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Ethnobotanical Studies on Medicinal Plants of Kaladera Region of Jaipur District

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ABSTRACT
A floristic survey of ethnomedicinal plants occurring in the tribal areas of Kaladera region in Rajasthan was conducted to assess the potentiality of plant resources for modern treatments. The information on medicinal uses of plants is based on the exhaustive interviews with local physicians practicing indigenous system of medicine, village headmen, priests and tribal folks. The present review highlights useful ethnobotanical information about the uses of plants by the tribals of Kaladera region of Jaipur district.

Key Words: Ethnomedicinal plants, Indigenous, Tribal folks

INTRODUCTION

Medicinal plants play a vital role in providing health care to human beings since the dawn of civilization. It is evident that the Indian people have tremendous passion for medicinal plants and they use them for wide range of health related applications. The demand for medicinal plants is increasing in both developing and developed countries and the bulk of their material trade is still from wild harvested plants.

Folk medicines, mainly based on plants, enjoy a respectable position today, especially in the developing countries, where modern health service is limited. Safe, effective and inexpensive indigenous remedies are gaining popularity among the people of both urban and rural areas, especially in India and China. Information from ethnic groups or indigenous traditional medicine has played a vital role in the discovery of novel products from plants as chemotherapeutic agents (Katewa 2009).

The field approach of study of ethno botany plays a vital role because of the direct contact that can be established with the authentic information on the uses of plants both wild and cultivated. The wild plants in Indian folklore have been and are used to meet the various needs of the tribal's and poor people. These plants are used for purposes of food, fodder, medicine, drugs, clothing, agricultural implements, hunting, narcotics, poison, gums, dyes, insecticides and food etc.

The recently born multidisciplinary science of ethno botany which has in a short time of a few decades has experienced a mushrooming growth over the world .It aims at investigating and inventorying fast disappearing traditional knowledge systems pivoted on the direct and total relationship between human societies and plants. The great potential of under usage of plants used by these societies especially in mankind's problem like hunger and health has been fully realized by the results of studies carried out so far. Ethnobotanical studies in Rajasthan have been carried out by Joshi (1995); Singh and Pandey (1998); Katewa and Guria, 1997, Jain et al 2004, Katewa 2009, Meena and Yadav 2010, Sharma and Khandelwal (2010). A perusal of the literature reveals that, although a lot of ethnomedicinal work has been done in the region, some ethnobotanical gaps in knowledge exist in this region and this is revealed in the present paper.

The present study is towards a complete probe on the role of plants in food, shelter, medicines, occupations, recreation, musical instruments, magic-religion, ceremonies, decoration and adornment by the people of Kaladera region (District Jaipur)

METHODOLOGY

During the field trips plants were collected with detailed information regarding their use by the local people of Kaladera region. The method of collecting information about the plants was based on personal interview with tribal and backward people of various age groups residing in rural, semi-urban and urban areas of the region. During collection of medicinal plants, village headman, spiritual leader, *Ojha*, *Vaidhya*, *Hakims*, Priest and other people who could give correct information about the use of plant, mode of use and with their collaboration the know-how of the plant were collected. The data collected was compared and cross linked with already available data to ascertain its validity and integrity. More over it was found that the tribal village members were found to be acquainted with quite a number of medicinal properties of the plants. Ethno botanical data was collected along various lines in different manners - by enquiry, observation, interview and participation. Selected tribal were taken on excursion where only ethno botanically important voucher specimens were collected. Whenever possible a camera was carried and the most common plants and ethno botanically important plants were photographed.

The methodology used for collecting the ethno botanical information was put into following categories:-

- ***Direct Approach***
- ***Indirect Approach***
- ***Miscellaneous***

Direct Approach: This included the intensive field surveys among tribal and remote areas of kaladera region.

Indirect Approach: It included collection of information from literature, museums, herbarium etc.

Miscellaneous: Some information was also collected after discussion with the non-tribal e.g. village headman, spiritual leader, *ozha, vaidhya, hakims*, priests, teacher, physicians, veterinary, doctor, social worker, postal authorities and Ayurvedic doctors etc.

