

Phytogeographical Distribution of *sida alba* in Shekhawati Region, Rajasthan

Dr. Mukesh Kumar Sharma 'Bhatt'

Abstract - The present paper discusses the potentiality of natural vegetation i.e. *Sida alba*. The area under investigation i.e. Shekhawati region, popularly known as historical heritage, geographical and cultural zone in Jaipur division of Rajasthan state, India. Besides this zone has unique combination of beautiful ecosystems viz; riverine ecosystem, sandy plain ecosystem, sand dunes ecosystem and stony and rocky ecosystem. In these ecosystem, the sand dunes is the heart of Churu. The Shekhawati zone has a great variety of climates (semi-arid and arid) biotic and edafic conditions, physiography and diversity of natural vegetations which has on a wide range of natural ecosystem.

I INTRODUCTION

Actually, there is no plant species on this planet which may be termed as useless indeed, whether it is another matter that mankind have acquire knowledge of the uses or applications of the particular plant species. One can visualize very well the uncountable uses at the part of applied aspect of plant kingdom which left no activity of daily life of human beings requirements without any sort of their impact of usefulness by quantitative or qualitative point of view. The green cover on the earth surface whatever in the form of vegetation or forest wealth is an essential component as well as part and portion of the surrounding complex of the nature of which man is an important biological elements. Hence, generally the plant species whose uses are known to the human beings in applied sense for the mankind welfare as well as for

domestic animals are termed as useful plant species - at the part of his knowledge.

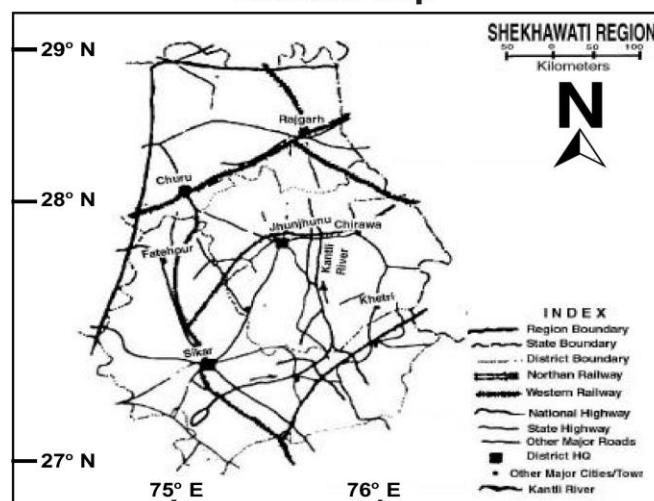
By thus, one can visualize Multi-purpose Medicinal Plant Species (MPMPS) i.e. *Sida alba* has their varied applied values in the cure of different kind of diseases for the welfare of human beings which naturally show their importance that MPMPS is really may be termed as "Medicinal Plant Wealth" of Shekhawati Region, Rajasthan.

II INTRODUCTION OF THE RESEARCH AREA

Shekhawati region is located in the north-eastern part of Rajasthan state and the region has geographical extension from 26°26' to 29°20' north latitude and 74° 44' to 76°34' east longitude on the map of Rajasthan.

The area under study covers fully or partly three districts, namely Churu, Jhunjhunu and Sikar. Churu district's out of 7, only 3 tehsils fall under Shekhawati region (Churu, Rajgarh and Taranagar) whereas Jhunjhunu district as a whole with its six tehsils (Buhana, Chirawa, Khetri, Jhunjhunu, Nawalgarh and Udaipurwati) in which Buhana tehsil emerged out as a new tehsil on the map of Jhunjhunu district (2001), it was no more existence in the year of 1991 and Sikar district also covered fully with it's six tehsils (Data Ramgarh, Fatehpur, Laxmangarh, Neem ka Thana, Sikar and Shri Madhopur).

