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Some Rare Tuberos Medicinal Plants of Todgarh Raoli Wild Life Sanctuary Rajasthan, India

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ABSTRACT: The present paper deals with 11 rare and valuable tuberos medicinal plants of Todgarh-Raoli Wildlife Sanctuary, Rajasthan. This Sanctuary lies in central position of Aravalli range. The sanctuary is fortunately a cradle of medicinal plants. This region is the ecotone of both vegetational segments of Rajasthan like xerophytic vegetation as well as mesic vegetation. The geography, soil compositions and topography of this region makes these plants more qualitative medicinal properties. A considerable amount of oral information on medicinal properties of local flora is available with tribal and rural communities of this Sanctuary. The customs culture and vital activities of these peoples are completely woven around with conservational activities for valuable flora. In the present paper an attempt has been made to document and acknowledge the precious traditional knowledge on folk-lore medicines of the Sanctuary, All tuberos medicinal plants need their urgent conservations. Local conservational strategies are also discussed in this paper.

KEYWORDS: Rare and valuable tuberos medicinal plants, Folk-lore, Traditional -Knowledge, tribal and Todgarh-Raoli

I. INTRODUCTION

Ethno-botanical survey of Rajasthan – An update was reported by Choudhary et al. (2008). After publication of comprehensive flora of Rajasthan in three volumes (Shetty and Singh 1987, 1993) an exhaustive ethno botanical studies were completed. Traditional Medicinal Practices of Rajasthan was completed by Sharma and Kumar, (2007). The applications of common house hold medicinal plant of Alwar (Rajasthan) were listed by Khorwal et al. (2009). Traditional uses of plants as cooling agents by tribal of Dang region of Rajasthan have been studied by Sharma and Khandelwal (2010). Indigenous snakebite remedies practiced by some tribal's of Rajasthan were investigated by Jain et al. (2011). Survey of some ethno-botanical plants of South Rajasthan was carried out by Meena and Yadav (2010) and Some Ethno-Medicinal plants use by Garasia tribe of district Sirohi Rajasthan was also reported by Meena and Yadav (2011). In India the work on threatened plants was first published by the Botanical Survey of India in 1980. Later on comprehensive work on rare and threatened plants of India was also published by BSI in the form of a book, three volumes entitled "RED DATA BOOK OF INDIAN PLANTS by Nayar and Sastry (1987), (1988), (1990). Arid zone circle Jodhpur of BSI published a list of rare taxa of Western Rajasthan (2008). Pandey et al. (2012) have also published depleting 65 taxa with their present status and conservation in Rajasthan. Although, unrecorded ethno-medicinal uses of biodiversity from Todgarh-Raoli wild life sanctuary of Rajasthan was reported by Jain et al. (2007), and ethno-medico-botanical study of Todgarh-Raoli Wildlife Sanctuary was done by Kanther and Gena (2012), (2013), (2014), Kanther et al. (2012). Traditional wound healing plants of Todgarh-Raoli and Ethno-medico-botanical studies on Some Pteridophytes of Rajasthan by Kanther (2013, 2014, and 2020). Although **rare** and threatened medicinal plants of Todgarh-Raoli wildlife sanctuary was completed by Kanther (2018), Dominant Flora of Todgarh-Raoli wildlife sanctuary was published by Kanther (2019), Yet, rare and tuberos medicinal plants of Todgarh-Raoli Wildlife Sanctuary have not adequately been studied by earlier workers in details.

In the present paper an attempt has been made to document and acknowledge the precious traditional knowledge on rare and tuberos folk-lore medicinal plants of Todgarh-Raoli Wildlife Sanctuary. This vital knowledge needs to be