Plants were collected with detailed information regarding their use by local people during field trips. The proposed study was based on personal interview with tribal and backward people of various age groups residing in rural areas of Kaladera region in the district of Jaipur.

The present ethno botanical research was put into field and literary research. The field tours for ethno biological survey were made at regular intervals in order to cover the tribal areas in different seasons to collect the ethno botanically interesting species either in flowering or fruiting stage. The data obtained from different localities and villages was compared and cross linked so as to ascertain their validity and integrity

RESULTS

Keeping in view the above observations the ethno botanically important plants of Kaladera Region (District Jaipur) were identified through a wide survey under the present investigation. Some plants which are mostly exploited by the people are as follows in Table 1.

Table 1. Ethnomedicinal uses of the plants by the tribals of Kaladera region, Jaipur

Botanical Name	Family	Uses
***Acacia catechu* Willd**	**Mimosaceae**	The paste of the bark is applied locally in stomatis. The exudates of the plant are given orally in case of difficult child birth.
***Acacia farnesiana* (Linn) Willd**	**Mimosaceae**	The paste of the leaves is taken orally in case of inflammation and reddening of the eyes.
***Acacia nilotica* (Linn)Del subsp. *Indica* (Benth) Brenan**	**Mimosaceae**	The fruit powder along with sugar is taken orally in case of dysentery.
***Acacia Senegal* Willd**	**Mimosaceae**	The gum is taken orally in cases of inflammation of intestinal mucosa.
***Adhatoda vesica* Medic**	**Acanthaceae**	The tribal widely eat the fresh leaves and roots with ginger against cough, cold, bronchitis and asthma.
***Aegle Marmelos* Linn. Corr.**	**Rutaceae**	The reputed medicinal properties of ripe fruits for curing chronic dysentery, habitual constipation and dyspepsia are widely known to the tribal communities.
***Aloe vera* Mill**	**Liliaceae**	The herbal extract of *Aloe vera* has remarkable healing effects on dead epithelial cells of human skins damaged by solar radiations. It also stimulates the growth of new skin cells and even quickly heals 3rd degree burns.
***Azadirachta indica* A.Juss**	**Meliaceae**	Neem is considered as a divine tree and great gift of nature and as an 'all cure' for human problems..
***Bauhinia purpurea* Linn**	**Caesalpiniacea**	The decoction of the flower buds is taken orally in constipation.
***Boerrhavia diffusa* Linn**	**Nyctaginaceae**	The leaves are consumed as vegetable in cases of kidney stones. The root paste is taken orally to cure jaundice.
***Calotropis procera* (Ait) R.Br.**	**Asclepiadaceae**	Fresh flowers are taken orally as anti-venom against snake bite. The leaf-ash is used to cure cough and cold.
***Cassia fistula* (Amaltas) Linn**	**Caesalpiniaceae**	It is used for the treatment of constipation and as anti-helminthes'
Commiphora wightii* syn *C. mukul	**Burseraceae**	The gum resin is used for the treatment of gout and other forms of arthritis and for reducing body weight.
***Datura innoxia* Mill**	**Solanaceae**	Tribals smoke the seeds and leaves to cure asthma.
***Ficus benghalensis* Linn**	**Moraceae**	Leaf extract is taken orally in Diarrhoea. Few drops of the latex taken orally are used to overcome sexual impotency.
***Ficus racemosa* Linn**	**Moraceae**	The stem bark ash paste is used locally with ghee for curing boils and pimples.