Location Map



The region has 23 Panchayat Samitis in all. Thus, the region under study has 15 tehsils in total with its total 15343 sq. km. geographical area which makes 5.6% of the state's total. At the part of district-wise contribution by area point of view in Shekhawati region it is observed that part and portion of Churu district contributes 29%, Jhunjhunu district contributes 31% and Sikar by 40%, respectively. Among these tehsils area point of view, the tehsil of Churu is largest one and Buhana smallest, respectively. District-wise area point of view Sikar stands at first position which is followed by Jhunjhunu and lowest contribution is made by Churu i.e. 1683 sq. km. only.

III REVIEW OF LITERATURE

The area under research work was studied by following botanists and time to time viz; first of all the Sekhawati region was touched from vegetational study point of view by Mulay and Ratnam (1950), Bikaner and pilani neighbourhood areas by joshi (1956 and 1958), vegetation of chirawa by Nair (1956), again Nair and Joshi for Pilani and neighbourhood areas (1957), vegetation of harsh nath in aravalli's hills was studied by Nair and Nathawat (1957), vegetation of Jhunjhunu, Manderella and neighbourhood by Nair (1961), vegetation of ajit sagar dam by Nair and Kanodia (1959); Nair, Kandodia and Thomas (1961) studied the vegetation of Khetri town and neighbourhood areas and vegetation of Lohargal and its neighbourhood areas of Sikar district by Nair and Malhotra (1961). After the work of Nair and Malhotra (1961), i.e. four decades ago. the area was again left for any sort of further research work in the field of applied Botany.

A significant, very authentic taxonomic work was contributed in the field of botany by Bhandari with the publication of a book Flora of the Indian desert (1990). From the field of applied phytogeography point of view. Charan gave a valuable contribution with a publication of a book on Plant Geography (1992). Bhattacharjee (2000) gave a very valuable authentic contribution through the publication of a book on Handbook of Medicinal Plants in which he presented the medicinal plants of Indian Sub-continental background with their coloured photographs also and Sharma (2007) gave a very valuable authentic contribution through the publication of a book on Medical Plant Geography.

IV OBJECTIVES

As the nature of the research work, it becomes the prime most duty of a phytogeographer to trace out to identify the plants and then their geographic interpretation from their

origin point of view, their cartographic presentation from spatial distribution point of view and lastly also to prepare their layout planning map for on going plantation programme at least for the applied plant species for the area under study.

V HYPOTHESIS

Naturally, the present study will cover the present position of phytogeographic pattern of spatial distribution of applied plant species, so a phytogeographer can propose their allocation of sites of coinciding habitats from their conservation point of view for the welfare of future generation of the area under study.

we can conserve those plant species which have their applied values for the welfare of human beings inhabiting in that particular area or the area under study. for this purpose, a phytogeographer has to give an account of the layout maps of that area under study which covers the allocation of the sites with favourable habitats according to the nature of the existing applied plant species for the area under investigation.

VI METHODOLOGY

The present study has been substantiated by extensive field work. The essential data have been collected from a wide range of sources. The remote sensing available data have been used. Survey of India topo-sheets for the entire region and a bioclimatic map, have been used as base maps. Additionally, data from reports, maps, pamphlets, research papers, books, monographs, soil survey data, forest survey data from published and unpublished materials have been collected from different agencies. After examining the remote sensing and other data related to physical (climate, soil, land forms and water) biological (flora and fauna) and social (population dynamics, economic activities land use and productivity) indicators, a few survey sites were located. The sites were visited during field survey.

To illustrate the frequency of distribution of particular plant species the prescribed method of Raunkier's will be exercised to show whether the particular plant species is rare, frequent, common or abundant for the area under investigation. The nature of habitats and the eco-climatic conditions will be dealt as a part and portion of the study to support the phyto-climatic account of the research problem for the area under study.

From phytogeographic study point of view, a cartographic interpretation of the multi-purpose plant species will be dealt at two levels i.e. at macro-level and at microlevel, basically it may be dealt phytogeographic sense.

VII OBSERVATIONS

BOTANICAL NAME : *Sida alba*

LOCAL NAME : Kharenti, Bala, Kala Beej Bandh, Kantio bal (**Photoplate**).

