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ETHNOBOTANICAL STUDIES OF SELECTED MEDICINAL PLANTS OF SUDHAN GALI AND GANGA CHOTTI HILLS, DISTRICT BAGH, AZAD KASHMIR

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Abstract

The aims of this paper are the study of plants, traditionally employed by inhabitants of Sudhan Gali and Ganga Chotti Hills, district Bagh, Azad Kashmir. Various threrapeutic applications of 33 plant species belonging to 29 genera and 17 families and phonological observations were also made.

Introduction

Ethnobotany is the study of how the people of a particular culture and regions makes the use of indigenous plants\while the ethno botanist explores how plants are used for food, shelter, medicine, clothing hunting and religious ceremonies. It is the relationship between a given society and its environment and in particular the plant world (Aumeeruddy, 1996).

Indigenous knowledge is as old as human civilization but the term ethnobotany was first coined by an American botanist, John Harshburger (1896), to study the plants used by the primitive and aboriginal people. Since then it has been defined as the traditional knowledge on indigenous communities, about surrounding plant diversity and as the study of how the people of particular culture and region make use of indigenous plants. Ethnobotany has its roots in Botany. Botany in turn originates in part from an interest in finding plants to help fight illness. In fact, medicine and botany have close ties. Many of today's drugs have been derived from plant resources.

Hocking (1958) reported that 84% of Pakistan population was dependent on traditional medicines for all or most of their medicinal uses. Pie & Manandhara (1987) reported that in Himalayan ranges at least 70% of the medicinal plants and animals in the region consists of wild species and 70–80% of the population in this region depend on traditional medicines for health care. Bokhari (1994) worked on Ethnobotany and vegetation analysis of Machyara National Park Muzafarabad Azad Jammu and Kashmir and reported 10 plant communities in different regions of the National Park Zandial (1994) worked on the ethnobotany of the National Park Machyara and reported 104 important species of plants including tree, shrubs and herb species used ethnobotanically by the local people.

People living in mountains of Pakistan use plants in many ways such as medicines, timber wood, fire wood, food, fodder etc. (Hussain & Khaliq, 1996). The medicinal plants of Himalayas are specific (Dhar *et al*., 2000) and their distribution is scattered and restricted to small areas. No such reference exists on the ethnobotanical survey of this area on district Bagh. The present paper therefore reports the medicinal uses of the Sudhan Gali area. The findings would be of help to ethnobotanists, foresters, and ecologists in the future studies.

Materials and Methods

Information on demographic (Age, gender) and ethnobotanical information (Medicinal plants and their uses) was gathered from each site by using a semi-structured and close ended questionnaire containing questions such (1) Do you know the medicinal plants in your local area; if yes, name them; (2) What is the use of these medicinal plants? How do you use them (as a spice or a medicine) and for which ailment? (3) Which part of these plants is used for medicinal purposes? (4) When do you collect these plants? and (5) Do you collect them for your personal use or for selling them to pharmaceutical companies?

Plants were collected from Sudhan Gali and Ganga Chotti Hills of the district Bagh and data relating to different ethnobotanical aspects were collected from local people of the area. This was primarily done by carrying the collected specimens to the old men (aged above 70 years) and some times to old ladies (if some house hold use/ value indicated by male informants) for comparison and detail. The informants were asked question in Urdu (national language of Pakistan) understandable in most of the cases, otherwise in their local language seeking help of paid local assistance, regarding traditional uses of plants their vernacular names, distribution, morphology and economical importance. Individual plant was photographed along with voucher specimen for people and easy identification in the herbarium. Collected plant material has been dried, pressed, preserved (poisoned), accessioned, identified and finally deposited in the herbarium of the department of plant sciences, Quaid-i-Azam University Islamabad (ISL) Identification of the field collected medicinal plants was done by confirming them by the respondents and comparing them with those in the various Herbaria of Pakistan. Necessary literature has also been collected from different libraries e.g., Pakistan Museum of Natural History, Islamabad (PMNH) World Wide Fund for Nature (WWF), National Agricultural Research Centre, Islamabad (NARC).

