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USE OF TRADITIONAL MEDICINAL PLANTS FOR BONE JOINING BY INDIGENOUS PEOPLE IN VILLAGE KAPSI, BALOD DISTRICT, CHHATTISGARH (INDIA)".

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ABSTRACT: The present study reveals use of medicinal plant by the Halba tribes residing in village of Kapsi, Balod District, (Chhattisgarh).Our study reveals that major uses of medicinal plants for treatment of different diseases ranges from simple diseases such as painkiller to fatal diseases such as malaria and typhoid. The result of the study also showed the highest proportion medicinal plants were used in treating stomach ache, some plants are used in treating a series of different health problems. The main use of medicinal plants in this area is with the joint pains and joining bone fracture. Present study documented 15 medicinal plant species belonging to 14 different families used for joining bones, pains etc. Various parts of different plants are used for treatment of joint pains as well as for fracture. The leaves, roots and the barks are the most commonly used plant parts in the preparation of remedies respectively. The data obtained showed that plants have external use as well as are orally administered. The existence of diverse cultural traditions and belief system were found to have both useful and harmful impacts on medicinal plants. For instance, some of these beliefs contribute to medicinal plant conservation as they reduce the rate of harvesting of the plants, while others contribute to deterioration of the knowledge on traditional medicine and medicinal plants. The main threat for medicinal plants emanate from industrial expansion. Modernization, modification of culture and increased business work in the area have played a major role in changing the attitude of younger generation to ignore the use of traditional knowledge. Details of the study and procedure followed are discussed.

INTRODUCTION: Ethnobotany is defined as "local people's interaction with the natural environment. (Martin, 1995). Cotton, 1996: It involves an interdisciplinary approach encompassing the fields of botany, chemistry, pharmacology and anthropology. Traditional medicine as defined by the Word Health Organization (WHO) can be summarized as the sum total of all the knowledge, beliefs and practices that are used in diagnosis, prevention and elimination of physical, mental or social imbalance and rely exclusively on practical experiences and observation handed down from generation to generation (WHO,1998). Medicinal plants are a source of great economic value all over the world. In view of extremely rich bio cultural diversity in the state , dependence of forest dwellers for their health on medicinal plants, the government has declared Chhattisgarh, as the herbal state in July 2001. The Chhattisgarh state -the best representatives of the Deccan Peninsular bio-geographic zone, biodiversity rich deciduous forests. The state is rich in endemism with respect to plants having medicinal importance. About 44 tribal communities

live in Chhattisgarh, They have accumulated a great deal of knowledge on the utility of medicinal plants. This traditionally occupied knowledge is transmitted by oral means and is mostly acquired through learning-by-doing approaches. In Chhattisgarh research and documentation on medicinal plants have been started only very recently. Among rural communities of Chhattisgarh, traditional medication is believed to be an important healthcare system, which involve the use of local medicinal plants. The present study is initiated with intention to add new document concerning indigenous knowledge on use, threat and conservation of medicinal plants by tribals of Chhattisgarh.

MATERIALS AND METHODS:

STUDY AREA DESCRIPTION:

GEOGRAPHY, POPULATION, CLIMATE AND VEGETATION: Balod is the 19th district of Chhattishgarh. The district is located almost in the central part of the state besides bank of river Tandula.. Balod is located at 20.73°N 81.2°E. It has an average elevation of 324 metres (1063 feet). The main tribes that inhabit the district are Gond, Kanwar, Halba and Baiga, who are nearly 25.16% of the total population of the district. The region experiences a tropical wet and dry climate, and summers here are very dry and winters are quite moderate. There are three forest types in Chhattisgarh — Tropical Moist Deciduous, Tropical Dry Deciduous and Subtropical Broad-leaved Hill Forests (FSI 2000). The forests have been classified as sal (*Shorea robusta*), teak (*Tectona grandis*) and miscellaneous, including bamboo. Moreover, several important medicinal plants are also found here. More than 50 percent of the people living in and around the forests depend on them for their livelihoods. The forests serve as a rich backdrop to the rural economy of the state.

SITE SELECTION: Data collection was accomplished from, **Kapsi Village**

SELECTION OF INFORMANTS: Informants with different ages were involved in the study. Out of this, 10 key informants were systematically selected based on recommendations from elders and local authorities. Some of them are well known around as Devi Ram Vishwakarma, Ladu Ram Vishwakarma, Banwali Ram Vishwakarma, DamanLalVishvakarma, Jethu Ram Badai etc.

ETHNOBOTANICAL INFORMATION

The methods employed in the data collection were group discussion, and field observation.

