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RESEARCH ARTICLE

Ethno-Medicinal Uses of Some Plants of Lower Foot Hills of Himachal Pradesh for the Treatment of Oral Health Problems and Other Mouth Disorders

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Abstract

In this study, an Ethnbotanical survey of the plant diversity was carried out in lower foot hills villages of six districts i.e. Kangra, Hamirpur, Mandi, Una, and Bilaspur of Himachal Pradesh. The study was mainly focused on the traditional uses of the 32 medicinal plants of lower foot hills used for the treatment of oral health problems and other mouth disorders of nearby village inhabitants. The information was carried out by the personal interviews of local old people. This study was totally focused on keeping the record of the medicinal potential possessed by the plant growing in this area and their sustainability for the welfare of human race.

Introduction

Mouth is just like mirror by which health of rest of our body can reflect. There is a connection between oral health and general health problems includes mainly dental hygiene or dental problems, gains problems and mouth sores **(** Rawat etal 2010.)

Beneficial medicinal properties of plants have been used in some forms or other by the primitive people to cure various health problems was effective without any harmful consequences. The formulation of these medicinal plants was based totally on the local flora present in their vicinity but due to many intervening factor and human activity, only few of the record of medicinal plants survive today. Tribal peoples live in the harmony with nature and maintain a close link with the environment. Indian subcontinent is being inhabited by over 538 millions tribal people in 5,000 forest dominated villages of tribal community and comprising 15% of the total geographical area of Indian land masses; representing one the greatest emporia of ethno-botanical wealth. (Praksash and Aggarwal 2010). Himachal Pradesh is a hilly state situated in the North West Himalayan region between 30''22'44''N to 33''12'44''N latitude and 75''45'44''E to 79''04'20''E longitude, extends over an area of about 55,673Sq. Km in North western part of India. Plant species represent a huge biodiversity of form, habitat, function and photochemical .Out of around 3500 species of higher plants identified in Himachal Pradesh. There are about, 1500 species of medicinal and aromatic plants. The local people of the study area have sound knowledge about the use of the use of medicinal plants around them . Traditional herbal medicines used by the different communities in this region play an important role in elimination of different diseases .They are safe, effective and in expensive(Kaur etal 2011.). The present study reports the documentation and ethno-medicinal application of …32. Plants belonging to 27 families of six villages of lower foot hills of Himachal Pradesh for the treatment of oral health problems or mouth disorders.

REVIEW OF LITERATURE

Ethnobotany is totally in virtually a new field of research, if in this field plants investigated thoroughly and systematically, it will yield result of great value of the archeologists, anthropologist, plant geographer, enthnobotanist, linguistics, botanists and phytochemists. After the time of Harshberger (1896) to the present date, several authors have tried to give a description of subject ethnobotany and its scope, methodology, it's various disciplines sub-disciplined and potential etc.

Schutles (1960) had written on tapping our heritage ethnobotanical lores. He had suggested three methods of ethnobotany among the primitive peoples. He also gave some examples of the plant used during

