Applied Phytogeography of Medicinal Plants Used in Traditional Pansari Healing Practices of Khetri

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Abstract-This study explores the applied phytogeography of medicinal plants traditionally used by Pansaris in Khetri, Rajasthan, emphasizing ethnobotanical knowledge and spatial distribution patterns. Based on field surveys and literature during 2014, the research highlights regional plant diversity, therapeutic applications, and the importance of conserving traditional herbal knowledge for sustainable healthcare.

Keywords : Phytogeography, Medicinal Plants, Pansari Tradition, Khetri, Ethnobotany, Rajasthan, Herbal Medicine, Sustainable Healthcare.

I. INTRODUCTION

Traditional Pansari healing in Khetri relies on deep-rooted knowledge of local flora. It has been felt from last few decades that our knowledge of medicinal plants has mostly inherited traditionally. Use of plants for curing various ailments are not confined to the Doctors only but is known to several households as well. There are many interesting and some times astonishing things to learn from collectors of medicinal herbs. Spreading and preserving this knowledge on medicinal plants and their uses has become important for human existence. There is a growing tendency all over the world to shift from synthetic to natural based products including medicinal plants. It is also timely now to consider neglected and little known medicinal plants. Natural based products are generally collected either from the concerning medicinal plants which have occurrence in their concerning natural habitats, phytogeographical units or wild areas or from the centres of commercial cultivation of plants useful for medicinal purpose. Thus, the present study problem consists overall emphasis of phytogeographic account in between the available medicinal plants of the region and their phytogeographic pattern of distribution within their concerning phytogeographical unit or natural habitat i.e. towards natural based products from the medicinal plants occurrence from natural habitats.

During last two decades considerable changes have taken place in the medicinal system all over the world. Because of the general awareness of the widespread toxicity and harmful after effects associated with the long use of synthetic drugs and antibiotics, the Western society prefer the drugs from natural sources than the synthetics. By taking consideration this conceptual aspect, the present study will deal about the phytogeographical study which naturally covers investigation of the phytogeographic pattern of distribution of available such medicinal plants in their concerning natural habitat, resource potential area or phytogeographical unit of Khetri region of the state i.e. Rajasthan. Thus, such type of research study undoubtedly has a strong significant platform of research problem importance and naturally may be very useful, since the study has to give emphasis to the phytogeographical unit or area concerning with its available medicinal plants from the region under study. Due to various phytogeographical units or areas, natural habitats and areas of biodiversity; India is a leading exporter of the medicinal plants in the world trade. The major export of medicinal plant parts or whole plants from India area supplied every year to many countries. Availability of such plants in nature, naturally have their occurrence in concerning phytogeographical unit or natural habitat, such units or areas are natural genes banks in nature. The present study will deal with the valuable contribution in this direction and will explore the phytogeographic pattern of distribution in concerning phytogeographical unit of the available medicinal plants of the region under study. An unpolluted and less disturbed phytogeographic unit or natural habitat will keep generally the concerning medicinal plant in more number by which apart from the medicinal plant parts, India also exports large quantity of phyto-chemicals, by thus, such kind of study is very useful in presentation of spatial distribution and development of potential as well as resource area.

More than hundred medicinal plants are used in modern medicines. Plants used in traditional systems of medicine are over five hundred different types. Most of the raw material for the traditional medicine is collected from their concerning

phytogeographical units or natural areas or wild sources. Such kind of study will naturally deal about the better presentation of eco-physiographical conditions of the available plants in nature within their concerning phytogeographical unit, by thus the study will help in providing the natural conditions of the environmental elements of resource area in back ground for commercial cultivation of plants useful for modern medicines.

In India, the use of different parts of several medicinal plants to cure specific aliments has been in vogue from ancient times. The indigenous system of medicine namely Unani, Siddha and Ayurvedic have been inexistance for several centuries. This system of medicine cater to the needs of nearly seventy percent of our population residing in the villages. Out country is a vast area where wide variations in climate, soil, altitude and latitude is available. Nature has bestowed on us a very rich botanical wealth and a large number of diverse type of plants grove wild in different parts of the country. The present study will deal the phytogeographic account of such wild parts or natural habitat, or phytogeographical unit of the available medicinal plants of Khetri region, Rajasthan. Thus, there is a need for conservation of all useful plant species, and also cultivation in their concerning phytogeographical unit or natural habitat, maintenance and assessment of germplasm for future use, since among the most vulnerable plant species in India, the most over-exploited are the medicinal plants, the similar conditions are also expected in the region under study.

