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Floristic Studies On Diversity, Soil Profiles And Phytoremediation In The Post-Flood Scenario, In Foothill Region Of Western Ghats

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ABSTRACT

The UNESCO World Heritage Sites includes two major biological diversity hotspots of the world, in India. The Western Ghats, parallel to the western coast of Indian Peninsular India, contains a very large proportion of the country's diversity. Many human development indicators for the entire stretch of Western Ghats, are at par with those of developed countries, however, it is highly vulnerable to natural disasters and the changing climatic dynamics, given its location along the sea coast and the steep gradient along the slopes of the Western Ghats. After two recurrent floods that affected the state of Kerala in recent years, a study was conducted in affected areas, to document the floral diversity, understand the soil profiles and identify potential species that helps to overcome the disastrous effects caused by pollution as well as waterlogging during such catastrophes. Carnivorous species like *Utricularia aurea*, mangroves and more than 100 plant species (representing more than 25 families), 13 classes and 37 faunal species diversity were documented, including endangered and vulnerable species viz., *Chesalia curviflora* an endangered species and threatened species like *Cyanotis cristatus*, *Cyperus compresses*. Species diversity was indexed using Shannon diversity index, and indexes are relatively high and indicating the urgent need to conserve the ecological fertile land. Soil profiling indicated potassium levels ranged from 170-471, whereas phosphorous levels from 9.24 to 29.82 kg/ha, indicative of the better soil drainage conditions in these areas. The soil samples collected from few interior zones showed high variations from the peripheral zones, indicating the impact of lack of proper drainage and outflow of water and other residuals. Therefore natural land contours need to be maintained during any human developmental activities. Plants *Wedelia trilobata*, *Moringa oleifera*, *Brassica nigra* were exposed to different concentrations of HgCl₂, FeCl₃, and *Moringa oleifera* showed better tolerance to mercuric chloride, whereas, *Wedelia trilobata* survived for about 120hrs in FeCl₃. Both the species, also indicated their potential to modify the water pH to an optimum level. Hence the study indicates that identifying and planting such species helps to overcome the disastrous effects caused by pollution as well as waterlogging during