(A) VEGETATIONAL CHARACTERISTICS :

The plant belongs to the Family - *Malvaceae*. It is an erect under shrub or a small shrub. It achieves 1 to 2 meter tall. Minute star-shaped hairs are present all over the plant, the base of plant usually woody. Thus, from vegetational group point of view. The plant in nature falls under both groups i.e. under shrub as well as small shrub. Leaves are 5 cm. long and 3 cm. in width, thus from leaf-class classification point of view. The plant belongs to 'Microphylls'. Flowers are small and yellow in colour. The seeds of the plant are generally 1.5 cm. long, smooth, dark brown, rounded at back, trigonous and glabrous.

(B) ECO-CLIMATIC CONDITIONS AND HABITAT :

The plant has been observed not in a specific habitat, it covers sandy plains, sandy loam soils, in gravel formation and, stony and rocky habitat. The plants avoids generally the habitat of pure sand dunes topography. It shows, it's occurrence in more than one climate i.e. in semi-arid, sub-humid and also in humid climate. From rainfall distribution point of view, It is observed from 30 cm. to 100 cm. average annual rainfall.

At the part of temperature variations, the plant may survive from 5°C mean monthly minimum temperatures to 50°C mean monthly maximum temperatures. In brief, one can say that the plant shows poly-climax nature of occurrence in Shekhawati Region. It is a common weed of the gardens in open places.

(C) PHYTO-CHEMICALS OF APPLIED PARTS AND PORTION :

Seeds are used at the name of applied part and portion. The morphology of seeds of this plant may be illustrate as - seeds are minute black coloured, seeds are of the size of pin heads, the seeds are some-what triangular in shape. At the part of phyto-chemicals of seeds, we can illustrate that the seeds are the major source of Alkaloid which is reported as Ephedrine

(D) MEDICINAL APPLIED ASPECT :

The brooms are prepared from the branches of *Sida spp.* The seeds make general tonic for improving sexual strength. It is used to improve sex power and also for the treatment of "Gonorrhoea" and for "Asthma" in other combinations. The decoction of fruit's is administered in

Fever. Thus in brief, we can say the plant part and portion has medicinal uses for the cure of some diseases - viz; Tonic, Urinary problems, Leucorrhoea, in male and female sterility.

(E) PHYTO-GEOGRAPHICAL DISTRIBUTION :

A. At Global Level :

The plant has wide range of phytogeographical distribution at the part of global level. It covers tropical and sub tropical regions of both hemispheres. In India it is found through out in hotter parts. It has wide distribution through out India, specially in waste places and it is found as a common weed of the gardens in open places, as well as in open scrub forest areas.

B. At Regional Level :

It is quite clear from the map, **Figure**. By going through the reading of the area under study, it has no occurrence in Rajgarh and , it has no occurrence in Rajgarh and Taranagar tehsils of Churu districts but it has rare occurrence in Churu tehsil it'self (**Figure**).

The plant shows frequent to common occurrence over the habitat of stony and rocky formations i.e. hilly habitat in this way the plant has frequent to common occurrence in Khetri and Udaipurwati tehsils (Jhunjhunu district), Eastern part of Sikar tehsil, Danta Ramgarh, Shri Madhopur and Neem ka Thana tehsils of Sikar district. The plant shows no locality of abundant phytogeographic pattern of spatial distribution, Shekhawati Region, Rajasthan,. As shown in **Figure**. It is distributed throughout in Rajasthan specially in waste places and open scrub forest.

VIII RESULTS

Being a phyto-geographer, the best efforts has been made in this research paper to conserve and analyse of decrease of natural vegetation and associated factors in Shekhawati region, Rajasthan. Further in this aspect, one can visualise very well the results of any sort of contribution of the efforts made by Department of Forest and public awareness in this aspect, in enhancement of the land under green coverage through implementation of successful afforestation and plantation programmes.