***Jatropha curcas* Linn.**	**Euphorbiaceae**	The seed oil and seeds as such are used as a purgative by the tribals.
***Lawsonia inermis* Linn**	**Lytheraceae**	The medicated water of the roots soaked for 24 hours is taken orally for controlling birth.
***Nerium indicum* Mill.**	**Apocyanaceae**	The leaf decoction is used as gargle to cure jaw ache.
***Ocimum basilicum* Linn.**	**Lamiaceae**	The leaf along with honey is used as decoction to cure cold, cough and fever.
***Ocimum sanctum* Linn.**	**Lamiaceae**	The inflorescence powder is taken orally with water as a medicine for diabetes.
***Pedalium murex* Linn**	**Pedaliaceae**	The juice of the plant is taken orally to increase sexual vigor.
***Phyllanthus emblica* Linn.**	**Euphorbiaceae**	The fruits are soaked in honey and taken orally to cure leucorrhoea. The fruit juice mixed with juice of *Momordica charantia* is taken orally for cure against diabetes.
***Plumbago zeylanica* Linn.**	**Plumbaginaceae**	The root powder is applied locally in burns and wounds.
***Ricinus communis* Linn**	**Euphorbiaceae**	The juice of the leaves is mixed with mustard oil and is applied locally to reduce menses pain.
***Solanum nigrum* Linn**	**Solanaceae**	The leaf extract is taken orally to cure whooping cough.
***Tephrosia purpurea* Baker**	**Fabaceae**	The leaf paste is applied locally in case of piles and leprosy. The twigs are used as toothbrushes to cure tooth-ache.
***Tridex procumbens* Linn**	**Asteraceae**	The leaf juice is dropped locally on wounds and cuts to stop bleeding.
***Withania somnifera* Linn. Dunal.**	**Solanaceae**	Roots are used in several ailments by the traditional folk healers.

Apart from the plants identified above people consider *Azadirachta indica* (Neem), *Acacia catechu* (Khair), *Mangifera indica* (Aam) and *Aegle marmelos* (Bel) as most important auspicious trees. With the advent of festival or marriage the wall canvases of tribal huts become line with the paintings of species like *Mangifera indica*, *Ocimum* species considered auspicious by all tribal communities.

Some plants are considered unlucky and evil and tribal try to keep themselves away from them for one reason or other. *Terminalia ballerica* (Bahera) is ignored due to the presence of harmful constituents in the fruits which cause madness when eaten in excess. *Zizyphus nummularia* (Bor) is avoided since the garments of a person if once hooked by the spines, is difficult to extricate.

Certain plants though may have no auspicious value for tribal, but considered auspicious by them due to fear, being abode of ghosts for e.g. *Ficus benghalensis* (*Bad*) and *Ficus religiosa* (*Peepal*).

DISCUSSION

The ethno botanical works in organized way were started by Botanical Survey of India in 1969. Since then uses of plants by the tribal are being recorded for a variety of purposes(Jain,1981).Considerable notable work has been done on several aspects of plants viz. ethnomedicine, dyes, tans, narcotics, fibre, timber etc, Bhandari (1974), Jain (1981a,b), Singh and Pandey (1980,1981,1982), Katewa and Guria (1997), Sebastian and Bhandari (1984a), Nargas and Trivedi (1999).

The tribal depend on the plants around them which made them acquire knowledge of economic and medicinal properties of many plants by trial and error. Consequently they became the storehouse of knowledge of many useful as well as harmful plants accumulated and enriched through generations and passed on from generation to another without any written documents, It is therefore important to study ethno botany and it must be properly documented and preserved urgently because most the tribal are being assimilated into modern societies and the treasure of knowledge of uses of plants resources is fast disappearing.

The observations emanating from the present survey need to be substantiated with pharmaco-chemical studies in order to evaluate their effectiveness. However, for some species, there is evidence in the literature that the mode of application being practiced by the local people is likely to be effective.

The study has a great academic significance as far as the tissue culture studies of the ethnobotanically important plants especially having high medicinal value are concerned. Suitable experiments can be designed in this respect in order to understand the physiology of growth on one hand and various physical and chemical factors involved during the process of growth and differentiation

on the other hand. Plant growth and differentiation are important developmental phenomenon and nutrients and growth regulators play significant role in its control. Such efforts are indeed necessary for successful commercial metabolites for medicinal and pharmaceutical purposes and may open alternative sources overcoming the present threat of biodiversity.

