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Original Research Article

Addition to the Ethnomedicinal Plants Used by the Local People of Gulmarg and its Allied Areas, Kashmir, Jammu and Kashmir, India

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Abstract	Keywords
Kashmir valley is the habitat of many valuable plant species and the local people are fully aware how to use these plants. This traditional knowledge regarding the use of plants as medicine was transmitted from generations to generations orally. The written document of this valuable knowledge is still in need. In a continuous study in the Gulmarg and its allied areas in Kashmir Valley the knowledge of traditional medicinal plants among the people have been documented and updated with 22 more ethnomedicinal plants.	Biodiversity hotspot Ethnic Herbal medicine Indigenous knowledge

Introduction

Ethnobotany is usually defined as anthropological approach to botany. Harshberger in 1895 coined the term Ethnobotany to indicate plants used by the aboriginals. It included the study and evaluation of plant-human relations in all phases and the effect of plant environment on human society. Subsequently Schultes in 1962 defined ethnobotany as “the study of the relationship which exists between people of primitive societies and their plant environment”. Plants have been used by tribal and local people for cure of various diseases. As most of the diseases of modern society are life style disease and the use of herbal medicines can overcome such problems (The focus of ethnobotany is on how plants have been or are used, managed and perceived in human societies and includes plants used for food, medicine, divination, cosmetics, dyeing, textiles, for building, tools, currency, clothing,

rituals and social life (Rahman, 2009). Herbal medicines play a major role in treatment of many diseases in humans and animals. Now-a-days medicinal plants have emerged as a unique approach to safe, effective and inexpensive new remedies for variety of disease as they do not have adverse effects. Many natural drugs isolated from plants showed good anti viral activity against *Aedes aegypti* mosquito. Some of the plants which show anti viral activity against dengue fever are *Andrographis paniculata*, *Azadirachta indica*, *Boerhaavia diffusa*, *Chondrus crispus* and *Catanospermum austral* (Pigili and Runja, 2013).

Rheum emodi has been used in various traditional systems as laxative, tonic, diuretic and to treat fever, cough and indigestion, since antiquity (Rehman et al., 2014). With the renewed interest from the western countries in herbal remedies and the increasingly urgent need to develop new effective drugs, traditionally used

medicinal plants have recently received the attention of the pharmaceutical and scientific communities. In recent years one can notice a global trend in the traditional system of medicines and ethno botanical studies have become increasingly valuable in the development of health care system in different parts of the world (Ahmad, 2007). The aims of the study are:

- (A) To make an investigation about the present ethnobotanical status in the study area.
- (B) Documentation of medicinal plants available in the study area.
- (C) To know the extent of use of medicinal plants by the tribal and local people (Rahman, 2009).

India is one of the 17 mega biodiversity countries in the world. It has 45000 plant species, out of which 15000-20000 plants have medicinal values (Arti et al., 2014). India has 10 of the world's biodiversity wealth which is distributed across 16 agro climatic zones (Rout et al., 2010).

Our country is commonly called the Botanical Garden of the world, owing to her wealth of herbal medicines; India with its great topographic and climatic diversity has a very rich diverse flora and fauna. The uses of plants as medicines have been practiced from an ancient time. From around, 500 B.C, Rig-Veda is one of the important earliest available documents which emphasizes about herbal medicinal knowledge. Later on Indian herbalists such as Mahareshi Charaka and Susruta worked in search of many medicinal plants parts for different ailments of human body. Later on it is reported that the traditional healers use near about 2500 plant species and 100 species of plants serve as regular sources of medicine (Pei, 2001).

Nature has bestowed our country with an enormous wealth of medicinal plants; therefore India has often been referred to as medicinal garden of the world. India has a unique position in the world, where a number of recognized indigenous system of medicine viz., Siddha, Unani, Homeopathy, Yoga Naturopathy and Ayurveda are being utilized for the health care of the people. No doubt that the drugs are popular among rural and urban community of India. The one reason for the popularity and the acceptability is belief that all natural products are safe. The demand for plant based medicines, health products, pharmaceuticals, food supplement, cosmetics etc are increasing in both developing and developed countries, due to the growing recognition that the natural products are non

toxic, have less side effects and easily available at affordable prices (Kalia, 2005).