Many of the medicinal plants which are widely known for their curative effect of certain diseases may have their specific pattern of phytogeographic distribution for the region under study, hence, naturally the study will deal this aspect by giving more emphasis on pre-expected (which are widely known from generations back for their curative effect of certain diseases) such as, *Adhatoda vasica* as an expectorant and antiasthamic, *Achyranthus aspera* and *Boerhavia diffusa* as diuretic, *Cassia fistula* as catharitic, *Azadirachta indica* as antibiotic activity, anthelmintic and antiseptic, *Commiphora mukul* as on anti-rheumatic and nervous tonic etc., such, kind of study will explore the potentical areas of natural habitats or phytogeographic descriptive account in this aspect.

The plant based drugs, however, have shortened the life-span of the source of material. There is continuous search for more potent and cheaper raw material area to feed the industry. The present study will try to provide the guidelines about a phytogeographic account of spatial distribution of such more potent and cheaper raw material resource area for the available medicinal plants of Khetri region with concerted research and development efforts, many medicinal plants could provide raw material in abundance either by their commercial cultivation of plants useful for modern medicines or by explorating the natural habitat or conciding phytogeographic unit which have abundance of occurrence of such kind of plants for the region under study.

The present study will deal an integrated and comprehensive account of all related aspects of the research subject as nomenclature, description, phytogeographic pattern of distribution of available medicinal plants, spatial distribution of nature and type phytogeographical unit, interpretation of eco-physiographical conditions or rather to say natural conditions of environmental elements for providing supportive background for their commercial cultivation, physical and chemical properties of important medicinal plants in a broad sense etc. from phytogeographic study point of view for the region under study. Thus, the time has come by which one can visualize very well the importance of the research problem, that, there is a need to identify the natural plant wealth from phytogeographic study point of view and commercially viable and valuable species in each agro-climatic zones, promote industries to produce phytochemicals, standardise the agrotechniques for cultivation and production of these plants particularly in forest, phytogeographical units, waste lands and orchards as an additional income generating activity, and also strengthen the research and developmental activity for evolving new herbal products and their production technology.

An integrated system of medicine based on natural products of plants from natural habitats and synthetics may yield the most effective and cheap package for WHO's goal of "Health for all by the year-2000."

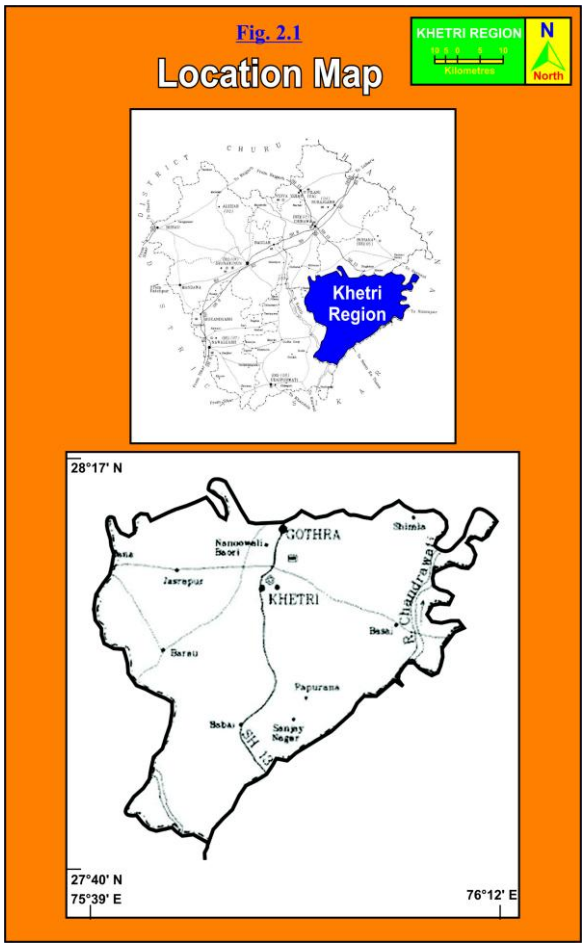
The present research problem has significance of conceptual platform to all the lovers of green coverage in natural habitats that, many of these valuable and useful group of plants are threatened with extinction, because of over exploitation and habitat distraction, significance endeavour of the research problem here is to make people aware of the potential of medicinal plants from all angles so that these life saving plants can be protected at least from the total destruction from the region under study.

The spectrum of study is, therefore, very large. Arising out of a multitude of factors these problems are studied with cross-fertilization of knowledge between ecologists, botanists, phytogeographers, forest scientists, naturalists, herbalists and practitioner which helps in the accumulation of new data for the presentation of selected problem in a specific region with reference to the applied aspect of the medicinal plants.

