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Contribution of Ethnomedicinal Plants in Conservation of Biodiversity of Central Rajasthan

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ABSTRACT

The present study is an attempt to conserve the Biodiversity (Plant diversity) of central Rajasthan by means of Ethnobotany. The traditional knowledge of medicinal plant species has been listed which are actively used for various ailments in rural areas of central Rajasthan. These tribes use the plants for various purposes in their daily life. Health, vitality and longevity enjoyed by the tribal's peoples have been attributed by them to the use of these wild plants. However, because of environmental changes and a lack of plant conservation, many of them have become rare, threatened and endangered. The purpose of this communication is to provide a detailed listing of plant species along with their plant parts used and the mode of administration reported for the effective control of a variety of ailments as used by the tribal community of Rajasthan. A field survey of the study area was carried out to enumerate the utility of these plants. From ancient times, plants have been a rich source of effective and safe medicines. Various parts of plants (roots, stem, leaves, bark, fruits, seeds etc.) or whole plant is used for medicinal purpose for various ailments. The short diagnostic description of plants is described in this research paper which is conserved by the local communities. Due to their safe, effective and inexpensive nature, indigenous remedies are popular among the people of both urban and rural areas in Central Rajasthan.

KEYWORDS: Central Rajasthan, Conservation, Biodiversity, Ethnobotany, Medicinal Plants, ailments, diagnose.

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INTRODUCTION

India is rich in natural resources and traditional knowledge for the conservation of nature. The traditional use of plant in medicine is from ancient time to this day all over the world[1]. Due to the religious traditions and socio-cultural activities biological heritage is conserved in Rajasthan. World Health Organization has estimated that 80% of the world population is based on traditional medicinal system for primary health care needs[2]. It was observed that only 5% of herbal wealth was studied till day and rest is unexplored[3]. In the nine recognized botanical regions of India, three falls in the territory of Rajasthan which is rich in floral diversity as 1,911 wild species belonging to 780 genera and 154 families grow in this state[4]. However, only 7000-7500 species are used for medicinal purposes by traditional communities[5]. These herbal plants are very popular because they have fewer side effects, and better patient compliance. The protection and conservation of medicinal plant diversity against over exploitation by domestic and foreign commercial interest without benefits accruing to the nation are clearly our priorities[6]. In Rajasthan, the first person who record the wild plants which are used as famine food & vegetable products as food in desert zones of the state. Very little work on the ethnobotany and utilization of local plant resources has been done in Rajasthan in spite of the favorable conditions. Long back, King (1869, 1869) published two papers on the famine foods of Marwar[7,8]. Some medicinal plants occurring in Alwar are listed by Vyas and Gupta[9]. Dixit and mishra given some less known medicinal plants of Ajmer forest division[10]. Singh and Shetty surveyed the natural resources of Rajasthan Desert[11]. Billore described the medicinal plants used by Bhils of Banswara district and some medicinal plants of Ajmer forest division[12] . Joshi gave an account of ethnobotany of the Bhil tribe of Rajasthan[13].

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 marks them out different from hundreds 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.

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.

METHODOLOGY

During the field trips plants were collected with detailed information regarding their use by the local people of Central Rajasthan. 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 ethnobotanically 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:-

a. **DIRECT APPROACH:** This included the intensive field surveys among tribal and remote areas of Central Rajasthan.
b. **INDIRECT APPROACH:** It included collection of information from literature, museums, herbarium etc.
c. **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.

RESULTS & DISCUSSION

The study was conducted in five district of central Rajasthan (Ajmer, Jaipur, Bhilwara, Nagaur and Pali).

