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Short Research Article

Ethno-medicinal Plant Resources of Tribal Pangi Valley in District Chamba, Himachal Pradesh, India

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Abstract

Ethnobotanical studies provide helpful clues for crop domestication and folk selection for better utilization of resources to meet local needs.The rural folks and tribals in India even today depend largely on the local herbal resources for curing different types of diseases. The present study was undertaken to assess the ethno medicinal uses of plants by the tribal people of remote tribal Pangi valley of Himachal Pradesh, revealed 45 plant species belonging to 20 different families having ethno medicinal value. The information on ethno medicinal uses of plants was collected through interviews, questionnaires, direct observations and also by consulting local elderly people, *Gujjars* or *Gaddies* and *Vaids*. The local people believe in the efficacy of these herbs along with some divine power, but the knowledge is restricted to very few elderly folks only. Therefore, this valuable information needs to be systematically collected, documented and preserved so that it can serve the mankind in generation to come and will also act as an important tool in conserving and preserving the traditional usages of these precious plant resources of high economic value. The collected information has been documented and presented in the current study.

1. Introduction

The use of herbal resources for medicine and food is as old as humanity. In ancient civilization, such as those of China, India, Middle East, North Africa and South America, there are records of different uses of plants for medicinal purposes. This culture continues till today in the form of folk medicine in different parts of the world, which has led to the development of Traditional Systems of Medicine. The systematic and scientific investigations of traditional medicinal plants have also provided many valuable drugs in Western Systems of medicines. The rural folks and tribal, in India even today depend largely on the local herbal resources for curing different types of diseases (Negi et al., 1999; Khanna and Ramesh, 2000; Chauhan, 2003; Thakur et al., 2013).

The entire Himalayan region is known for its extensive, high mountain ranges and is a treasure house for many important medicinal plants. It has been the abode of Saints and Sages since ancient times and occupies an important place in the Vedic treatise (Chauhan, 1997; Chauhan, 2003). Chamba district of Himachal Pradesh which falls in this region is considered as one of the richest area of traditional and potential medicinal wealth. The district has two tribal regions i.e. Pangi and Bharmour. Bharmour is situated in the west, whereas Pangi valley is situated in the north of the district and is called Pangi range or Mid-Himalayas. The vegetation of the district Chamba varies considerably, chiefly owing to elevation and rainfall (Negi, 1963). In tribal areas people have been consistently dependent on forests for their role in meeting their daily needs and the sole source of health care is natural herbs from the forests. In the process they have discovered many ethno botanical uses of vast plant wealth Moreover, this region of Himachal Pradesh has led to tribal ways of life, adherence to the primitive myths and legends, customs and traditions representing a vast and difficult terrain of scattered human settlement and sensitive ecosystem (Verma et al., 2005). The diversity of plant species in the valley area is almost preserved, because of their geographical and cultural isolation from rest of the State. The accessibility to this area is very difficult as a consequence the natural resources of the valley are still unexploited. Therefore, this study is an attempt to explore the treasure of indigenous knowledge pertaining to medicinal resources of this tribal belt and is expected to provide new dimensions for ever expanding pharmaceutical industry

(Gupta, 2011; Chowdhery and Rao, 2000).

2. Material and Methods

2.1. Study area

The study area, Pangi valley is situated between the latitudes of 30° 48'N to 33°13'N and longitudes of 76°15'E to 76°47' E. The entire valley is distributed over an area of 1503 km^2 and is divided into three Forest Ranges viz., Killar, Sach and Purthi. Geographically, the tract deals with the north-eastern part of the Chamba district and is bounded on the north by spur known as Trishul Dhar, which separate it from the Paddar area of Jammu and Kashmir. On the south, there is a ridge joining Ghor Dhar Jot and running up to Dhandal Dhar, where it meets the range of Pir Panjal. The eastern range touches with the Zanskar range of the main Himalayas.

2.2. Methodology

Extensive field survey of the entire area of Pangi valley starting from the lower elevation, Findroo (2000 m), Killar (2500 m), Praygra (2560 m), Dharwas (2710 m), Chaloli (2900 m), Sural (3000 m), Bhatori (3500 m), Blasot Dhar (4400 m) and Chanat Dhar extending upto 5000 m elevation above mean sea level was conducted during the study period.

