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TRADITIONAL MEDICINAL PLANTS OF RAJASTHAN USED IN TRIBAL MEDICINE : A REVIEW.

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ABSTRACT

Around seven percent of tribal population of India lives in Rajasthan. Ethnobotany can be defined as the total natural and traditional relationship and the interactions between man and his surrounding plant wealth from times immemorial, due to sheer, necessity, intuition, observation and experimentation. Ethnobotany of India might is among the earliest in the world and all traditional systems of medicine had their roots in ethnobotany. Rajasthan has rich cultural diversity and biodiversity. Present paper presents use of medicinal plants by tribal people in general and Rajasthan in particular

Keywords:Traditional medicines, WHO,tribal people, Rajasthan, Herbal Medicines.

INTRODUCTION

The world health organization (WHO) has recently recognized the importance of traditional medicinal system in different parts of globe and around 4000 plant spp. have been identified which are used in traditional herbal medicinal system (Cotton, 1996). However, proper identification of these crude drugs in Botanical terms has not been carried out or still remains disputed as different authors ascribed different plants source to various crude drugs (Sanghi and Kumar, 2000). More over several difficult diseases have problem related with vitality, diabetes, memory loss, could be cured effectively by use of herbal medicine, which is generally not possible by the Allopathic medicines. However, there is no systematic documentation of this information. Medicinal plants are distributed across diverse habitats and landscape. Around 70 per cent of India's medicinal plants are found in tropical areas. Mostly in the various forest types spread across the Western and Eastern ghats, the Vindyas, Chota Nagpur Plateau, Aravallis and Himalayas. Although less than 30 per cent of the medicinal plants are found in the temperate and alpine areas and higher altitudes they include species of high medicinal value. Previous studies showed that a larger percentage of the known medicinal plants occur in the dry and moist deciduous vegetation as compared to the evergreen or temperate habitats (Jhakar *et al*., 2004). One third is tree and an equal portion includes shrubs, and the remaining one third are herbs, grasses and climbers.

RAJASTHAN

Rajasthan has a large population of about 5, 64, 73, 122 crore. Around 80 percent live in villages which utilize local medicine. The state of Rajasthan is situated between 23º3' and 30º12' N latitude and 69º30' and 78º17' E longitude . The total land area of the state is about 3,24,239 km², out of which about 1,98,100 km² is arid and the rest semi arid. The physical features are characterized mainly by the Aravallis and to the some extent by the vindhyan

formation, and the Deccan trap. A major portion of western Rajasthan has desert soils and sandy plains. Sand dunes occupy a greater part of western Rajasthan (1,20, 983 km²). The soils of the desert plains are loamy sand to loam and the eastern part has alluvial soil which supports good forests and agricultural crop. Occurrence of saline soils with pH up to 9.0 is a common feature in the sandy areas of Rajasthan. The average annual rainfall in the state is 525-675 mm, and the annual precipitation in different tracts of Rajasthan varies from 13 mm to 1766 mm. Out of the total area , forests cover only about 37,638 km² and are rich in biodiversity. Rajasthan is rich in biodiversity which has a great economic value. Out of the total land area of Rajasthan, forest covers only about 37,638 km², i.e. 11 %. This forest includes roughly 7 % of depleted and denuded forests. Biodiversity of Rajasthan is related with the Aravalli hills. *Anogeissus pendula* Edgew. forests cover more than half of the total forest area in the state. These forests occur on a variety of rock formations. Conservation of medicinal plants is receiving increased attention in view of resurgence of interest in herbal medicines for healthcare all across the globe. Recently, several studies have been conducted on Ayurvedic crude drugs for cure of digestive diseases (Gupta and Kumar, 2000, 2002 and Chaudhary and Kumar, 2002), leprosy and skin diseases (Sanghi and Kumar, 2002), malaria and paralysis (Yadav and Kumar, 2001). Sharma and Kumar (2002) worked on herbal cosmetics. The application of herbal medicines has been studied by Sharma and Kumar (2001) and Seema and Kumar (2004) Sharma and Kumar (2006, 2007).

