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Tribal Health tradition and Non-destructive sustainable harvesting of herbal medicines : An anthropological study in sustainable development in the Baigas and Bhariyas of Madhya Pradesh , India

Abstract :

The health of indigenous or tribal people is the perceptions and conceptions in their own cultural system with less awareness of the modern health care and health sources. They identify the causes as natural made actions of some planets and believe in the doctrine of supernatural or evil spirits, or human agencies. They have the various procedures of treatment viz. folk treatment, religious or preventive procedure, magical or curative procedures and modern medical system. Tribal health treatment was developed through prolong time period out of the rich cultural heritage based on the Indigenous Knowledge system of the local communities. Due to large scale degradation of natural resources and unhygienic condition of their habitation the tribal communities are suffering from a large number of the communicable and parasitic diseases. Hence, the utility of the herbal medicinal species in curing the diseases and maintaining their sound health conditions is well known. Few species are considered to be endangered due to Injudicious and unscientific method of collecting the medicinal plant is reason of destruction. In Patalkot area it has been observed that the people destroy the plants by chipping of bark around. The climatic factor is another factor responsible for destruction of plant species.

The objective of the paper is to status of tribal health and problems of that among the Baigas of Dindori district, a primitive tribal groups in Madhya Pradesh with their Ethno-medicinal practices.

Paper:

Introduction

The term Biodiversity is understood as ecosystem diversity, species diversity and genetic diversity by academicians whereas there are a large number of common people specially the tribal's understand it as 'baramijra satar patar' or 'dumagajra'. In Patalkot people understand it as 'Satgajra'.

India with a varied climatic condition right from snow peak mountains to dry deserts house a vast and varied diversity of Flora and Fauna, consisting of 67,000 species of insects followed by 15,000 species of flowering of Plants, 65000 vertebrates, 4000 moluscus, 2000 fishes, 1200 birds, 450 reptiles, 400 mammals and 150 amphibians. Out of 15000 identified species of flowering plants in India about 5000 species are found in the Western ghats of Kerala, out of them as many as 235 species are endemic in this region.

Chhindwara is one of the districts of Madhya Pradesh in Central India and is located on the South-West region of 'Satpura Range of Mountains' at 1550-3820 feet above the sea level. The district is spread from 21.28 to 22.49 Deg. North (longitude) and 78.40 to 79.24 Deg. East (latitude) and spread over an area of 11,815 Sq.Km. This district is bound by the plains of Nagpur District (in Maharashtra State) on the South, Hoshangabad and Narsinghpur Districts on the North, Betul District on the West and Seoni Districts on the East.

The area of study is a valley, Patalkot is situated about 82 K.M. away in the North-West of Chhindwara. It is situated in the hilly block '***Tamia***' . Patalkot is located at a depth of 1200-1500 feet in a valley. Because of the great depth at which it is located this place is known as 'Patalkot' ('Patal menas very deep, in Sanskrit). The valley is shaped like a horse shoe in which there are 12 small villages. People belive it as the entrance to '*Pata*l'.

Endangered Species in Patalkot

A species is considered to be endangered when its natural regeneration is not able to keep pace with exploitation or destruction by natural and unnatural means. In Patalkot

Asparagus racemosus, Curcuma aromatica, Gloriosa superba, Hemidesmus indica, Chlorophytum tuberosum, Lenoitis nepetaeosolia, Smilax macrophylla are reported to be endangered.

Injudicious and unscientific method of collecting the medicinal plant is reason of destruction. While collecting the medicinal plants the collectors uproot the whole plant, sometimes they gather plants before maturity of fruit and seeds. Consequently, the natural regeneration does not take place. In Patalkot area it has been observed that the people destroy the plants by chipping of bark around. The climatic factor is another factor responsible for destruction of plant species.

