

# Stony and Rocky Habitat-Wise Distribution of Medicinal Plants of Shekhawati Region, Rajasthan

Dr. Mukesh Kumar Sharma 'Bhatt'

Principal, Maharani Girls PG College, Rampura, Alsisar, Jhunjhunu, Rajasthan.

**Abstract:** 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 its six tehsils (Data Ramgarh, Fatehpur, Laxmangarh, Neem ka Thana, Sikar and Shri Madhopur).

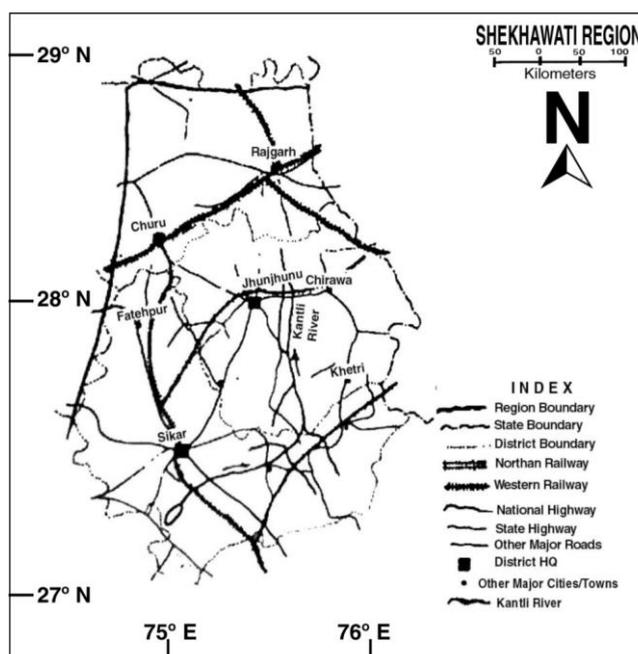
**Keywords:** about four key words separated by commas.

## 1.1. 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, 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 its 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.

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**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.

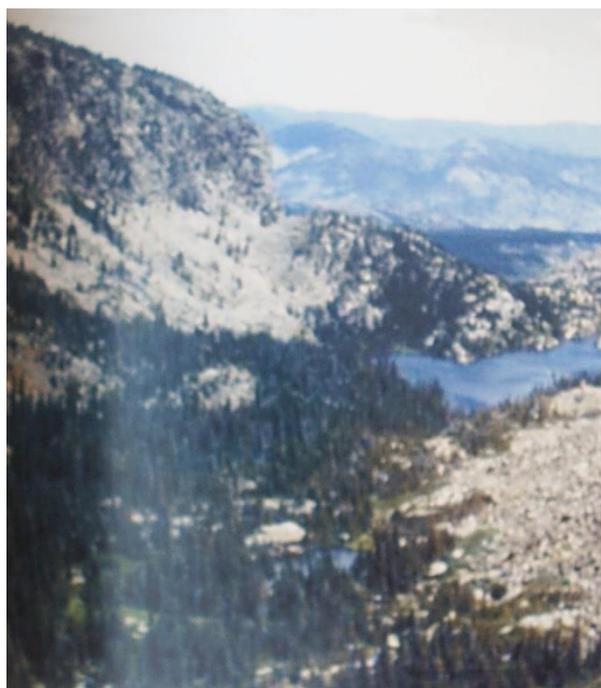
On the basis of another type of soil type classification according Prof. Thorpe and Smith based on the origin of the soil, the observations revealed in this direction that Remosols type of soil has distribution in the areas of sand dunes topography; all three tehsils of Churu districts have, Red sandy 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.

## 1.2. DISTRIBUTION OF MEDICINAL PLANTS

It is one of the second major habitat of the area under study by covering physiographical formations of hilly patches (**Photoplate-1-1**) and the gravel as well as compact soil areas. The particular habitat covers about 32.5% of the total geographical area of the study. It includes four survey spots for the details field study to know the phytogeographic pattern of spatial distribution of medicinal plant species within the particular habitat i.e. stony and rocky habitat.