II. STUDY AREA

Khetri Tehsil is located in south-eastern part of Jhunjhunu district, Rajasthan state with it's geographical extension in between 27° 40' to 28° 17' north latitude and 75° 39' to 76° 12' east longitude**.** From geographical area point of view, which is 11.31 sq.km. Khetri Tehsil itself with more details which includes its interval physical as well as cultural features. In north of Khetri area copper town is located at 8 km. distance whereas in south the village Papurna is located at 10 km. distance, thus Khetri has location on the state highway route i.e. Neemkathana to Copper town. Further in this context this route in north it is linked with Jhunjhunu and New Delhi whereas in south the state highway linked to the city Jaipur.

The Khetri Tehsil obtains second place after Jhunjhunu tehsil in Jhunjhunu district, Rajasthan by percentage contribution in the total population percentage of the district i.e. 24 percent (2001) which is 0.20 percent higher than that of (1991) i.e. 3.57 percent. At the part of total geographical area, the Khetri Tehsil is placed at second. position by obtaining 27 percent only of the district's total. From total area under forest point of view, the Khetri Tehsil stands at second position by keeping 14 percent of the district's total.



The Khetri Tehsil presents some places of real interest from tourism point of view. Baghor hills, Mansamata temple, Fort of Khetri and Ajit Sagar dam these all places are located in forest area. Last but not least Mission of Swami Vivekananda (Khetri town) and copper mines plant in Khetri Nagar.

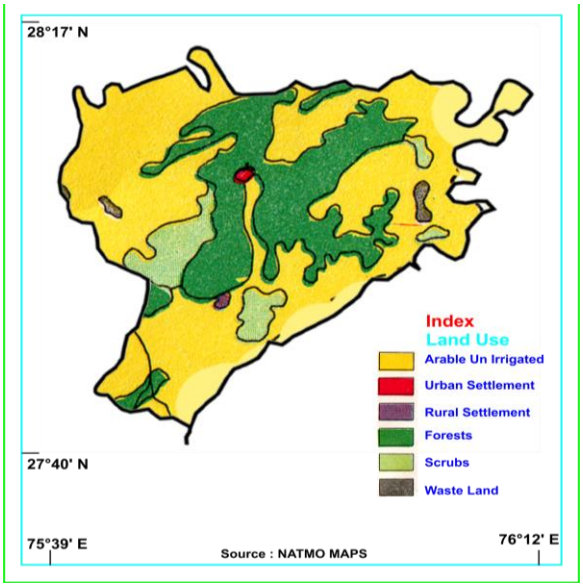
According V.C. Mishra (1967), the area under study falls in semi-arid region of Rajasthan while according Prof. R.L. Singh (1971) the Khetri Tehsil is covered by western Sikar-Jhunjhunu plains in banger region of Rajasthan.

III. OBJECTIVES

1. To document medicinal plant species used by Pansaris in Khetri.
2. To analyze phytogeographical patterns influencing their distribution.
3. To examine ethnomedicinal uses and traditional preparation methods.
4. To assess conservation needs of valuable species.
5. To integrate traditional knowledge with modern phytogeographic understanding for sustainable development.

IV. METHODOLOGY

Data were collected through field surveys, interviews with local Pansaris (e.g. Leeladhar Bhatt Pansari, Khetri), and herbarium verification during 2014. Mapping identified distribution zones. Secondary data were compiled from ethnobotanical literature, Ayurvedic texts, and regional floras. Analysis emphasized species frequency, ecological preferences, and ethnomedicinal significance under applied phytogeographic frameworks.



V. OBSERVATION

A total of 85 medicinal plant species from 42 families were recorded. Common Plant Species included Withania somnifera, Asparagus racemosus, Commiphora wightii, and Aloe vera. Species distribution corresponded to arid scrublands and foothill zones. Pansaris preferred locally available roots, gums, and leaves for treating digestive, respiratory, and dermatological disorders.

VI. DISCUSSION

Findings show strong correlation between plant distribution and Pansari usage patterns. Khetri's topography and climate shape specific phytogeographic assemblages supporting ethnomedicinal diversity. Traditional practices reflect adaptive use of native flora. However, overharvesting and modernization threaten continuity, emphasizing the need for documentation, cultivation, and sustainable conservation strategies.

VII. RESULTS

Analysis revealed dominance of xerophytic species adapted to semi-arid conditions. The highest medicinal utility index was observed for Commiphora wightii. Ethnobotanical richness peaked near hilly zones. Traditional knowledge was transmitted orally, with 62% of species still in local therapeutic use despite declining younger generation involvement.

VIII. CONCLUSIONS

The study concludes that Khetri's Pansari system represents a vital phytogeographic and ethnobotanical heritage. Conservation of medicinal flora, combined with scientific validation and community awareness, can ensure sustainable utilization. Integrating traditional healing knowledge with modern plant geography enhances both ecological management and rural healthcare resilience.

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