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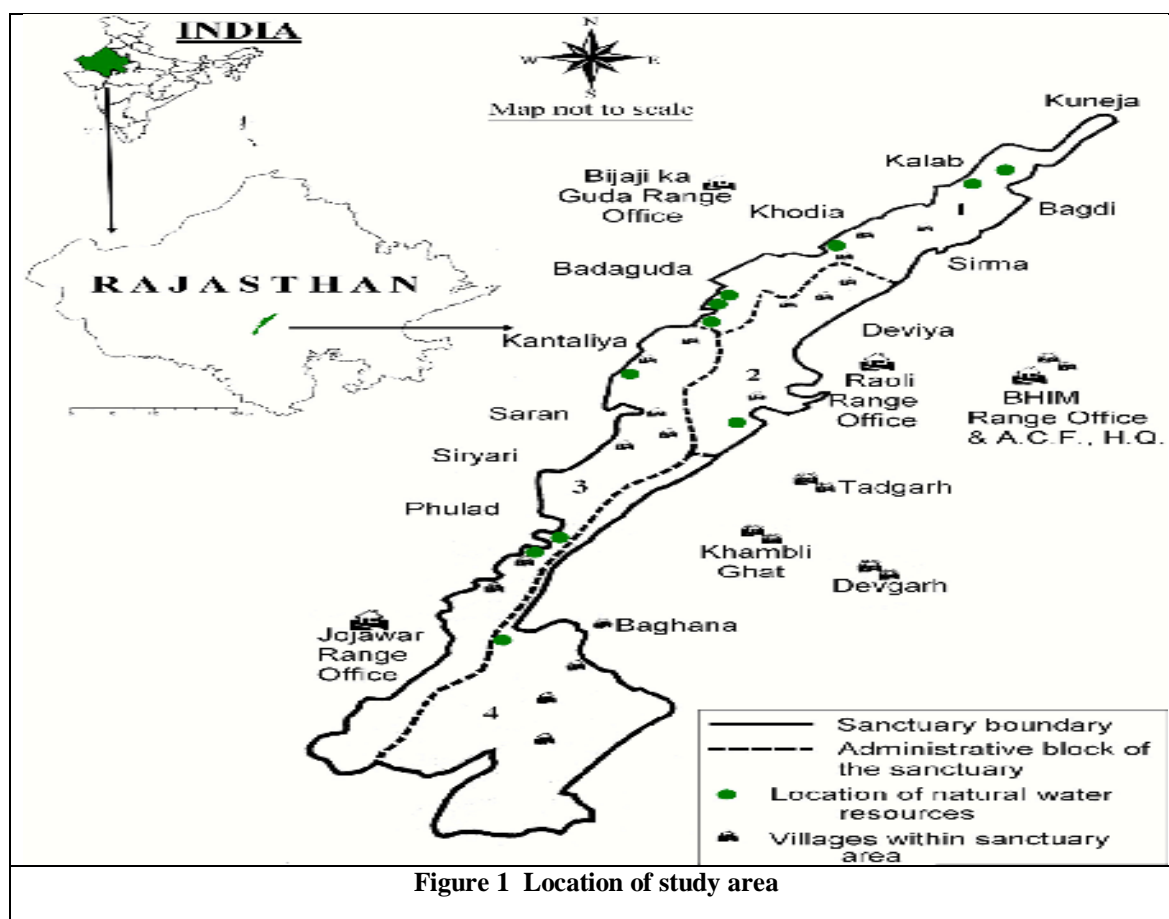
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scientifically and systematically documented and conserved before its loss due to rapid changes in the community on account of attaining modern civilization by the rural population.

II. STUDY AREA PROFILE

Todgarh-Raoli Wildlife Sanctuary located in central position of Aravalli range between 25°38' and 26°58' north latitudes and 73°54' and 75°22' east longitudes. Aravalli range divides the state into two vegetational segments western xerophytic segment and southern mesic segment. This range lies between both segments and thus it is an ecotone zone. This sanctuary is also transition zone of both vegetational segments. Xerophytic and mesic vegetations occur as mixed formation. Due to this ecotone nature great biodiversity is represented in the floral element. Naturally diversity of medicinal plants is also represented in this region. It is bounded on the north by Beawar district, on the south by Udaipur district, on the east by Rajshamand district and on the west by Pali district Figure- 1. The sanctuary is fortunately a cradle of medicinal plants. The series of short, long and high hills of Todgarh-Raoli area and regional geographical condition, soil composition and topography, the flow of rain water is rather slow, that prevent minerals from fast drain. It maintains mineral status in the region, due to this specific reason the medicinal quality of this area is considered to have excellent medicinal properties. A considerable amount of oral information on medicinal properties of plant is available with tribal of Todgarh-Raoli Wildlife Sanctuary. These people have inherited good knowledge about cause and symptoms of common human and veterinary ailments and local flora with its hidden values from their ancestors, which is passed from one generation to another through oral communications and has strong belief in supernatural powers of plants in the treatment of various ailments.