### PHOTOPLATE-1-1 STONY AND ROCKY TOPOGRAPHY



Although by area coverage point of view it is the second largest habitat but from total coverage of number of medicinal plant species it ranks at First place in Shekhawati Region. Out of total 101 medicinal plants, the particular habitat includes 95 medicinal plant species. It is very interesting to mention here that out of 95 medicinal plant species 70% medicinal plant

species are common in both of the habitats i.e. rocky and stony habitat as well as sand dunes and sandy plains habitat whereas 30% medicinal plant species have their mono-climax nature tendency of distribution for a particular habitat i.e. restricted within stony and rocky formations.

**TABLE 1.1 : PHYTOGEOGRAPHICAL DISTRIBUTION OF MEDICINAL PLANT SPECIES IN ROCKY AND STONY HABITAT, SHEKHAWATI REGION**

(R-Rare, F-Frequent, C-Common, A- Abundant, XC= Xerophytic Categorization, 1=Lohargarh, 2=Mansa Mata, 3=Ganeshwar, 4=Harsh)

Plant Species Vegetation Group	XC	Name of the Survey Spots			
		Jhunjhunu		Sikar	
		1	2	3	4
<b>(A) Trees</b>					
Adhatoda vasica	TC	--	F	--	--
Acacia senegal	ST	A	A	C	C
Acacia nilotica	ST	C	A	F	C
Azadirachta indica	RS	F	F	--	--
Bambusa bambos	ST	C	F	F	F
Boswellia serrata	TC	C	C	F	C
Butea monosperma	TC	A	F	F	F
Cordia gharaf	TC	R	F	F	F
Cassia fistula	RS	F	F	F	F
Dalbergia sissoo	RS	F	F	F	C
Ficus bengalensis	TC	C	C	F	F
Ficus religiosa	RS	F	C	F	F
Mangifera indica	RS	A	F	F	F
Mitragyna parviflora	RS	F	R	R	F
Phoenix acaulis	ST	F	F	R	F
Salvadora oleoides	RS	F	F	R	F
Saraca asoca	RS	R	F	R	R
<b>(B) Shrubs</b>					
Calotropis procera	LB	F	R	R	R
Capparis decidua	ST	R	R	F	R
Calligonum polygonoides	LL	R	--	--	--
Commiphora mukul	LL	A	C	F	F
Caesalpinia pulcherrima	TC	F	C	R	F
Coccinia indica	TC	F	C	F	F
Clerodendrum indicum	TC	R	F	R	R
Lycium barbatum	ST	R	R	R	R
Mimosa hamata	ST	R	R	R	R
Opuntia elator	ST	R	R	R	F
Peristrophe bivalvis	RS	F	R	F	F
Rhus coriara	ST	F	F	F	F
Surcostemma acidum	LL	F	F	F	C
Withania somnifera	TC	R	R	R	R
<b>(C) Under-shrubs</b>					

Aloe vera	LB/ST	C	F	C	C
Aerva persica	TC	F	C	F	F
Alysicarpus vaginalis	RS	R	--	F	R
Asparagus racemosus	ST	F	R	F	R
Abutilon indicum	RS	F	F	C	F
Crotolaria burhia	TC	R	--	F	R
Cassia acutifolia	RS	F	R	R	F
Cassia angustifolia	RS	A	F	C	C
Echinops echinatus	ST	F	F	F	F
Euphorbia caducifolia	LB	R	C	F	C
Grewia villosa	RS	F	C	F	C
Leucas aspera	RS	F	R	R	F
Leucas urticaefolia	TC	F	R	C	F
Malva rotundifolia	RS	R	R	R	F
Ocimum americanum	TC	F	C	C	F
Sida alba	RS	F	C	F	F
Sida acuta	RS	R	R	F	F
<b>(D) Herbs</b>					
Agremone mexicana	TC	R	R	F	R
Achyranthus aspera	TC	R	F	F	R
Amaranthus spinosus	ST	R	F	F	R
Aristolochia bracteolata	RS	F	F	R	F
Adiantum venustum	RS	F	R	F	R
Barleria prionitis	ST	F	C	F	C
Blumea obliqua	TC	C	R	R	F
Blepharis sindica	RS	R	F	F	F
Boerhavia diffusa	TC	R	F	R	R
Citrullus colocynthis	TC	--	--	--	--
Convolvulus microphyllus	TC	R	--	F	R
Convolvulus arvensis	TC	--	--	F	--
Cressa cretica	TC	--	--	F	--
Cleome gynandra	TC	C	F	C	C
Crotolaria medicaginea	RS	R	R	F	R
Corchorus depressus	TC	C	R	F	F
Digera muricata	TC	F	R	F	R
Dicoma tomentosa	ST	F	R	R	F
Eclipta prostrata	TC	C	R	R	F
Indigofera oblongifolia	TC	F	F	R	F
Launaea residifolia	TC	F	R	F	R
Lindenbergia indica	RS	R	--	F	R
Mollugo cerviana	RS	--	--	F	--
Mollugo nudicaulis	RS	R	R	R	R
Psoralea odorata	RS	C	C	C	C
Psoralea corylifolia	RS	R	F	R	R
Phyllanthus fraternus	TC	R	R	F	R
Polygala chinensis	RS	F	--	F	R
Portulaca oleracea	RS	F	R	F	F
Solanum nigrum	ST	R	R	F	R
Solanum surrattense	ST	R	F	F	R
Tribulus terrestris	ST	--	F	--	--
Viola cinerea	RS	R	R	R	R