In a community, inspection and collection was made through out the growing season to include all appearing species in different seasons especially all vascular plants. Record of flowering months for different species was made possible by visiting the area throughout the year. Such phonological studies indicated that species has its own ecological amplitude and relation to the environment and to the other species and also have good indicator value. Phenology refers more to the appearance of the manifestations at certain seasons of the year, rather than to their cyclic nature.

Results

Apiaceae

Name: *Bupleurum longicaule* Wall. ex DC.
Flowering period: June-Sept.
Uses: The root in combination with other drugs are prescribed in liver troubles and as a diaphoretic. It is also effective in thoracic and abdominal inflammation and fever and useful in flatulence and indigestion. It is used in malaria and various other fevers.

Araliaceae

Name: *Hedera nepalensis* Koch
Flowering period: Aug-Nov.
Uses: The leaves and berries are stimulating, diaphoretic, cathartic, used in indolent ulcers, abscesses etc. The berries are used in febrile disorder, rheumatism. The leaves decoction is applied externally to destroy vermin in the heads of children.

Plant name	Family	Accession No.	Voucher No.	Collection area	Collectors name	Collection date
Bupleurum longicaule Wall. ex DC.	Apiaceae	37812	42	Bagh AJK	Shahzad and Nasir	12-03-1978
Hedera nepalensis Koch	Araliaceaae	38526	4367	S. Gali Bagh	Ch. Jan Muhd.	31-10-1976
Achillea millefolium L.	Asteraceae	57196	446	Sudan gali Bagh	Shahzad and Nisar	22-06-1977
Senecio chrysanthemoides DC.	Asteraceae	53022	1253	Bagh AJK	Shahzad and Nisar	03-04-1977
Saussurea lappa (Falc.) Lipschi	Asteraceae	17741	68	Bagh	Manzoor Hussain and Maqsood	14-04-1976
Tagetes minuta L.	Asteraceae	1803	1076	Bagh AJK	Manzoor Hussain, Javed Akhter	06-05-1975
Tussilago farfara L.	Asteraceae	98018	1239	Bagh	Shahzad Iqbal, Ayaz Abbassi	15-06-1978
Impatiens edgeworthii Hook.	Balsaminaceae	22781	2929	Taulipir AJk	Jan Muhammad	22-06-1976
Impatiens glandulifera Royle	Balsaminaceae	28401	297	Sudan Gali AJK	Shaukat and Nisar	11-04-1976
Berberis lycium Royle	Berberidaceae	54358	1807	Bagh	Shahzad and Nisar	04-06-1977
Sarcococca saligna (D.Don) Muell	Buxaceae	89706	849	Maidagali AJK	Shahzad Iqbal and Nisar Abbassi	25-05-1978
Viburnum cotinifolium D.Don	Caprifoliaceae	16170	1230	S. Gali AJK	Jan Muhammad	18-07-1973
Gentiana decumbens Wall.	Gentianaceae	23171	2515	Bagh	Jan Muhammad	15-04-1975
Gentiana kurroo Royle	Gentianaceae	39623	4336	Bagh AJk	Ch. Jan Muhammad	07-10-1976
Swertia petiolata D.Don	Gentianaceae	33232	3752	Bagh	Manzoor and Nisar	25-08-1976
Geranium wallichianum D.Don ex Sweet	Geraniaceae	30862	3260	Haryal Takia AJK	Jan Muhammad	31-07-1976
Mentha longifolia (L.) Hudsun	Lamiaceae	39822	4053	Bagh	Ch. Jan Muhammad	09-09-1976
Nepeta laevigata (D.Don) Hand. -Mazz.	Lamiaceae	16261	533	S. Gali AJK	Jan Muhammad	22-10-1966
P*runella vulgaris* L.	Lamiaceae	18721	28	Bagh	Nisar and Javed	10-04-1974
Thymus serpyllum L.	Lamiaceae	16253	1063	Bagh AJK	Jan Muhammad	25-09-1958
Plantago lanceolata Linn.	Plantaginaceae	70663	1375	Bagh	Shahzad and Ayaz	04-10-1977
Plantago major L.	Plantaginaceae	08764	011	Bagh	M. Afzal	29-08-1975
Aconogum alpinum (All.) Schur.	Polygonaceae	100104	1428	Sudan Gali	Shahzad Iqbal, Ayaz and Farooq	19-06-1978
Bistorta amplexicaulis (D.Don) Greene	Polygonaceae	34143	3828	Kagar Khun AJK	Jan Muhammad	28-08-1976
Caltha palustris L.	Ranunculaceae	940095	1525	Bagh	Shahzad Iqbal and Ayaz	19-06-1978
Cotoneaster microphyllus Wall.	Rosaceae	100705	1113	Bagh AJK	Shahzad and Ayaz	14-06-1978
Fragaria nubicola Lindl. ex Lacaita	Rosaceae	69224	1293	Besan AJK	Shahzad and Ayaz	04-10-1977
Potentilla nepalensis Hook.	Rosaceae	120244	105	Bagh	Bashir and Dilawar	05-09-1999
Rosa macrophylla Lindley	Rosaceae	100731	1434	Sudan Gali	Shahzad Iqbal, Ayaz and Farooq	19-06-1978
Rubus fruiticosus Hook.	Rosaceae	85691	5201	Bagh	Shahzad and W. Rehman	29-04-1978
Berginia ciliata Haw.	Saxifragaceae	92243	1065	S. Gali	Shahzad Iqbal and Nisar	30-05-1978
Urtica dioica L.	Urticacae	68223	912	Bagh	Shahad and Ayaz	29-09-1977
Viola odorata L.	Violaceae	114924	319	Bagh AJK	Bashir Ahmad and Naveed	24-04-1979