ancient period. *Schutles (1962)* outlined the role of ethnobotanist in the search of new medicinal plants. So, this was a paper on subject of ethnobotany on a specialized line i.e. medicinal plants. Archeological plant remain, notes on plant collections and herbaria, literature survey, field studies, *Jain (1964)* wrote on the role of botanist in fold lore research. He writes that folklore research involve the study of all aspect of intellectual and material culture of indigenous or backward people. *Jain (1965C)* outlined the prospects by some new or less known medicinal plants resources. *Sharma (1976)* studied some useful wild plant of Himachal Pradesh. *Uniyal and Chauhan (1982)* studied commercially important medicinal plant of the Kullu forest division in H.P. *Jain (1986)* gave an overview of the subject ethnobotany, and indication of the significant research during last thirty year in this field and also showed how ethnobotany is an interdisciplinary science. *Schutles (1986)* tried to bring the attention of scientists to ethnobotanical conservation. For many years, he has been engaged on the studies in pristline forest of the Amazon and other regions of tropical South America. *Arora (1987)* described ethnobotany and it's role in the domestication and conservation of native plant genetic resources. He gave the detail account of this important area where ethnobotany have still a great to do. *Manilal (1989)* had thrown light on the linkage of ethnobotany with other science and disciplines. The important fields like food and nutrition, defense and survival, sociality and culture, religion, medicine, art and literature, mythology, anthropology, archeology, forestry, and agriculture, economics, language, history and politics and conservation etc. are the major field to the research is linked. *Uniyal (1989)* highlighted the Garwhal Himalaya in his "Notes on the Ethnobotany of Lahoul, a province of the Punjab". *Brij Lal et. al (1996)* described the plants used as ethnomedicine and supplement food by Gaddis of Himachal Pradesh, India. *Kapur S.K. (1996)* highlighted the tradionally important medicinal plant of Bhaderwah hills. *Chauhan N.S. (1999)* described the medicinal and the aromatic plants of Himachal Pradesh. *Singh S.K. (1999)* worked on the ethno-botanical study of the useful plants of the Kullu district in Himachal Pradesh. *Sharma et. al (2000)* studied the ethnobotanical studies of Gaddi- a tribal community of the Kangra district, Himachal Pradesh. *Singh and Kumar (2000)* studied the ethnobotanical wisdom of Gaddi tribe inthe western Himalya (Himachal Pradesh) *Thakur S. (2001)* described the ethnobotany of Rawalsar (Mandi District), Himachal Pradesh. *Sharma et al (2003)* gave an account on the commercially importance of medicinal and aromatic plants of Parvati Valley (Himachal Pradesh). *Thakur et.al (2004)* described the characterization of some traditional fermented food and beverages of Himachal Pradesh. *Warman (2004)* studied the medicinal commercial religions and ornamental properties of various trees of India in "Trees of India" *Kala (2005)* described on the ethno-medicinal botany of the Atapani in the Eastern Himalya Region of India. *Jain et al (2006)* worked on the Ethnobotanical Survey of Sariska and Siliserh Regions in Alwar district of Rajasthan, India. *Brij Lal and Singh (2008)* find out the indigenous herbal remedies to cure skin disorders by natives of Lahaul Spiti, Himachal Pradesh.*Prakash & Aggarwal (2010)* highlighted the traditional uses of medicinal plants of lower foot-hills, Himachal Pradash. *Kaur, et al (2011)* studied the uses of plants in control of different diseases in Mandi district, Himachal Pradesh. *Kharwal and Rawat (2012)* studied ethnobotanical uses of herbal shampoo of Shivalik hills, Himachal Pradesh.

STUDY AREA

During the field survey, ethno-medicinal plants were collected from the foot- hill villages of six district is Hamirpur, Mandi, Kangra, Una, Solan and Bilaspur. Hamirpur district is situated between 76°18' – 76°44' East longitude and 31°52'30" North Latitudes. The track is hilly covered by shivalik range and the elevation varies from 450-1, 100 meters (Seema et al.2012)

This region is rich in diversity of flora and suitable for ethno botanical exploration of various medicinal plants which are used for cure of many diseases and for the treatment of oral health problems or mouth disorders.

Fig. 1
Map of Study Area

METHODALOGY

During the field survey, ethno-medicinal plants were collected from the foot hill villages of six district is Hamirpur, Mandi, Kangra, Una, Solan and Bilaspur.

