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ECOLOGICAL AND ETHNOBOTANICAL STUDIES IN THE FOREST OF BAGDARA GAME SANCTUARY SIDHI (M.P.)

Dr. Arvind Kumar Pandey
Guest Lecturer Botany
Govt. Lead College Waidhan, Singrauli (M.P.)

ABSTRACT: Ethnobotanical and ecological studies were carried out to take inventory of the species used by the inhabitants surrounding the Bagdara Sanctuary of Sidhi District Conservation Area and to assess the ecological status of medicinal plant species. The study was carried out between 2016 and 2017. Madhya Pradesh the heart of India comes under central zone of Tribals areas. Besides M.P. The ethnobotany of a specific area is a very intricate or convoluted process. This paper documents the traditional knowledge of medicinal plants that are used in the treatment of different health related disorders and diseases by the rural people of Bagdara Sanctuary of Sidhi District. The survey was carried out by first hand questioning among traditional health practitioners and educated people. The present survey focuses 32 plant species and 20 families. Each entry includes the botanical, family parts used, traditional method of preparation and mode of administration.

KEYWORDS: Bagdara Game Sanctuary Sidhi, Ethnobiology, Ecology.

INTRODUCTION:-

The term 'Ethnobotany' was first used by Harshberger (1885) and its scope was much elaborated later (Ford 1978; Faulks 1958). Since then there has been a growing interest in this field (Jain 1986; Martin 1995). Ethnobotany in the wider context denotes the entire realm of useful relationship between plants and man. Ethnobotanical studies assume great importance in enhancing our knowledge about the plants grown and used by native/tribal communities, the rich diversity assembled by them for their sustenance and different means adopted by them for its conservation.

The Indian subcontinent is the oldest land formation of the world and is a major part of the Gondwana land. The Indian sub-continent is concentrated with tribal populations and ethenic culture. The tribal communities are the preservatives of ethenic knowledge of forest resources. The science of ethnobotany aims at exploration and preservation of the phytoculture of the tribes. The plants have been used by the tribals for food since the time the man started his life on the earth. They have also been used as medicines and also for other purposed by the tribal people.

The study of ethnobotany has great economic possibilities it may lead to new information on under exploited plants as well as discovery of some new economics plants. This study provides information to the ecologist about the impact of tribal people on forest vegetation. The term ethanobotany was first used by Harsberger (1895). It deals with the direct relationship of the plants with either economic botany with traditional medicines.

The tribal communities in India largely occupy forest regions thus the tribal people and the forest plants around them have a direct relationship. Forests and tribals coexist together. The tribals life is intimately interwoven with the forests and are inseparable ecologically as well as economically the variety of plants of the tribal forests have contributed recognised role in the tribal economy and welfare.

Madhya Pradesh has a rich and varied flora due to its diversified topography and variable climatic conditions with the ideal combination of the vast and rich forest which is about 22% area of the country and about 35% of the total geographical area of the state. The forests are of various types and they provide diversity of vegetation.

Ethnobotany is the systematic study of the inter-relationship between people and plants. Lion part of the world's population in developing countries still rely plants for their primary healthcare systems to treat various ailments (Albuquerque et al., 2012). The research attributes of ethnomedicine are staggering, as it is a complex multi-disciplinary system in healing for people for millennia (Abbasi et al., 2010). The last few decades have witnessed an explosion in finding healing powers from plants. The emergence of drug resistance pathogens and toxic side effects of currently using medicines paves the way for developing new treatment testimonials from plant sources. The treatment system followed by the indigenous people is considered as the cornerstone of drug development programmes.

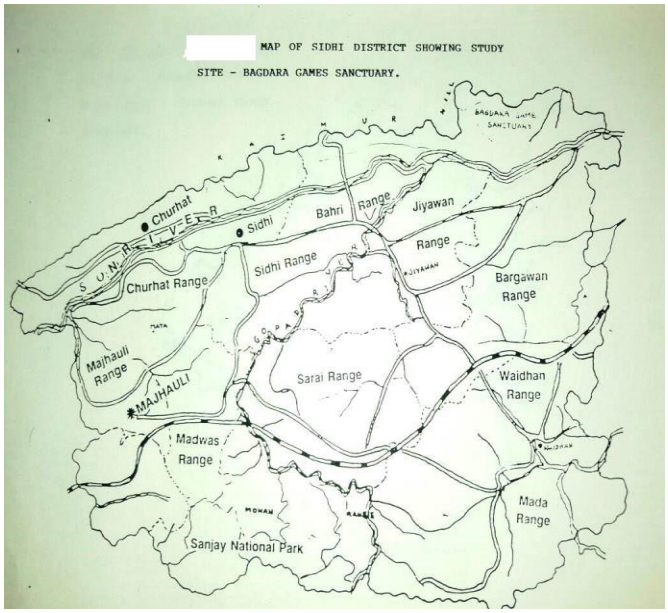
Several crop plants have originated and/or diversified in the agroecological regions where native communities have their abode. Tribal communities in many regions still practise gathering of wild useful plants to supplement their needs. The ethno-medico-botany has now-a-days become more relevant specially in the context of countries like India. Vedas (religious granth) are considered to be the earliest repository of the knowledge of medicinal plants. They have been largely identified and nurtured in forest by our great ancestors.

