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DOCUMENTATION OF COMMONLY USED ETHNOMEDICINAL PLANTS IN SHIKARI DEVI WILDLIFE SANCTUARY OF HIMACHAL PRADESH, INDIA

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Abstract

Man has been using plants to cure various ailments since ages. Plants play an important role in the production of locally produced drugs in the rural areas. The tribal people living in the remote areas of the Indian Himalayan region are accustomed to a wide variety of medicinal plants used in their herbal medicinal practices. A field study was carried out in the Shikari Devi wild life sanctuary which falls in the Mandi district of Himachal Pradesh for information and documentation from the natives about the ethnomedicines uses of plants. A total of commonly used 36 plants having multiple applications as herbal medicines were reported and documented from the study area.

Key words: Drugs, Tribal, Documentation, Ethnomedicines.

Introduction

Herbal medicines are still the mainstay of about 75-80% of the world population, mainly in the developing countries, for primary health care 8because of better cultural acceptability, better compatibility with the human body and lesser side effects (Kamraj, 2000; Radha and Puri, 2019a). India is one of the world's top 12 mega-diversity Nations and out of its total plant wealth, about 15,000 species of flowering plants have been described (Verma and Kapoor, 2019; Radha and Puri, 2019b). The Indian Himalayan Region is a mega hotspot of biological diversity (Myers, 2000; Radha and Puri, 2019c). It is one of the richest reservoirs of biological diversity in the world and is considered as a 'store house' of the valuable medicinal plant species. The inhabitants of the IHR utilize the biodiversity in various forms, *i.e.*, medicine, food, fuel, fodder, timber, making agricultural tools, ûber, religious and various other purposes (Samant and Dhar, 1997; Samant *et al*., 1998; Pandey *et al.*, 2016; Radha and Puri, 2019d). The state of Himachal Pradesh is located in the lap of the Himalayas and has a wide range of climatic conditions mainly due to variation in altitude and topography, which makes the state suitable to hold a vast variety of plants. The state lies between 30°22'N to 33°12'N latitude and 75°45' E to 79°04' E longitude and holds a geographical area of 55,673 sq. km, which constitutes 1.69% of the geographical area of the country. The forest cover in the state is 15,433.52 sq. km which is 27.72% of the state's geographical area. The state has reported extent of recorded forest area (RFA) 37,033 sq. km which is 66.52% of its geographical area (ISFR, 2019).

As one of the top repositories of medicinal herbs, the state of Himachal Pradesh in Himalaya is one of the major sources of raw materials to the global market (Badola and Pal, 2003). Mandi District of Himachal Pradesh is also a well-known hot spot of medicinal plants in the western Himalaya that has rich diversity of flora (Dhaliwal and Sharma, 1999; Singh, 1999). Indigenous practices of plant resource usage for medicine, wild edible food, fodder, timber, fuel, religious and various other purposes are very popular among the inhabitants of the rural people living in the study area. Population rise, insufficient supply of drugs, unaffordable cost of treatments, side effects of several synthetic drugs and development of resistance to currently used drugs for infectious diseases have led to increased emphasis on the use of plant materials as a source of medicines for a wide variety of human ailments (Jyoti and Seth, 2017).

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In the state, a large number of studies are available on medicinal plants but still the scrutiny of published literature indicates that district Mandi (31°-13'-50" and 32°-04'-30" latitudes and 76°-37'-20" and 77°-23'-15" longitudes) of the state, has received little consideration with reverence to floral exploration. The protected areas of Mandi district have not been explored for floristic diversity including medicinal plants (Monika *et al*., 2018).

Material and Methods

A questionnaire containing the vernacular name, plant habit, part/parts used, mode of application and medicinal uses was prepared for documentation of the ethnomedicinal details. Data related to each ethnobotanical aspect were collected from local people of that area. Personal interviews were conducted with local residents, medicine men and some local practitioners. 48 villagers were interviewed and 36 medicinally important plants used by locals to treat various ailments were enlisted and documented according to the information provided by the villagers. A herbarium was prepared and the plants were identified by Botanical Survey of India, Dehradun, Uttarakhand.

Study site

Shikari Devi wildlife sanctuary is situated in Mandi district of Himachal Pradesh. It was notified in 1962 and re-notified in 1974. Altitude of this sanctuary varies from 1800 to 3350 m above mean sea level whereas the climate ranges from temperate to alpine (Verma and Kapoor, 2019). Nestling in the foothills of Himalayas, the sanctuary is located in the outer seraj areas of the district Mandi of Himachal Pradesh, India.

