

Forest Land Use and Soil Microbes: An Linking Concept

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Soil is an invisible hero beneath our feet, work as substratum to hold total varying organisms such as flora and fauna including varying important microorganisms. As we know, soil microbes play a key role in decaying and decomposition of organic matter and efficient nutrient cycling which is helpful in maintain dry matter dynamics, vegetation structure and carbon balance in the forest ecosystem. Soil microbes make a link between plant and better ecosystem structure and functions. Similarly changing forest land use and its conversion affect the presence and distribution of varying important microbes. Thus, forest type conversion may alter the significant shifting of soil inhabiting microbial communities due interaction of various biotic and Abiotic factors, changing species composition, litter decaying rate, organic matter content and soil substrate quantity and quality, which is closely connected microbial community. The ample of works are available on changing microbial ecology in forest soil which is highly correlated with changing tree species composition and structure in forest ecosystem in tropical and temperature region. Similarly, a little change in microbial activity and its biomass along with community structure affect the total turnover rate of organic matter and biogeochemical cycle.

Similarly, it is also reported that structure and composition of several microbial communities are strongly connected with changing biotic factor (anthropogenic and animals) and Abiotic factors, such as changing climatic regimes (temperature and precipitation). Deforestation, illegal cutting and logging of forests affect

the species composition and structure that leads to changing the microbial presence and its activity. Therefore, soil microbes and its related properties represent a good indicator for various influences on soils due to changing forest land use systems. Although, conversion of forest types and changing land use pattern can alter microbial population in organic layer rather than nil effects in the mineral soil layer. Therefore, microbial community in organic horizon of forest soil is much more sensitive to forest conversion. Thus, future research should be focused on comparative studies of microbial functions between these two layers i.e. organic vs mineral soil in varying forest types and its conversion which affect the overall performance of microbes along with its ecosystem services.

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