Kashmir Himalaya, perched at the North- Western tip of the Himalayan Biodiversity Hotspot, supports a rich and spectacular biodiversity of great scientific curiosity and promising economic benefits chiefly owing to its topographical variations spanning from valley floor through terraced lands and dense forests up to snow capped alpine peaks (Khuroo et al., 2007).

Kashmir Himalaya harbours a rich diversity of medicinal plants chiefly owing to its topographic variation spanning from valley floor through terraced table lands and dense forests up to alpine peaks. The state Jammu and Kashmir is populated with several ethnic groups with each group having their own knowledge of traditional herbal medicine inherited from their fore-fathers. Up to now a very few studies have been carried out to document ethno medicinal uses of plants in this particular region because of being of being remote and difficult terrains (Mudasir Yousuf Mir, Kupwara). The Jammu and Kashmir state is floristically rich due to vast area of forests. The forests are having rich diversity of gymnosperms represented by *Abies*, *Cedrus*, *Cupress* and *Pinus*. Angiosperms are widely distributed in the plains as well as in the hilly areas of the state (Bhat et al., 2012).

The valley of Kashmir is known for its beauty all over the world is also rich in herbal and floral wealth. The interest in knowing and admiring the plants in Kashmir has existed since times immemorial. In Kalhana's Rajtarangini (1149-50 A.D), we find mention of preservation of plants and plant products for medicinal purposes. Sir Walter Lawrence in his 'Valley of Kashmir' has observed that 'Kashmiris turn nearly every plant to some use and attribute medicinal properties to every growing thing'.

Kashmir Himalaya harbours diverse habitats which supports a rich floristic wealth that has been used as a source base by its people since times immemorial. Indeed Kashmir is known for its economically valued plants and their products such as medicine, fodder, fibre etc. Owing to the rich and unique floristic diversity a good proportion of plants are used as medicine in one form or other. The ethnic use of some of these herbs in medicine through folklore as well as in the document form dates back to 3000-1000 B.C. and was in all probability the only means of curing and protecting the human population from various diseases. In Jammu and Kashmir, India, law

enforcement has banned the collection of the medicinal plants from the wild except for the Gaddi, Gujjars and Bakarwal tribes who are permitted to collect the species for their personal uses only. As a consequence, knowledge of medicinal plants lies with tribes only (Dutt et al., 2015).

Recently, a study by Kumar et al. (2015) documented 80 plants, used for treatment of various diseases and ailments. In the present study, further additions to the ethnomedicinal plants have been documented.

Materials and methods

Study site

Gulmarg (meadow of flowers) is a town, a hill station, a popular skiing destination and a notified area committee in Bara mullah district in the Indian administration state of Jammu and Kashmir. The town is within the Himalayas and is within miles of the loc between India and Pakistan.

Geography

Gulmarg is located 52 km from Srinagar. It has an average elevation of 8, 825 ft. Gulmarg is easily accessible from Srinagar, the capital of Jammu and Kashmir in less than 2h by bus or car. Just 1h on the way is the town of Tangmarg. The adjoining areas of Gulmarg are Tangmarg, Khilanmarg, Ferozpora, Drang and Baba Reshi.

The local people have a good knowledge of the use of plants. The people still use many plants as medicines. The knowledge of the medicinal uses of plants is has been transmitted from one generation to next orally. It is mandatory to document the knowledge of these local people before the knowledge will drain off.

Demographics

At the 2011, Indian census, Gulmarg had a total population of 1, 957 over 77 households. Male population in the town stood at 1, 957, while there were only 8 females and no children between the ages of 0-6 years. Gulmarg had an average literacy rate of 99.24% compared to the state average of 67.16 %. Scheduled tribes and scheduled castes consisted 0.16% and 0.15% of the population respectively. Gulmarg had some permanent residents with the most residents being tourists or those involved in the tourism. Gulmarg is also a destination for nomadic Gujjars and Bakarwal tribes who migrate to upper reaches of Himalayas during summer in search of pastures.