<i>Vernonia anthelmintica</i>	TC	R	R	R	R
<i>Vernonia cinerea</i>	RS	F	R	F	R
<b>(E) Grasses</b>					
<i>Cyperus rotundus</i>	RS	R	--	F	R
<i>Cymbopogon flexuosus</i>	TC	R	--	R	R
<i>Dactyloctenium aegyptium</i>	RS	R	--	F	--
<i>Imperata cylindrica</i>	TC	C	R	F	F
<i>Panicum antidotale</i>	TC	--	--	R	--
<i>Parthenium hysterophorus</i>	TC	--	--	F	--
<i>Sehima nervosum</i>	TC	--	--	R	R
<b>(F) Climbers</b>					
<i>Cuscuta chinensis</i>	LL	F	F	F	R
<i>Ipomoea hederaceae</i>	TC	F	C	F	C
<i>Pentatropis spiralis</i>	LB	F	C	C	F
<i>Rivea ornata</i>	TC	C	C	C	C
<i>Tinospora cordifolia</i>	LL	F	C	F	F

Source - The Author, based on Field Survey Visits

**Table-1.1** deals the details of the phytogeographical distribution of medicinal plant species in stony and rocky habitat, Shekhawati Region, Rajasthan. The **Table** illustrates the phytogeographic pattern of spatial distribution under four categories viz; R-Rare, F-Frequent, C-Common and A-Abundant. Some plant species have their "Rare Pattern" of phytogeographic spatial distribution, (e.g. *Mimosa hamata*, *Withania somnifera* etc.) whereas some medicinal plant species have "Abundant Pattern" of phytogeographic distribution (e.g. - *Acacia senegal*, *Butea monosperma* etc.).

### 1.3. DISTRIBUTION OF VEGETATION GROUPS

Further in this context, to simplify the whole matter the author presented **Table-1.2** of the distribution of vegetation groups of

stony and rocky habitat in Shekhawati Region, Rajasthan. It is quite obvious from the **Table 1.2** that the vegetation group of "Herbs" ranks at first place (e.g. *Boerhavia diffusa*, *Tribulus terrestris* etc.) by making about 32% by including 36 medicinal plant species out of total 95 medicinal plants of the area under study which is followed by the vegetation group of "Trees" (about 18%) by covering 17 medicinal plant species of the particular Habitat (e.g. *Azadirachta indica*, *Saraca asoca* etc.). The minimum percentage of vegetation group is covered by "Climbers" about 5% (e.g. - *Cuscuta chinensis*, *Tinospora cordifolia* etc.) which is followed by the vegetation group of "Grasses" about 7% by including 7 plant species of grasses (e.g.-*Cymbopogon flexuosus*, *Panicum antidotale* etc.).

**TABLE-1.2. DISTRIBUTION OF VEGETATION GROUPS(STONY AND ROCKY HABITAT) IN SHEKHAWATI REGION**

	Vegetation Groups						Total
	Trees	Shrubs	Under-shrubs	Herbs	Grasses	Climbers	
Number	17	14	17	35	7	5	95
Percentage	17.8	14.7	16.8	38.2	7.3	5.2	100