Seasonal Collection and Harvesting of Important valuable medicine plant through Non Destructive Technology in the Patalkot

Non-destructive technology means meeting the needs of the present without compromising the ability of future regeneration of the natural resource and at the same time meeting the requirement of the poor people living in the forest on sustainable basis. Sustainable development means improving people's lives, providing progress in human well-being that can be extended or prolonged over many generation rather than just a few jeans. Non-destructive method of extraction of medicinal plants from the forest area with special reference to Amla, Kalihari, Chironji, Karu Chirayata, Safed Musli, Satavar and other important medicinal plant yielding species were carried out.

Non-Destructive Collection and Harvesting Technology

1. **Safed Musli (Chlorophytum tuberosum) Family - Liliaceae**

   (a) Collection Period :- It is collected in forest area from last week of September to first week of October, whereas the cultivated Kand (tuber) is collected in the months of February-March.

   (b) For sustenance it is suggested that while collecting the tuber should be taken out and the disk be buried in the same area.

2. **Kalmegh (Andrographis Paniculeta) Family - Acanthaceae**

   (a) Collection Period: - Kalmegh is collected from November to January.

   (b) During collection, one out of ten plants plant must be left for the seeds of matured seeds to fall on ground and regenerate. The regenerated plants would be available for collection in coming years.

(3) Satavar (Asparagus racemosus) Family - Liliaceae

(a) Collection Period :- It is collected after two years of plantation. Its tubers are collected in the months of November-December.

(b) The tuber is collected by digging in a semi-circular shape at a distance of 1-1½ feet. After that the soil is pressed. In the next year the tuber is collected by digging in a semi-circularly shape on the other side. This method of collection of tuber helps in collection of Satavar for a sustainable period.

(4) Shankhpushpi (Convolulus Plusricaulus) Family - Convolulaceae

(a) Collection Period :- It is collected in the months of January - February.

(b) It is collected during the morning hours. Its collection is comparatively easy as the bloomed flowers on the plants look as if the eggs are spread all over the field. For collection, we should cut it with the knife and take the upper portion of the plant or leave one plant out of every 10 plants so that the seeds will split out of the left plants and thus the plants growing out of these seeds can be collected in future. This facilitates regeneration.

(5) Amla (Emblica Officinalis) Family - Euphorbiaceae

(a) Collection Period: - It is collected during the months of December-January.

(b) The fruits of Amla are collected either by hands or by shaking the tree. If the tree is large then the collection is done with the help of bamboo stick or through bag tuck on the bamboo/ large stick. This method of collection helps in maintaining the quality of Amla and its grading also becomes easier.

(6) Chironji (Buchnania lanzan) Family - Anacardiaceae

(a) Collection Period :- It is collected in the last week of April to first week of May.

(b) The forest agencies and villagers are informed thet it should be collected after Akshay Tritiya(3rd day of Indian month Vaishakh). During this period, Chironji is available in matured state which results in a good value.

(7) Kalihari (Gloriosa Superba) Family - Liliaceae

(a) Collection Period: - The tuber of Kalihari should be collected from matured plants of five years. The collection of tuber is done in the months of October - November.

(b) The seeds are collected after the color of the fruit turns yellow. The drying of fruit is done on tarpaulin. The seeds are also dried and collected. The rind of the fruits is also collected after drying. It also has a great demand in the market.

(c) One or two fruits in every plant are left for regeneration.

Objectives of Sustainable Development

1. **Social Progress, which recognizes the needs of everyone:** Everyone should share in the benefits of increased prosperity and a clean and safe environment. We have to improve access to services, tackle social exclusion and reduce the harm caused by poverty, poor housing, unemployment and pollution. Our needs must not be met by treating others, including future generations and people elsewhere in the world, unfairly.
2. **Effective protection of the environment:** We must act to limit global environmental threats, such as climate change; to protect human health and safety from hazards such as poor air quality and toxic chemicals; and to protect things, which people need or value, such as wildlife, landscapes and historic buildings.
3. **Prudent use of natural resources:** This does not mean denying ourselves the use of non-renewable resources like oil and gas, but we do need to make sure that we use them efficiently and that alternatives are developed to replace them in due course. Renewable resources, such as water, should be used in ways that do not endanger the resource or cause serious damage or pollution.
4. **Maintenance of high and stable levels of economic growth and employment,** so that everyone can share in high living standards and greater job opportunities. India is a trading nation in a rapidly changing world. For prosperity of our country, our businesses must produce the high quality goods and services that consumers throughout the world want, at prices they are prepared to pay. To achieve that, we need a workforce that is equipped with the education and skills for the 21st century, and we need businesses ready to invest, and an infrastructure to support them.

