

Conspectus of Ethno-medicinally novel plant species of Breng valley in Kashmir Himalaya, India

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Abstract- Plants have traditionally been used for treatment of human and livestock ailments in Kashmir Himalaya by different tribal groups. However, this valuable source of knowledge is not adequately documented, which impedes their widespread use, evaluation and validation. The present research work was designed to gather indigenous knowledge from tribal and nomadic people about traditional medicinal uses of plants. Indigenous knowledge was collected by interviewing people of different age groups. A total of 25 species belonging to 20 families were recorded as being used by local inhabitants for curing various ailments. The present study is of great significance as it provides a lead in documenting the knowledge of traditional herbal medicine. These ethno-medicinally important plants are un-paralled treasure of wealth and conservation of such plant species should be done by the concerned authorities. It should be realized that conservation and management of potential species are of utmost importance.

Index Terms- Kashmir Himalaya, tribal, knowledge, indigenous, wealth

I. INTRODUCTION

Ethno-botany is a multidisciplinary study involving the relationship between plants and the aboriginal people and a fair familiarity with the flora and the vegetation of the region (Santos et al., 2001). The human society has developed close association with the plant life (Berkes et al.,) since time immemorial. The relationship between the indigenous people and their surroundings forms the subject of ethno-botany, a science (Awas et al., 2009), which deals with the study of plants used by tribal for food, medicine and clothing (Omoruyi et al., 2012). By the end of 19th century, ethno-botany had started to develop as a science, providing a new tool for pharmaceutical research, that focus not only on the people-plant relationship in a multidisciplinary manner, but also incorporate collection and documentation of indigenous uses, in addition to ecology, economy, public health and other disciplines.

In recent years, the herbal medicine is gaining wide currency and acceptability and the documentation of valuable indigenous knowledge about medicinal plant species is assuming urgent priority (Anim et al., 2012), due to the recent controversies of illegal Bio-piracy. According to WHO, 70% population of the world depend on Traditional Health Care System (THCS) for curing various diseases (WHO, 2002). It is well known that this system offers minimum side effects and relatively low cost as compared to other systems of medicine.

This is the reason that patients in developing countries such as Bangladesh (90%), Myanmar (85 %), India (80%), Nepal (75%), Sri Lanka (65%) and Indonesia (60%) have strong conviction in this system. The precious indigenous knowledge when supplemented and validated by the latest scientific incites can offer new holistic models of sustainable development that are economically viable, environmentally benign and socially acceptable. The Kashmir Himalayas, often referred to as terrestrial paradise on earth, is located at the north-western tip of the Himalayan biodiversity hot spot. The region supports a rich and spectacular biodiversity of great scientific curiosity and promising economic benefits owing to its topographic variations spanning from valley floor. Keeping in view the significance of the subject, present study was carried out to document of ethno-medicinally important plants in the Drang valley of Kashmir Himalaya.

II. STUDY AREA

The present study was carried out in Breng (Kokernag) valley which is geographically located at 33°34' N 75°18' E / 33°45' N 75°30' E (Fig 1). Physiographically, the Breng valley is flat surrounded by lofty mountains and act as transitional zone between Kashmir and Jammu division of J& K state. Two historically important passes namely Sinthan pass and Margan pass transcend through this valley which have been used by nomadic and other ethnic groups from time immemorial. Due its distinct geographic location, the area is inhabited by different ethnic groups such as Gujjars, Bakerwals and other nomadic people. These groups have their own knowledge of traditional herbal medicine inherited from their forefathers. These medicines are well accepted by the local people since generations have experienced their efficacy in alleviating a variety of diseases.

III. MATERIALS AND METHODS

The methods employed during the study were designed with the sole purpose of eliciting the precious wealth of information on the ethno-medicinal uses of plants practiced by the people residing in and around target site within Kashmir Himalaya. The area was visited several times for the collection of data during the year of 2015-2016. The local name and traditional uses of plants, with emphasis on medicinal uses were documented by interviewing the local elderly knowledgeable persons including local hakims. Literature concerning ethno-botany of this area has been consulted.

