Conservation of crop diversity in hills: Reflection from Arunachal Pradesh, India

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In the contemporary global milieu, studies on crop diversity constitute the baseline information on raw material required essentially for the biodiversity improvement programs. However such programs sometimes do not reach to ethnic groups living in far sites who are the custodian of natural resources more precisely the biodiversity maintenance; their collection and conservation obviously assume importance in the national, regional and global context. In this regard, a study was conducted during 2006-2014 years in Arunachal Pradesh, India with an aim to document existing crop diversity and its maintenance in upland agro-ecosystems and traditional ecological practices by local communities. Both inter and intra-species diversity, crop-weed interaction and farmer’s knowledge on biodiversity maintenance were also studied. As many as 73 numbers of crop species under 49 genera and 23 families were documented under eight major categories based on their utilization where cultivated vegetable had contributed the highest share with 19 species (26.02%) and the least shared by oil seeds with single species (1.37%) respectively. Another 147 landraces or varieties of 24 crop species were documented from shifting agro-ecosystem. The importance of each species of crop was calculated and as such the jobstear (Coix lacryma-jobi L.) with IVI 74.9751 as principal crop was recorded in most cases who occupied niche of the keystone species.

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Decadal changes of biodiversity of macro benthic fauna of mangrove ecosystem of West Bengal, India: Threats and conservation

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The intertidal belt of mangrove estuarine complex of Sundarbans supports abundant benthic fauna which are represented by polychaetes (53 species), mollusks (38 species), brachyuran crabs (26 species), cnidaria (5 species), globiid fishes (2 species) and one species each of echiurida, sipunculida, hemichordate and brachyopoda. However, this ‘World Heritage Site’ along with its biodiversities is under tremendous environmental threats mainly because of global warming and other anthropological activities. The present paper has attempted to highlight the functional contribution of the intertidal macrobenthic fauna in sustaining the eco-dynamics of one of the world’s very productive ecosystem, analyzing the trend of changes in the populations, communities and succession of this faunal group in relation to the prevailing ecological parameters through decade analysis. Cluster analysis of the faunal components has shown three sets of clusters which exhibited a significant correlation with sediment and water quality parameters. Different bioturbatory activities (biological reworking of soil and sediments through animal activities like burrowing, feeding, locomotion, respiration and excretional activities) of macro benthic fauna alongside the role of microarthropods in the litter detritus nutrient cycling have been taken into consideration. Reviewing the bioturbatory potential of each faunal group has shown the maximum bioturbatory activities by brachyuran crabs belonging to the family ocypodidae followed by the species under the family grapsidae. Polychaetes represent the second dominant benthic fauna followed by gastropods and brachyopoda in respect of their biogenic alteration abilities. Different groups of microarthropods (collemboala, coleoptera, diptera, hymenoptera etc) displayed their roles in different phases of litter decomposition in ensuring better nutrient cycling in the mangrove estuarine interphase leading to higher biological productivity. The information generated from such studies from selected study sites viz. ecodegraded and ecorestored eco-zones is a pre requisite study which can also be used as a tool for the ecorestoration of any estuarine delta-mangrove environment.

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