

**GLOBAL JOURNAL OF ENGINEERING SCIENCE AND RESEARCHES**  
**STATUS OF MEDICINAL PLANT IN BARNAWAPARA SANCTUARY BALODA**  
**BAZAR DISTRICT(C.G.)**

SINGH S. K. [ I. F. S.]<sup>1</sup> and DR.K.R.SAHU<sup>\*2</sup>

**ABSTRACT**

C G state and its wildlife area is very rich for medicinal plants. From north (Surguja dist.) to south (Bastar, Sukama, Dantewada, Kondagaon), Chhattisgarh has very good rainfall & climate which contributes in floral richness. Many medicinal plant species has been reported in this geographical region. But due to industrial area and civilization central zone shows less biodiversity. National park and sanctuary are also situated on north and south zone in Chhattisgarh which also has a lot of medicinal plants diversity. Many villages has been declared as AYURVEDIK GRAM to use and conservation medicinal plant by Chhattisgarh Government.

ENVIS Centre on Conservation of Medicinal Plants, FRLHT, Bangalore has in listed 45 Endangered Taxa, 8 Endemic and Rare Species and 13 Critical Endangered and Vulnerable in the State of Chhattisgarh.

The study area (Barnawapara wildlife sanctuary) has shown floral richness around selected waterholes (Core, Buffer & relocated village area). Total 24 medicinal plant species were found in the study area.

**Keywords-** Sanctuary, plant diversity, Ayurvedik- gram, national park, Jhiriya, Springs, core zone, buffer zone.

**I. INTRODUCTION**

Bar-Nawapara Wild Life Sanctuary geographically situated between 80°-22'-30" to 82° 37' 30" East longitude and 21° 18' 45" to 21° 30' 0" North latitude. The sanctuary is located in Balodabazar district of Chhattisgarh having an area of 235 Sq. KM. It is named after "Bar" and "Nawapara" forest villages, which are in the 'heart' of the Sanctuary. This wilderness encompasses land mass of undulating terrain, dotted with numerous low and high forested hillocks, at North Eastern corner of Raipur District of Chhattisgarh. The tributaries of Mahanadi ie. river "Balamdehi" forms the western boundary and river "Jonk" forms the north-eastern boundary of the Sanctuary.

The forests of the sanctuary can be classified as Teak, Sal and mixed forests. Forest comprises of the grand timber tree ie. Teak (*Tectona grandis*) with other species like Saja (*Terminalia tomentosa*), Bija (*Pterocarpus marsupium*), Ledia (*Lagerstroemia parviflora*), Haldu (*Adina cordifolia*), Dhaora (*Anogeissus latifolia*), Salai (*Boswellia serrata*), Aonla (*Embllica officinalis*), Amaltas (*Cassia fistula*) etc. The ground is covered with different types of grass, herbs, shrubs, bushes and saplings. Many medicinal plants are also found in the area.

ENVIS Centre on Conservation of Medicinal Plants, FRLHT, Bangalore has in listed 45 Endangered Taxa, 8 Endemic and Rare Species and 13 Critical Endangered and Vulnerable in the State of Chhattisgarh.

\*Dr. K.R.Sahu; Assistant Professor of Zoology; Govt. E.Raghvendra Rao P.G.Science College, Bilaspur (C.G.) INDIA

**River & Streams :-** Balamdehi river forms the western boundary of Bar Nawapara

Sanctuary, which is not perennial. The area encompasses a large number of nallah's, most of

them retain water up to December/March. Nallah's are full of water till September but from October onwards they start drying up. Water is retained in the form of scattered pools throughout the sanctuary. Comparatively bigger nallahs like Nuncha, Dokar bahal, Kantra, Marghat, Debhar, Mahkam nallah Chingaria nallah, Chanda-dai, and Sukhi nallah are also present.

**Jhiriya's :-** "Jhiriya" is small water body of low depth, where water accumulates due to spillage, seepage through higher water bodies. Jhiriya's are mostly situated at the base of rocks, in the streams beds. Some of the important Jhiriya found in the Sanctuary are Tongo-pani, Katnga-pani, Dungar-pani etc.