The plants were preserved as herbarium specimen in the botany department, Maharaja Ganga Singh university, Bikaner. Local inhabitants were interviewed about the medicinal uses of plants. The standard method of ethno-botanical studies was followed. These plants were identified from the botanical survey of India, Northern circle, Dehradun, Uttarakhand and also by available literature and flora. The two broad approaches of ethno-botanical studies were taken under consideration during this study: Indirect approach and direct approach. In direct approach, the extensive and intensive field work in the rural villages was done. This is usually carried out by direct contact with villages and first hand information was collected from all the study sites. In the indirect approach, information was obtained in different ways is through ancient literature, personal diaries of foresters, traditional local doctor, and plant collectors etc. In the present investigation both direct and indirect approaches were employed to get the proper understanding of ethno-medicinal uses of plants. Information about the plants were recorded with regards to their vernacular names, plant part used process of preparation of medicine either individually or in combination with other plant parts, and mode of application and doses for treatment.

The collected information was analyzed for different genera and species of medicinal plants in order to understand the pattern in medicinal plant uses and occurrence.

RESULTS AND OBSERVATIONS

Ethno-botanical uses of different plants used by the local people of lower foot hills for the treatment of oral health problems and other mouth disorders which are shown in the table 1 as under :

Sr. No.	Botanical Name	Family	Local Name	Part/parts used	Folk uses
1.	*Acorus calamus* Linn.	Acoraceae	Bare	Root	Decoction of the roots is made and gargle are taken to get relief from toothache
2.	*Achyranthes aspera* Linn.	Amaranthaceae	Puthkanda	Root	Root is used as a tooth brush and good for dental care
3.	*Ajuga bracteosa* wallich ex Benth	Lamiaceae	Neelkanthi	Leaves	Leaves powder is used to cure mouth ulcers
4.	*Albizia lebbek* Benth	Mimosaceae	Shirish Sirinh	Bark	Powder of shoot bark is used to strengthens the gums
5.	*Argemone mexicana* Linn.	Papaveraceae	Bharbhand	Seeds	Seeds paste are used for gum troubles
6.	*Arnebia euchroma (*Royle.*)* Johnston.	Beraginaceae	Ratanjot	Root	Root powder is taken twice a day for 2 days in case of toothache
7.	*Azadirachta indica* A. Juss	Meliaceae	Neem	Stem	Twigs are used to clean the teeth and good for dental care and gum problems
8.	*Berberis lycium* Royle.	Berberidaceae	Kashmal	Stem	Stem is considered good for scouring teeth gargle of roots are used for strengthens the gums
9.	*Bombax ceiba* .L	Bombacaceae	Simal	Bark and seed	Bark and seed powder of the plant are used in case bleeding gums, toothache and mouth sores.

10.	*Cassia occidentalis* Linn.	Fabaceae	Relu	Leaves	Leaves are used for scouring teeth.
11.	*Citrus limon* (L.) Burm. F.	Rutaceae	Galgal	Leaves	Leaves are used for scouring teeth and good as a mouth freshener.
12.	*Cissampelos pareira* L.	Menispermaceae	Patindu	Root	Root paste as used against toothache.
13	*Coriandrum sativum* Linn.	Umbelliferae	Been	Leaves	Leaves are chewed as a mouth freshener.
14.	*Curcuma angustifolia* Roxb.	Zingiberaceae	Haldi	Rhizome	Powdered Rhizome mixed with potash alum and mustard oil is applied on gums for pyorrhea
15.	*Datura fastuosa* Linn.	Solanaceae	Kala dhatura	Roots	Roots are used to cure toothache and for brushing the teeth
16	*Ficus hispida* Linn.	Moraceae	Daagrein	Latex	Latex is used in case tooth ache.
17	*Jatropha curcas* Linn.	Euphorbiaceae	Japhrota Jablotha	Stem	Twigs used as tooth brush and good for dental problems.
18	*Juglans regia* Linn.	Juglandaceae	Khod	Bark & leaves	Bark and leaves used for cleaning teeth and as substitute of lip-stick by women because during cleaning the teeth it provides red colour to lips.
19.	*Jasminum humile* Linn.	Oleaceae	Hempushpika, chameli	Leaves	The paste of the leaves is applied locally in case of mouth ulcers Leaves are chewed in case of tooth ache.
20.	*Justicia adhatoda* Linn.	Acanthaceae	Basuti	Stem	The twigs of the plant when used as tooth sticks offer a cure for pyorrhea
21	*Murraya Koenigii* Spreng	Rutaceae	Gandhela	Stem	Stem is used as " Dattun " for cleaning teeth and for keeping gums healthy.
22.	*Pistacia integérrima* J.L. Stewart ex Brand.	Anacardiaceae	Kakar Singi	Leaves	Leaves powder is used to check toothache.
23.	*Plumbago zeylanica* Linn	Plumbaginaceae	Chitra	Stem, Root	Stem is recommended for scouring teeth and root paste is used to check toothache.
24.	*Psidium guajava* Linn.	Myrtaceae	Amrood	Leaves and stems	Leaves and stem are used for cleaning teeth.
25.	*Punica granatum* Linn.	Punicaceae	Daru	Fruit	When the children start cutting out teeth peels of the fruits are powdered and mixed with kashmal (*Berberis lycium)* roots.
26.	*Randia*	Rubiaceae	Rada	Fruit	The pulp of the fruit is act