To facilitate the process of identification, the collection of the voucher specimens was done during flowering/fruiting stage. The collected specimens were dried and assigned field book number and kept in the Herbarium of the Department of Forest Products, Dr YS Parmar University of Horticulture and Forestry, Nauni, Solan as a permanent record. Identification of the specimens were done according to the field characters (observed/noted during collection) and also by comparison with those lying in the Herbarium of Department of Forest Products and also by consulting various floras for confirmation of the correct identity (Collett, 1971; Kachroo et al., 1977; Chowdhery and Wadhawa, 1984; Polunin and Stainton, 1984; Aswal and Mehrotra, 1994; Chauhan; 1997).

2.3. Ethnobotanical studies

The ethnomedicinal importance of the collected plants containing the information about the local name (s) of the plants, part used, purpose for which used, mode of administration and curative properties were recorded through discussions with local elderly people, hermits, shepherds, *Vaids*, *Gujjars* and *Gaddies* (Khanna and Ramesh, 2000; Natrajan et al., 2000). The plants were enlisted along with their traditional uses depending upon the information collected.

3. Results and Discussion

The ethnobotanical information of 45 plant species belonging to 41 genera from 20 families has been recorded (Table 1; Figure 1) and is traditionally used by the people of the proposed study area.These plant species are being used frequently or sometimes occasionally for curing various major and minor diseases occurring among local people of this tribal belt. The local people believe in the efficacy of these herbs along with the power of *Tantra and Mantra* (Enchanting of verses that cause spell), but the knowledge is restricted to very few elderly folks only. There were certain hermits who are of strong belief and opinion that when they sit in meditation, the medicinal herbs talk to them and disclose their uses. Similar studies were reported on traditional uses of 50 ethno medicinal plants by the tribals of Prakasam district of Andhra Pradesh, 54 ethno-medicinal plants used by tribal and rural people of Shetrunjaya Hills of Palitana, in Gujarat and some medicinal plants of Parvati valley in Himachal Pradesh (Kumar et al., 1998; Bhat et al., 1999; Sharma et al., 2003). Most of these plants documented in the present study are used in crude form and has been found useful against different ailments like jaundice, fever, dysentery etc. There are many records from

Figure 1a: *Arnebia benthamii* (Wall.ex G. Don.) Johnston, Ratanjot

Figure 1b: *Berginia stracheyi* (Hook F. & Thomas) Engl. Shamlot

Figure 1c: *Meconopsis aculeata* Royle, Veerbuti

Figure 1d: *Dactylorhiza hatagirea* D. Don., Panja

other parts of the country where naturally occurring local herbs are utilised by the local people for curing different diseases (Negi et al., 1999; Seetharam, 1999).

Tribal people are more close to nature and are more accustomed to the power of nature. Studies carried out by various workers on Gujjar tribe of Saharanpur district of Uttar Pradesh and on Gaddis, a tribal community of Kangra valley in Himachal Pradesh also revealed that these people use herbal based powders, paste, aqueous extracts, decoctions etc. for treatment of different diseases in human beings and animals (Khanna and Ramesh, 2000; Singh and Kaushal, 2000). Similarly, 34 plant species have been reported to be used as medicine by local women and hamlets of Banjar in Kullu district of Himachal Pradesh (Natrajan et al., 2000), Dharchula area of Kumon in district Pithoragarh of Uttrakhand and on ethno medicinal uses of plant species of Mizoram have also revealed similar results (Bhardwaj and Gakhar, 2003; Garbyal et al., 2005).

It has been realized in the modern world that medicinal herbs

Table 1: Ethno medicinal Plants used by tribal people of Pangi valley, District Chamba, Himachal Pradesh, India

Species Name	Family	Common name(s)	Part(s) used	Ethno medicinal Use(s)
Achillea millefolium L.	Asteraceae	Gondana	Flower heads and leaves	Fresh leaves are used in toothache and to make gums stronger. Flower heads are used in high fever.
Aconitum heterophyllum Wall. ex Royle	Ranunculaceae	Atish	Roots	Root powder used twice daily with water for 3-6 days in the treatment of diarrhoea.
Allium humile Kunth.	Amaryllidaceae	Pareeni	Whole plant	Crushed fresh leaves extract is used for digestion.
Allium semenovii Regel.	Amaryllidaceae	Shawan	Young shoots, flowers and leaves.	The entire plant is locally used as a spice and is eaten as a vegetable. Flowers heads boiled in water and decoction is given in cold.
Angelica glauca Edgew.	Apiaceae	Chora	Roots and umbels	Roots are locally used as flavouring agent and for the removal of the placenta of the cow after birth. Umbels are used as carminative.
Arnebia benthamii (Wall ex G. Don) Johnston	Boraginaceae	Ratanjot	Roots	Roots are used as hair dye for promoting their growth. Powder is used as a paste and applied on burn and cuts.
Artemisia brevifolia Wall.	Asteraceae	Sansei	Fresh flowers and shoots	Leaves are boiled in water and extract is taken early in the morning to help in worm expulsion Also used to cure anaemia.
Berberis asiatica Roxb.ex. DC.	Berberidaceae	Kahamil	Ripened fruits and shoots	Ripened fruits are edible and are given as a mild laxative to children. Fruit paste is applied on pimples.
Bergenia stracheyi (Hook F. & Thomas.) Engl.	Saxifragaceae	Shamlot	Rhizome and leaves	Leaves are used as tea and as a blood purifier. Rhizome paste is given internally to cure jaundice.
Betula utilis D. Don	Betulaceae	Bhojpatra or bhuj	Papery bark and young leaves.	Papery bark is used as a roofing material in the houses and treated as an aromatic holy paper. Young shoots are used as fodder during lean period in winter.