In India, people have been familiar with Ayurvedic and Unani systems of medicine since time immemorial. Every household in this country is familiar with the highly efficacious and antiseptic Tulsi plant grown in the front-yard of the house, and Neem tree in the backyard. Their planting and up-keep, through conventions of thorough knowledge made available, in definite terms to the people, especially housewives living in the far-off villages, who are otherwise alien to information and knowledge available to the elite, has been the subject of curiosity for all those who do not know why. Thus, Ethnobotanical interest reflects scientists to explore the uses of plants as food, shelter, medicinal importance, clothing, hunting and religious ceremonies.

Sidhi district is well known for rich population of tribal. Sidhi district of Rewa division of Madhya Pradesh is situated to the North – East corner of the state and abounds in hilly forest tracts inhabited by tribals such as, Kol, Gond, Baiga, Agaria, Bhumiya, Bhils, Muriya, Bhariya, Paliha, Khaiswar, Korwa, Panika, Bhilals, Abujmaries, Korku, Mariya, Bhatras, Purwas, Pradhans, Dhur, Dorlas, Bhaines, Bheinjhwar, Birhas, Dhanwar, Sawars, Sahariyas, halbas, Kamars, Khondas, Majhias, Parjas, Oraons, etc.

STUDY AREA:-

In the present work the Bagdara Game Sanctuary, Sidhi was studies both ecologically and ethnobotanically. The Bagdara Game Sanctuary is located in the Sidhi District M.P. It comes under 'Chitrangi' range in the east forest division of Sidhi forest. The name of Bagdara Game Sanctuary is derived from the village of Bagdara situated in the north portion of the sanctuary. The area is surrounded by Mirzapur district of Uttar Pradesh on the north and east side. The river Son flows on the south-west side. The protected forest area of Bagdara Game Sanctuary covers near about 478.000 Sq. Kms. and the remaining 246.553 Sq. Kms Area are covered by village land area. This forest is a mixed deciduous type according to Champion and Seth (1968).



Objectives:

1. To document traditional knowledge on ethno-medicinal uses of plants from tribal communities.
2. To document utilization pattern of medicinal plants and their parts in different formulation.
3. To study channels involved in procurement of herbal plants as raw material for preparation of finished products and their marketing.
4. To prepare pamphlets, technical bulletin and extension aids for utilization by end – users for creating awareness.

APPROACH AND ACCESS:-

Bagdara sanctuary is situated in the northern portion of the Sidhi district. It is 75 km away from the Sidhi district head quarter. Nearest railway station is Mirzapur in U.P (100km) and Rewa in M.P. (170 km.). Nearest aerodrome is Banaras in U.P.(170 km).

MATERIALS AND METHODS:-

The study was under taking during the preparation of flora of Bagdara Game Sanctuary Sidhi district. During the year 2016-17 this paper deals with the survey of vegetational and florastic region with the various plant species identification and herbarium voucher. The traditional knowledge about the plants for treating the common diseases was collected from peoples, especially traditional healers and village medicine-men. Monthly visit and interviews of local and tribal peoples of villages were carried out for gathering the information about the ethnomedicinal plants and documents their knowledge for future generation. The plants are arranged alphabetically. The family, habit, locality and used of the plants.

Ecological analysis of plant species

The vegetation analysis of ethnomedicinal plants was carried out following the stratified random sampling technique involving random quadrats. The size of the square plots was 100 m2 for trees, and nested within the main quadrats two plots of 25 m2 for shrubs and four plots of 1 m2 for herbs. The study area was divided into five altitudinal zones along the altitudinal gradient, to assess the ecological status of medicinal plant species. The frequency and density of all species was determined R. Mishra (1968) and Mular et. al., (1974).

RESULT AND DISCUSSION:-

In the present investigation the author has tried to complete study of forest vegetation of Bagdara sanctuary of Sidhi district. During the study three objects viz. Floristics, phytosociological and Ethnobotanical have been taken. During the present investigation 32 different plants species used for a medicinal purposes by local and tribal peoples. A brief information including botanical name, family, parts used and their medicinal value by the peoples is given in Table No.1. The local people and the tribal villagers are using these plants to cure many diseases like Cough, Diarrhea, Dysentery, Wound healing, Diabetes, Jaundice, Sunstroke, Fever, Vomiting, Skin diseases, Fatigue, Blood purifier, Anti pregnancy, Urinogenital disorder, Toothache, Menstrual disorder, Hypertension, Headache etc. They prepare the plant product as decoction, oral treatment, ointment etc. The parts of the plants used for medicinal purposes are root, stem, leaves, fruits or whole plant use as a medicine. The extracts and the paste are the two main methods for treatments of diseases.

