INTERNATIONAL JOURNAL OF ADVANCED BIOLOGICAL RESEARCH

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# A STUDY OF THE BIODIVERSITYOF MORENA DISTRICT OF MADHYA PRADESH

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**ABSTRACT**
Diversity of flora of Morena cityof Madhya Pradesh is quite rich. During survey period, 21 species of trees were recorded in the city. They belonged to nineteen families: Annonaceae, Rutaceae, Meliaceae, Mimosaceae, Papilionaceae , Caesalpiniaceae, Moraceae, Myrtaceae and Ulmaceae. Out of the total 21 species, 19 are native and remaining two species are exotic. The plants are used for various purposes by the people.

**KEY WORDS:** Morena, biodiversity, nineteen families, survey etc.

## INTRODUCTION

A natural resource is often characterized by amounts of biodiversity and geodiversity existing in various ecosystems. Natural resources are materials and components that can be found within the environment. A natural resource may exist as a separate entity such as fresh water and air, as well as a living organism such as a plant or animal Biological diversity or biodiversity is the degree of variations of life forms. It includes variation among animals, plants, microorganisms, the genetic variation among them and all their complex assemblages of communities and ecosystems. Biodiversity is the totality of genes, species and ecosystems of a region. The total number of species on earth is estimated to be between 3 million to 100 million out of which only 1435662 species are identified all over the world. The term 'biodiversity' was first used by Raymond F. Dasmann in 1968. There are three levels of biodiversity-genetic, species and ecosystem diversity. Distribution of biodiversity is not uniform. It depends and varies according to the climate, altitude, soil structure and presence of other species in an area. Land biodiversity is greater than ocean biodiversity (Benton, 2001).

Biological diversity is the very basis of human survival and economic development as it provides food, housing ,clothing, medicine and industrial raw material and offers a potential for providing many more, yet unknown benefits to mankind. Biodiversity supports a variety of natural ecosystem processes and services. . Biodiversity plays very important role in human health. About 80% of the world population depends on medicines obtained from nature (Behera *et al*., 2008). A large number of drugs are obtained directly or indirectly from biological sources. A wide range of industrial materials are directly obtained from biological resources Biodiversity is also the source of non-material benefits like spiritual and aesthetic values, knowledge system, culture diversity and spiritual inspiration. It is source of inspiration to musicians, painters, writers and other artists. Hobbies like gardening and animals keeping are possible because of biodiversity. It is obvious that biodiversity is the most valuable natural resource of the earth. Thus, it is very necessary to study the biodiversity. Keeping this fact in mind a study was carried out to study the biodiversity of Morena district, Madhya Pradesh, India.

## AREA OF STUDY

Morena is a town in the state of Madhya Pradesh. It is the headquarters of the division of Chambal which is situated in the Chambal valley. Morena is situated between latitude 26°30'N and longitude 78°04'E at about 177 meter above mean sea level. The climate of Morena city is one of the extreme types. The minimum temperature ranges between $2^0$C -$5^0$C in December while maximum temperature ranges between $42^0$C-$46^0$C during May/June. Chambal ravines of Morena district consist mostly of ravines and some flat lands which have been using by farmer for agriculture purposes. Anthropogenic activity not only damage natural environment but also reduced greenery in urban areas.

## MATERIAL AND METHODS

Morena city and around area were selected for present study. To study the flora of Morena survey was conducted during 2011-2012 throughout the year.

## OBSERVATIONS

21 species of tree were recorded in Morena city. They belonged to nineteen families as follows: Annonaceae, Rutaceae, Meliaceae, Mimosaceae, Papilionaceae , Caesalpiniaceae, Moraceae, Myrtaceae and Ulmaceae. Out of the total 21 species, 19 are native and remaining two species are exotic. Following are the plant species found in the study area:

In the enumeration, the species are arranged alphabetically with name of the family, local name and flowering time.