Table 1: Ethnomedicinal Plants of Central Rajasthan

Botanical name	Family	Local name	Part Used	Ailments
Azadirachta indica	Miliaceae	Neem	Seeds, leaf, Bark	Malaria, Contraceptive, Toolhache, woundHealing
Allium cepa	Liliaceae	Pyaj	Bulb	Used for cholera, stomache
Acacia catechu	Leguminosae	Khair,	Whole plant	Toolhache, Cough
Aloe barbedensis	Liliaceae	Gawarpata	Leaves	Stomache, Burn
Argemone Mexicana	Papaveraceae	Dhaturi	Stem, latex	Rheumatism, Eye
Asparagus racemosa	Liliaceae	Satawari	Root	Debility, Impotency
Bauhinia racemosaLamk.	Leguminosae	Kanchan	Leaf	Used in urinary disorder, eyes
Curcuma Longa Linn	Zingiberaceae	Haldi	Rhizome	Cold, cough, Anti- inflammatory
Datura innoxia	Solanaceae	Dhatura	Leaf, seed	Asthma, malaria
Eclipta Prostrata.	Compositae	Bhanghra	Leaf, shoot	Wound, Headache
Mangifera indica Linn	Anacardiaceae	ama	Stem bark, Leaf	Abortificiet, Toolhache
Ocimum americanum	Labiatae	Tulsi	Leaf	Cold, cough, fever
Ougeinia oogeinsis (Roxb.) Hochr.	Leguminosae	Sandan	Stem bark	Stomache, Diarrhoea
Phyllanthus emblica	Euphorbiaceae	Amla	Fruit	Stomache, Diarrhea
Piper nigrum	Piperaceae	Kali mirch	Fruit	Epilepsy, Stomache
Pedalium murex Linn.	Pedaliaceae	Gokharu	Leaf, fruit	Rheumatic, Cold
Ricinus communis Linn.	Euphorbiaceae	Arandi	Leaf, seeds	Antifertility.
Sesamum indicum Linn.	Pedaliaceae	Til	Oil	Burns
Withania Somnifera	Solanaceae	Ashvagandha	Leaves, root	Cold, Cough

The data was collected from 400 rural people in these districts through participatory rural appraisal (PRA) technique that included interviews group discussions observations, conversations. During this collection it was found that people used many common plants ingredients for the treatment of common ailments. The identified practices were then documented after scientific verification. During the study, the following 22 medicinal plants were enumerated which are used for common ailments by local people. The local informants were medicine-men, men and women working in the field, priest, and

village head-man and birth attendant above the age of 50 years. To determine the authenticity of information collected during field work, repeated verification of data from different informants and in different times was done. Thus, only the specific and reliable information cross-checked with 13 informants has been incorporated in present study. A structured questionnaire was used to collect data on local plant names, uses, parts used, and mode of preparation and administration.

Different plant parts are used to cure these ailments like bark, fruits, seeds, stem and whole plant. The details regarding scientific name, local name, useful parts and medicinal value are listed in the table.

SOME PLANTS & TRIBES OF CENTRAL RAJASTHAN

Figure 1: ***Argemone mexicana*** **Linn.**

Figure 2: ***Aloe barbedensis*** **Linn.**

Figure 3 ***Acacia***

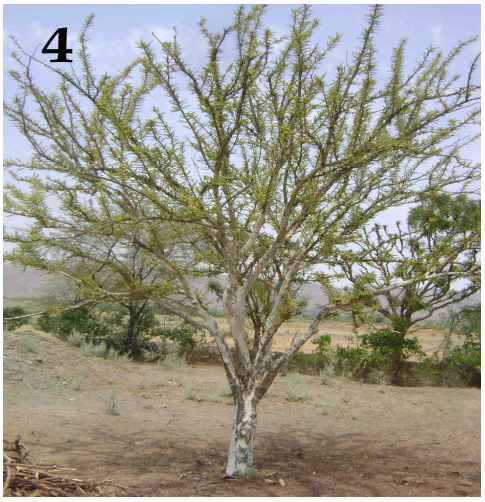

Figure 4. ***Phyllanthus emblica***

Figure 5. Tribes of Ajmer region (Puskar)

Figure 6.Tribes of central Rajasthan live with their Economic Plants

During collection of ethnomedicinal plants, village headman, spiritual leader, Ojha, Vaidhya, Hakims, Priest and other people who could give correct information about the use of plant, the data is given below:-

Table 2: Statistical Data of Central Rajasthan

Central Regions of Rajasthan					
	Ajmer	**Jaipur**	**Bhilwara**	**Nagaur**	**Pali**
Ailments	**Conservation of Plants (Values in %)**				
Cold	50	60	70	60	70
Cough	69	65	69	48	64
Stomache	32	40	29	32	44
Headache	40	44	58	23	52
Toolhache	87	50	40	60	80

