

Phytogeographical Distribution of *ficus religiosa* in Shekhawati Region, Rajasthan

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Abstract - The present paper discusses the potentiality of natural vegetation i.e. *Ficus religiosa*. 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

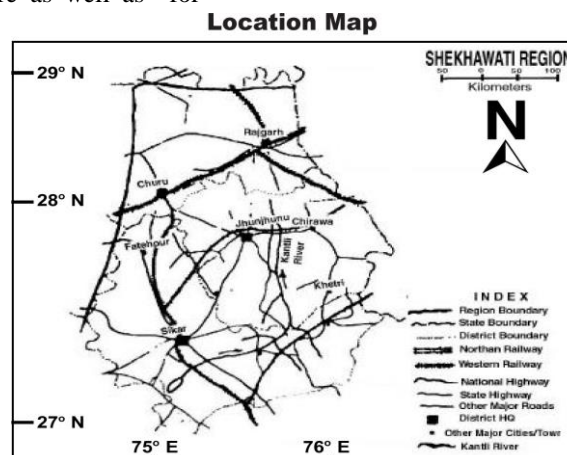
domestic animals are termed as useful plant species - at the part of his knowledge.

By thus, one can visualize Multi-purpose Medicinal Plant Species (MPMPS) i.e. *Ficus religiosa* 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, Jhunjhunun 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 Udaipurwadi) 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).



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 autheontic contribution through the publication of a book on Handbook of Medicinal Plants in which he presented the medicinal plants of Indian Sub-continental back ground with their coloured photographs also and Sharma (2007) gave a very valuable autheontic 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 than 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 appled 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 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 : *Ficus religiosa*

LOCAL NAME : Pipal, Pipali, Lac, Kiranja, Peepal (Photoplate).

(A) VEGETATIONAL CHARACTERISTICS :

It is a full sized tree, thus, it falls under the group of 'Tree' from vegetational group point of view. It belongs to the family - *Moraceae*. It is a religious plant for Hindus from centuries back, hence, it's species is known as *Ficus religiosa*. From leaf-class classification point of view-the tree falls to the class of 'macrophylls'. From xerophytic categorization point of view, the upper surface of leaves are coated with waxy substances. From life-forms classification point of view - the tree falls in the group of 'phanerophytes'. Being, it's importance from religious point of view, it is protected from cutting and it is being worshipped throughout the Indian sub-continent wherever Hindus population is dominant.

(B) ECO-CLIMATIC CONDITIONS AND HABITAT:

In northern India, it is observed with it's 'poly-climax' nature, hence, it is observed in sand dunes habitat as rare, frequent in sandy plains habitat and commonly observed on stony and rocky habitat of hilly patches for the area under study. The tree shows it's frequent to common occurrence on riverine and aquatic habitat. Thus, the tree has been observed in arid climate (rare) semi-arid climate (frequent) and common in sub-humid and abundant in humid climate of Rajasthan. Thus, one can visualize very well it's favourable habitat in Shekhawati Region, Rajasthan. The 40 cm. Annual rainfall to 150 cm. Annual rainfall as favourable climatic condition for this tree species whereas at the part of temperature conditions 10°C mean monthly minimum and 40°C mean monthly maximum condition are favourable climatic conditions for this tree. More percentage of relative humidity places make favourable climatic conditions of this plant. It has no occurrence on top of the sand dunes but it's plantation favours the stony and rocky habitat of the area under study. It is a tropical climate tree - favours warm but moist habitat conditions. Such condition are found in Khetri and Udaipurwati tehsils (Jhunjhunu district) and in Danta Ramgarh, Shri Madhopur and Sikar tehsils (Sikar district).

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

It's secretion products are parts and portion of the tree, which are important from phyto-chemicals study point of view, which are important from phyto-chemicals study point of view. It is a resinous substance dull red, rough,

amorphous with granular fractures on the surface. It is exuded from an inset thriving an peepal tree.

It contains essential volatile oil, some Glycosides Enzymes and some minerals.

(D) MEDICINAL APPLIED ASPECT :

The scientists mentioned it's following medicinal applied aspects - as a tonic, in the cure of Leucorrhoea, it prevent bleeding, in Rheumatism pain, thus used as a indigenous medicine by the Vedhs in Ayurvedic traditional medicine. It's wood is used in sacrificial fires.

Further in this context, at the part of medicinal uses for the cure of diseases, the native persons and Vedhs - they consider it as a very useful in conditions where blood comes out of body in unnatural way. The condition may be Haematuria (Passing of blood with urine) or bleeding piles, Even sometimes when a women bleeds irregularly due to disorder in menustuaral cycle. In all such conditions it helps to check the unnecessary flow of blood.

Ficus religiosa and *F. bengalensis* both are religious plants, the scientists studied their comparative importance in the aspect of check the pollution in surrounding atmosphere.

(E) PHYTO-GEOGRAPHICAL DISTRIBUTION :

A. At Global Level :

It has Oriental distribution at global level i.e. it has through distribution throughout India, but it depends on plantation. In India-sub-continent it may be observed throughly, in other words to say that it is native to Indian sub-continent. In India it has distribution in Sub-Himalayan forest, Bengal, Maharastra, Haryana, Punjab, Gujrat, Uttar Pradesh, Madhya Pradesh and Rajasthan.

B. At Regional Level :

Due to it's 'poly-climax' nature, the distribution of tree covers different climate types - Arid (rare), Semi-arid (frequent), Sub-Humid (common) and Humid (abundant).

In Shekhawati region, it shows rare phytogeographic pattern of distribution in two tehsils of Churu district (Rajgarh and Taranagar) whereas in Churu tehsil it has frequent occurrence. Like-wise it is rare in the north-western part (Malsisar locality) of Jhunjhunu district. Most of the western, and central part of Jhunjhunu district is shows frequent occurrence, it also shows frequent phytogeographic pattern of distribution in most of the western part of Sikar district. On stony and rocky habitat of hilly patches of Shekhawati region, it shows again frequent occurrence but in the south-eastern part of Jhunjhunu district (Udaipurwati and Khetri tehsils) and eastern part of Sikar district (Neem ka Thana, Shri Madhopur, Danta Ramgarh and northern part of Sikar tehsil) - the tree species

shows common occurrence from phytogeographic pattern of spatial distribution, as shown in **Figure**. At riverine and aquatic habitat, and at holly places of Hindus - it shows frequent to common occurrence which is also obvious from the map of study region i.e. **Figure**.

The tree has common occurrence within human settlements, it may be village, town or city due to more plantation, specially where Hindu's population is more - as observed during the course of field visit's on selected survey spots in Shekhawati region.

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 aorestation and plantation programmes.

Natural vegetation i.e. *Ficus religiosa* 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 *Ficus religiosa* 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 resuted 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 managment technologies and strategies commensurate to the bio-conditions of the region.

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