Source - The Author, based on Table - 1.1

### 1.4. DISTRIBUTION OF XEROPHYTIC CATEGORIZATION

The author made efforts about the xerophytic categorization of the medicinal plant species of (stony and rocky habitat) in Shekhawati Region, Rajasthan in which he made 5 major categories of xerophytic categorization viz; Leafless (LL) Spiny and Thorny (ST), Trichomes Covering (TC), Lactus Bearing (LB) and Rest of the species (RS). It is quite obvious in the **Table-1.3** that xerophytic category of "Trichomes Covering" medicinal plant species ranks at first place (about 38%) by covering 36 medicinal plant species out of total 95

medicinal plants of the particular habitat (e.g. *Adhatoda vasica*, *Ficus bengalensis* etc.), it is followed by "Rest of the Species" makes about 36% by covering 34 medicinal plant species out of 95 medicinal plant species within the particular habitat of stony and rocky formations (e.g. *Dalbergia sissoo*, *Cassia fistula* etc.). The minimum percentage is covered by Xerophytic category of "Lactus Bearing" medicinal plant species i.e. about 3% (e.g. *Calotropis procera*, *Euphorbia caducifolia* etc.), it is followed by the "Leafless" xerophytic category (about 5%) by covering 5 medicinal plant species out of 95 medicinal plant species of the particular habitat (e.g.-

**TABLE 1.3 : XEROPHYTIC CATEGORIZATION OF THE MEDICINAL PLANT SPECIES (STONY AND ROCKY HABITAT) IN SHEKHAWATI REGION.**

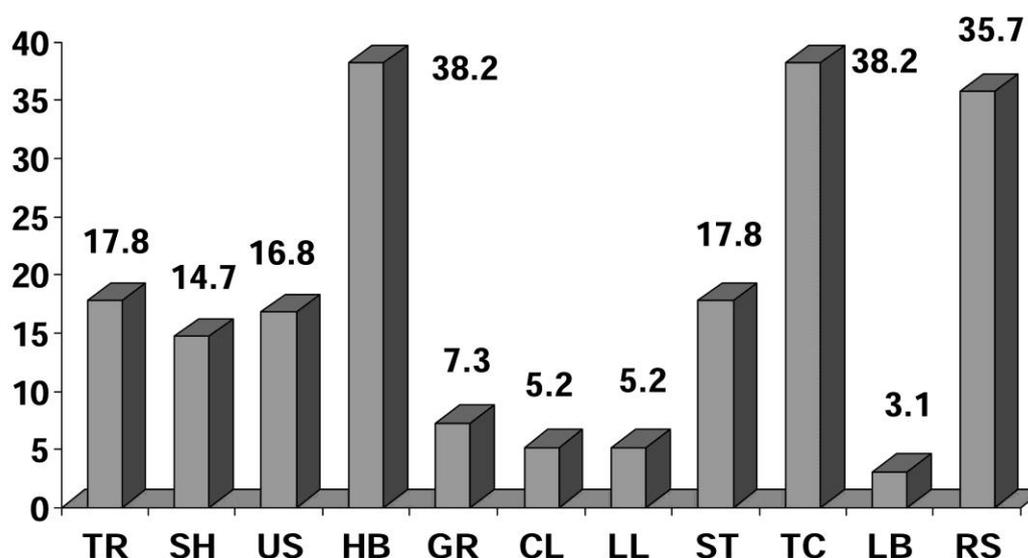
	Xerophytic Categorization					Total
	Leaf less	Spiny and Thorny	Trichomes Covering	Lactus Bearing	Rest of the Species	
	(LL)	(ST)	(TC)	(LB)	(RS)	
Number	5	17	36	3	34	95
Percentage	5.2	17.8	38.2	3.1	35.7	100

Source - The Author, based on Table - 1.1

**Figure-1.2** shows the phytogeographical characteristics of the medicinal plants of stony and rocky habitat vegetation. The above mentioned Figure is based on the **Table-1.2 and 1.3** in which the percentage of contribution of medicinal plant species by their respective vegetation Groups is shown in Left Side in Figure whereas the percentage of contribution of medicinal plant species with their respective xerophytic categories is

shown in the Right Side, respectively. By thus, one can visualise very well a comparative account of contribution of medicinal plant species according their classification presented for vegetation groups and xerophytic categorization for the particular habitat i.e. stony and rocky formations for the area under study i.e. Shekhawati Region, Rajasthan.

**FIGURE-1.2 PHYTOGEOGRAPHICAL CHARACTERISTICS OF MEDICINAL PLANTS OF STONY AND ROCKY HABITAT**



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