CLIMATE

A. Rainfall : Jaipur district has a dry climate except during the south-west monsoon season. The average annual rainfall in the district is 556.4 mm. In the Amber-Jaipur region the rainfall is a little higher than the surrounding parts of the district. The rainfall during the period June to September constitutes nearly 90 per cent while a small percentage fall during the months of December to January.

B. Temperature : The Jaipur summers are scorching beginnings almost during mid march and ending with monsoon rains. The mean daily maximum temperature in may is 40.6°C and mean daily minimum is 25.8°C. In May and June the maximum temperature may sometimes go up to 48.0°C. After mid-November both day and night temperature drop rapidly till January which is the coldest month with the daily mean maximum temperature at 22.0°C and minimum at 8.3°C.

C. Humidity : During the monsoon season the relative humidity is generally over 60% and in the summers is minimum as 15 to 20%. In the rest of the year the air is dry.

D. Winds : Winds are generally light to moderate but in summer and the early south-west monsoon season, winds may strengthen on some days, south westerly winds prevail in the south-west monsoon season.

3.1.4 HILLS

Although Aravalli hill range does not pass through Jaipur but the hills of Jaipur distinct members of the North Aravalli ranges. The range on the north-eastern side belongs to the Alwar hills while those in the east belong to the Lalsot hills. The main peaks in the district are Manoharpura (747 m), Jaigarh (648 m) etc.

3.1.5 VEGETATION

The vegetation of the area has been classified as “scrub jungle”. Plants which can either adapt themselves to high temperatures or to low temperatures and discouraging conditions of soil and rainfall can be found. The trees are commonly lacking, shrubs are the dominant perennials, most of which form thickets e.g. *Crotalaria burhia*, *Leptadenia pyrotechnica*, *Saricostoma pauciflorum* and *Zizyphus nummularia*. This perhaps is the reason for a very low percentage of tree species.

The vegetation can be classified on the basis of habitats viz.

1. Vegetation of sandy areas
2. Weeds and escapes of cultivation
3. Vegetation on hilly tracts
4. Plants of aquatic habitats.

1. Vegetation of Sandy areas

The vast sandy tracts which are distributed in the western and central plains of the district, from the dunes to the plains. The dunes are gradually stabilised due to the growth of sand binders like *Calotropis procera, Leptadenia pyrotechnica, Aerva tomentosa, Saccharum bengalense,* etc. They provide suitable habitat for the growth of some annual grasses e.g. species of *Cenchrus, Eragrostis, Aristida*, etc., plants like *Convolvulus*, species of *Heliotropium, Indigofera, Tephrosia* and perennials like *Crotalaria medicaginea* and Shurbs like *Acacia jacquemontii*. If the biotic influence is not allowed to play its devastating role, luxuriance of these species is seen. Moreover, plants like *Lepidagathis trinervis, Pulicaria angustifolia* along with many others like *Cassia tora,Dicoma tomentosa,* etc. appear. In such cases the annual herbs form the carpet flora and amongst them the common components are plants like *Pupalia, Achyranthes aspera,* species of *Tephrosia, Indigofera, Portulaca, Justicia, Phyllanthus, Aristida* and *Commelina*. The following tree species also found in the sandy areas – *Prosopis cineraria, Balanites aegyptiaca, Zizyphus mauritiana, Tecomella undulata, Ailanthus excelsa, Acacia nilotica* var. *indica* and *Holoptelea integrifolia*. In the sandy areas *Cistan chetubulosa*, species of *Orobanche* and *Striga* are the most common parasites. *Cuscuta* spp. are the common total stem parasites.