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III. MATERIALS AND METHODS

The sanctuary has been visited frequently for last five years with the aim of occurrence of rare and threatened medicinal plant species growing in their natural habitats. Field surveys were made in different seasons of the Sanctuary. Rainy season was the best time to visit many places, tribesmen and rural people to establish the reciprocal communication between ethno-medico investigations. A wide range of people were interviewed first in groups and then individually. Local herbal healers and livestock healers were also contacted. Interviews were conducted with the tribal people, local Vaidyas, Ojhas and Medicine men. Generally tribesmen who know about the medicinal plants do not want to share all information because they believe that medicinal plant, if disclosed lose its medicinal properties. Due to this reason, the information collection from the tribal's was an important aspect of ethno-medico studies. The information which was provided to us was oral information and it was cross examined at a different places. Affords were made to identify the plant materials. The species were identified with the help of the flora of Indian desert, flora of South Central Rajasthan and the flora of Rajasthan Vol.-I, II, III.

IV. OBSERVATIONS

Information on Rare and valuable tuberous medicinal plants being used in the treatment are provided in Table- 01.

Table -01:- Check-list of tuberous medicinal plants of Todgarh-Raoli Wildlife Sanctuary

S. No	Name of Plant species / Local Name / Family	Habit and habitat	Ethno-Medicinal Uses
1.	Ampelocissus latifolia (Roxb.) Planch. Local name- Tita Family- Vitaceae	-Common Shrub among hedges and forest under growth. -Fl. & Fr. May-Sept.	- Fresh crushed tuber is boiled in Ricinus communis oil & applied for treatment of gout. - Crushed tuber with water is given to animal treatment of bones. - Infusions of leaf is given as tonic to aged person. - Extract of tubers is useful in indigestion.
2.	Asparagus racemosus L. Local name- Satawary, Naharkanta Family - Liliaceae	- Common forest climbers. -Shrubs and bushes -Fl. & Fr. Aug-March.	-Tubers powder is an Aphrodisiac; it is used in sweet dish in winter by local peoples. -Decoction of about 10 gm of tubers given to increase milk after delivery. --The tuber is eaten either in cooked or raw.
3.	Curculigo orchoides Gaetn. Local name- Kali Musali Family - Hypoxidaceae	-Rare herbaceous tuberous plants -In grassy hills - Fl. & Fr. Aug-Nov.	- In case of scorpion bite, the paste of tuberous root is applied locally on the affected part. -The tuber is eaten either in cooked or raw. -The tuber powder is taken to increase sexual vigor.
4.	Ceropegia bulbosa Roxb. Local name- Jangali Kanda, Suvakhadul Family -Ceratophyllaceae	-Rare in exposed rocky habitat particularly on hillock. - Fl. & Fr. July-	-The paste of seeds is dropped in the ear to cure deafness. -Decoction of tuber is taken orally to get rid of urinary bladder stone.

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		December.	
5.	Chlorophytum borivilianum Willd. Local name- Safed Musali Family - Liliaceae	-Rare herbaceous tuberous plants -Frequent on hill of the protected area. - Fl. & Fr. June- October.	- Root powder is used in ayurvedic Musli Pak is the tonic for aphrodisiac and erectogenic effects.
6.	Curcuma amada Roxb. Local name- Amba haldi Family – Zingiberaceae	- herbaceous -Rare in forest - Fl. & Fr. August - October.	-Decoction of the rhizome is taken to cure dropsy. -The powder of rhizome applied locally for skin infection. - The powder of tubers used in asthma and other bronchial disorders.
7.	Dioscorea bulbifera L. Local name- Varahikand, Jatashankri Family - Dioscoreaceae	- herbaceous -Rare in forest - Fl. & Fr. August - December.	-Tuber powder use for colitis, dysentery & maturation. -The tuber is eaten either in cooked or raw.
8.	Euphorbia fusiformis Don. Local name- Pahari mooli Family- Euphorbiaceae	- herbaceous -Rare in protected forest area. - Fl. & Fr. April - June.	-Paste of tuberous rootstock is applied locally in rheumatic pain. -In case of gout the paste of tuber is warmed and then administrated locally.
9.	Gloriosa superba L. Local name- Kalihari Family- Liliaceae	- herbaceous -Rare in protected forest area. - Fl. & Fr. August - November.	-Powder of tuber is given to female in uterus disorder. -Decoction applied externally for skin disorder. - The seeds are used in the treatment of rheumatism and gout.
10.	Pueraria tuberosa L. Local name -Vidarikand Family- Fabaceae	Tuber	-It is used in “chyavanparash” as a tonic. -The tuber is eaten either in cooked or raw.
11.	Uriginea indica L. Local name -Jangli Kando., Family- Liliaceae	Tubers Bulb	-Dried powdered bulb is given in cardiac tonic in small doses. -It is used mainly in chronic bronchitis and asthma.