GROUP DISCUSSION: A brief group discussion was made at each site prior to important medicinal plant collection with all informants of the study site. During the discussions an attempt was made to encourage the healers in such a way that their cooperation is of great benefit to the country and at same time the revelation of their knowledge of medicinal plants will not in any way interfere with the continued practice of their art and the confidentiality of their medicinal plants use knowledge (detailed method of preparation, specific dosage system and application routes).

FIELD OBSERVATION : A number of field observations were made during the study and later with informants. In the latter method, all relevant data including the vernacular name of plants, the parts used, the preparation methods and modes of administration, and disease condition treated as well as the strategies they use for the conservation of medicinal plants and the preservation of the indigenous knowledge on medicinal plants were collected.

BOTANICAL METHOD: At the end of the interview, sample specimens of the plants cited for their medicinal use were collected, dried, identified. All plants that have medicinal value and that received more of the informants consensus considered.

PREPARATION OF MEDICINE: In the collection of data concerning the preparation of medicine, informants have reported various skills associated with herbal preparation. These include plant composition (whether single or combined), condition of plant material used (fresh or dry) and methods of preparation. The result showed that most remedies were prepared from single plant and some from combined plant species. The result is in agreement with the findings of Dawit Abebe (1986) and Debela Hundie (2001) in which the single plant preparation were reported to be high and disagrees with works of Mirutse Giday (1999) and Bayafers Tamene (2000) in which the combined plant materials were reported to have high proportion in herbal preparation. The result in the conditions of plant part used indicated that most (80%) were used in fresh or dried state. During group discussion sessions most informants reported that, they preserve the plant material that they could not find in the dry or rainy season by various ways like pounding and saving the powder and / or hanging the intact plant material in the kitchen. The local people tend to apply methods such as decoction and concoction. This indicates that the local healers posses indigenous knowledge that partially shares the methods used in modern drug preparation for effective treatment. Mixing and using some medicinal plants with common foods and drinks might be easy way for effective treatment (Abdu and Hamed, 1982).

DOSAGE OF MEDICINAL PLANTS USED

People of the study area used various units of measurement and the duration of administration to determine the dosage. Local units such as finger length (e.g., for bark, root, stem,), pinch (e.g., for powdered plant medicine) and numbers (e.g., for leaves, seeds, fruits, bulbs, rhizomes, flowers and latex) were used to estimate and fix the amount of medicine. Recovery from the disease, disappearance of the symptoms of the diseases, fading out of the disease sign and judgment of the healer to stop the treatment were some of the criteria used in determining duration in the administration of the dosage. However, from the interview made during the study, it was found that there was disagreement among the healers concerning the dosage system used. For example, some informants suggested that four or five drops, while some suggested that only one drop is enough for the same problem. Although the full dose determination is varying from healer to healer, the dose given depends on age, physical strength and health conditions. The healers never administer treatments that are taken internally to pregnant women. **ADMINISTRATION OF HERBAL PREPARATIONS**

As regard to their route of administration, medicine preparations of the study area were either taken internally or applied externally. Moreover, some healers reported that some medicines could be prepared to be applied in different forms to the single problem. The existence of such diversified methods of application is indicative of the fairly wider knowledge of the people in the area in using medicinal plants.

Some of the application modes have spiritual values in the area. Informants have confirmed that the leaves of holy basil are swallowed. Although these spiritual acts are hard to be explained scientifically, they can give psychological confidence to the users. Some of the informants reported that restrictions are obligatory when patients take certain types of remedies. For example, a patient who takes remedy against joint pains should not take any types of pickles.

DISEASES FREQUENTLY TREATED IN THE STUDY AREA

Our study reveals that major uses of medicinal plants for treatment of different diseases ranges from simple diseases such as painkiller to fatal diseases such as malaria and typhoid. The result of the study also showed the highest proportion medicinal plants were used in treating stomachache, some plants are used in treating a series of different health problems. However, in most plants the preparations are used to treat only one particular problem. The action of plant extracts on different health problems may explain the

broad-spectrum nature of the plants while their action on only a particular problem explains the narrow spectrum nature. The main use of medicinal plants in this area is with the joint pains and joining bone fracture.

