

Full Length Research Paper

Ethno botany of some selected Monochlamydeae plant species from the Kashmir Himalaya, India

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The strong connecting link between the current loss of medicinal plants/flora and the missing of valuable conventional knowledge associated with the plants suggests a need to conduct ethno-botanical research and to document the medicinal plants and the associated traditional knowledge. Importance of medicinal plants in the traditional health care has now assumed more importance. However, information on the uses of plants for medicine is lacking from many hilly and tribal areas of Kashmir Himalaya. The present study has been carried out from different high altitude areas of Kashmir to look for the diversity of plant resources that are used by local people for curing various ailments. The information has been collected for 16 Monochlamydeae species, of which medicinal uses of 3 species are reported for the first time. It has also been found that most of the species are used for the general health problems and wound healings besides for the treatment of skin, gastric diseases etc.

Key words: Ethnobotany, Kashmir Himalaya, traditional knowledge, Monochlamydeae.

INTRODUCTION

Ethno-botanical information on medicinal plants and their uses by indigenous cultures is useful not only in the conservation of traditional cultures and biodiversity, but also for community health care and drug development. This information is utilized as a guide for drug development under the assumption that a plant which has been used by indigenous people over a long period of time may have an allopathic application (Farnsworth, 1993).

Indigenous knowledge is the main resource of all the ethnobotanical investigations and is generally known as traditional ethnobotanical knowledge. However, the continuation of this knowledge is endangered when

transmission between the older and younger generation is no longer connected (Kargioglu et al., 2008). According to World Health Organization (WHO, 2002), around 75% of the population in the developing countries relies still on traditional system for their primary healthcare needs. From the very earliest days of civilization, mankind has turned to plants for healing, a tradition that has survived the arrival of modern medicine and found new strength at the end of 20th century. Even today 80% of the world population relies on traditional plant medicine (Singh and Verma, 2008). As per Ayurvedic Materia Medica, there is no plant species on earth which is not medicinally important. India is also one of the most important

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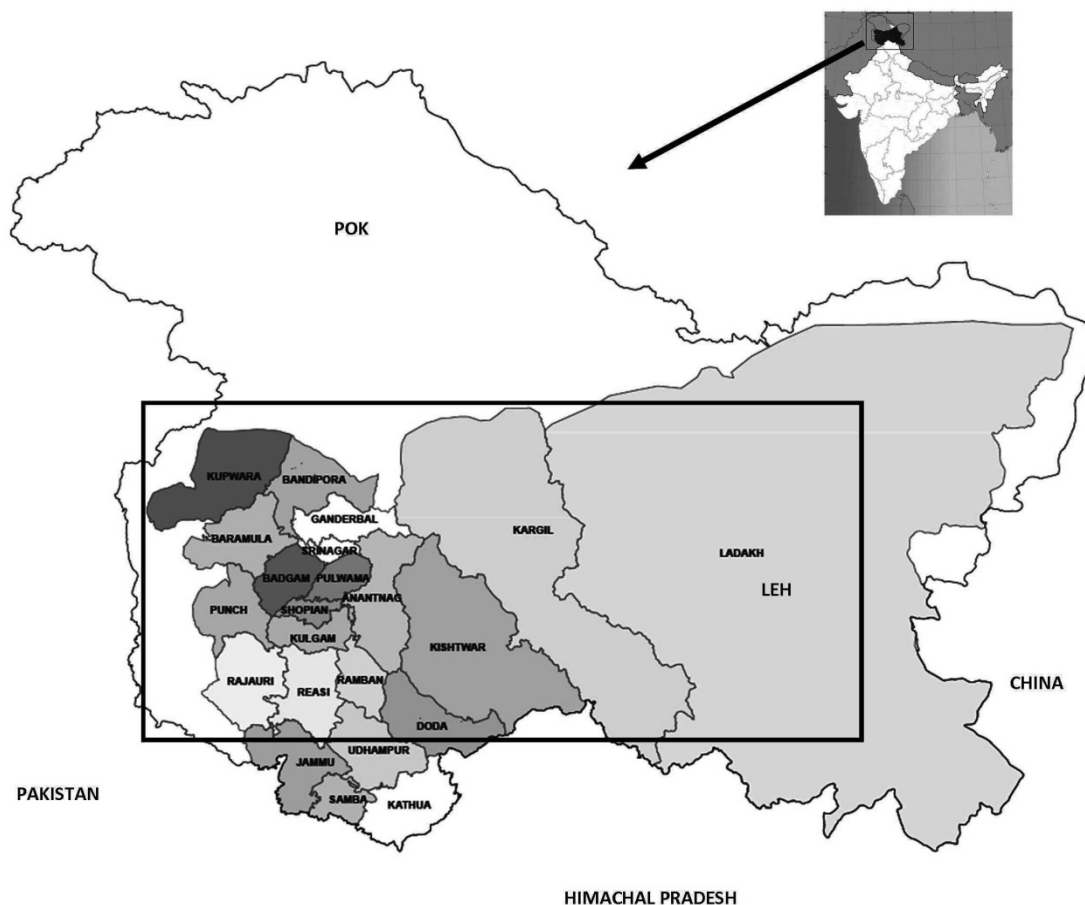


