Riverine and Aquatic Habtiat -Wise Distribution of Medicinal Plants of Shekhawati Region, Rajasthan

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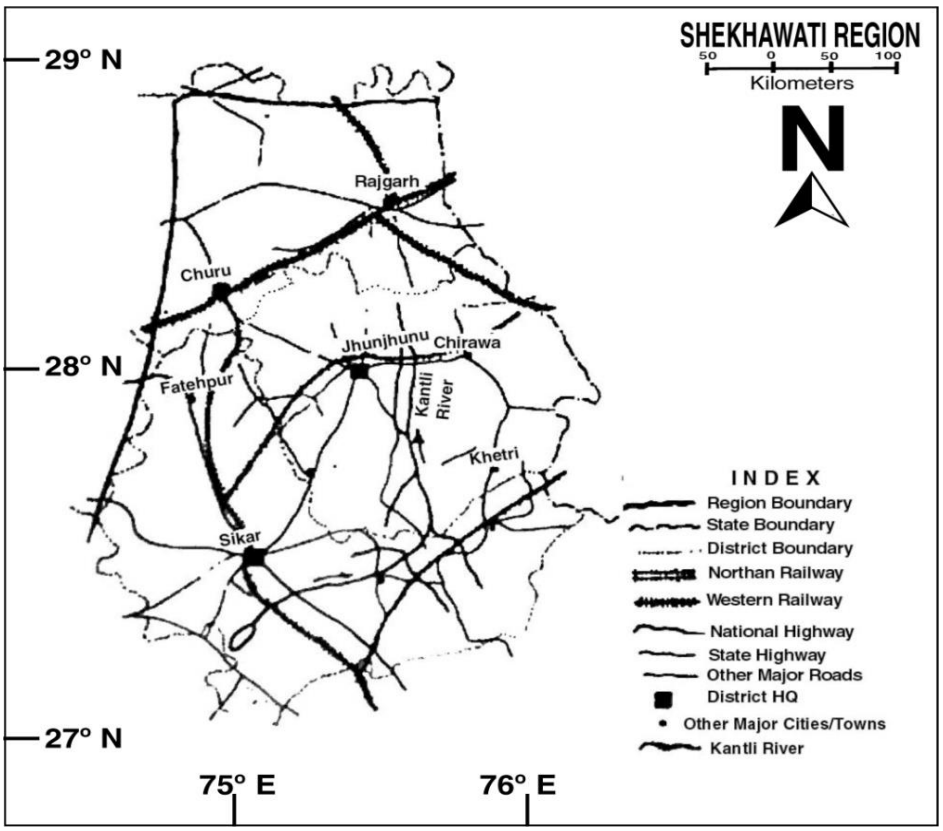
I STUDY AREA

Figure-1.1 shows the area under study i.e. Shekhawati region which is located in the north-eastern part of Rajasthan state and the region has geographical extension from 26°26' to 29°20' N latitude and 74° 44' to 76°34' E longitude on the map of Rajasthan. The area under study covers fully or partly three districts, namely Churu, Jhujhunun 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). The region has 23 Panchayat Samitis in all. Thus, the region under study has 15 tehsils in total with it's 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.

FIGURE- 1.1 LOCATION MAP OF SHEKHAWATI REGION



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.

At the part of population, Shekhawati region contributes 8.7 percent of the state's total in which sex-ratio is 948 females per thousand males in Total Population whereas it is very low i.e. 887 in Child Population for the area under study. The region obtains high Literacy rate which is about 10% more than that of the state's average. Among tehsils, Buhana ranks at first position while as Neem ka Thana contributes lowest in this aspect. The region obtains high density (244) i.e. 50 percent more than that of state's average which is 165 persons per sq. area 2001. The region has also Slum population but it is very low or to say negligible i.e. 2.5% only of the urban area's total.

The whole region has distribution of two types of soils; Sandy soil and Red Loamy soil. The former soil type has obvious distribution in Churu district, the areas of sand dunes topography; the later soil group is mostly distributed over the districts of Jhunjhunu and Sikar (classification based on dominancy, availability and agricultural productivity). The distribution of soil type and it's physical as well as chemical nature is a significant aspect from vegetation as well as plant species distribution point of view.

On the basis of another type of soil type classification according Prof. Thorpe and Smith based on the origin of the soil, the observations revealed in this direction that Remosols type of soil has distribution in the areas of sand dunes topography; all three tehsils of Churu districts have, Red sandy soil which is more alkaline in nature. Hilly topography soil and Riverine soil have their distribution according the distribution of habitat of study area.