Poverty is not only an income determined outcome. It is a multi dimensional phenomenon and it is always difficult to disentangle its causes and consequences. The nature of poverty is diverse, as are its causes and victims. Strategies to overcome poverty should also be diverse, recognizing the difference of people and their opportunities for sustainable living standard.

Rural particularly tribal masses in India are poor because they have not acquired essential assets. They live in remote areas where the resources available have not been properly identified and utilized. Collection and marketing NWFPs- Important means of their livelihood Central India known for rich and vast biodiversity, owing to diverse climatic zones, People in this part are poor and major source of income in the lean period is NWFP. NWFPs distributed in all bio-climatic zones ranging from dry deciduous to tropical coastal. Developing conservation methods of forest flora of multiple use. Developing species specific bio-fertilizers for enhancement of productivity in natural forest and plantations, value addition of NWFPs, including bamboo. Research work carried out on selected plants having good potential in indigenous as well as international market.

Material and Methods

Determination of Important Value Index and tree species diversity:

In order to study the diversity in tree species, 10 quadrates of size 20×20m was randomly laid out inside the protected forest area. For the study of shrubs, 10 quadrates of the size 3×3m were laid out within the 20×20m quadrates. Similarly, to study the herb species, 10 quadrates, size 1×1m, was laid out within the 20×20m quadrates and data was recorded with the collar girth method.

For comparison, unprotected area adjacent to protected site was also studied in each selected compartment or bit block and similar methodology was adopted for the study of tree, shrub and herb species in unprotected areas by laying out 10 control plots in each forest area, which was not under protection. Important Value Index (IVI) which shows the richness of species in the particular area was calculated by summing up the relative density, relative frequency and relative dominance of the species (Mishra, 1968); Species diversity Index (H) was determined with the Shannon and Wiener's information function (Gupta and Shukla, 1991).

Conclusion

The main tribal group of this area is Bharia. Human population is increasing at the rapid rates. Local villagers and tribes believe in traditional medicine. They have been using Jadi-Booties (Herbal medicines) for various ailments. Further it is imperative to set up cottage industries to utilize exuberant flora of medicinal plant of Chhindwara district and simultaneously employing tribal people (Bharia) whose ethno medicinal knowledge is being lost. Due to excess use of herbal medicines some plants are much threatened including Chlorophytum tubersom,

Gloriosa superba, Smilax macroophylla, Abrus precatorius, Celastrus paniculatus, Carum carvi, Curcuma aromatica, Asparagus racemosurs, Musa paradisiaca and Cissampelos paraira.

If such conditions prevail, few plant species will come at the verge of extinctions in near future. In-situ and ex-situ conservation of medicinal plants in the tribal pocket especially Patalkot is indispensable. Tribal's should be educated and made aware of nondestructive harvesting and collection methods for the sustenance of ethno-medicinal plants in the area. In addition control on over exploitation, demarcation of natural habitat, cultivation and multiplication of rare and threatened plants should be done on priority basis. Government and Non-Government Organization (NGO) together can play great role in conservation and prorogation of endangered species. The monitoring and evaluation of status of ethno medicinal plants in the area should be a continuous process.