The sanctuary is about 125 km from the Mandi town on the S.E. direction on Mandi-Janjehli road located between latitude 31° 28' 43.13" N and 77° 09' 55.86" E - 31° 28' 25.34" N and 77° 02' 58.85" E of tehsil Thunag. The total area of sanctuary is about 29.94 sq. km. Due to heavy snowfall in winters the place usually remains cut off from other areas and opens in May and June. One can trek to Shikari Devi shrine by following Janjehli-Bhulah Shikari Devi, Jahal- Devidarh- Shikari Devi route or from Tehsil Karsog. River Bakhli originates from Bhulah, Shikari Devi and after running through Janjehli valley drains into river Beas near Pandoh dam. The present study was conducted in three territorial villages of Shikari Devi sanctuary area namely Dharwar, Thunagla and Devi Dhar.

Results and Discussion

A total of 36 commonly used ethnomedicinally important plants were collected and documented from the study area. Out of these 36 plants, 27 plants used by locals as medicines were herbs, 2 were trees and 7 plants were shrubs. These documented plants used ethnomedicinally for various purposes belonged to 26 different families. Maximum genera belonged to family Rosaceae having 4 genera followed by Asteraceae and Berberidaceae and Apiaceae each having 3 genera, Orchidaceae bearing 2 genera and families Rutaceae, Ranunculaceae, Achyranthaceae, Areceae, Sapindaceae, Apiaceae, Plantaginaceae, Polygonaceae, Melanthiaceae, Dioscoreaceae, Urticaceae, Zingiberaceae, Fabaceae, Phytolaccaceae, Rubiaceae, Alliaceae, Saxifragaceae, Asparagaceae, Gentianaceae, Valerianaceae, Violaceae and Fagaceae bearing one genus of each family. Roots of 15 plants, roots and seeds of 5, whole plant 3, leaves and flowers of 3, rhizomes of 3, leaves and bark of 2, leaves and roots of 2, roots and rhizomes of 2 and seeds, bulbs, leaves and bulbs, fruits, tubers, fruits and leaves of each one plant were found to be used medicinally by the inhabitants of the study area. The common diseases/ ailments treated were cough and cold, fever, sore throat, muscle sprains and joint pains, stomachache, pneumonia, internal injury, kidney stones, tumors, asthma, smallpox, intestinal ulcers, dysentery, diarrhea, body pain, wounds and boils, toothache, jaundice, urinary problems, acidity, diarrhea, dysentery, diabetes, urinary complains, liver problems, intestinal worms, skin problems, asthma, heart ailments and snake bite, eye complains, piles, sexual and menstrual problems.

Conclusion

In the hilly areas of Indian Himalaya, the inhabitants largely use the locally produced herbal medicines for the household treatment of various ailments. The study area harbors a huge variety of medicinal plants but published literature shows that the area has been given least consideration with respect to floral exploration including medicinal plants. At the same time, the population of some of the very important local medicinal plants is declining with a fast rate, firstly; due to overgrazing by the livestock and secondly; due to illegal and unjudicial uprooting and unscrupulous extraction of these important medicinal plants by the locals to gain profit by selling, along with some other factors. The conservation of these naturally occurring medicinal plants can be done by imposing strict laws for restricting invasion of the livestock, encouraging community-based conservation strategies, developing nurseries of medicinal plants for preservation of gene pool of these highly therapeutically important and threatened plant species for future plantation programs and ex-situ conservation through tissue culture techniques.

Table 1: Important ethnomedicinal plants of the study area.

Sr. No.	Botanical Name	Vernacular Name	Family	Habit	Part Used	Mode of application and medicinal uses
1.	*Achyranthes aspera*	Puthkanda	Achyranthaceae	Herb	Whole plant	The plant parts including leaves and stems are chewed to cure mouth sores, toothache; paste of dried roots is applied to cure skin problems, wounds and snake bite
2.	*Aconitum heterophyllum*	Patish	Ranunculaceae	Herb	Root	Roots are used to cure stomachache
3.	*Acorus calamus*	Bare	Araceae	Herb	Rhizomes	Dry rhizomes are grounded to make Powder and is taken orally to cure stomachache, fresh rhizomes are inhaled to cure cold and nasal allergy
4.	*Aesculus indica*	Khanor	Sapindaceae	Tree	Bark, seeds, fruits	Dried seeds of the fruits are ground into flour and is used to cure ladies problems, paste of bark is applied to cure dislocated joints
5.	*Allium humile*	Jangli lahsan	Alliaceae	Herb	Bulbs	Bulbs are chewed raw to cure cold or boiled in water and fried in clarified butter to cure dysentery
6.	*Angelica glauca*	Chaura	Apiaceae	Herb	Roots	Extract of roots is used to cure gastric problems andjoint pains
7.	*Artemisia vulgaris*	Nagdana	Asteraceae	Herb	Whole plant	Leaves are used to cure cough and cold, root powder is taken for curing breathing problems
8.	*Bupleurum falcatum*	Dudhia	Apiaceae	Herb	Roots	Root extract used to treat abdominal inflammation, stomachache and liver complains
9.	*Berberis aristata*	Kashmal	Berberidaceae	Shrub	Roots	Roots are used for the treatment of snakebite and eye complains
10.	*Berberis lycium*	Kashmal	Berberidaceae	Shrub	Roots, bark	Roots are used to cure complains, bark is used to cure stomach problems
11.	*Bergenia stracheyi*	Pashanbhed	Saxifragaceae	Herb	Leaves, roots	Leaves are used for the treatment of kidney stones
12.	*Calanthe tricarinata*	Banelaichi	Orchidaceae	Herb	Leaves, bulbs	Leaf paste is applied to cure skin problems, juice of bulbs is applied on wounds
13.	*Cirsium wallichii*	Bhoosh	Asteraceae	Herb	Whole plant	Plant is used to cure swelling, headache and pneumonia
14.	*Cotoneaster bacillaris*	Chamyor	Rosaceae	Shrub	Fruits	Fruits are used to cure intestinal worms
15.	*Dactylorhiza hatagirea*	Salam Panja	Orchidaceae	Herb	Root tubers	Tubers are used to cure diarrhea, cough and fever
16.	*Dioscorea deltoidea*	Shingli-mingli	Dioscoreaceae	Herb	Roots	Extract of roots is used to cure asthma and constipation
17.	*Gentiana kurroo*	Kurroo	Gentianaceae	Herb	Root	Decoction of root is given to treat fever, indigestion and piles
18.	*Gerardinia heterophylla*	Kugus	Urticaceae	Herb	Leaves, bark	Leaves are cooked and consumed to cure jaundice, powder of bark is used for fast healing of wounds and joining of broken bones