Natural vegetation i.e. *Sida alba* degradation is taking place in shekhawati region through irregular rainfall, public interfere, wind erosion, water erosion, high temperature, storms and soil erosion. These processes have been accelerated by increasing technogenic and human activities it has resulted in the degradation of *Sida alba* of the region due to in irregular rainfall and wind erosion and high temperature are more serious and widespread. Overgrazing and indiscriminate felling of under shrubs

resulted in the degradation of vegetation cover and decrease in biomass production. In case these problems continue uncontrolled, large acreage of forest area will be affected in future.

The results suggest to take up immediate steps to adopt the improved forest management technologies with people's participation to lack of effects of decrease of natural vegetation in the region but it is not possible to conserve completely. Further the results of the study could be fruitfully utilized by the planners bio-scientists, botanists, phytogeographers, naturalists and policy makers to evolve suitable forest management technologies and strategies commensurate to the bio-conditions of the region.

REFERENCES

- [1] Anonymous (1991) Nature and Extent of Biodiversity in Arid and Semi arid Region of India.-CAZRI Jodhpur.
- [2] Bachketi, N.D. (1984) Social Forestry in India, Problems and prospects, Published by Birla Institute of Scientific Research, New Delhi.
- [3] Bhandari M.M. (1990) Flora of the Indian Desert (Revised) MPS Report Jodhpur.
- [4] Cain, S.A. and Castro, G.M.de O.(1959) Manual of vegetation Analysis. Arper and Row, U.S.A.
- [5] Charan, A. K. (1992) Plant Geography, Rawat Publication, Jaipur
- [6] Clements, F.E. (1916) Plants succession - An analysis of the development of vegetation. Washington, D.C.
- [7] Eyre, S.R. (1963) Vegetation and soils : A world Picture, Ed ward Arhold.
- [8] Hills, E.S. (1966) (ed.), Arid Lands, UNESCO and Methuen.
- [9] Hooker, J.D. (1906) A Sketch of the flora of British India, London.
- [10] Koppen, W.P. (1900) Versuch einer Klassifikation for Klimate, uorzugsweise nachihren beziehungen zur planzenwett. Geogr. Z. 6:593-611..
- [11] Krebs, C.J. (1978) Ecology - The Experimental Analysis of distribution and abundance. Harper and Raw.
- [12] Levin, D.A. (1979) The nature of plant species, Sci 204. 381-4.
- [13] Linneaus S.C. (1753) Species Plantarum.
- [14] Mani, M.S. (1974) Ecology and Biogeography in India. Dr. W. Junk. B.V. Publishers, The Hague.
- [15] Money, D.C. (1965) Climate, Soil and vegetation. University of Tutorial Press, U.K.
- [16] Sharma, M.K. (2007) Medical Plant Geography, Rachana Publications, Jaipur.
- [17] Polunin, (1967) Introducing of Plant Geography and some related Science. London.
- [18] Rathore, N.S. (1992) Application of Remote Sensing in Forest Cover Mapping of North Aravlli's Mountains Ranges. XIV-Indian Geography Congress, Jaipur, Abstract Publication, pp. - 31.
- [19] Raunkiaer, C. (1934) The Life-forms of the plant and statistical plant geography. Clarendon Press. Oxford.
- [20] Robinson, H. (1978) Biogeography. MacDonald and Evan, London.
- [21] Shankar V. and Kumar S. (1988) Vegetation ecology of the Indian Thar desert. International Journal of Ecology Environmental Sciences 14: 131-155. Sciences 14:131-155.
- [22] Shivshwami, N and Shrinivasan, V. (1977) The role of trees in the control of environmental pollution. Expl. News : 21(52) pp- 52, New Delhi.
- [23] Viemeyer, N.D. (1986) Lesser-known Plant of Potential use in Agricultural and Forestry Sci., 232, 1379-84.
- [24] Watts, D. (1971) Principles of Biogeography. McGraw Hill, London.
- [25] Wegner, P.L. (1965) Vegetation and Soils. Mc Graw Hill, New York.
- [26] World Resource Institute, (1992) World Resources. Oxford University Press, New York.