

A Comparative Account of the Diversity and Distribution of Fungi in Tropical Forest Soils and Sand Dunes of Orissa, India

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ABSTRACT An investigation was carried out to estimate micro fungal population and its relationship with physico-chemical properties in natural tropical forest soil, deforested soil, deforested-cum-cultivated soil, barren sand dune, sand dune with monoculture plantation of *Casuarina* and sand dune with monoculture plantation of *Anacardium*. Microbial isolation and soil analysis was performed using standard procedures. The micro fungal population ranged from 35.5 to 1276.2 g⁻¹ dry soil in different study sites. They corresponded to the fluctuation of prevailing temperature, moisture and total organic carbon content of the said habitat. A total of 285 species of fungi belonging to 113 genera were enumerated. The majorities were from the genus *Aspergillus*; the next two in order of dominance were *Penicillium* and *Trichoderma*. The diversity values (H) show an increase as we move from barren sand dune to deforested-cum-cultivated soil. Shannon's diversity index is reasonably high varying from 3.528 to 4.144 correspondingly the dominance values are low varying from 0.0242 to 0.0499. The evenness values, however, show a different trend. The surface soil of forest has the highest species richness where as sub-surface soil of barren sand dunes shows lowest richness. The study revealed that the conversion of natural forest led to a reduction of soil organic matter. Considering the importance of microbial component in soil, we conclude that the conversion of natural forest to different land uses leads to the loss of biological stability of soil. Introduction of predominant decomposing microorganisms isolated from the present study can help to increase the nutrient status of the sandy sterile mass under focus is suggested.