isolate

MICROSCOPIC OBSERVATION OF ISOLATED FUNGI

LCB mount observations of the isolated fungi were recorded in the table 2.

Table no: 2

Sample	Spore Arrangement	Estimated Genus
KI1	Intercalary chlamidiospores	Candida sp
KI2	Bushy head conidiospores	Alternariasp
KI3	Intercalary chlamidiospores	Fusariumsp

CONCLUSION

From the fungal flora isolated from soil of Kinassery, Palakkad, it was found that in primary identification three isolates were obtained and named as K1,K2,K3.Later microscopic examination and further analysis it was found to be Candida, Alternaria and Fusarium species.

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