Asteraceae
Name: *Achillea millefolium* L.
Vern: Sultani Booti
Flowering period: July-Sept.
Uses: The flower is laxative, diuretic, stimulant, tonic to the brain and female organs of generation. The herb is most useful in cold and commencement of fever and purifies blood. Fresh leaves decoction is regarded as a family specific against colds and other ailments, common in childhood.

Name: *Senecio chrysanthemoides* DC.
Vern: Chahl
Flowering period: Aug-Sept.
Uses: Aqueous extracts used as antipyretic and calmative. Its root extract is given to children against cholera and lungs diseases.

Name: *Saussurea lappa* (Falc.) Lipsch.
Vern: Kutth
Flowering period: June-July
Uses: It is among the most medicinal specie in this area. Due to this reason it is subjected to illegal uprooting greatly. The root contains essential oil, alkaloid (saussurine), and small quantities of tannins, inulin, potassium nitrate and sugars etc. The oil shows antiseptic and disinfectant properties. It is cardiac stimulant, carminative, expectorant and diuretic. The alkaloid has a remarkable effect in controlling attacks of bronchial asthma.

Name: *Tagetes minuta* L.
Vern: Gainda
Flowering period: June-Aug.
Uses: The flowers are useful in fevers and epileptic fits. The leaves are good for piles, kidney troubles, muscular pain, their juice is used for earache and ophthalmia.

Name: *Tussilago farfara* L.
Vern: Watpan
Flowering period: Mar-May
Uses: The root and leaves are used in chronic bronchitis, asthma, chest complaints and inflammations. The leaves are smoked like tobacco, as a domestic remedy for asthma.

Balsaminaceae
Name: *Impatiens edgeworthii* Hook.
Vern: Buntil
Flowering period: July-Sept.
Uses: The plant is used internally for gonorrhea and externally for burns.

Name: *Impatiens glandulifera* Royle
Vern: Buntil
Flowering period: July-Oct.
Uses: The flower is cooling and tonic. The peoples apply the leaves on burn places. Plant is also used as for pains in joints. When it is eaten it acts as an emetic, cathartic and diuretic.

Berberidaceae
Name: *Berberis lycium* Royle
Vern: Sumblu
Flowering period: Apr.-June
Uses: Root bitter with unpleasant taste, used in spleenic trouble, tonic, intestinal astringent, good for cough, chest and throat trouble and a good application to boils.

Buxaceae
Name: *Sarcococca saligna* (D.Don) Muell
Vern: Bansathra
Flowering period: Sept.-Mar.
Uses: Local peoples use the dried branches of the plant in the roof as suthra. Aqueous extract is used as antipyretic and calmative.

Caprifoliaceae
Name: *Viburnum cotinifolium* D.Don
Vern: Guch
Flowering period: Oct-Apr.
Uses: Fruit is considered to be laxative and blood purifiers. Leaves extract is applied in menorrhagia.