Figure 1. Map of localities surveyed in Kashmir Himalaya.

medicinal collection centres of the world and about 65% of the population depends on this system (Uniyal and Shiva, 2005). The indigenous medicinal information of plants is helpful to ecologists, pharmacologists, taxonomists and wildlife managers in civilizing the prosperity of area, besides listing the traditional uses (Ibrar et al., 2007).

During the last century, various studies have been carried out to document the ethnobotanical use of plant species growing in the region albeit. Therefore, documentation of the traditional ethnobotanical knowledge through ethnobotanical studies is important for the conservation and utilization of biological resources (Muthu et al., 2006).

Study area

The study area includes the Kashmir Himalayan region lying across 33 to 36° north latitude and from 72 to 80° east longitude, and occupying an area of approximately 2, 22, 800 km² between the altitudes of 1,700 and 5,500 m (a.s.l.) (Figure 1). This part is nestled within North-Western folds of the recently designed global biodiversity

hot spot of the Himalayas (Mittermeir et al., 2005). Owing to the wide altitudinal gradient and varied edapho-climatic and physiographic features, the region harbours wide array of habitats including fresh water alpine lakes, wet lands, springs, ponds, swamps, marshes, glaciers etc. which support equally diverse vegetation types including cultivated pastures and crop fields, plantation stands, orchards, deciduous scrubs, evergreen coniferous forests, subalpine and alpine meadows. Kashmir valley has a treasure house of medicinal plants (Dar et al., 2002). The traditional use of herbs for relieving various ailments has been practiced by the people since time immemorial. Mostly, local herb sellers called "Hakims" have been administering local herbs to people for a number of ailments and thus played a significant role in the health care system. In Ladakh, there is a well known system called Amchi system of Medicine where the local herbs are extensively used for various ailments (Buth and Navchoo, 1988). Some praise worthy contributions with regard to ethnobotanical work from the area include the work carried by Sharma (1991), Singh (1994), Siddique et al. (1995), Kaul (1997), Virendra et al. (2002), Beigh et al. (2003), Ganaie and Nawachoo (2003), Khan et al. (2004), Tantray et al. (2009), Malik et al. (2011) and



Figure 2. (a to c) Author documenting ethno-botanical information from local people.

Jeelani et al. (2013). Since most of the medicinal plants are either rare or threatened, need has been felt for the speedy documentation of the prized indigenous knowledge so that proper actions are undertaken to conserve these valuable plant resources.

METHODOLOGY

Ethnobotanical information about some of plant species was collected from diverse habitats of study area during regular field trips made from 2008 to 2011. Various tribal people, local people and hakeems of the Kashmir area were interviewed for procuring maximum knowledge regarding the ethnobotanical uses of these plants. Standard method has been used to acquire the ethno medicinal information from these people for authentication purposes (Croom, 1983). During the study, 16 plant species belonging to different families were collected and their ethnobotanical information recorded (Figure 2a to c.). These plant species collected by the author were later identified after consulting the herbarium at University of Kashmir (KASH), Punjabi University, Patiala (PUN), Botanical survey of India (BSI), Northern circle Dehradun and Forest Research Institute Dehradun (FRI). The identified specimens are preserved in the herbarium of the Department of Botany, Punjabi University, Patiala.

RESULTS

A total of 16 medicinally important plants belonging to 7 different families were reported during this research. Out of these 16 plant species the ethnobotanical information about *Phytolacca acinosa* Roxb., *Rumex dentatus* L. and *Rumex nepalensis* Spreng. are reported for the first time. It has also been observed that most of the species are used for the general health problems and wound healings besides for the treatment of diseases of skin, gastric, etc. In a similar way, the most preferred plant parts for the preparation of such medicines are leaves followed by roots, whole plant, seeds, shoots and grains (Figure 3). The data for each species covers family, botanical name, local name and traditional use as well as preparation are provided in the Table 1.

