International Journal of Pharmaceutical and Medical Research
Volume – 9 Issues – 1-12, January-December 2021
Website: www.woarjournals.org/IJPMR *ISSN: 2348-0262*

Phytogeographical Distribution Of *Leptadaenia Pyrotechnica* In Churu District, Rajasthan

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Abstract: ***As we know that the area under district i.e. Churu district belongs to the State of Rajasthan, the State of Rajasthan is located in north-western India . The district of Churu lies in the north-east of Rajasthan State at an altitude of 286.207 metres above the mean sea level. From geographical spread point of view has extension from 27°24' to 29° north latitudes and 73°40' to 75°41' east longitudes.***

1. Introduction

It is bounded by Hanumangarh in north, Bikaner in west, Nagaur in south and Sikar, Jhunjhunu districts and boundaries of Haryana State in the east. It covers six tehsils namely : Taranagar, Rajgarh, Churu, Sardarshahr, Ratangarh and Sujangarh. (Figure1-1)

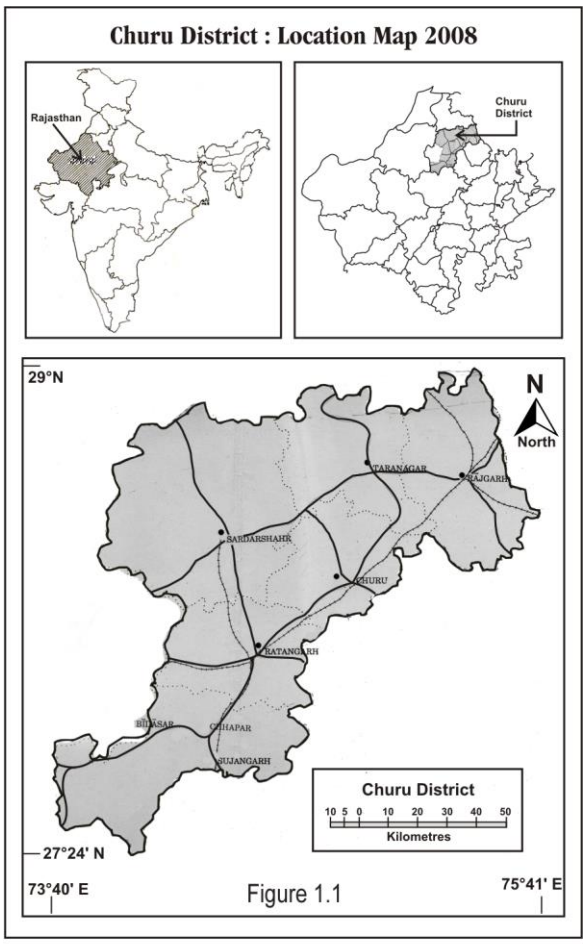


Figure 1.1

Source : Based on Survey of India Map with The Permission of the Surveyor General of India

2. 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 neghbourhood areas and vegetation of Lohargal and it's 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 publcation 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.

3. 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. The study will covers

also the change detection aspect in the green coverage of the area under study.

4. 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.

5. Methodology

Applied categorization of those listed applied plant spices will be carried out into their main applied categories, viz; plants for fuel purpose, plants for fodder purpose, plant species for medicinal use, plants for edible purpose, and plant species for commercial values.

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.

6. Phyto-Geography Of Leptadaenia Pyrotechnica

1. Name of the Specimen :

LEPTADAENIA PYROTECHNICA

2. Local Name :

Khimp, Khip, Khimpdo

3. Botanical Name :

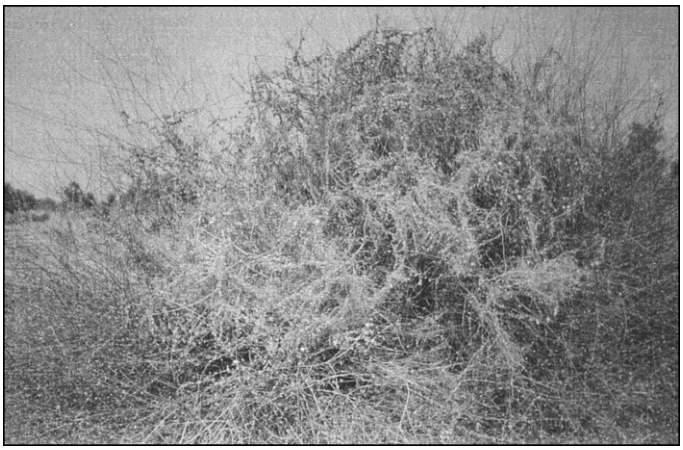
Leptadaenia pyrotechnica

4. Family :

Asclepiadace

5. Morphology :

The plant species belongs to the family, Asclepiadace. It belongs to the group of shrub and is a much branched, often leafless, and more or less erect shrub. Its average height ranges from 1 to 2 m whereas sometimes in its abundant localities it is observed up to 3 m or even more than that. Generally, it has association with Aerva persica (Plate : 1.1).



6. Flowering and fruiting:

The period extents from August to November and December to March.