Important Valuable Medicinal Plant at Patalkot in Chhindwara District

S. No.	Botanical Name	Local Name	Habit	Part use	Uses
1.	Asparagus racemosus	Satavar	Shrub	Tuber	Health Tonic
2.	Abrus precatorium	Gunja	Shrub	Root, Seed and Leaves	For melodious voice, abortion and purgative
3.	Achyranthus aspera	Ulta Kanta	Herb	Root, Seed and Leaves	For Normal Delivery and Scorpion bite
4.	Adhatoda vesica	Adusa	Shrub	Leaves	Cough and Cold
5.	Aegle marmelos	Bel	Tree	Fruit and Bark	For Dysentery and Diarrhea, After Delivery as a tonic
6.	Buchaninia lazan	Chironji	Tree	Seed	For Diarrhea and Mouth eruption
7.	Boerhaavia diffusa	Dabaal bhaji	Herb	Leaves and Root	After Jaundice, for Blood Dysentery
8.	Begonia picta	Khatti patti	Herb	Leaves and Root	Common cold
9.	Curcuma aromatica	Jangli Haldi	Herb	Rhizome	Digestion and Common Cold
10.	Clemetis gouriane	Bandar Siti	Climber	Root, Leaves and Stem	For Snake bite
11.	Costus speciosus	Keokand	Herb	Rhizome	Rheumatism

S. No.	Botanical Name	Local Name	Habit	Part use	Uses
12.	Curculgo orchioides	Kali Musli	Herb	Tuber	For asthma and as health tonic
13.	Chlorophytum tuberosum	Safed Musli	Herb	Tuber	As a tonic and health medicine
14.	Calastrus paniculatus	Malkangani	Shrub	Seed	For Stomach disorder and body pain
15.	Centelia asiatica	Brahmi or Mandukparni	Herb	Whole plant	As a brain tonic and for skin diseases
16.	Desmodium gangeticum	Sarivan	Shrub	Root	As a tonic
17.	Dillenia pentagyna	Sewarukh	Tree	Leaves and Stem	For urinary disorder and body pain
18.	Dioscorea pentaphylla	Barahi	Climber	Tuber	As a tonic
19.	Emblica officinalis	Amla	Tree	Fruit	Digestion,health tonic
20.	Equisetum debile	Harjori	Herb	Stem	For Bone Fracture
21.	Eclipta prostrata	Bhangra	Herb	Whole plant	As a hair tonic
22.	Gloriosa superba	Kalihari	Climber	Root and Seed	As a stimulant, tonic and for leprosy.
23.	Grewia rothia	Gudsakari	Tree	Leaves	Skin disease
24.	Hemidesmus indicus	Anantmul	Climber	Root	As a blood purifier
25.	Helicteres isora	Ethi or Maror phali	Shrub	Fruit	For Bowl and lever disorder
26.	Jatropha curcus	Ratanjot	Tree	Seed and twig	As purgative, scabies and tooth brush
27.	Lavendula bipinnata	Billilotan	Herb	Leaves	For Headache
28.	Leonotis nepetaefolia	Badbodra	Shrub	Root and leaves	For ringworm and as a tonic
29.	Madhuca letifolia	Mahua	Tree	Flower and Fruit	As a health tonic and after delivery
30.	Melotheria heterophyla	Aghmaku	Climber	Root	As Spermetorrhia
31.	Nyctanthus arbortiatis	Harsingar	Tree	Leaves	For fever and sciatica
32.	Rungia repens	Kharmor	Herb	Leaves	For fever
33.	Sida glutinosa	Baryari	Under Shrub	Root	For nervous and urinary diseases

S. No.	Botanical Name	Local Name	Habit	Part use	Uses
34.	Smilax zelylanica	Ramdaton	Climber	Root	For Seminal emission
35.	Solonum indicum	Bhatkatari	Shrub	Fruit	For pain relief, cholera and as a contraceptive
36.	Thalictrum foliolosum	Mamira	Herb	Whole Plant	For jaundice and as a health tonic
37.	Trichosanthus bractata	Lal Indrayan	Climber	Fruit and Root	Asthma
38.	Urgenia indica	Jangli Pyaz	Herb	Bulb	For Bronchitis and as a diuretic
39.	Woodfordia fruticusa	Dhawai	Shrub	Flower	During Pregnancy period
40.	Xanthium Strumarium	Chhota Gokhru	Herb	Fruit	For Skin disease and as a tonic

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