Gentianaceae
Name: *Gentiana decumbens* Wall.
Vern: Neeli Booti
Flowering period: Sept.-Oct.
Uses: A tincture of this plant has been prepared for stomachic.

Name: *Gentiana kurroo* Royle
Vern: Pashanbhed
Flowering period: Aug-Oct.
Uses: The plant has a bitter bad taste. Plant decoction is used as blood tonic, used as misala for fattening horses.

Name: *Swertia petiolata* D.Don
Vern: Chirayetta
Flowering period: July-Aug.
Uses: The plant is bitter; cooling, anthelmintic, antipyretic, antiperiodic, laxative, cures leucoderma, inflammations, pain in the body, urinary discharges, ulcers, asthma, bronchitis, leucorrhoea, piles, bad taste in the mouth, good for vomiting in pregnancy.

Geraniaceae
Name: *Geranium wallichianum* D.Don ex Sweet
Vern: Rattenjot
Flowering period: July-Sept.
Uses: Floral parts and leaves extract is used for vision problem and blood purification. Root powder is also used for jaundice, kidney and spleen problems.

Lamiaceae
Name: *Mentha longifolia* (L.) Hudsun
Vern: Breena
Flowering period: Mar-May
Uses: Herbal tea is taken in abdominal disorder. It is also used as carminative in diarrhea and dysentery.

Name: *Nepeta laevigata* (D. Don) Hand. -Mazz.
Vern: Muskbal
Flowering period: July-Oct.
Uses: The seeds of the plant are infused in cold water and are used in dysentery.

Name: *Prunella vulgaris* L.
Vern: Ustukhdoos
Flowering period: Jun-Sept.
Uses: The seeds are antipyretic, laxative, tonic, and diuretic, useful in inflammation, diseases of heart, difficult breathing, weakness of eyesight due to over age. Used by tribes as expectorant and antispasmodic. The plant is used for fever and cough.

Name: *Thymus serpyllum* L.
Flowering period: May-Aug.
Uses: It is also considered as major medicinal specie of this region. The plant has a sharp pleasant taste, the leaves are laxative used in stomachic, a good tonic for the kidney and eye diseases, useful in bronchitis and purify the blood. The oil is a remedy in toothache. The herb is given in weak vision, complaints of liver and stomach, suppression of urine and menstruation

Plantaginaceae
Name: *Plantago lanceolata* Linn.
Vern: Ispagool
Flowering period: July-Sept.
Uses: The leaves are used as an application to wound inflamed surfaces and sores. The seeds are used with sugar as a drastic purgative. The leaves are considered as astringent and useful for healing sores when applied to throat.

Name: *Plantago major* L.
Vern: Ispagool
Flowering period: Aug-Sept.
Uses: The plant is useful in rheumatism and griping pain of bowels. The leaves and roots are astringent and used in fevers. The seeds are used in dysentery. Seeds are considered stimulant, warm tonic and efficient remedy in dysentery. Fresh leaves are rubbed on the parts of body, stung by insects.

Polygonaceae
Name: *Aconogoum alpinum* Schur.
Vern: Masloon

Flowering period: June-Sept.
Uses: The seeds are used as emetic and purgative. The infusion has been found to be very effective in diarrhoea and children summer complaints. Sherbat is prepared for fever and menstruation from floral parts.

Name: *Bistorta amplexicaulis* (D.Don) Greene
Vern: Masloon
Flowering period: June-Sept.
Uses: The plant is used for making tea which is very effective in flue, fever and joints pain.

Ranunculaceae
Name: *Caltha palustris* L.
Flowering period: May-July
Uses: The root is considered poisonous. The young buds are pickled.

Rosaceae
Name: *Cotoneaster microphyllus* Wall.
Vern: Luni
Flowering period: May-July
Uses: The stolons are used as an astringent.

Name: *Fragaria nubicola* Lindl. ex Lacaita
Vern: Budmewa
Flowering period: Apr-June
Uses: The fruit is edible, laxative and purgative.

Name: *Potentilla nepalensis* Hook.
Vern: Rattenjot
Flowering period: July-Sept.
Uses: The root is considered depurative and is used externally in the form of ashes being applied with oil to burns.