The emergence of modern biotechnological tools presents an important approach for a production link between conservation and sustainable utilization of genetic diversity. Biotechnology can lead to new and improved methods for preservation of plant resources and can accelerate the evaluation of germplasm collection for specific traits. Maintenance of a wide genetic base which is an important element of biodiversity is essential to the future of biotechnology and sustainable user of biological resource,

In Vitro studies through culturing various explants in a nutrient medium can be exploited by subjecting such explants to auxins. cytokinins individually or in combination with each other. Callus cultures, shoot-root cultures, anther culture and protoplast culture are very important tools through which number of investigations can be made to have differentiation and regeneration of plants of high economic value.

The biodiversity data and fact sheets published world over emphasized it to the extent we are sending alarms to ourselves. Looking to the present scenario, biotechnology and floristic diversity are being strongly associated with each other looking upon the sustainable growth and management of plant genetic resources. The region preserves numerous examples of diversified flora which needs immediate protection.One interesting area of work in ethno botany is the study of selection brought about by the people in certain economic plants and the conservation of germplasm through the patronage of land races. The agricultural practices and other daily chores of primitive man provide valuable clues to his definite concepts of conservation of plant resources and energy and health environments. The recently born multidisciplinary science of ethno botany which has in a short time of a few decades, experienced a mushrooming growth the world over aims at investigating and inv entorying fast disappearing traditional knowledge systems pivoted on the direct and total relationship between human societies and plants. The great potential of under usage of plants used by these societies especially in mankind's problem like hunger and health has been fully realized by the results of studies carried out so far.

Since it was believed that everything in nature has some sort of power and spirit, likewise each plant has its own properties. Ethno botany brings to light numerous known or unknown uses of plants which have potential of wider usage. It has relevance also in conservation of genetic resources. It helps to search new sources of drugs, food, fodder and other life supporting species found in nature.

The tribal people and ethnic groups throughout the world have developed their own culture, customs, religious rites, taboos, totems, legends and myths, folklores and songs, food, medicinal practices etc. Numerous wild and cultivated plants play a very important and vital role among these cultures and this interrelationship has evolved over generations of experience and practices.

There is evidence of the fact that many valuable drugs of our modern medicine have been discovered by knowing that a particular plant was used by the ancient folk healers in one or more of the ancient cultures of world for the treatment of some kinds of ailments. Also a particular plant which has been in used by traditional healers since antiquity for one ailment may be of considerable value in other ailments too. There is enough scope of the amalgamation of these drugs in the mainstream of prenatal medicinal systems today after the tribal drugs are subjected to the photochemical and biological screening together with clinical trials.

Biodiversity Conservation and Belief System

Understandably, ancient cultures imposed restrictions, slapped sanctions and handed down hard prescriptions mainly to arrest the attitudinal change eating into the vitals of conservation. To supplement the human authority, they invoked godly interventions in the form of rites, rituals and folk tales and lore to create a fear psychosis. The tribal have identified certain plants favorable to them leading to prosperity on the basis of their utility which mark them out different from hundred of other species present around. They worship them and feel cutting of them is a sin and anyone if caught red hundred is punished by them.

A detailed account in respect of different aspects of human-plant relations in the area has been mentioned after conducting a wide survey during the present investigation. It is based on surveys of different tribal villages and remote areas and interviews with people of different age groups. Studies have been undertaken medicinal plants used against diseases. Moreover, conservation of biodiversity and the sustainable use of plant resources is another area for paying due attention.

The observations and findings made under present investigation reveals that the ethnic groups and local people of the area are highly dependent on the natural plant resources surrounding their vicinity and these resources play an important role in their routine life. It is the need of the hour to focus immediate attention for the plant conservation from the government and NGOs with the help of local people by creating rapid awareness in them. There is need of cooperation and coordination among various agencies such as forest and the pharmaceutical firm interested in the utilization of these medicinal plants and to initiate restoration work in affected areas. By doing so we can change the economic and social conditions of the local inhabitants positively.

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