The above check list of plants is quite comprehensive and almost complete so far as the tuberous medicinal plants of Todgarh-Raoli wild life Sanctuary are concerned. It is quite evident that the flora of Todgarh-Raoli wild life Sanctuary is very rich from the point of view of medicinal properties.

V. TRADITIONAL CONSERVATION PRACTICES

The devastating propensities of goat and camel have been beautifully summarized in a Rajasthani Proverb:
“Oont Chhode Akaro, Bakri Chhode Kankro”

Meaning thereby that the Camel will eat everything except Calotropis spp. but the goat will devour even that, leaving only the pebbles. Therefore continuous grazing has almost completely prevented natural regeneration. They create major loss of natural biodiversity of the Todgarh-Raoli Wildlife Sanctuary of present study.

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Besides these, some exotic plants such as *Lantana camara*, *Parthenium hysterophorus*, and *Prosopis juliflora* also affect the local biodiversity some of these have allelopathic effects while others are fast growing and compete with the native taxa. These three plants species have changed the scenario of vegetation of Todgarh-Raoli Wildlife Sanctuary. The erosion of plant biodiversity is a matter of global concern. One by one the building blocks of entire ecosystem are disappearing. The 2008 IUCN Red Data list shows that in India hundreds of taxa are under the list of threatened and at the risk of extinction. Out of 11 species of investigated plants 10 rare. The life of tribal people and rural communities are closely associated with their environment and local flora. It becomes the integrate part of their culture and custom and folklore. These A large number of plants are being used by tribal to cure human and veterinary ailments, thus they co-relate it with god or spiritual power or religious ethics. The plants growing around them form an integral part of their culture and customs so this is the way of it is conservations. The conservational strategies adopted by tribal and rural people by the term of faith, myths, taboos, tradition, religious aspect, sacred grove etc.

VI. RESULTS AND DISCUSSION

After thorough investigation in different habitats and localities of Todgarh-Raoli Wildlife Sanctuary the present study reveals that 11 rare and important medicinal species from 08 families were found to be widely used by tribes and rural people in different ways against various ailments. *Dioscorea bulbifera*, *Gloriosa superb* threatened, all 03 rare tubers are *Ceropegia bulbosa*, *Pueraria tuberosa*, *Urginea indica* and 01 rare herb is *Chlorophytum borivilianum*.

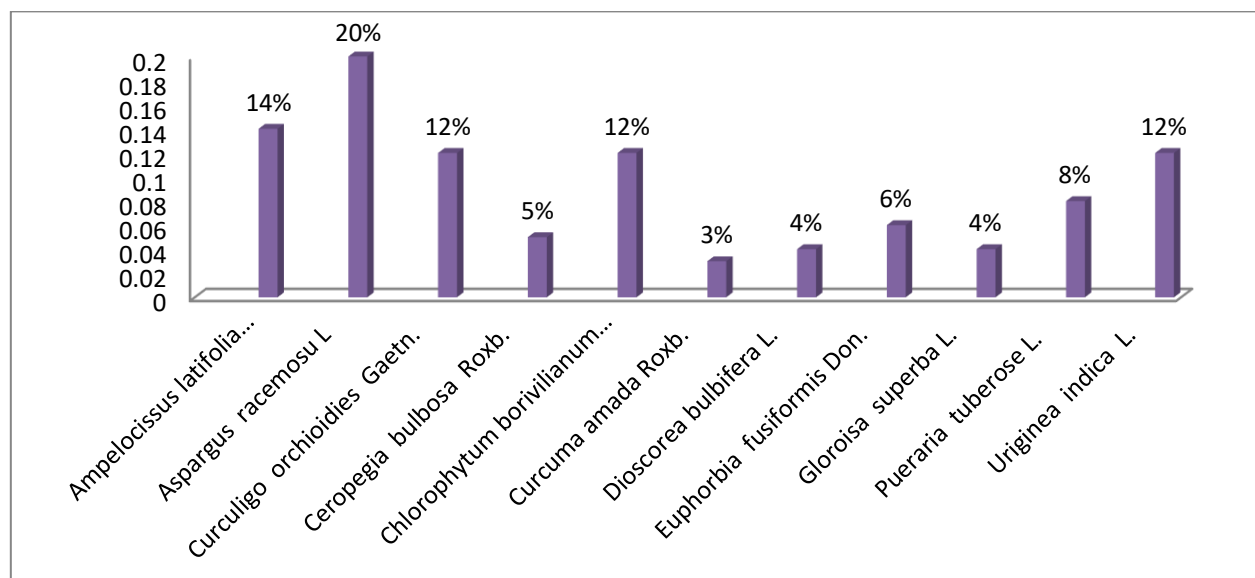


Figure 2 Relative distributions of tuberous medicinal Plants in Todgarh-Raoli.