For better understanding and clarity each topic has been discussed separately. Normally Traditional knowledge is known as a cumulative body of knowledge, practice and belief, evolving through adaptive processes and handed over through generations by cultural transmission (Berkes, et al., 2003). Traditional medicine has worldwide acceptance and it is dependent on locally available plant species and plant-based products and capitalizes on traditional wisdom-repository of knowledge (Awas and Demissew, 2009).

Cultural acceptability, economic affordability and efficacy against certain type of diseases as compared to modern medicines are the base of wide acceptance of traditional medicine. Thus, different local communities in countries across the world have indigenous experience in various medicinal plants where they use their perceptions and experience to categorize plants and plant parts to be used when dealing with different ailments (Mishra, and Kumar, 2000a;Omoruyi,et al ., 2012).Plants have played a vital role income bating many ailments in human and livestock in many indigenous communities, Traditional healers, and particularly medicinal plant herbalists, in India and other part of the globe have a detailed knowledge-base of traditional medicine(Gwalwanshi, et al ., 2014;Sindiga, et al ., 1995; Moshi, et al,2009), which is transferred orally from one generation to the next through professional healers, knowledgeable elders and/or ordinary people (Giday, et al., 2007). In India, traditional medicine has played a significant role in treating health problems in both livestock and humans (Abebe, 1986;Gebremariam and Asres, 1998; Debella, et al ., 2001; Addis, et al ., 2001). Knowledge of medicinal plants of India and of their uses provides vital contribution to human and livestock healthcare needs throughout the country (Belayneh, et al ., 2012). The plant-based human and livestock health care persists and remains as the main alternative treatment for different ailments in Baghelkhand as well as in other parts of the country, largely due to shortage of pharmaceutical products, prohibitive distance of the health service stations, unaffordable prices by small holder farmers and pastoralists for conventional drugs, emergence and re-emergence of certain diseases and appearance of drug resistant microbes and/or helminthes(Gwalwanshi, et al., 2014;Bekele, et al., 2012).

Unless the plants are conserved and the ethno-medicinal knowledge is documented, there is a danger that both the valuable medicinal plants and the associated indigenous knowledge of the ethnic groups could vanish forever due to lack of documentation (Mishra, and Kumar, 2000b) and loss of valuable medicinal plants due to population pressure, agricultural expansion and deforestation (Mitra, and Jain,1991) as well as due to drought, urbanization and acculturation(Gupta, and Kumar, 2000). Furthermore, pastoral and agro-pastoral communities of these ethnic groups have remained ethno-medicinally unexplored and there is no comprehensive account of the medicinal plant-based practices.

The number of researcher work and studied on ethnomedicinal plants in Madhya Pradesh, Maharashtra and other states of India by P. K. Dwivedi and M Salim; (2016), S.S. Ahirwar ;(2014), R. P. Mishra; (2016), Ahmed and Sinha, (2009); Ahmed and Perween, (2009); Prasad (2009); Borkar and Theng, (2010); Iqbal et al.,(2010); Ahir el al., (2011), Borkar et al., (2012); Zingare, (2012); Khonde et al., (2012); Dhore et al., (2012).

Table No. 1. List of Medicinal plant of used of tribal people of Bagdara Sanctuary.

