

COMPARATIVE STUDY OF MICROBIAL POPULATION OF TWO DIFFERENT SOILS OF DURG REGION

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ABSTRACT

Present study was carried out to fungal population study and their habitat of sal forest and grassland soil. The study showed that 71 fungal species was recorded in forest soil whereas 56 fungal species was recorded in soil of grassland. Deuteromycetes is dominant group in both soil types. The peak population of total microbial flora was recorded in February and least population in March in sal forest. It was recorded maximum in February 24.57% in grassland soil and least population was recorded in month of March and April. The study also concluded the physico chemical properties and nutrients states their effect on the population status of fungal flora.

KEYWORDS: Fungal Population, Physico Chemical Properties, Least Population

Forest soil provide a detritus based micro habitat for microorganism (Dey *et al.*,2012) it is made up of a complex biochemical nutrients which consists of dynamic ecological systems characterized by diversity and interacting population of microorganisms (Linn &Doran, 1984). Majority of the fungi are free living, saprophytic/ parasitic widely distributed in soil, which may vary with the soil type. Microbes also play an important role in soil structure and nutrient transformation (Tilak, 2000). The diversity of microflora is a interesting subject. Many workers some important workers are Alexander, 1971, Rao & Cran 2000, Ray 2012, Tiwari *et al* 2000. Present study was carried out the actual fungus status in relation soil types of Bilaspur, Chhattisgarh.

MATERIALS AND METHODS

The present investigation was carried out from December 2012 to April 2013 in sal forest & grassland soil of Bilaspur. Soil are black cotton soil. Compartment carries dense sal forest (S₁ site), grassland site (S₂ site) from Durg division having miscellaneous grasses, other herbs and leguminous herbaceous plant species. The soil is clay loamy type.

Composite soil samples in triplicates form were collected in randomized way the soil was collected with a soil augur to a depth of 0-10 cm. The soil sample was brought to laboratory for fungal population status and physico-chemical properties.

Table 1: Percentage of Distribution of Different Fungal Species in two Soil type

Soil Types	Name of Fungal Classes		
	Deuteromycetes	Ascomycetes	Basidiomycetes
Forest Soil	24.57%	25.71%	21.39%
Grassland Soil	18.95%	18.85%	22.27%

Table 2: Population Dynamic of total Fungal Flora in Forest and Grassland Soil Type

Soil Type	Month				
	December2010	January2011	February2011	March2011	April2011
Forest Soil	34.67±5.55	33.33±6.69	29.67±2.96	22.00±0.58	56.67±4.43
Grassland Soil	20.00±3.61	21.00±3.50	24.57±14.00	18.33±9.70	18.33±8.4

Table 3: Physicochemical properties of soil

Soil Types	Moisture%	pH	Organic C	Total N ₂	Available P (mg/100gm)	K (mg/100gm)
Forest Soil	15.56	5	1.03	0.8	0.99	0.22
Grassland Soil	11.34	6.50	0.76	0.17	1.12	0.20

RESULTS AND DISCUSSION

A total fungal population in soil forest was recorded 71 species. Among it was recorded 39 species from Deuteromycetes, 21 from Ascomycetes and 11 from Basidiomycetes. Grassland soil shows similar trend i.e. 56 total fungal population in which 24 species from Deuteromycetes, 19 from Ascomycetes and 12 from Basidiomycetes.

The peak population of total fungal growth in site S₁ was recorded in April (47.67%) and least population in March (22%). In S₂ soil maximum fungal growth was recorded in February (24.57%) and least in the month of March and April (18.15%).

Table 3 shows the peak population in April (S₁ site) which is more suitable for growth and survival of microbial population (Kamal *et al.*, 1977) whereas maximum population show in S₂ site in February and least population in March – April because grassland have barren land denuded in month of March- April. So the moisture contents were less, which affect the fungal population. February is the suitable for growth of soil microbes (Mishra, 1964), Ray also confirm the same result.

Soil moisture, pH, organic carbon, total N₂ and available K accept P shows as compare to S₂ soil from sal forest. These indicate that the microbial distribution is totally depending upon the fertility of soil (Eggleton, 1958). Suggests that this factor may influence the soil microbial population by controlling the amount of surface vegetation. The result also indicated that the abundance of microflora were change with the structure and types of ground vegetation.

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