P. Satheeshkumar, J Ecosyst Ecogr 2012, 2:4
http://dx.doi.org/10.4172/2157-7625.S1.009

OMICS Group Conferences
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International Conference on
Biodiversity &
Sustainable Energy Development

September 14-15, 2012 Hyderabad International Convention Centre, India

Biodiversity of Pondicherry Mangroves, India

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The Mangroves, that exist in tropical and subtropical intertidal regions of the world support rich faunal resources and play an important role in the estuarine and coastal food webs. India has only 2.66 % of the world's mangroves, covering an estimated area of 4,827 sq km. Almost 80% of the mangrove forests are found along the east coast while the west coast has only 20%. The analysis of species distribution, abundance and diversity of the mangrove macrobenthos and their relationship between the environmental parameters is important to further understanding the species composition and abundance of the benthic community. Seasonal variation in the distribution of macrobenthos in relation to environmental parameters was studied at four mangrove stations on Pondicherry coast during September 2008 to July 2010. Different multivariate statistical analysis such as cluster analysis, principle component analysis and Non-multidimensional scale plot were employed the trophic status of mangrove water quality and benthic characteristic in four monitoring stations. However, we analyze 528 samples over 168 ha mangrove forest and a total of 76 species belonging to five diverse groups were identified. In the present study macrofauna was mainly composed of deposit feeders, dominated numerically by mollusks and crustaceans. Macrobenthic species density ranged between 140-1113 ind.m-2, dominance 0.17 – 0.50, diversity 1.80-2.83 bits ind-1, richness 0.47-0.74 and evenness 0.45-0.72, equitability 0.38 -0.77, berger parker 0.31-0.77 and fisher alpha 2.46-5.70 respectively. Increase of species diversity and abundance was recorded during post monsoon at station 1 and lowest diversity at station 2 during monsoon. Pollution indicator organisms Cassidula nucleus, Melampus ceylonicus, Sphaerassiminea minuta were found only in highly polluted regions at stations 3 and 4; they were totally absent in moderately polluted areas at stations 1 and 2. Higher salinity stretches indicated higher abundance and subsequently decrease, with a progressive decrease in salinity among the four stations. Based on Bray-Curtis similarity through hierarchical clustering implemented in PAST, it was possible to distinguish the benthos into three assemblages each of which represented different sites in current study on mangrove ecosystem. From a different multivariate statistical analysis of the different environmental parameters regarding species diversity and abundance of macrobenthos, it was found that benthic communities to be highly affected by all the environmental parameters govern the distribution and diversity variation of macrofaunal community in Pondicherry mangroves and thati the salinity, dissolved oxygen, organic matter, sulphide were highly significant ones.

Biography

P. Satheeshkumar at presently pursuing Ph.D in Central Marine Fisheries Research Institute, Kochi. He has published 24 research articles in reputed journals, in the field of Mangrove ecology, Fish Physiology and water quality and pollution monitoring. He is also serving in editorial board and invited referee of reputed journals.