2. Weeds & Escapes of cultivation

Amongst the weeds that occur in the winter crop, the most common ones are prostrate herbs *viz*. *Portulaca meridiana, Malva parviflora,Fumaria indica,* and *Veronica agrestis.* Of the tiny and slender herbs, the most common ones are :*Plantagopumila. Stellaria medica, Oldenlandia pumila, Asphodelus tenuifolius*is a common geophytic herb. *Xanthium strumarium, Argemone mexicana, Pulicaria angustifolia, Acanthospermum hispidium, and Digera muricata* are some of those weeds which occur gregariously and can thus be troublesome to some extent. Some of the species which occur exclusively in the rainy season e.g. *Cleome gynandra, Sesbania sesban, Tribulus terrestris, Sesamum indicum, Mollugo cerviana, Trianthema Portula castrum, Aristida* spp. *Eleusine* spp. and *Cynodon dactylon*.

3. Vegetation on hilly tracts

Majority of hills in Jaipur are almost barren. However Hills in the Amber region have *Anoegissus pendula*, *Boswellia serrata* and *Sterculia urens* along with *Butea monosperma.* Their permanent vegetation comprises of *Euphorbia neriifolia* clumps, which support some seasonal annual vegetation during rains. These hills mostly comprise of denuded rocks. Some grasses like *Aristida* spp.,*Oropetium thomaeum* grow and cover these hills during rainy season. A large majority to the trees in the area are restricted to the hills. *Sterculia urens, Commiphora wightii, Anogeissus pendula, Boswellia serrata, Lannea coromandelica, Rhus mysorensis, Adina cordifolia, Diospyros melanoxylon, Wrightia tinctoria, Cassia fistula,.Aegle marmelos. Cordia gharaf* and *Ficus racemosa* occur naturally on the hills but have probably been introduced in other areas. Some other species like *Grewia tenax, Butea monosperma* and *Acacia senegal* are restricted to the bases of the hills. These hills change their colour to green due to presence of leaves during rains and look ash coloured in rest of the year, due to the dominant species *Anogeissus pendula* which is a deciduous small tree of the hill tops. Some of the Shurbs of common occurrence are :*Grewia damine, Melhania hamiltoniana, Plumbago zeylanica,* and *Lantana indica.* The herbaceous flora of the general surface of the hills is rich during rains and is composed mainly of small herbs. Some of the prostrate herbs growing during this period are *Triumfetta rhomboidea, Boerhavia diffusa, Lepidagathis trinervis, Cassia pumila, Indigofera cordifolia, Tephrosia pauciflora, T. strigosa*etc. Some of the erect form are *Crotalaria triquetra, Cassia absus, Bidens biternata, Solanum indicum, Dicomato mentosa, Achyranthes aspera, Acalypha ciliata*etc. *Urginea indica* is a common geophyte which can be identified by its leaves during rainy season and by its copper coloured scapes and flowers during the spring season. Majority of hills in Jaipur are almost barren. However Hills in the Amber region have *Anoegissus pendula*, *Boswellia serrata* and *Sterculia urens* along with *Butea monosperma* Some of the plants used by these tribals are given below :

1. Acacia catechu (Fig. 3.7)
Get-langhan (Santhal)
Locality.Lavalong (Chatra)
Root made into a paste and applied on the joints for seven days for rheumatism.

2. Cassia tora
Chakar (Oraon) ;Chakunda (Khond)
Locality.Singhani (Hazaribagh town)
Root made into a paste and along with the powder prepared from the horn of a cow, given orally once daily in high fever and to a patient who is unable to speak and hear.

3. Hibiscus rosa – sinensis
Urhul (Santhal)
Locality.Chatra
Flower bud made into a paste which is prescribed in impotency, once daily on an empty stomach for seven days.

4. Terminalia alata
Karaka (Khond) ; Aswan (Hindi)
Locality Singhani (Hazaribagh Town)
Two to three leaves from a fresh twig made into a paste and given three times a day for one day in vomiting and loose motions.

