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Accumulation, value, threats and conservation of biodiversity

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Biodiversity is the very basis of human survival and economic well-being, and encompasses all life forms, ecosystems and ecological processes, acknowledging the hierarchy at genetic, taxon and ecosystem levels. It forms durable interactions among the species and regulate the ecological processes besides shaping the structure of ecosystem at local and global levels. Of the 13.6 million species available, only 1.76 million of species only described and awarded scientific names. Thus, our knowledge of diversity is greatly incomplete.

The last few million years are the greatest period of biodiversity in the world by evolution. Biodiversity has attracted world attention because of the growing awareness of its importance on one hand, and the anticipated massive depletion, on the other. Diversity is not uniformly distributed on the earth; it increases from the poles to the equator and from high elevations to low elevations. Diversity is greater on continents then on islands, and rather low in habitats with extreme environmental conditions such as deserts, hot springs, etc. Terrestrial communities normally have greater diversity per unit area compared to marine communities. Several hypotheses have been proposed to account for the patterns of biodiversity distribution.

The relative rates of extinction and invasion determine the species richness and persistence of communities. Communities with high invasion rates relative to extinction rates would gain species, while those with high extinction rates relative to invasion rates would lose species. Communities that have equal but low rates of invasion and extinction would be persistent with a low rate of species replacement, while those with equal but high rates of invasion and extinction would be non-persistent, with a rapid change in species composition, although the number of species in both cases will remain the same.

Expanding human population has caused increased resource exploitation and alteration of land use pattern. Biodiversity-rich areas could have particularly strong human impact. India attained the status of megadiversity nation due to the variations in climatic and soil conditions.The bioclimatic and agroclimatic conditions also varied widely.

All these environmental variations results in the formation of high number of varied ecosystems which in turn contained high species richness. Thus the high number of over 18000 species of angiosperms, in addition to many number of species of other plants and animals is the great wealth of bioresource for our country.

At global level the species of all categories are under threat due to several factors like habitat change, introduced species, environmental degradation, unsustainable harvesting of bioresources, competition between man and wild species, climate change etc. Efforts must be taken to develop factor-specific and species-specific strategies to overcome this problem and hence to protect the species to the maximum extent. Measures to be taken for sustainable utilization and conservation of biodiversity at individual and organization levels:

- Creation of awareness about the importance of biodiversity.
- Documentation of local biodiversity.
- Categorization of bioresources on basis of utility value.
- Quantification of species on basis of ecological characters.
- Establishment of green cover in degraded areas with suitable plant species.
- Plantation of pollution tolerant perennial plants in industrial complexes and new urbanized areas.
- Encouraging kitchen gardens in all household systems
- Protection of wilds.
- Development of cultivation technology for more number of highly demanded medicinal and other economic important plants.
- Implementation of social forestry and agroforestry as maximum as possible to meet the local demand.
- Encouragement for the utilization of limited forest production.
- Finding ways and means for biofuels.
- Development of cost effective biotechnological processes to obtain bioproducts.
- Implementation of eco-friendly programs for biosafety.

If we develop proper and appropriate technologies for processing our bioresources, as a biodiversity rich nation, we can rule the world.

KEY WORDS:

Biodiversity, conservation, accumulation, value, threats