DISCUSSION

The present study has reported ethnobotanical uses of 16 species belonging to 7 families of flowering plants inhabiting high altitudinal areas of Kashmir Himalaya. The species are used by local and tribal people in the hilly areas. Majority of the plant species are herbaceous and multiple of home remedies are enjoyed for the treatment of ailments such as fever, headache, constipation as well as skin, gastric diseases. Different plant parts such as roots, leaves, fruits, seeds etc. are used. Both fresh and dried parts of plants are used in crude. However, the methods of use, the dosage and the duration differ from one plant species to another and also from locality to locality. The drugs are mostly prepared in the form of pastes, powder, latex and decoction. Based on the indigenous knowledge collected during the study, it can be seen that the area is a valuable source of medicinal flora with different medicinal properties. In this context, it is important to appreciate that the plant/herbal remedies would be of great therapeutic value for different diseases of humans and domestic animals and offer alternative

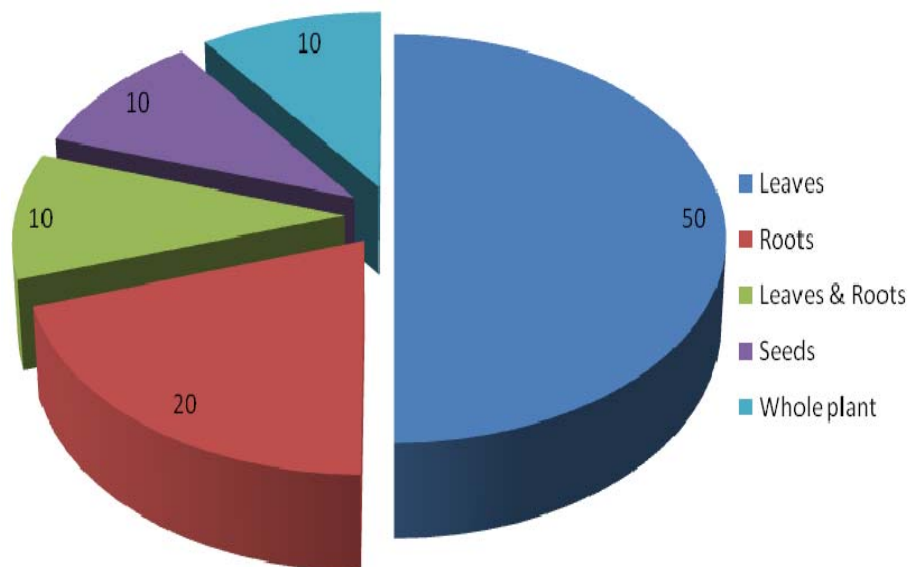


Figure 3. Frequency of different preferred plant parts for the preparation of medicine. Values are in percentage.

herbal treatments to a broad spectrum drugs. Most of the plants used for different medicinal purposes are regarded as very important and are used extensively. Due to this extensive usage they are over-harvested/over-exploited.

The choice of use for herbs was noticed to be influenced by many factors such as season of the year, accessibility and knowledge of other species. People who lived at lower altitudes of the valley had no easy access to herbs found at higher altitudes such as *Rheum emodi* Wall and *Rheum webbanium* Royle hence their first choice remained the species available in and around their homes. However, people especially tribals who lived at higher altitudes had vast knowledge about these important medicinal plant species used to collect and store them and eventually made available to others residing at lower altitudes. Results revealed that a major proportion (75%) of folk medicinal knowledge came from people above the age of 55 years, while a small proportion (25%) of it came from people between the ages of 37 and 50. This result is in accordance with the earlier findings (Hamayun et al., 2006).

Gender wise, men especially old ones had more traditional knowledge about medicinal plants and their uses than females. This may be attributed to two reasons. Firstly because of the involvement of males in collection and trade related activities. Secondly higher reaches had been under seize of security forces since decades in response to terrorist threats thus posing biggest hindrances in the movement of women (Lone et al., 2013). Informants below the age of 50 years were reported less aware of the potential of medicinal plants than their older counterparts who had gathered knowledge from the point of view of their traditional healthcare

and their day to day practices. The differences in the perception of the two age classes will likely result in knowledge loss over time.

Since, in the present study, it was noticed/investigated that the majority of the species were collected from the wild sources, it is a well known fact that the wild populations of medicinal plants are the main sources of raw materials to the pharmaceutical industries. In Kashmir valley various factors that are considered as main threats to medicinal plants were recorded by interviewing the informants. The major factors claimed were increasing population of the area, over-grazing by animals, deforestation, agricultural expansion, lack of job opportunities, increased marketing pressure, trading of charcoal and firewood and indiscriminate harvesting by unskilled gatherers.

There is no immediate conservation programme for this valuable source of medicinal flora. The local Hakims pay a few rupees to local people to collect the plants for them. It has been observed that some plants (*R. emodi* L. and *R. webbanium* Royle) are already on the endangered list (Saggoo and Farooq, 2011) and to prevent their extinction, efforts need to be made with a view to protect these important plant species by initiating conservation practices, cultivation programme, scientific harvest and research institutes which lead from folklore and develop medicine on scientific basis. Besides, giving conservation priority for identified threatened medicinal plants, promoting *in-situ* and *ex-situ* conservation of medicinal plants in the study area by providing funds, land for cultivating medicinal plants and assisting their activities with professional guidance will definitely help in conserving the medicinal plants of the study area.