STATISTICAL REPRESENTATION OF THE COLLECTED DATA FROM THE CENTRAL RAJASTHAN:-

1. **AJMER REGION :**

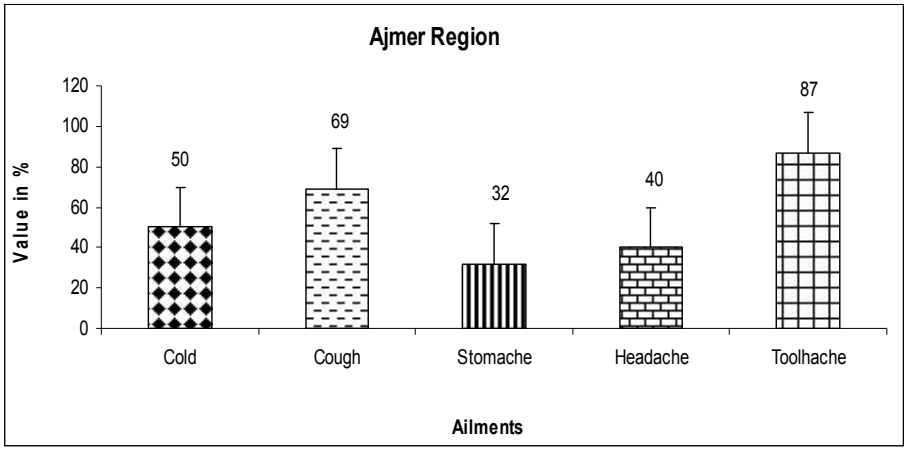

Figure 7: Collected Data from the Ajmer Region

2. **JAIPUR REGION:**

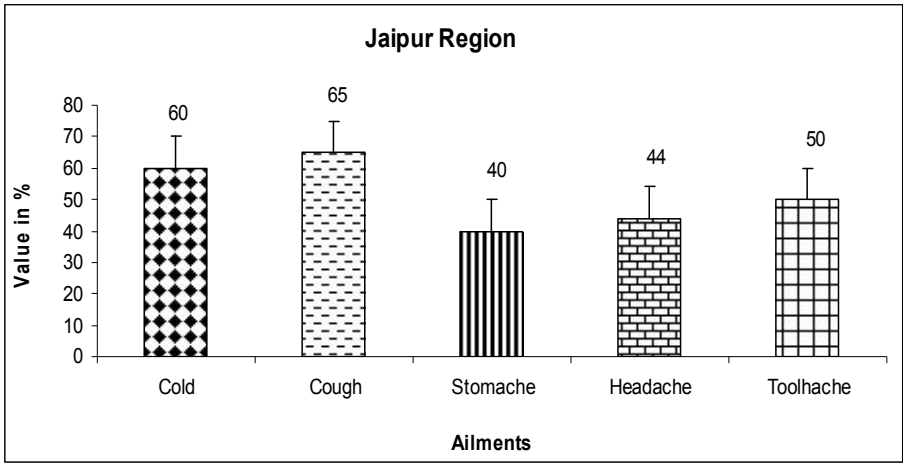

Figure 8: Collected Data from the Jaipur Region

3. BHILWARA REGION:

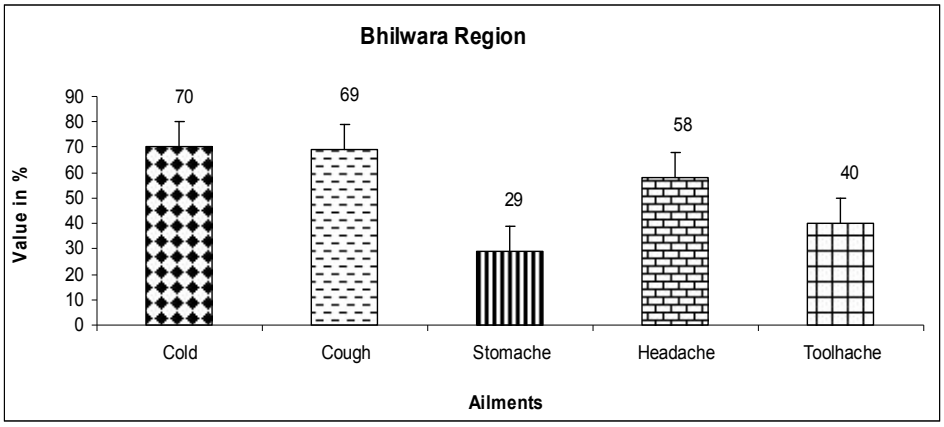

Figure 9: Collected Data from the Bhilwara Region.