IV. RESULTS AND DISCUSSION

During the present survey 25 species of plants belonging to 25 genera and 20 families (Fig 2) has been recorded those are used by the tribal and non-tribal people against different diseases. The recorded plant species were enumerated alphabetically in Table 1 along with their botanical and vernacular names, families, parts used and ethno-medicinal aspects. Among the recorded species, 21 species are herbs, 01 species shrubs and 03 species are trees (Fig 3). Different plant parts are used against different ailments but dominantly rhizomes, leaves and roots are used either in raw form or as aqueous extracts.

The floral and vegetation studies of Kashmir Himalaya have been carried out since first half of the twentieth century (Kaul et al., 1997; Rao, 1961). But, here it is pertinent mention that no study has been carried out till date to document the ethno-medicinally important plant species in the target area. Hence, our study is of great significance as it provides a lead in documenting the knowledge of traditional herbal medicine inherited from our forefathers. It is felt that there is a need for the rapid documentation of the valuable indigenous knowledge in the face of the emerging threats of destructive overharvesting, habitat degradation and bio-piracy (Gadgil, 1996; Singh et al., 1994 and Utarsh et al., 1999). About 70 % of the identified medicinal plants of Indian Himalaya (PVP, 2001) are threatened by destructive harvesting. Recently, our country enacted a number of measures of legislation (IPA, 2002; IBA, 2002 and Dhar et al., 2000) in compliance with Convention on Biological Diversity (CBD) and World Trade Organization (WTO) in order to prevent the unfair exploitation of the biological wealth of the nation. These measures of legislation, inter-alia, require the immediate chronicling of the country's biodiversity and the associated indigenous knowledge.

V. CONCLUSION

From the perusal of the aforementioned discussion, it can, thus, be said that the present study reveals the traditional system of primary healthcare that utilizes the plant resources as medicines in the studied area (Brenge Valley), India. The traditional knowledge system is restricted to few identified persons in the community and this knowledge generally inherited through the oral transfer in family lineages as there is no written document. Hence, our study is of great significance as it provides a lead in documenting the knowledge of traditional herbal medicine. The present generation people are least interested to practice the traditional medicines. Due to over exploitation, alien plant invasion and habitat fragmentation many plant species are threatened. These ethno-medicinally important plants are unparalleled treasure of wealth which will act excilr for humanity.

Hence, documentation and conservation of such plant species should be done by the concerned authorities. It should be realized that conservation and management of potential species are of utmost importance.

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Table 1: Ethno-medicinally important plant species along with their local names and family documented from the Breng valley, Kashmir Himalaya.

S.No.	Plant species	Family	Vernacular name	Traditional use
1.	<i>Arnebia bethamii</i> Wall	Boraginaceae	Kah-Zaban	The extract of root is extremely useful when mixed with hair oil to prevent hair loss. The whole plant is given to lactating mothers to increase their milk production.
2.	<i>Delphinium cashmirianum</i> Royle.	Ranunculaceae	Mori	The plant upper part is diuretic and used to cure several diseases like dropsy, jaundice and spleen ailments.
3.	<i>Euphorbia wallachii</i> Wall.	Euphorbiaceae	Guri-dud	Extract of plant is purgative and digestive. Also used to treat nerve troubles and dropsy, warts and skin infections.
4.	<i>Ficus carica</i> Linn	Moraceae	Anjeer	Leaves, fruits and bark of the plant are medicinally important. Leaves and bark is helpful in treating liver and skin diseases. Fruits are extremely useful to treat heart diseases.
5.	<i>Urtica dioica</i> Linn.	Urticaceae	Soi	The leaves and root when crushed and made into a paste in oil is used to treat rheumatism and minor wounds.

				Crushed leaves are mixed with shampoo to prevent dandruff.
6.	<i>Podophyllum hexandrum</i>	Solnaceae	Wanwangun	The root and leaf extracts are used to cure septic wounds and treat gastric problems. Rhizome decoction taken at bedtime for one month is used to cure tumor. Fruit and seeds are consumed as such to treat diarrhea and constipation. The extracts of root are also helpful for treating heart diseases.
7.	<i>Cannabis sativa</i> Linn.	Cannabinaceae	Bhang	Powdered stem and leaves mixed with ghee are used against rheumatism. Leaf extract taken for few days is used to cure cholera. Leaf extract is also used to cure diarrhea. Leaf powder mixed with eggs and taken as omlet is used to cure menstrual problems.
8.	<i>Coriandrum sativum</i> Linn. I	Apiaceae	Dhaniwa	Powdered leaves are mixed with milk to treat Insomnia. Leaf extract is useful for