Table 1. Ethnobotanical information about some plants belonging to group Monochlamydeae from Kashmir Himalaya.

S. No	Botanical name / Local name	Part used	Uses / mode of administration
1	<i>Amaranthus caudatus</i> L. Kashmiri: Lessa	Leaves	The extract of leaves and inflorescence are used against high fever. The herb is also used vegetable. The extract of 5-6 ml is given early in the morning for 2-3 weeks
2	<i>Chenopodium album</i> L. /Janchikarpo, Saag	Leaves	Leaves are boiled in water and cooled over night and used against gastric trouble. An extract from the seeds acts as diuretic. Leaves used as vegetable
3	<i>C. botrys</i> L. Kashmiri: Kulkuli akh	Leaves	The extract is prepared, used against Asthma, extract of 2-6ml twice a day till recovery from disease. Also taken as vegetable to cure the disease
4	<i>Cannabis sativa</i> L. Kashmiri: Bhang	Leaves	Dried leaf powder is mixed with egg yolk then cooked to form an omelette. It is used to check night urination in children
5	<i>Euphorbia helioscopia</i> L. Kashmiri: Guri Sochol	Leaves	Leaves and stem latex are used against ringworm infection
6	<i>Euphorbia wallichii</i> Hook. f Kashmiri: Guri-dud	Leaves	Purgative and digestive. The juice obtained from the plant is applied to warts and skin infection
7	<i>Fagopyrum tataricum</i> (L.) Gaertn Kashmiri: Trumba	grains	Grain obtained for human consumption and is also grown for live stock and poultry feed, as green manure and is excellent crop for soil improvement
8	<i>Oxyria digyna</i> Hill Kashmiri: Chumcha	Leaves/Shoots	In Ladakh, The shoots are kept in luke warm water and taken in the morning as an appetizer. The Gujar and Bakerwals consume it as vegetable
9	<i>Phytolacca acinosa</i> Roxb. Kashmiri: Kafal/Hapath watch Gogri: Totorow/ Hapath churi	Roots/seeds	The root is cut into small pieces and dried. 1-2g root powder in hot water twice a day used against stomach cramps, dysentery and wounds. Dried roots are mixed with warm mustard oil and applied in ailing joints. Seeds are sold in large quantity
10	<i>Rheum emodi</i> Wall. Kashmiri: Pumba chalan (<i>critically endangered</i>)	Roots	The root is powdered in to fine paste and used against Rheumatic pain, wounds. The powder of 3-5 g once in a week with milk. The paste is applied on affected portion externally. In Ladakh, leaf stalks, leaves and flowers are consumed after cooking
11	<i>Rheum webbianum</i> Royle. Kashmiri: Pumba chalan Ladakhi: Latchu (<i>critically endangered</i>)	Roots/leaves	The root is powdered in to fine paste and used against Rheumatic pain, wounds. In Ladakh, the leaves are useful in controlling piles, chronic bronchitis
12	<i>Rumex acetosa</i> D.Don. Kashmiri: Abjie	Whole plant	Used against hardness of muscles, asthma and skin diseases. It is used as a vegetable in juvenile stage by the Gujar and Bakerwals. The plants is dried and crushed to make the powder which is mixed with oil or ghee to make paste. Sometimes the herb is crushed and the extract is obtained. The extract of 5-10ml is given twice a day. The paste is applied on the affected portion externally
13	<i>Rumex dentatus</i> L. Kashmiri: Abjie Gogri: Holla Ladakhi: Shoma	Leaves/roots	Extracts of the roots taken in the quantity of two spoons in a cup of tea daily for 15-days for curing constipation
14	<i>Rumex hastatus</i> Kashmiri: Sozk scai	Leaves	Used as vegetable by the Gujar and Bakerwals

Table 1. Contd.

15	<i>Rumex nepalensis</i> Spreng. Kashmiri: Abjie Gogri: Holla Ladakhi: Shoma	Whole plant	In Ladakh, it is used as a fodder. Its dried parts are used as a remedy for pain. The Gujar and Bakerwals extract the juice from the plant and use it against jaundice. While as the local people rub it to undo the effect of <i>Urtica dioica</i> .
16	<i>Urtica dioica</i> L. Kashmiri: Soi	Roots	Roots are made in to fine paste in oil and used to heal up minor wounds. It is also used to treat cysts of feet and hands.

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Conflict of Interests

The author(s) have not declared any conflict of interests.

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