5. Xeromphis spinosa
Dudri (Munda) ;Nisawala (Birhor)
Locality.DhajadhariPahar (Koderma)
Stem bark made into a paste and mixed with goat's milk and country liquour. This is prescribed in rheumatism once daily on an empty stomach for 15 days.
Other plants :
(i) *Ageratum conyzoides* (Namin-ing) :- Leaves and fruits used to prevent bleeding.
(ii) *Calotropis gigantea* (Akon) : The milky juice used as purgative; leaves after crushing are applied on the burn injury or swelling; the bark of the root given for dysentery.
(iii) *Ocimum sanctum* (Tulsi): Leaves used for cold and cough.
(iv) *Piper longum* (Piplu) : Root used in improving digestion.
(v) *Polygonum strigosum* (Bihalangani): Leaves used for skin diseases.
Locality.Udaigiri
Juice of leaves mixed with little salt poured in eyes in conjunctivitis and other eye diseases.
(iv) Leucas aspera
Gayas (Rajasthan)
Locality.Ramgarh
The leaf paste fried and applied on the forehead to relieve pain.
(v) Shorea robusta
Sal (Udaipur)
Locality.Kumbhalgarh
Small quantity (5g) of powdered *jhuna*(resin) taken with hot milk to relieve chest pain and stomachache.
Although nowadays patent allopathic medicines are sold in their weekly markets by quack-doctors, the Tribalslook for many wild plants for their medicinal use. Some of the important plants used for medicine are :
(i) *Cassia fistula* (Soneru) : Pulp of the fruit used as purgative.
(ii) *Ficus fistulosa* (Tabi) : Used for headache.
(iii) *Rubus rugosus* (Thekhi-sambok) : Fruit juice used for curing fistula.
(i)Ageratum conyzoides
Loc. Sohkha
During typhoid fever and high body temperature, a paste made from leaves, ginger and mustard seed is placed on skull, over the position of the brain, to bring down the temperature of the patient. Loc. Mawmluh Whole plant is pounded, boiled and the solution is used in massaging body swelling, tumours, etc.;
(ii) Azadirachtaindica
Neem – Loc. Byrnihat
Diarrhoea and dysentery, leaver along with barks of *Aegle marmelos, Shorea robusta* and leaves of *Phlogacanthus thyrsiflorus* are mixed together with a few more plants, boiled, stored in a bottle and used for diarrhea and dysentery.

DISCUSSION

The market for Ayurvedic medicines is estimated to be expanding at 20% annually in India (Kumar, 2000). Factors contributing to the growth in demand for traditional medicine include the increasing human population and the frequently inadequate provision of western (allopathic) medicine in

developing countries (Sharma *et al.,* 2005). In India, about 1400 species are recognized for supplying raw materials for Ayurvedic drug formulations (Shiva, 1996; Dev, 1999). Natural products and their derivatives represent more than 50% of the drugs in clinical use in the world (Cowan, 1999; Erdogrul, 2002).

CONCLUSION

Rajasthan is rich in tribal population as it has around 9 percent of the tribal population of India. There are large number of medicinal plants naturally growing in Rajasthan which have been listed in the present paper. The herbaceous flora of the general surface of the hills is rich during rains and is composed mainly of small herbs. Some of the prostrate herbs growing during this period are *Triumfetta rhomboidea, Boerhavia diffusa, Lepidagathis trinervis, Cassia pumila, Indigofera cordifolia, Tephrosia pauciflora, T. strigosa* etc. Some of the erect form are *Crotalaria triquetra, Cassia absus, Bidens biternata, Solanum indicum, Dicoma tomentosa, Achyranthes aspera, Acalypha ciliata*etc.Majority of hills in Jaipur are almost barren. However Hills in the Amber region have *Anoegissus pendula*, *Boswellia serrata* and *Sterculia urens* along with *Butea monosperma.*

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