Bunium persicum Boiss.	Apiaceae	Kala zeera	Seeds and Flower heads	Flower heads are used as carminative. Water boiled seed decoction is used to cure fever, cold and headache.
Bupleurum falcatum Linn.	Apiaceae	Banchog	Fresh leaves and seeds	Fresh leaves paste is used on the cuts and boils.
Cannabis sativa Linn.	Canna-baceae	Bhang	Leaves and flower seeds	Leaf paste used to get relief from honey bee sting. Flower tops and dried leaves are used for making *Bhang*. Roasted seeds are eaten as culinary by the local people.
Chaerophyllum villosum Wall. ex DC.	Apiaceae	Tila	Tubers	Tubers are eaten and used for curing certain stomach disorders. Root paste is applied on skin and also used as a carminative.
Carum carvi Linn.	Apiaceae	Gurunu	Seeds/fruits	Seeds are used as an appetizer and are carminative.
Cedrus deodara (Roxb.ex.D.Don.) G.Don	Pinaceae	Devdar	Leaves, Wood	Oil extracted from wood is used for preserving timber against insect- pest attack and massaged on body to cure skin diseases.
Codonopsis ovata Benth.	Campanu-laceae	Katari	Whole plant	Freshly crushed leaves extract is used to cure eye diseases.
Crataegus songarica G. Koch.	Rosaceae	Pan-ghyathi	Ripened Fruits	The ripened fruits are edible and are locally used to prepare wine.
Dactylorhiza hatagirea D. Don	Orchi-daceae	Panja	Tubers	Fresh or dried tubers are used to cure diabetes and also in diarrhoea and dysentery.
Ferula jaeschkeana Vatke	Apiaceae	Kurash	Rhizomes	The fresh and dried rhizomes are used for healing of wounds, cuts, boils and burns. The paste of rhizome is directly applied on the skin to cure certain disorders.
Heracleum candicans Wall. ex DC.	Apiaceae	Pudadei	Fresh and dried rhizomes	Fresh rhizome paste is directly used for cleaning and healing of the wounds. It is also used to cure the irregularities in menses.
Juglans regia Linn.	Juglan-daceae	Akhrot, Thanna	Nuts, bark and leaves	Nuts are edible and also used for oil extraction. Oil is used as a flavour and carminative. Bark and leaves are used for teeth cleaning.
Juniperus communis Linn.	Cupres-saceae	Bathathri	Needles	Used as incense during religious ceremonies and as a substitute for *agarbatties*.
Jurinea dolomiaea Boiss.	Asteraceae	Dhoop	Roots	Roots are aromatic and are used as incense. Root powder is applied on skin eruptions and cuts.
Lamium album Linn.	Lamiaceae	Banbuti	Roots/ Rhizomes	Young roots are edible and the paste of the roots is applied on the burns and cuts.
Meconopsis aculeata Royle	Papaver-aceae	Veerbuti	Flowers and roots	The flowers are used in curing the eye diseases and crushed roots are taken orally to cure the digestion problems.
Mentha longifolia (Linn.) Hudson	Lamiaceae	Mohanei	Fresh and dried Leaves /top shoots	The leaves and shoots are taken in the form of *Chutteny* (sauce) and considered to be carminative and stimulant. Also used in stomach disorders.
Nepeta erecta Benth.	Lamiaceae	Chimulu	Leaves and Flowers	Tea from fresh leaves and flowers cures cough and cold during winters. Leaves are chewed to relieve toothache.
Origanum vulgare Linn.	Lamiaceae	Maruwa	Fresh and dried leaves (both)	Fresh leaves boiled in water is used for taking bath to cure chickenpox and also given in fever.
Oxyria dignya (L.) Hill.	Polygo-naceae	Amulu	Leaves and Young shoots	Leaves and young shoots are edible and used in chutney (sauce), pickles and in stomach disorders.
Picrorhiza kurroa Royle ex Benth.	Scrophula-riaceaeeee	Karu/ Kutki	Rhizomes	Rhizomes are used in cold and cough. Decoction is used as a blood purifier. Dried powder is used as a pain killer.