**Tanks :-** Tanks are an earthen or masonry structure, which stores rainwater in sufficient quantities for long duration. There are many earthen tanks constructed by the Forest Department, which is uniformly distributed throughout

the Sanctuary. These tanks are man-made waterhole, which provide nistar and irrigation to the villagers and wildlife. Two irrigation tanks are situated near Amgaon & Dond in compartment FD 113, FD 148 and FD 186 respectively. Beside these water bodies a large number of nistar tanks are situated in close proximity of the forest villages. Theoretically 65 water holes exits in an area of 244.66 Sq. km. As an average one water source is present in every 3.76 Sq. km. Area.

**Zonation :-**To fulfil the objectives of Wild Life Management in Sanctuary, the area is divided into following zones :-

1. **Core Zone :-**The core area is the heart of the sanctuary. It is rich in wildlife and consists of 22 compartment having an area of 45089454 hectares. The area comprises of second and third quality miscellaneous forests, Sal with bamboo intermix and form Core Zone.
2. **Buffer Zone :-**Buffer Zone surrounds the Core-Zone. It is a multipurpose area where cattle grazing, nistar and other requirement of villagers residing in the forest village are met with.

## II. METHODOLOGY

The present research was carried out during January 2013-April 2015 in Barnawapara Wildlife sanctuary, Baloda bajar, CG India to explore the plants diversity in an around waterholes of the sanctuary. The study area was divided into 3 parts, Core zone, Buffer zone & village relocation zone. Two waterholes were selected in each zone for the study. Survey was conducted on all four direction of the waterholes putting linear rectangular grid of 2mts. X 2mts.at the spacing of 10, 20 & 30 mts. each. Random sampling was done in each 2mtr. X 2mtr. grid to access distribution of rare & endangered plants species (herbs, shrubs and trees). Identification of plants was done by available literature inducing flora /encyclopaedia etc. and it was done with the help of fields experts.

### *List of waterholes where study was conducted.*

Zone	Compartment number/Name	GPS Location
Core	Comp. No. 109 Talab	N 21 0 26' 21.9" / E 082 0 25' 59.7"
Village Relocated Area	Comp No 161 Talab	N 21 0 26' 21.9" / E 082 0 25' 59.7"
Buffer	FD 168 Nakti Talab	N 21 0 23' 31.0" / E 082 0 25' 13.1"

## III. RESULTS

Many medicinal plants were found in the grid around different waterholes of the study area details are given below:-

Zone	Compartment number/Name	Name of Medicinal Plants found in the grid
Core	Comp. No. 109 Talab	Buchanania lanzan, Ventilago sps, Smilax, Lxora arboria, Curcuma, Gradenia gumnifera, Andrographis paniculata, Desmodium sps, Pterocarpus marsupium, Embelia ribes, Zymnema sylvestre, Eclipta prostrata, Crotalaria sps, Mitragyna parviflora, Ageratum, Eupatorium
Village Relocated Area	Comp No 161 Talab	Anographis, Phuleta, Ageratum, Randia dumetorum, Eclipta prosptrata, Gymnema, Coccus hersutus, Andrographis paniculata
Buffer	FD 168 Nakti Talab	Curculigo orchoidis, Dioscoria sps,

The floral richness around selected waterholes (Core, Buffer & relocated village area) shows presence of 24 medicinal plant species. Core zone has maximum no ie. 16 different type of medicinal plant, whereas waterhole

of relocated village Rampur has 8 different medicinal plant and only 2 medicinal plant species were found in Buffer zone.

The floral richness in core and village relocated area was due to conservation measures. Grazing is restricted in these compartments. Whereas grazing etc. is allowed in buffer areas.