Here, the author is illustrating the geographical perspective of the area under study in brief with it's significant components from the specific interest of the subject of study point of view. Any way, overall the present chapter's matter is divided into three parts from descriptive account point of view-viz; physiographical characteristics, land use pattern, and demographic aspect.

II DISTRIBUTION OF MEDICINAL PLANTS

It is one of the smallest habitat from total area coverage point of view, by thus, 7.5% of total geographical area of Shekhawati Region falls under the habitat of riverine and aquatic. As by it's name and nature, it includes the physiographic formations of seasonal streams, rivers, ponds and dams **(Photoplate-1-1)** of the area under study. The habitat covers 3 survey spots out of 23 survey spots of the area under study. The habitat includes 21 medicinal plant species out of 101 medicinal plants of Shekhawati Region. It is very interesting to mention here that 70% plant species are common with other habitats i.e. within first sand dunes and sandy plains and second major habitats of Shekhawati Region whereas 30% medicinal plant species have mono-climax nature tendency of phytogeographic pattern of distribution, which can be considered as the medicinal plant species of riverine and aquatic habitat.

PHOTOPLATE-1-1 RIVERINE AND AQUATIC TOPOGRAPHY

TABLE 1.1 : PHYTOGEOGRAPHICAL DISTRIBUTION OF MEDICINAL PLANT SPECIES IN RIVERINE AND AQUATIC HABITAT, SHEKHAWATI REGION

(R=Rare, F=Frequent, C=Common, A= Abundant, XC=Xerophytic Categorization, 1=Ajit Sagar Dam, 2=Islampur, 3=Kachrera)

Plant Species/ Vegetation Group	XC	Name of the Survey Spots		
		Jhunjhunu		Sikar
		1	2	3
(A) Trees				
Acacia senegal	TC	F	F	C
Acacia nilotica	ST	A	C	C
Ficus bengalensis	TC	F	F	C
Ficus religiosa	RS	C	F	C
Salvadora oleoides	RS	F	F	F
(B) Shrubs				
Calotropis procera	LB	F	A	F
Capparis decidua	ST	R	R	C
Withania somnifera	TC	R	C	R
(C) Herbs				
Agremone mexicana	TC	F	F	R
Achyranthus aspera	TC	R	F	F
Corchorus depressus	TC	C	R	F
Eclipta prostrata	TC	A	R	C
Glinus lotoides	TC	A	F	A
Launaea residifolia	TC	C	F	F
Polygonum plebium	TC	A	R	F
Portulaca oleracea	RS	F	R	C
(D) Grasses				
Cyperus rotundus	RS	C	C	F
Imperata cylindrica	TC	C	R	F
Parthenium hysterophorus	TC	F	R	R
Sehima nervosum	TC	R	R	R
(E) Climbers				
Ipomoea hederacea	TC	C	F	C

Source - The Author, based on Field Survey Visits

The **Table-1.1** illustrates the phytogeographical distribution of medicinal plant species in riverine and aquatic habitat, Shekhawati Region, Rajasthan. The table shows 4 categories of phytogeographic pattern of the spatial distribution viz; R-Rare, F-Frequent, C-Common and A-Abundant. Some medicinal plant species of riverine and aquatic habitat show the "Rare" phytogeographic pattern of spatial distribution (e.g. *Capparis decidua, Sehima nervosum* etc.) whereas some medicinal plant species of this habitat shows "Abundant" phytogeographic pattern of spatial distribution (e.g.-*Eclipta prostrata, Glinus lotoides* etc.).

III DISTRIBUTIN OF VEGETATION GROUPS

Further in this context to simplify this above mentioned matter the author made attempt about the distribution of vegetation groups in riverine and aquatic habitat in Shekhawati Region, Rajasthan. The vegetation group of "Herbs" ranks at first place by covering about 38% plant species (e.g. *Achyranthus aspera, Corchorus depressus* etc.) out of total 21 medicinal plants of riverine and aquatic habitat which is followed by the vegetation group of "Trees" by covering about 24%, respectively (e.g. *Acacia senegal, Acacia nilotica* etc.), as shown in **Table-1.2.**

TABLE 1.2 : DISTRIBUTION OF VEGETATION GROUPS(RIVERINE AND AQUATIC HABITAT) IN SHEKHAWATI REGION

	Vegetation Groups						Total
	Trees	Shrubs	Under-shrubs	Herbs	Grasses	Climbers	
Number	5	3	0	8	4	1	21
Percentage	23.8	14.2	0	38.3	19	4.7	100