Name: *Rosa macrophylla* Lindley
Vern: Jangli Gulab
Flowering period: June-July
Uses: Flowers used for fragrance. It is also used in fencing and as hedges. Also used as fuel.

Name: *Rubus fruiticosus* Hook.
Vern: Akhray
Flowering period: Apr-June
Uses: An infusion of leaves is taken to stay diarrhea and for some bleedings. Decoction of root or bark are remedies for released bowls and dysentery. The decoction of root is also useful against whooping cough in its spasmodic stage. Black berries fames and wine are taken for sore throat.

Saxifragaceae
Name: *Berginia ciliata* Haw.
Vern: Patherchut
Flowering period: Apr-Jun.
Uses: The root is bitter and acrid; cooling, laxative, analgesic, piles, vesicular calculi, heart diseases, spleenic enlargement, ulcers, diseases of bladder, dysentery and diseases of lungs. The is used as a tonic in fever, diarrhoea and cough and also as an antiscorbutic. Leaves juice is used for earache.

Urticaceae
Name: *Urtica dioica* L.
Vern: Kayyari
Flowering period: Aug-Sept.
Uses: It can cause allergy. Leaves when comes in contact with any body part, cause severe irritation and itching swelling of skin which can be soothed by rubbing the leaves of *Rumex nepalensis*.

Violaceae
Name: *Viola odorata* L.
Vern: Banafsha
Flowering period: Mar-July
Uses: Plant is bitter and pungent, cures malarial fever, bronchitis, asthma. The root is purgative, tonic, expectorant and diuretic. The oil remove the abdominal pain, cough, acts as hypotonic and sedative to the brain.

Discussion

Ethnobotany is perhaps most important method to study natural resources and their management by indigenous people. It enables us to work with local people to explore knowledge based on experiences of ages. Unfortunately, there is no provision and / or law for the protection of knowledge rights of native people. Very little action has been taken by legal professional environmental, non-governmental or even human rights groups to secure intellectual property rights (IPR) for native people (Martin, 1995).

Herbal medicine even today plays an important role in rural areas and various locally produce drugs are still being used as household remedies for various diseases specially in these areas for different ailments (Qureshi & Ghufran, 2005). The present study provides information about some therapeutic uses of 33 Angiosperms plant species belonging to 29 genera and 17 families. The plants are either use singly (mufrad) or in combination (murakkab) with some other plant parts. Some plant species are claimed to be quite effective remedies for cutaneous affections of the head, snake bite, diarrhea, malaria, cough and cold, and stomach troubles. Since the uses are based on empirical knowledge, the scientific studies of all these herbal drugs are highly desirable to establish their efficacy for safe use.

It is found that some shrubs of medicinal value are difficult to maintain like *Berberis lycium* but have their potential uses therefore they are recommended for sustainable harvest, prevention for being used as fire wood and foe fencing. This can only be done by proper training and involvement of local communities in the conservation practices (Aumeeruddy, 1996).

Interesting record of phenological studies were obtained which shows that 73% of the plant species flowered from the month of March to July in the spring or monsoon season whereas only 27% plant species flowered from the month of August onward or in winter season. It was due to high amount of rainfall, high moisturization, moderate temperature, comparatively less biotic pressure, low degree of grazing and trampling during spring season. Whereas high degree of grazing and trampling was noticed in the months from August-October, which greatly effects the species diversity and number of plants in flowering at that time.

The survey indicates for the achievement of well established protection of global biodiversity, local people of every community are compulsory to involve in the activity. Many of the important medicinal species are facing the danger of extinction in the area e.g., *Saussurea lappa* is an extremely endangered species because of its high medicinal value. Similarly the number of individuals of *Thymus serpyllum* is decreasing at an alarming rate. It is the need of the hour to focus immediate attention for the plant conservation from the government and NGO's with the help of local peoples by creating awareness in them. Rapid urbanization and unplanned exploitation have resulted in loss of such medicinally important species. It is, therefore, imperative to find ways to encourage practices while promoting conservation. There is need of co-ordination and co-operation among various agencies such as forest, and the pharmaceutical firm interested in the utilization of these medicinal plants and to initiate regeneration work in effected areas. By doing so we can change the economic and social conditions of the local inhabitants positively.

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