RESULTS AND DISCUSSION

The present study documented 15 medicinal plant species belonging to 14 families used by the Halba tribes residing at villages of Rajnandgaon District [Table-1]. Among these 3 species are used for treatment of diabetes, 2 each for Joining bones, cold and cough, hairfall, digestion, wounds, jaundice and blood purification. 1 species each is used to cure piles, joint pains, cardiac problem. Single species is used to cure both malaria and typhoid. The present study reports that various parts of different plants are used for different diseases. The data obtained from our results showed that plants have external use as well as internally applied. In this study, different parts of the plants were reported to be used for medicines. The leaves and the barks are the most commonly used plant parts in the preparation of remedies accounting for 47% and 27% (15 species) of the total medicinal plants, respectively. Analysis of the data showed that leaf is the most sought plant part in the preparation of remedies. According to Dawit Abebe & Ahadu Ayehu (1993), herbal preparation that involves roots, rhizomes, bulbs, barks, stems or whole parts, have effects on the survival of the mother plants. In the study, the fear of destruction of medicinal plants due to plant parts collected for the purpose of medicine is minimal as leaves were the leading plant parts sought in the area. Moreover, the harvest of whole plants is not often practiced in the area.

THREAT TO MEDICINAL PLANTS

In the study several factors both human and natural were found to contribute to the threat that affect survival of medicinal plants species in the study area. The important factors reported include industrial expansion, over grazing, extended dry time (season), termite problem, and fire wood collection. Industrial expansion was cited to be the mostimportant factor that threated medicinal plants.

THREAT TO INDIGENOUS KNOWLEDGE OF MEDICINAL PLANTS

In the study, several cultural beliefs and traditions were recorded threatening the indigenous knowledge and these are summarized as follows:

- The healers never show the plant or disclose the name of the medicinal plant to their patients. The healers did so because there is a belief that if the patient knows the medicinal plant, the medicine becomes power less in curing the patient.
- In most cases, the elders train their family members about the medicinal plant knowledge and skill in their later ages. At this age, they may be too old to travel to thefield to do practical teaching.
- Although some people know the medicinal plants and the methods to prepare the medicine, they do not exercise the knowledge. This is because they have not received blessing by elder.

None of these restrictions could be given a scientific justification. However, this appears to be cultural mechanism for restricting the easy emergence of new healer to reduce competition. These restrictions could be dangerous for the sustainability of indigenous knowledge. They believe that religious beliefs, modernization, modification in culture and environmental changes can affect the knowledge of the young generation in using medicinal plants and traditional medicine. The study indicates that there are both indigenous and exotic (modernization) factors to threat the indigenous knowledge.

CONSERVATION OF MEDICINAL PLANTS AND INDIGENOUS KNOWLEDGE:

In the study area, there are various local beliefs and cultural traditions that contribute to the conservation of medicinal plants and indigenous knowledge. During the field observation, most informants reported that:

• As the part(s) of the medicinal plants is (are) collected, various endeavours are made to save the life of the mother plant. For instance; taking the lateral root without damaging the main root, re soiling and/or transplanting the part (root, stem or leaf) left behind and taking only small portion at a time. Some traditional medicines are made only by selected families or tribes in the

community. Thus not all healers harvest the medicinal plant. This would reduce the rate of plant exploitation.

• For some ailments, once a plant or its part is used as a remedy, there is restriction on a person not to eat and cut the plant any more. However, if a person failed to do so, he/she will develop the disease again.

• Most plant remedies are only collected on fixed days. This is believed to maintain of the efficacy ofthe remedies. The practice could reduce the rate of harvesting of medicinal plants.

• Traditionally it is illegal to harvest the healthy and reproductive plants in the presence of the deformed and non- fruiting (seeding) plant. Cotton (1996) indicated that beliefs in the local people do have roles in the use and management of plant species. In the present study, although some of the facts presented above lack scientific justifications they contribute a lot to the conservation of medicinal plants.

ACQUISITION AND TRANSFER OF INDIGENOUS KNOWLEDGE ON MEDICINAL PLANTS:

Results of this study showed that most of the informants have acquired the traditional knowledge on medicinal plants and traditional medicine from their parent and/ or close relatives, while some have reported that they have gained the knowledge in various ways including trial and error, making certain incentives and favor to the elders (healers) and referring to traditional medicine. During the discussion, the healers suggested that most of them have already trained their family and relatives, while some of them have a plan to do so in future. Only few of the informants were positive to train any member of the community without compensation. According to most elders and healers, training about medicinal plants and traditional medicine is believed to be effective if done within a family or with a close relative. For them, training any stranger is culturally illegal. The practitioners are not interested to disclose their knowledge on medicinal plants and thus the knowledge and skill concerning these plants are individual secrets and not available to the public. The healers blame beliefs and cultural traditions in which they live not to train strangers. However, the intention to generate an income from the practice could be the big factor taken into consideration.

CONCLUSION

In the study area threat comes to medicinal plants due to the utilization of these plants for medicinal purpose is minimal. This is mainly because leaves, which are believed to be less destructive to the mother plant, are the most widely utilized plant parts. The main threat for medicinal plants emanate from industrial expansion. Traditional medicine preparation mostly involves single plant; the mode of administration is mainly internal in which oral administration is the common route.