1. *Acacia nilotica* (L.) Wild.
   Family- Mimosaceae; Local Name- Babul; Flowering-January

2. *Aegle marmelos* (L.) correa
   Family- Rutaceae; Local Name- Bel; Flowering- April
3. *Albizia lebbek* (L.)Benth.
   Family- Mimosaceae; Local Name- Siras; Flowering- April
4. *Azadirachta indica* A.Juss.
   Family- Meliaceae; Local Name- Neem; Flowering- April
5. *Bauhinia variegate* L.
   Family- Caesalpinaceae; Local Name- Kachnar; Flowering- February
6. *Delonix regia* (Boger ex Hook.) Rafin
   Family- Papilionaceae; Local Name- Gulmohar; Flowering-April
7. *Callistemon lanceolatus* DC.
   Family- Myrtaceae; Local Name- Bottle brush; Flowering-April
8. *Cassia fistula* L.
   Family- Caesalpinaceae; Local Name- Amaltas; Flowering-March
9. *Drypetes roxburghii (*Wallich) Hurusawa
   Family- Euphorbiaceae; Local Name- Putrajeeva; Flowering-March
10. *Eucalyptus maculata* Hook.
    Family- Myrtaceae; Local Name- Safeda; Flowering- Throughout the year
11. *Ficus religiosa* L.
    Family- Moraceae; Local Name- Peepal; Flowering- April
12. *Ficus benghalensis* L.
    Family- Moraceae; Local Name- Bargad; Flowering- Throughout the year
13. *Holoptelea integrifolia* (Roxbb.) Planch.
    Family- Ulmaceae; Local Name- Churel; Flowering- January
14. *Leucaena leucocephala* (Lamk.) de Wit.
    Family- Papilionaceae; Local Name- Subabul; Flowering-August
15. Madhulka indica
    Family- Sapotaceae; Local Name- Mahua; Flowering- March-April
16. *Melia azadirach* L.
    Family- Meliaceae; Local Name- Bachain; Flowering- April
17. *Moringa oleifera* Lamk.
    Family- Papilionaceae; Local Name- Sahjan; Flowering-February
18. *Polyalthia longifolia* (Sonner.) Thw.
    Family- Annonaceae; Local Name- Ashok; Flowering-April
19. *Pongamia pinnata* (L.) Pierre
    Family- Papilionaceae; Local Name- Karanj; Flowering-July
20. *Prosopis juliflora* (Swartz)*DC*
    Family- Papilionaceae; Local Name- Vilayati babul; Flowering-February
21. *Syzygium cumini* (L.)Skeels
    Family- Myrtaceae; Local Name- Jamun; Flowering-February
22. *Tamarindis indica* L.
    Family- Papilionaceae; Local Name- Imli; Flowering-May

**DISCUSSION**

Though is rich in fauna but recently there has been a great threat to the biodiversity of the area. Extinction of species and loss of biodiversity is the rule of nature which happens all the time. However, in recent years ever increasing loss of biodiversity has posed a serious threat to the survival of mankind. It is estimated that about 27000 species become extinct every year. If this goes on with the same rate, 30% of world's species may be gone by the year 2050. The current extinction rate is 100 to 1000 times that of natural rate of extinction. The main causes of biodiversity loss are: habitat destruction, invasive species, pollution, population , overexploitation and climatic changes. Destruction of the habitat of plants and animals is the most important cause of extinction of species. It has compeled the species to move where they find it difficult to adapt and this may ultimately lead to their extinction. Human activities –deforestation, pollution, overpopulation are ultimately responsible for habitat destruction.

Introduction of exotic species is also responsible for the loss of biological diversity. The endemic and other local species may not be able to compete with the exotic species and are unable to survive. Climatic change, again a consequence of human activities, has very adverse effects on biological diversity. Global warming affects plants, animals and microorganisms, both by changing their habitats and by direct effects of temperature. Rapid climatic changes could lead to higher number of diseases, landslide and forest fire, which may result in destruction of animals and plants. All organisms are adapted to a particular range of physical and chemical conditions. Climatic changes also affect species at cellular level. They can alter the genetic makeup of the cell and temperature can also increase the rate at which cell use energy. Thus it affects the physiology of the cell. Change in the climate has caused a danger to the survival of hundreds of plants and animals. In addition to the above mentioned factors, inadequate knowledge, inefficient use of information and economic system and policies which fail to value the environment are also responsible for the loss of biological diversity.

**CONCLUSION**

Biological diversity is essential for the harmonious existence of life on earth. Any change in the system leads to major imbalance in the ecological cycle. The survival and wellbeing of mankind depends on the wellbeing of biodiversity. The conservation strategies must have a holistic approach which may lead to sustainable development. A collaborative approach is required by national agencies and regional bodies responsible for policy making, planning, research and development. New global agreements should be made and properly followed. If we want to live happily on this planet, we have to preserve and conserve biological diversity.

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