Sr. No.	Scientific Name	Local Name	Family	Type of Plant	Parts Used	Name of the Disease/Uses
1.	*Aegle marmelos*	Bel	Rutaceae	Tree	Fruit	Fruit juice used for stomach disorder control summer problems
2.	*Artocarpus heterophyllus*	Kathal	Moraceae	Tree	Leaf	Skin diseases, ripe fruit is laxative
3.	*Amaranthus spinosus*	Payji	Liliaceae	Herb	Seed	Seeds are used as condiments
4.	*Allium cepa*	Piyaz	Liliaceae	Herb	Bulb	Stone of kidney
5.	*Allium sativum*	Lahsun	Liliaceae	Herb	Bulb	Reduce the cholesterol
6.	*Aloe vera*	Alove	Liliaceae	Herb	Leaf	Leaf used Malaria, skin disease
7.	*Asphodelus tenuifolius*	Jungli piyaz	Asphodelaceae	Herb	Shoot	Tender shoots are used as vegetable
8.	*Bauhinia varigata*	Kachnar	Caesalpinaceae	Tree	Leaves	Dysentery
9.	*Buchnania lanzan*	Char	Anaacardiaceae	Tree	Hole Plant	The gum from the tree is used against leprosy, leaves are used in the treatment of skin diseases and fruits are used in treating coughs and asthma
10.	*Boerhavia diffusa*	Punarnava	Nyctaginaceae	Herb	Leaves	Leaves used herbal medicine for pain relief and used as vegetable
11.	*Calotropis procera*	Akaua	Asclepiadaceae	Shrub	Leaves	Stomach pain
12.	*Chyranthes aspera*	Kalill Chaurai	Amaranthaceae	Herb	Leaves	The tender shoots are used as vegetable
13.	*Calonyction muricslum*	Kotlaiya	Convolvulaceae	Herb	Seeds, plant juice	Rural people of Madhya Pradesh use the immature floral pedicels as appetizer and digestive capacity.
14.	*Carissa carandas*	Karaunda	Apocynaceae	Shrub	Seed Fruit	Best used Anemia
15.	*Carissa tora*	Chakauda	Caesalpinaceae	Shrub	Fruit	Seeds are used in skin disease
16.	*Coccinia indica*	Kunduru	Cucurbitaceae	Herb	Fruit	In traditional medicine system whole plant of Ivy gourd is used for treatment of many common ailments.
17.	*Cassia fistula*	Amaltas	Caesalpinaceae	Tree	Leaves	Ringworm
18.	*Chenopodium album*	Bathua	Chenopodiaceae	Herb	Leaves	Cough, cold
19.	*Citrus lemon*	Nibu	Rutaceae	Shrub	Fruits	Stop vomiting
20.	*Curcuma domestica*	Haldi	Zingiberaceae	Herb	Rhizome	Jaundice
21.	*Ficus glomerata*	Gular	Moraceae	Tree	Fruits	Wounds
22.	*Ficus religiosa*	Pipal	Moraceae	Tree	Leaves	Asthma
23.	*Hibiscus rosa -sinensis*	China rose	Malvaceae	Shrub	Leaves	Stomach disorders
24.	*Lagenaria siceria*	Lauki	Cucurbitaceae	Climber	Leaves, Fruits	Headaches
25.	*Mangifera indica*	Aam	Meliaceae	Tree	Seeds	Diarrhea
26.	*Mentha spicata*	Pudina	Lamiaceae	Herb	Root and stem	Leprosy, cough, jaundice
27.	*Momordica vulgare*	Karela	Cucurbitaceae	Climber	Leaves, Fruits	Leprosy, jaundice
28.	*Nerium indicum*	Kaner	Apocynaceae	Shrub	Leaves	Skin disease
29	*Syzygium cuminii*	Jamun	Myrtaceae	Tree	Bark, fruits	Diabetes, dysentery

30.	*Ocimum sanctum*	Tulshi	Lamiaceae	Herb	Leaves	Respiratory disorders
31.	*Tamarindus indica*	Imli	Fabaceae	Tree	Fruits	Skin diseases
32.	*Ziziphus jujube*	Ber	Rhamnaceae	Tree	Root	Swelling

STATEMENT OF SIGNIFICANCE:-

Bagdara sanctuary is famous for black bucks. Its frequency of occurrence is very much. It is one of the most spectacular and numerous of wild animals living in close proximity to human settlement. It can be seen in any season in the sanctuary. There are many rock paintings of the stone period. More research is needed from archeological department regarding these rock paintings. Few caves and rock shelters are very attractive. Son River makes the southern boundary of the sanctuary. There are few beautiful view point spots at hillocks.

VEGETATION:-

According to revised classification of forest types in India by champion and Seth, the forest can be broadly classified in the "northern dry mixed deciduous forest" Almost all sanctuary area is covered by poor quality of mixed forests. The density of crop varies from 0.1 to 0.5 interspersed with many blanks.

CONCLUSION:-

This study showed that ecology of traditional medicine, mainly involving the use of medicinal plants, is playing a significant role in meeting the primary healthcare needs of the tribals and villagers of Runj. Acceptance of traditional medicine and limited access to modern healthcare facilities could be considered as the main factors for the continuation of the practice. This field survey has documented 32 plant genera; species distributed 20 family as having medicinal properties against many human and livestock ailments as reported by healers from Bagdara Sanctuary Sidhi. However, we feel that the indigenous knowledge and practices of the tribes of Sidhi on utilization of plant resources as medicine should be reported and preserved before they get lost due to increasing integration. There are plants that are traditionally employed for specific symptoms or conditions that often accompany itching, allergy and other skin disorders. This vast array of rare medicinal plants can be used for further research only if we ensure proper conservation of these therapeutic plants**.**

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