Mostly the tuberous plants grow in shady and moist places but due to habitat destruction, climatic changes, introduction of exotic species, overexploitation for food, medicine and fodder the natural wild tubers plants are facing the threat of extinction e. g. *Ceropegia bulbosa* which was endemic in Aravalli. Most tuberous plant has been categorized into rare and endangered. There is a great need to create awareness among the indigenous communities about endangering medicinal plants. Percentage of plant part used for ailment are Row tuber eaten> Cooked tuber eaten> Decoction of tuber> Decoction of leaf> Powder of tuber> Crushed Tuber> Paste of leaf> Paste of tuber. Preparation of decoction is the most common traditional formulation prepared followed by paste and application of fresh juice. A few parts were found to be effective against more than one disease.

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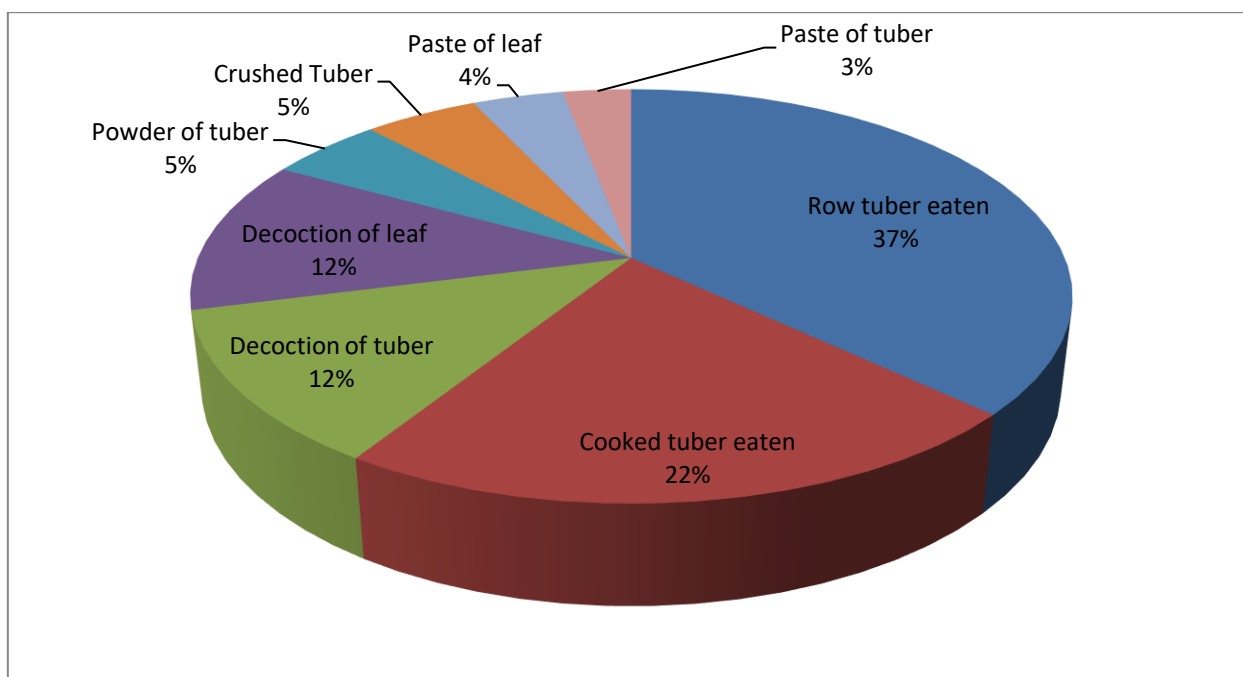


Figure 3 Percentage of tuberous medicinal plant part used.

The data compiled was compared with pertinent published literature Choudhary et al.(2008), Khorwal et al.(2009), Jain et al. (2011), Meena and Yadav (2010), Meena and Yadav (2011), Pandey et al. (2012), Kanther and Gena (2012), (2013), (2014), Kanther et al. (2012).

We learned through the survey that local people are still depend on natural resources but this kind of dependence is decreasing due The present investigation proves that ethno medicinal knowledge is also important from humanitarian point of view. It is our indigenous system of medicine among tribal people. It is the rich medicinal repository of Todgarh-Raoli wildlife Sanctuary.

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