4. NAGAUR REGION:

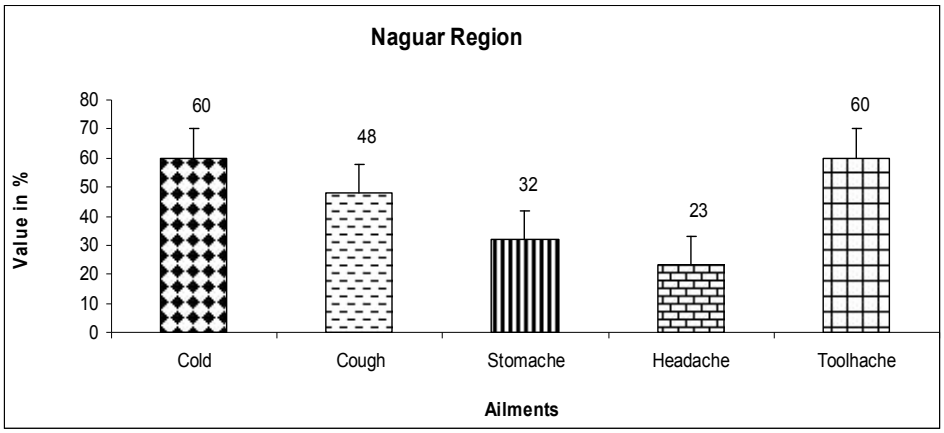

Figure 10: Collected Data from the Naguar Region.

5. PALI REGION:

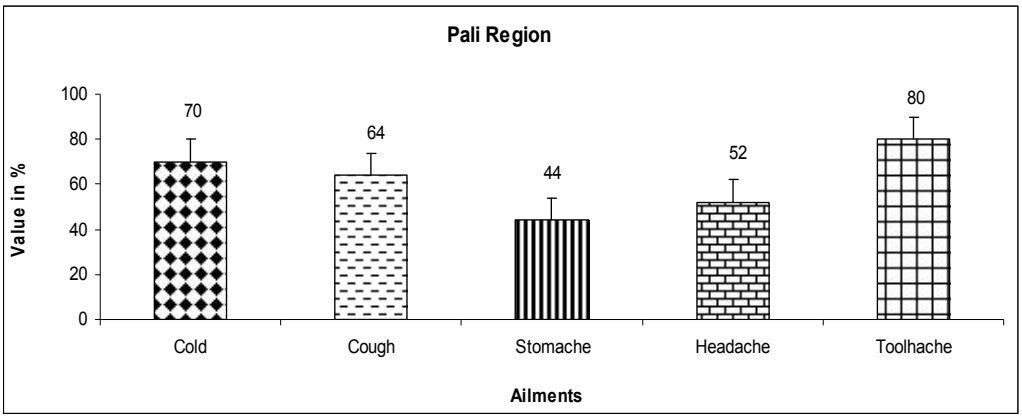

Figure 11: Collected Data from the Pali Region.

The above data was collected during the study of biodiversity In the five District (Ajmer, Jaipur, Bhilwara, Nagaur, Pali) of central Rajasthan. The Fig. No. 7, 8, 9, 10,11 represent the data of Ajmer Region during the data collection Plants were selected after direct or Indirect approaches by the village headman, spiritual leader, Ojha, Vaidhya, Hakims, Priest and other people which were participated in the Study. In the central Rajasthan People used Plants for cold 50, 60, 70, 60, and 70% for Cold, 69, 65, 69, 48 and 44% for cough,32, 40, 29, 32 and 52% for Stomache, 40,44,58,23 and 80% Headache, 87, 50, 40, 60 and 80% Toolhache in Ajmer, Jaipur, Bhilwara, Nagaur, Pali respectively.

The issue of conserving these plants has been focused in the last 15 years and various conservation strategies (insitu, botanical gardens, germplasm banks etc.) were mentioned by many researches. As the new era is the era of development, therefore conservation of these plants should be viewed seriously. Cold, cough, stomache, headache, toothache are the common problem in rural areas. Rural people resides in central Rajasthan, used various treatments of these problems by traditional medicinal system. These people have been preserving this folk / traditional knowledge in their communities. For these treatments, plant preparations are the miracle remedies and some time only one dose is sufficient for treatment. Medicines are prescribed in different forms including decoction, powder, paste, infusion etc.

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