Pinus gerardiana Wall. ex Lambert.	Pinaceae	Chilgoza	Fruit/Kernel	Raw or roasted kernels are eaten. Seeds are valued as carminative and expectorant.
Podophyllum hexandrum Royle	Podophyllaceae	Bankakri	Roots, fruits and flowers	Fruits are edible and paste from root powder is applied externally on forehead as a remedy against headache. Fruit paste with honey is used against the high fever and in abdominal pains.
Polygonum alatum Linn	Polygonaceae	Pimpri	Leaves	Young leaves are used as chutney (sauce) by the local people and considered as digestive. Also useful in pneumonia.
Polygonum pterocarpum Wall.	Polygonaceae	Todhi	Leaves	Paste made from fresh leaves is applied on cuts and wounds. Decoction of leaves is given in gastric problems.
Potentilla eriocarpa. Wall. ex Lehm.	Rosaceae	Flanchei	Leaves	Decoction of leaves is used to treat diarrhoea, arthritis and kidney stones.
Prunus cornuta (Wall. ex Royle) Steud.	Rosaceae	Jammu	Fruits and Kernels	Fruits are edible. Unripe kernels are used in making chutney (sauce) and paste is applied in joints pains.
Pyrus bacata Linn.	Rosaceae	Mohali	Ripened Fruits	Ripened fruits are edible. Fruits are dried in sun and powdered, mixed with flour and made into nutritive *chapattis* (breads).
Pyrus lanata D. Don.	Rosaceae	Chuaei	Fruits	Fruits are eaten by local people and considered as nutritive.
Rheum australe D. Don.	Polygonaceae	Chukeri ke todhi	Leaves and Tubers	Flowers and young shoots are edible and root paste is used to cure swelling developed due to fracture injury.
Rheum moorcroftianum Royle	Polygonaceae	Pawan	Leaves and roots	Leaves are collected by the local people during the month of October and are mixed with wheat flour and also as an alternative of the wheat flour. The roots are used to cure digestion problems.
Rosa macrophylla Lindley.	Rosaceae	Kantha	Seeds and Fruits.	Seeds are used to cure the skin diseases. Seed paste is applied on the face to make it soft.
Selinum tenuifolium Wall. ex Clarke.	Apiaceae	Bhootkeshi	Roots and Umbels	Dry powder is used to cure the swelling and knee pain.
Thymus linearis Benth. ex Benth.	Lamiaceae	Sanauni	Whole Plant	Infusion of leaves is given to cure stomach disorders and decoction is given in high fever.
Verbascum thapsus Linn.	Scrophulariaceae	Tamaku	Whole Plant	Leaves and flower powder is taken orally to treat vomiting.

are going to play an important role in future. These herbal drugs provide strength to the body organs and stimulate normal functioning with a little side effects and disturbing other subsystem. Traditional herbal medicine system has now gained importance in developed countries whereas modern medicine affects several metabolic activities in the human system and has side effects which make the body more susceptible to diseases. Although, India represents one of the greatest repositories of ethno-botanical wealth, as many living groups of people are still more or less isolated from the influence of modern world and continue to live in close association with vegetation and mainly depend for their daily needs on natural vegetation (Chowdhery and Rao 2000; Rajive et al., 2005).

Human culture has been augmented by plants and plant products since time immemorial. Perhaps ethno botany is the first science that originated with the evolution or existence of man on this earth. The trend in the earlier times was to utilize medicines plants as such in their crude, fresh juice, paste, boiled extract or dried powder form but with the advancement of civilization, they have been made more acceptable in easily ingestible forms such as decoctions, herbal tea, tablets, syrups, tinctures, steam distillates etc, which gradually entered into medical practice.

4. Conclusion

These species are used for curing various common diseases in the Pangi valley, HP, India. The inhabitants believe in efficacy of these herbs along with some divine power, but the knowledge is restricted to very few elderly folks and new generation does not show interest. The knowledge about

medicinal plants is vanishing. Therefore, this information needs to be systematically collected, documented and preserved for the generations to come *vis-a-vis* conserving the precious plant resources of high economic utility.

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