Source - The Author, based on Table - 1.1

IV DISTRIBUTIN OF XEROPHYTIC CATEGORIZATION

Due to the Arid and Semi-arid climate conditions of the area under study, the medicinal plants have to adopt the xeric conditions, the author made his best efforts to classify 21 medicinal plant species of riverine and aquatic habitat under 5 xerophytic categories viz; Leafless (LL), Spiny and Thorny (ST), Trichomes covering (TC), Lactus Bearing (LB) and rest of the species (RS) as illustrated in **Table-1.3** of the xerophytic categorization of the medicinal plant species of riverine and aquatic habitat in Shekhawati Region, Rajasthan. It is quite obvious from the particular table that the maximum percentage (about 67%) is covered by the xerophytic category of "Trichomes Covering" medicinal plant species which ranks at first place (e.g. *Acacia senegal, Ficus bengalensis* etc.) it is followed by the category of "Rest of the Species" by covering 19% of the total medicinal plants of the particular habitat. The author observed not a single medicinal plant species at the name of "Leafless" medicinal plant, it is followed by the minimum percentage of the xerophytic category of "Lactus Bearing" medicinal plant species (about 5%) by including only single or one medicinal plant species as a Shrub i.e. *Calotropis procera*.

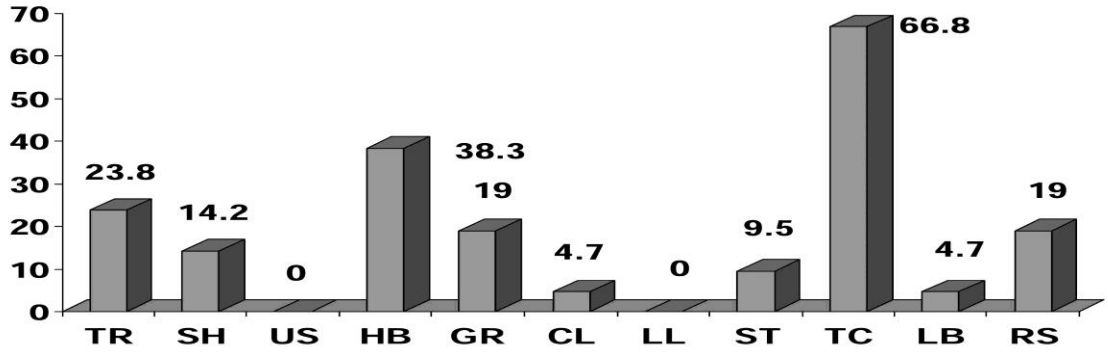
TABLE 1.3 : XEROPHYTIC CATEGORIZATION OF THE MEDICINAL PLANT SPECIES (RIVERINE AND AQUATIC HABITAT) IN SHEKHAWATI REGION

	Xerophytic Categorization					Total
	Leafless	Spiny and Thorny	Trichomes Covering	Lactus Bearing	Rest of the Species	
	(LL)	(ST)	(TC)	(LB)	(RS)	
Number	0	2	14	1	4	21
Percentage	0	9.5	66.8	4.7	19	100

Source - The Author, based on Table - 1.1

Figure-1.2 is based on **Table-1.2 and 1.3** which shows the vegetation groups of medicinal plant species in Left Side and the xerophytic categories in Right Side with their respective percentage of medicinal plant species. By thus, one can visualise very well a comparative account of percentage contribution of medicinal plant species of riverine and aquatic habitat under their respective 6 vegetation groups and 5 xerophytic categories.

FIGURE-1.2 PHYTOGEOGRAPHICAL CHARACTERISTICS OF MEDICINAL PLANTS OF RIVERINE AND AQUATIC HABITAT



REFERENCES

[1] Anonymous (1991) Nature and Extent of Biodiversity in Arid and Semi arid Region of India.-CAZRI Jodhpur.
[2] Bhandari M.M. (1990) Flora of the Indian Desert (Revised) MPS Report Jodhpur.
[3] Cain, S.A. and Castro, G.M.de O.(1959) Manual of vegetation Analysis. Arper and Row, U.S.A.
[4] Charan, A. K. (1992) Plant Geography, Rawat Publication, Jaipur
[5] Koppen, W.P. (1900) Versuch einer Klassification for Klimate, uorzugsweise nachihren beziehurgen zur planzenwett. Geogr. Z. 6:593-611..
[6] Sharma, M.K. (2007) Medical Plant Geography, Rachana Publications, Jaipur.
[7] World Resource Institute, (1992) World Resources. Oxford University Press, New York.