				stomachache
9.	<i>Datura stramonium</i> L.	Solanaceae	Dhatur	Dried leaves and seeds are made into a fine powder and then mixed with water which is consumed for a week to treat asthma. The paste of seeds in oil is applied to the hair to prevent dandruff. Seed powder is mixed with ghee to treat rheumatic pain
10.	<i>Fragaria nubicola</i> Lindley ex.	Rosaceae	Lacaita Jungli – istaber	Powdered rhizome mixed with honey is used to treat tonsils. Cut and dried rhizome is used to make tea which is used to cure rheumatism. Fruit juice is useful for Diarrhoea
11.	<i>Lavandula officinalis</i> Chaix et Kitt.	Lamiaceae	Lavander	Dried and powdered flowers mixed with mustered oil are used to treat skin inflammation. and headache.
12.	<i>Mentha arvensis</i> L.	Lamiaceae	Pudhna	Leaf extract in warm water is useful for asthma patients. Powdered leaf decoction is used to treat indigestion. Crushed leaves are mixed with milk and taken as a cure for diarrhea. Powdered leaf is also helpful for

				sore throat when taken with curd.
13.	<i>Papaver somniferum</i> L.	Papaveraceae	Khush- Khash.	Milk of the fruit is dried and used to cure pain. Seed powder is taken with milk to treat cancer. Fruit powder is mixed with salt to treat cough
14.	<i>Pinus wallichiana</i> A.B. Jackson	Pinaceae	Kayur	Resin of the plant is mixed with milk and taken to cure influenza. Resin is also applied on heels to overcome cracks.
15.	<i>Plantago lanceolata</i> L.	Plantaginaceae	Gull	Paste of leaves applied on boils. Leaf extract is useful for bronchitis. Seed extract when taken with honey is extremely useful for patients suffering from cough.
16.	<i>Ranunculus arvensis</i> L.	Ranunculaceae	Gur-sochal	Whole plant extract is useful for diarrhea and constipation.
17.	<i>Rumex nepalensis</i> L.	Polygonaceae	Aabuj	Root extract useful for constipation. Powdered roots mixed with ground nut oil and applied on joints to reduce joint pain.
18.	<i>Taraxicum officinal</i> Web.ex.	Asteraceae	Wiggers Hundh	Leaf decoction is given to anemic ladies for 10-12 days after delivery to treat anemia.

				Flower extract useful to treat fever.
19.	<i>Trigonella foenum-graecum</i> L.	Fabaceae	Meth	Mucilage of soaked seeds when taken early in the morning reduces blood pressure.
20.	<i>Aesculus indica</i>	Sapindaceae	Handoon	Oil of seed is applied on hair to keep them healthy. Leaf extract is used against fever.
21.	<i>Artemisia absinthium</i>	Astraceae	Tethwan	Plant extract used to treat abdominal pain, chronic fever and gout.
22.	<i>Bergenia ligulata</i>	Saxifragaceae	Pashanabheda	Paste of leaves is applied on wounds. Dried root powder when taken with milk reduces stomachache. Also used to treat internal injury.
23.	<i>Viburnum grandiflorum</i> Wall.	Caprifoliaceae	Kulmanch	Decoction prepared from root extract and common salt is taken orally as a laxative. Paste is prepared from roots and applied on skin to heal wounds.
24.	<i>Oxalis corniculata</i>	Oxalidaceae	Amrul	Leaf extract is used to treat diarrhea, fever and inflammation.
25.	<i>Portulaca oleraceae</i>	Portulacaceae	Nuner	Whole leaf consumed as vegetable to treat liver inflammation. Extract of whole

				plant is useful for cough.
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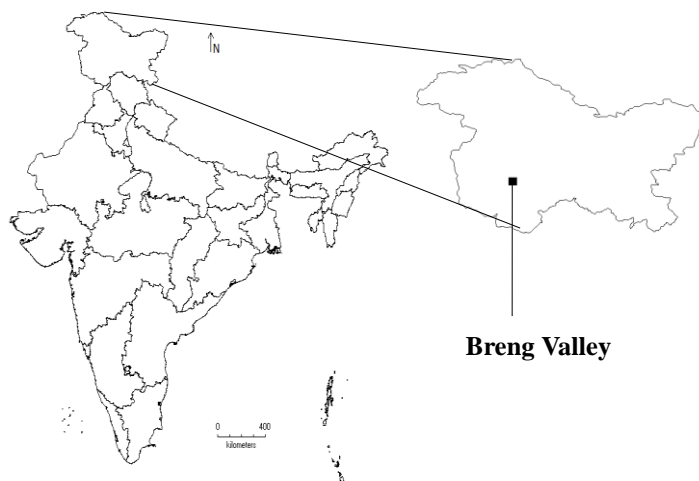


Fig 1: Map showing study site in Kashmir Himalaya, India.