Modernization, modification of culture and increased business work in the area have played a major role in changing the attitude of younger generation to ignore the use of traditional knowledge. Humans and natural factors are the major threats to plant species in general and to the medicinal plants in particular in the study area. As suggested by most informants, in the area, the human induced threats including industrial expansion, over grazing and use for construction, and natural factors such as extended dry time are cited to be major threats for reduction of medicinal plants. The existence of diverse cultural traditions and belief system were found to have both useful and harmful impacts on medicinal plants. For instance, some of these beliefs contribute to medicinal plant conservation as they reduce the rate of harvesting of the plants, while others contribute to deterioration of the knowledge on traditional medicine and medicinal plants.

RECOMMENDATION

Based on the results of the study, the following recommendations are forwarded:

• Special consideration and all possible endeavours must be made to use the traditional medicine and traditional medicinal plants in the study area.

• The indigenous knowledge and skill of traditional medicine practitioners must be encouraged and protected. This could be the way through which such people could exercise their knowledge boldly.

• Identifying genuinely effective medicinal plants and promoting their production and cultivation. This is a task to be accomplished through genuine collaboration between local administrators and healers.

• Establishing conservation measures strategies to ensure the sustainability of multipurpose and widely used medicinal plants as most

medicinal plants are obtained from the wild. This can be achieved by:

1. Encouraging people to grow medicinal plants in the home gardens, mixing with crops in farmlands and live fences.
2. Promoting the establishment of local botanical garden.

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TABLE- 1: List of Medicinal Plants commonly used for different curatives.

S.No	*Scientific name*	*Family*	*Local name*	*Habitat*	*Plant Part used*	*Used for Ailment type*	*System of Preparation, Application and Dosage*
01.	*Aegle marmelos*	*Rutaceae*	*Bel*	*Tree*	*Leaf, Fruit*	*Digestion, hair fall*	*Paste of fresh leaves applied to hair.*
02.	*Allium cepa*	*Liliaceae*	*Pyaj*	*Herb*	*Stem*	*Cold and cough*	*Fresh juice taken with honey.*
03.	*Andrographis paniculata*	*Acanthaceae*	*Chirayta*	*Shrub*	*Leaf*	*Malaria, Thyphoid*	*Fresh/dry leaves are boiled.*
04.	*Argemome Mexicana*	*Papavaraceae*	*Dhatura*	*Shrub*	*Fruit*	*Joint pains, wounds*	*Seed oil (little warm) is applied over joints.*
05.	*Azadirachta indica*	*Meliaceae*	*Neem*	*Tree*	*Whole plant*	*Skin problems*	*Seed oil is applied over skin.*
06.	*Calotropis procera*	*Ascepledіaceae*	*Aak*	*Shrub*	*Leaf*	*Digestion*	*Leaves along with black salt is burned in earthen pot and a teaspoon is used in morning.*
07.	*Curcuma longa*	*Zingiberaceae*	*Haldi*	*Herb*	*Rhizome, Flower*	*Cold and cough, jaundice*	*Dried powder with milk for cold and cough, Flower.*
08.	*Euphorbia hirta*	*Euphorbiaceae*	*Doodhia*	*Herb*	*Whole plant*	*Joining bones*	*Whole fresh/dry plant paste is applied at the broken bone area and bandaged.*
09.	*Gentiana kurro*	*Gentianateae*	*ChotteKurru*	*Tree*	*Gum*	*Piles*	*Gum is dried, powdered and applied.*
10.	*Holarrhena antidysentrica*	*Gentianateae*	*Kurraiya*	*Tree*	*Bark*	*Joining bones*	*Dried bark powder (tablespoon) taken with warm water.*
11.	*Momordica charantia*	*Cucurbitaceae*	*Karela*	*Climber*	*Fruit*	*Diabetes*	*Decoction of Fruits.*
12.	*Ocimum sanctum*	*Labiateae*	*Tulsi*	*Shrub*	*Leaves*	*Cold and cough, Diabetes*	*Decoction of Leaves.*
13.	*Ricinus communis*	*Euphorbiaceae*	*Aandi*	*Shrub*	*Leaf*	*Jaundice*	*Third leaf from the top is taken, 7 black pepper,21jeera is powdered and taken with a cup of raw cow milk.*
14.	*Terminalia arjuna*	*Combretaceae*	*Kouha*	*Tree*	*Bark*	*Cardiac problems*	*Dried Bark powder 1 spoon along with 2 cups of water is boiled to half, filtered, then consumed.*
15.	*Tridex pro cambens*	*Compositae*	*Bhengra*	*Herb*	*Leaves*	*Hair fall*	*Paste of Fresh leaves applied to hairs*