#### IV. CONCLUSION

The result in the present study clearly shows that the flora is very rich floristically which may be attributed to its varied topography and variation in climatic conditions and it mostly depends on conservation. The floral richness around selected waterholes (Core, Buffer & relocated village area). Total 24 medicinal plant species were found in the study area. In Core zone there are 16 different type of medicinal plant species, 8 plants was in relocated village area and only 2 medicinal plant species are found in Buffer zone area. This clearly indicates protection gives nature to reequip its floral density and diversity if it is sustainably used.

The documentation and identification of above plant species in the field will be useful for conservation strategies. With the help of earlier studies and the present day research data its exploration shows that these ethno botanical studies can be greatly beneficial to human race for treating disease with cheap and best non side effect solutions.

#### REFERENCES

1. Anoop KR(2010) *Progress of Prosopis juliflora eradication work in Keoladeo National Park. Unpublished Report, Rajasthan Forest Department*
2. Bhatt YD, Rawat YS, Singh Sp (1994) *Changes in ecosystem functioning after replacement of forest by Lantana shrubland in Kumaun Himalaya. J Veg Sci. 5:67-70*
3. Chandrasekaran S, Swamy PS (2002) *Biomass, litterfall and aboveground net primary productivity of herbaceous communities in varied ecosystems at Kodayar in the Western Ghats of Tamilnadu. Environ Agric. Ecosyst. 88:61-71*
4. Chandrashekara UM (2001) *Lantana camara in Chinnar Wildlife Sactuary, Kerala, India. In:Sankaran KV, Murphy ST, Evans HC (eds) Alien weeds in moist tropical zones: banes and benefits. KFRI/CABI Bioscience, Kerala/Ascot, pp 56-63*
5. Chaudhuri H, Ramaprabhu T, Ramachandran V (1994) *Ipomea carnea Jacq. A new aquatic weed problem in India. J Aquat. Plant manag. 32:37-38*
6. Chauhan NS (1999), *Indigenous Medicinal Plants. Today and Tomorrow's Printers and Publishers New Delhi, India pp. 199-205.*
7. Hiremath AJ, Sundaram B (2005) *The fire-Lantana cycle hypothesis in Indian forests, Conservation Soc. 3:26-42*
8. Jadhav RN, Kimothi MM, Kandya AK (1993) *Grassland mapping/monitoring of Banni, Kachchh (Gujarat) using remotely-sensed data, Int. J Remote Sens 14:3093-3103*
9. Kimothi MM, Dasari A (2010) *Methodology to map the spread of an invasive plant in forest ecosystem using Indian remote sensing satellite data. Int. J Remote Sens 31:3273-3289*
10. Love A, Babu S, Babu CR (2009) *Management of lantana, an invasive alien weed in forest ecosystems of India. Current Science 97:1421-1429*
11. Maheshwari JK (1960) *Studies on the naturalized flora of India. In: Proceeding of the Summer School of Botany (Eds. Maheshwari P, Johri BM and Vasil IK) pp. 156-170.*
12. Sahu PK, Singh JS (2008) *Structural attributes of lantana-invaded forest plots in Achanakmar-Amarkantak Biosphere Reserve, Central India. Current Science 94:494-500.*
13. Sharma BD, Pandey DS (1984) *Exotic Flora of Allahabad District. Botanical Survey of India, Kolkata, India.*
14. Sharma GP, Raghubanshi AS (2009) *Lantana invasion alters soil nitrogen pools and processes in the tropical dry deciduous forest of India. Appl. Soil Ecol. 42:134-140.*

15. *Singh JS, Singh SP (1992) Forests of Himalaya, Structure, Functioning and Impact of Man. Gyanodaya Prakashan, Nainital, India.*
16. *Singh M, Achhireddy NR (1987). Influence of Lantana on growth of various citrus rootstocks. Hort. Sc. 22:385-386.*
17. *Shukla AN, Singh KP, Singh JS (2009) Invasive alien species of Achanakmar-Amarkantak Biosphere Reserve, Central India, Proc Nat. Acad. Sci. Ind. Sect B-Biol. Sci. 79:384-392.*