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19.	*Hydechium spicatum*	Jangli Haldi	Zingiberaceae	Herb	Rhizomes	Paste or dried powder of rhizomes is applied on wounds for quick healing and consumed to purify blood
20.	*Indigofera heterantha*	Kali kathi	Fabaceae	Shrub	Leaves, flowers	Leaves and flowers are used to cure diarrhea, root powder is used to heal internal injuries
21.	*Phytolacca acinosa*	Jharka	Phytolaccaceae	Herb	Roots, seeds	Extract of roots is used for the treatment of urinary disorders, seeds are used to cure headache
22.	*Picrorhiza kurrooa*	Kudu	Plantaginaceae	Herb	Root	Decoction of the root is used to cure stomachache dysentery and fever
23.	*Podophyllum hexandrum*	Ban Kakari	Berberidaceae	Herb	Roots, rhizome	Rhizome and roots are used for relieving from stomach pain, gastric problems, to cure skin diseases
24.	*Polygonatum verticillatum*	Salem misri	Asparagaceae	Herb	Root	Tubers are used to cure heart problems, tumor and to relieve pain
25.	*Prinsepia utilis*	Bhekhal	Rosaceae	Shrub	Seeds, roots	Oil used in body pain for massaging, heated oil cake is applied as poultice to abdomen to cure stomachache, roots paste is applied to cure cuts and burns
26.	*Rosa brunonii*	Kuja	Rosaceae	Shrub	Leaves, flowers	Diarrhea, healing wounds and curing eye diseases
27.	*Rubia cordifolia*	Majith	Rubiaceae	Herb	Roots	Powder of roots is used for the treatment of boils and skin troubles and to cure heart ailments
28.	*Rubus ellipticus*	Aakhe	Rosaceae	Shrub	Fruits, leaves	Fruit juice is used to treat diabetes, leaves are used to used to cure skin diseases and heal wounds
29.	*Rumex nepalensis*	Malori	Polygonaceae	Herb	Leaves, roots	Decoction of leaves and twigs is applied to cure dislocated joints, paste of root is applied to relieve headache
30.	*Saussurea costus*	Kuth	Asteraceae	Herb	Roots	Roots are used for treating asthma, cold, cough, gastric and intestinal problems
31.	*Swertia chirata*	Chiratta	Gentianaceae	Herb	Roots	Roots are soaked in water and kept for 5-6 hours. The extract of water is taken to treat gastric problems, to treat diabetes and liver problems
32.	*Selinum veginatum*	Bhutkeshi	Apiaceae	Herb	Roots	To cure intestinal ulcers
33.	*Skimmia laureola*	Nyaar	Rutaceae	Tree	Leaves, Bark	Infusion of leaves is taken to cure headache; powder of bark is used for healing of wounds and burns, leaves are also used to cure smallpox
34.	*Trillium govanianum*	Nagchhatri	Melanthiaceae	Herb	Roots	Roots are used to cure cancer, wounds, dysentery, skin boils, menstrual and sexual disorders
35.	*Valeriana wallihchii*	Mushakbala /Nihanu	Valerianaceae	Herb	Rhizomes	Powder of rhizomes is used for muscle relaxation and urine complains
36.	*Viola odorata*	Banafsha	Violaceae	Herb	Flowers, leaves	Decoction of flowers is used to cure cold and cough, fresh leaves are made into paste and applied locally to relieve pain and inflammation

Also the practices of in-situ conservation and cultivation will help in reducing the pressure on their wild habitat and will prevent premature extinctions of these valuable plants.

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