Method

Field trips were conducted to the area of study during May-July 2015. Many elderly people of the area were consulted. They provide us with ethnic knowledge regarding the medicinal plants and we noted their information in a notebook. We also consulted the hakeems who also give some information to us. The information given by these persons was verified by confirming it from at least 5 other persons. Then we searched for these plants and the snaps of the plants were taken in their natural habitat with a digital camera. Some of the photographs and data have been taken from internet and the library of Uttaranchal College of Science and Technology, Dehradun.

Results

During the study 22 plant species were documented which are used in unique way by the local people in Gulmarg and its allied areas for curing various diseases. The plants are used to cure toothache, gastric disorders, rheumatism, headache, etc. (Table 1).

Table 1. Additional list of ethnomedicinal plants in Gulmarg, Jammu and Kashmir.

Botanical Name	Local Name	Family	Part used	Disease/ Ailment	Method of use
<i>Papaver somniferum</i>	Khash khaash	Paperveraceae	Whole plant	Pain	For pain dried milk of whole plant is taken
<i>Cynodon dactylon</i>	Dramun	Poaceae	Stolon	Addiction	Chewing of the stolons reduces the desire for drugs and tobacco.
<i>Mentha arvensis</i>	Pudni	Lamiaceae	Leaves	Gastric disorders	Tea is prepared from the leaves and the tea is taken early in the morning.

Botanical Name	Local Name	Family	Part used	Disease/Ailment	Method of use
<i>Iris nepalensis</i>	Mazaar mond	Iridaceae	Roots	Joint pain	For joint pain fresh grinded stem is applied on affected areas.
<i>Urtica dioica</i>	Soi	Urticaceae	Ariel part	Fracture	Crushed plant is applied on the fractured bones.
<i>Datura stramonium</i>	Datur	Solanaceae	Seed	Asthma	For asthma, leaves are burnt and smoke is inhaled.
<i>Cannabis sativa</i>	Bhang	Cannabaceae	Leaves	Diarrhoea	For curing diarrhoea extract of leaves is taken.
<i>Aesculus indica</i>	Haan doon	Sapindaceae	Seed	Headache	Seed oil is applied on head for curing headache.
<i>Matricaria chamomilla</i>	Fake gasse	Asteraceae	Whole plant	Mouth infections	For curing mouth infections extract of whole plant is used as mouth wash.
<i>Ajuga bractosa</i>	Jaan-e-adam	Lamiaceae	Whole herb	Lice	The whole herb is boiled in water and the decoction is used to wash the hair.
<i>Equisetum arvense</i>	Bandak	Equisetaceae	Whole plant	Urine infection	Mix the powder of the herb with water and take the decoction for few days
<i>Dryopteris sp.</i>	Gauthier	Pteridaceae	Aerial portion	Kidney stone	The aerial portion is boiled & the decoction is taken orally to cure kidney and gall stones
<i>Celosia argentea</i>	Moval	Amaranthaceae	Rhizome	Rheumatism	Rhizome is dried and cut into pieces and tea is prepared from these pieces. 1 cup of tea is taken in the morning for few weeks
<i>Linum usitatissimum</i>	Alshi	Linaceae	Seeds	Rheumatic pain	The oil extracted from the seeds is applied on the joints.
<i>Rorippa sylvestris</i>	Wan telgugul	Brassicaceae	Seeds	Cold and headache	The poultice of seeds is rubbed on the forehead to cure cold and headache.

Conclusion

Plants are being used as a remedy for various diseases from ancient times in the Gulmarg and its allied areas from ancient times. This region of Kashmir valley has a fairly rich diversity of plant species and the local people have enough knowledge regarding the medicinal uses of these plants. This traditional knowledge transmitted from generation to generation orally. There are no written documents of this valuable knowledge. Due to modernization, this

knowledge is draining off at a rapid rate as it is now restricted to the old aged persons only. So there is a need to document this traditional knowledge regarding the medicinal plants. An immensely valuable database could be the outcome of this knowledge which in turn can provide baseline information for the commercial exploitation of bio resources. This information could also be useful for the industry, pharmacologists, physicians, phytochemistry, botanists and alike interested in the development of the alternative therapies.

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