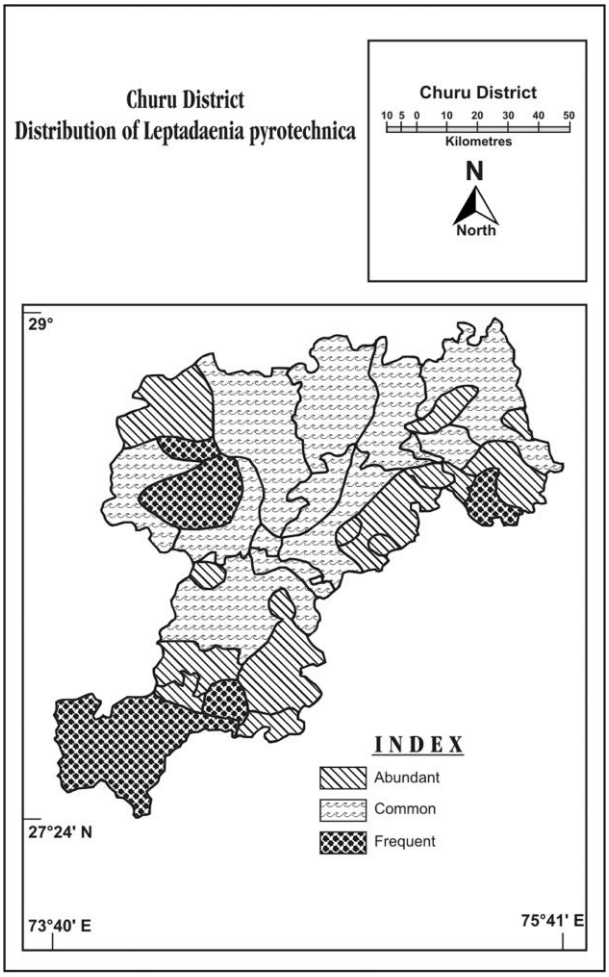
7. Vegetation Group:

It belongs to the vegetation group of shrub. The shrub belongs to the class of ‘nano-phanerophytes’ from life-form point of view and from lead-classes point of view falls under the class of either leptophylls or leafless.

8. Eco-climatic Conditions and Habitat :

Over most of the prefixed thirteen survey sites in it is observed that the survey sites show unequal distribution of the shrub due to their occurrence at different habitats characteristics. It has no occurrence over stony and hilly patches and also shows no presence in the saline habitat. It shows rare to frequent distribution on pure gravel and compact soil areas. Frequent to common at sand dunes habitat but it has common to abundant occurrence over vast sandy plains habitat of Churu district. Thus by nature, it shows some sort of more monoclimax and lesser polyclimax tendency of plant succession. The most favourable habitat for the plant has been investigated in locality of Satnali and Bhojawas, where a thick loose sandy layer and below it the strata of limestone has existance, presents uniqueness of these localities for the area under study.

Due to fluctuations in climatic conditions it is generally observed in leafless stage in most of the year but hardly for two months period only in rainy season it bears thin and needle shaped leaves. Thus, the annual rhythem of its growth fluctuations coincides to the prevailing climatic conditions, specially the high temperatures with dry winds of desert



Source : Forest Survey of India Dehradun, Forest Deptt. Govt. of Rajasthan, Jaipur & Field Survey

landscape. In this way ecologically the shrub is a drought evading and resisting plant species of Indian arid zone. Soil moisture also plays an important role in the rhythem of its growth due to an increase or decrease of soil moisture from pre-to-post monsoonal period and vice-versa.

The average soluble salt contents i.e. for sandy soil which is followed by the gravel underground layer, the shrub exhibits ranges in between 1500 to 10000 ppm. The plant covers the areas of extreme-arid, arid and semi-arid region of the district and Haryana desert landscape. Its phytogeographical distribution is climatically delimited by 50 cm of rainfall boundary in Churu district. Generally, its presence in agricultural fields shows the emphasis as given by the farmers in mankind the boundaries of the fields.

9. Applied Uses:

It is an important economic plant species Churu district and hence out of 5 applied categories it covers three, which are; fodder, edible, and commercial.

A. Fodder Purpose:

As a fodder it is not commonly used as other plants of Rajasthan and Haryana but in Arabian countries, in combination with that of Priploea aphylla the plant is much used in Sidi district as a camel fodder,

B. Edible Purpose:

The quite immature buds of the shrub locally called as ‘tolli’ are used for preparation of vegetation and eaten with curd, it gives a better taste,

C. Commercial Purpose:

Ropes and cords are prepared from the fibres extracted from the stem and branches. Although these ropes are quite rough in appearance but very useful in the economy of agricultural society of villagers. The fibres are found suitable for well-ropes locally known as ‘Kuan or Bera’ in the province of Sindh. The semi-dried plant as a whole is used as a shelter material for roof of the huts which is a common practice as adopted by the inhabitants of the desert environment. These ropes and cords are sold at local market value, so it has commercial importance at small scale.

10. Phyto-geographical Distribution:

The species has also distribution westward from western India. It covers the tropical Africa and Arabian countries. In India it extends westwards through Punjab plain Haryana and Rajasthan right up to Baluchistan and Sindh (Pakistan). It also spreads in northern portion of Gujrat and M.P. (old Kathiawar province of India).

It is a drought resistant shrub species and is a characteristics plant which has occurrence on sandy plains

throughout the area under study. One can find abundant distribution of the particular shrub for the area under study. The particular area is covered by vast sandy plains and at several places by sand dunes, thus it express desert like conditions. Old Alluvial plain, saline and hilly habitat of the study area shows no phytogeographic distribution of Leptadaenia species.

The shrub shows common phytogeographic pattern of distribution in which it is located with a large area in north-western portion of the district of sand dunes and sandy plains topography where density of Leptadaenia shrub is medium. Specially the shrub shows abundent occurrence four patches in Rajgarh tehsil, three patches in Churu tehsil, one patch in Sardarshahr tehsil, three patches in Ratangarh tehsil and two patches in Sujangarh tehsil, Mostly remaining the area under study, the shrub shows frequent occurrence of phytogeographic pattern of distribution as shown in figure : 1.1. Rarely it may not be seen in any area of Churu district.

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