	dumetorum (Retz.) Poir.				as a remedy for the teeth aliments of children
27	*Spilanthes oleracea* Linn.	Compositae	Akarkara	Leaves, Inflorescence	Leaves are chewed to relieve toothache. Inflorescence used for gum inflammation and mouth sores
28.	*Terminalia chebula* Retz.	Combretaceae	Harad	Fruits	Dried powder of the fruit with salt is used in case of bleeding and ulceration of gums
29	*Tamarindus indica* L.	Fabaceae	Imli	Leaves	Juices of leaves are used for the treatment of gingivitis (bleeding gums)
30.	*Uraria picta* Desv.	Fabaceae	Dabra	Roots and pods	Root and pods are used in mouth sores and made into a paste and applied on palate in case the process of emergence of teeth
31	*Vitex negundo* Linn.	Verbenaceae	Bana	Stem	Twigs are recommended to clean teeth and considered good for pyorrhea, gum inflammation and other dental problems.
32.	*Zanthoxylum armatum* DC.	Rutaceae	Tirmir, Timbru	Bark	The bark is removed from the stem and small pieces of bark is chewed for 4-5 minutes in case of toothache . Twigs are also used as a tooth brush for 'Scouring teeth'

Result and Discussion

Due to unscientific and over exploitation these plants have become merely extinct and endangered such as Arnebia euchroma and Calotropis procera are the plant species which are found rarely in study area. Hence, there is a need for in-situ and ex-situ conservation of this ethno-botanical/medicinal and aromatic plant resource. Little attention has been paid to the genetic, molecular and biochemical characterization of the existing biodiversity of medicinal plants during the survey, it was reported that seeds of *Argemone mexicana*, leaves of plant species such as *Cassia occidentalis Cinnamomum tamala*, *Citrus limon*, *Spilanthes oleracea* and stems of *Azadirachta indica*, *Murraya koenigii*, *Plumbago zeylanica* and latex from *Calotropis procera* and roots of *Achyranthes aspera*, *Berberis lycium* etc, for the treatment of oral health problems. Some plants species such as *Achyranthes aspera*, *Argemone mexicana*, *Calotropis procera*, *Ficus hispida*, *Jatropha curcas*, *Plumbago zeylanica* and *Zanthoxylum armatum* are useful plants of lower hills of Himachal Pradesh (Table 1). In spite of rich wealth of bioresources development is far from meeting the expectations of local people mainly in term of existing health care facilities and herbal industries that will generate employment and development of the state.

The information generated from the study regarding the medicinal plants used by the villages need a thorough photochemical investigation including alkaloid extraction and is elation along with few clinical trials. This could help in creating mass awareness regarding their conservation, promotion of ethno-medico-botany knowledge with in the region besides contributing tom the preservation and enrichment of the gene bank of such economically important species before they are last irrevocably.

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