

# A Study of The Floristic Diversity of Achanakmar- Amarkantak Biosphere Reserve

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## Abstract :

*Amarkantak Biosphere Reserve, is a famous reserve forest in the meeting point of Satpuras and Vindhyan ranges. It is also a pilgrimage for Hindus, origin place of auspicious river Narmada and Sone. A survey was conducted of the field area. Plant specimens were collected and identified. The study reveals that there are 972 plant species in the study area recognised under the species concept. Eight Hundred sixty-four (864) species of flowering plants belonging to 483 genera under 120 families are collected. Dicotyledons have 620 taxa belonging to 363 genera and 96 families while monocotyledons are represented by 236 species, 189 genera and 24 families the top 5 families with more than 30 were Poaceae (110) Leguminosae (83), Asteraceae (66) Cyperaceae (36) and Acanthaceae (33). 46 families are represented by single genus (with one or more species) There are 584 of herbs 79 of shrubs 84 of climbers, 92 of trees and 25 species of small trees record. There are about 29 species of endemic angiosperms which represent 3% part of the flora the majority of endemic species are with very critical number of populations having very narrow distribution. Ten (10) species are observed under rare and vulnerable category and 29 species are recognised as alien species. A total of 36 species are wild relatives of crop plants and about 327 species are very important medicinal plant currently used in Ayurveda and modern medicine.*

**Keywords :** Biodiversity, Biosphere reserve, Amarkantak, Floristic composition

Biosphere reserve symbolises sustainable development of a forest area in action. It enables us to learn several conservational measures from the traditional practices of people in the management of the natural resources. Thus, the main objectives in establishing of biosphere reserves are to provide in situ conservation of plants animals and microorganisms not in isolation but in their ecosystem. Forests of Madhya Pradesh are the home of various rare threatened species and economically important plants. They are ground herbs shrubs climbers and various types of trees with extreme diversity of the habitants. Many of these natural heritages as a consequence of external biotic pressure

have been depleted to a considerable extent resulting into extinction of several species of plants and animals from their natural habitats.

The Amarkantak region is a unique natural heritage area and is the meeting point of the Vindhya and the Satpura Ranges, with the Maikal Hills being the fulcrum. The town of Amarkantak is surrounded by a rich variety of flora with medicinal properties. This sanctuary, Achanakmar- Amarkantak Biosphere Reserve is located at a distance of no more than 40 km from the town of Amarkantak in the state of Chhattisgarh. It is situated on the road to Bilaspur. The enchanting lush green forest belt in Amarkantak is a part of natural vegetation in the Achanakmar-Bilaspur Biosphere Reserve varies across the reserve. The forest area of the reserve has tropical deciduous vegetation and it can be classified into Northern Tropical Moist Deciduous and Southern Dry Mixed Deciduous forests.

### **Study Area**

The town of Amarkantak lies in the newly created district of Anuppur, in Madhya Pradesh. It is situated on the Maikal mountain range which links the Vindhya and Satpura mountain ranges, at about 1067 meters above mean sea level.

Amarkantak is the origin of river Narmada life line of Madhya Pradesh. These forests are on the junction of Mandla, Shahdole and Bilaspur districts of MP and Chhattisgarh. They have a great resource of medicinal plants. The study area is 2400 Sq. Kms including Achanakmar wildlife sanctuary. The study area lies between the latitude 22°15' and 23° North to longitude 81°39' and 82° East. It falls in the ten forest ranges i.e. Achanakmar, Amarkantak, Belghana, Karanjiya, Khudia, Khudra, Kota, Lambi, Lormi and Pendra.

### **Material and Methods :**

A survey was conducted of the field area. Plant specimens were collected and identified. For studies of associations and structure of vegetation a plot size of 50mx50mx have been laid out. The community characters like frequency, density, basal cover etc. have been calculated at different gradients i.e. plateaus, slopes and plains. Concentration of dominance, equitability, Sorenson similarity index, Shannon index of general diversity, Simpson index of diversity were also calculated. Mostly the work has been confined to plants only. Faunal studies are just occasional observations.

### **Results and conclusions**

The forest area of the reserve has tropical deciduous vegetation and it can be classified into Deciduous forests i.e. Northern Tropical Moist and Southern Dry Mixed, Deciduous forests. The reserve is quite rich in plant diversity, having a combination of different climatic and soil conditions at various altitudes. The region provides shelter to various plant groups Angiosperms, Thallophytes, Bryophyta, pteridophytes, gymnosperms, species.

Floristic composition-The study reveals that there are 972 plant species in the study area recognised under the species concept. Eight Hundred sixty-four (864) species of flowering plants belonging to 483 genera under 120 families are collected. Dicotyledons have 620 taxa belonging to 363 genera and 96 families while monocotyledons are represented by 236 species, 189 genera and 24 families the top 5 families with more than 30 were Poaceae (110) Leguminosae (83), Asteraceae (66) Cyperaceae (36) and Acanthaceae (33). 46 families are represented by single genus (with one or more species) There are 584 of herbs 79 of shrubs 84 of climbers, 92 of trees and 25 species of small trees record. There are about 29 species of endemic angiosperms which represent 3% part of the flora the majority of endemic species are with very critical number of populations having very narrow distribution. Ten (10) species are observed under rare and vulnerable category and 29 species are recognised as alien species. A total of 36 species are wild relatives of crop plants and about 327 species are very important medicinal plant currently used in Ayurveda and modern medicine. The natural vegetation in the Achanakmar-Bilaspur Biosphere Reserve varies across the reserve. According to a report of BRIS (2010) almost 1500 plant species representing over 151 plant families can be found in the reserve. According to report several angiosperm species are found in the Achanakmar-Amarkantak Biosphere Reserve. Some of the important species include

***Thalictrum sp.,***

- ❖ *Dillenia pentagyna,*
- ❖ *Cocculus hirsutus, ,*
- ❖ *Talinium portulacifolium,*
- ❖ *Tamarix ericoides*
- ❖ *Dioscore sp.,*
- ❖ *Dillenia pentagyna,*
- ❖ *Abelmoscus ficulneus,*
- ❖ *Hibiscus subdariffa,*
- ❖ *Grewia rothii,*
- ❖ *Biophytum sp.,*
- ❖ *Oxalis sp.,*
- ❖ *Trapiolum majus,*
- ❖ *Gloriosa superba,*

- ❖ *Curcuma aromatica*,
- ❖ *Flacortia indica*,
- ❖ *Chlorophytum tuberosum*,
- ❖ *Corchorus fascicularis*,
- ❖ *Curculigo orchioides and Hypericum japonicum*.

Many planted gymnosperms have also been localized in the Amarkantak plateau and have adapted to the local environmental conditions of the area. Some endemic considered species are these include (according to areport BRIS2010) Cupressus torulosa, Thujaorientalis, Aurocariabawdily, Pinus caribaea, Pinus elliottii, P. gregaii, P. kesiya, P. mountzumae, Pinus oocarpa, Pinus patula, Pinus ponderosa, Pinus pseudostrobus, Pinus roxburghii, Pinus serotina, Cedrusdeodara, Juniperus sp., and Taxodium sp. Apart from these, medicinal plants are more than 105 species of are found in the Achanakmar, Amarkantak Biosphere Reserve, of which 25 species are considered rare. Pinus caribaea, known as tropical pine, was planted in Amarkntak in 1968 on advice of Forest Research Institute, Dehradun on the recommendations of National Commission on Agriculture looking to the future demand of quality pulpwood.

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