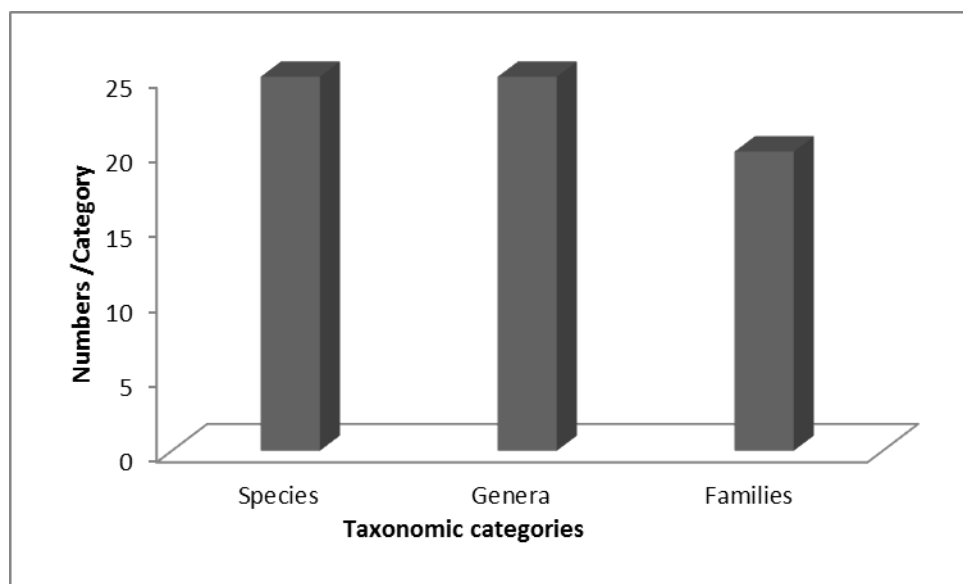


Fig 2: proportion of taxonomic categories

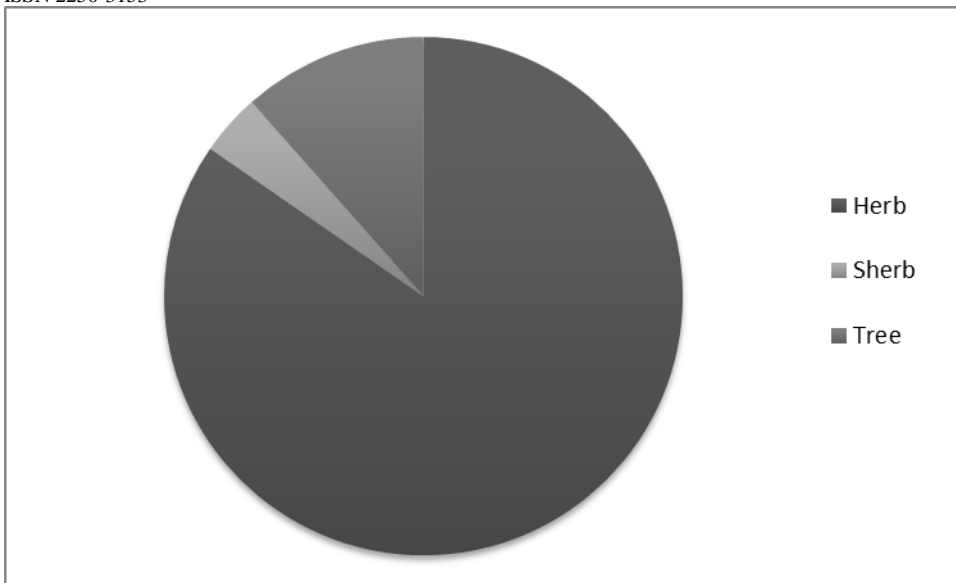


Fig 3: Life forms within the medicinally important plant species recorded during study.