

Regular Article

Common medicinal plants available at Joginder Nagar, District Mandi (H.P.), India

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Present study has been conducted at tehsil Joginder Nagar, District Mandi of Himachal Pradesh. During the course of study, regular field trips were arranged in different parts of the study areas. About 50 plant species of 37 families and 48 genera belonging to three different taxonomic groups i. e angiosperms, gymnosperms and pteridophytes were collected. Out of these 37 families, 35 families belong to angiosperms (31 families belong to Dicotyledons and 04 belong to Monocotyledons), 01 gymnosperms and 01 pteridophytes. All plant specimens were preserved in the form of herbarium after drying in the folds of blotting sheets. Plants were enumerated along with their Botanical, Family and Local name. All plants were compared with the existing literature for their medicinal value. Local name of the collected plant specimens were recorded by interview and discussion with the local people.

Keywords: Joginder Nagar, Climatic conditions, Medicine, Medicinally important diversity.

Introduction

Herbal raw material and its formulations have been used since long for primary health care in developing countries. Demand of Ayurvedic medicines mainly based on plants, has increased due to side effects of allopathic drugs in developing as well as developed countries. Market of the herbal raw material is growing continuously. The current market potential of herbal medicine is estimated about \$ 8–250 billion in Europe and USA. The Northern Western Himalaya is a reservoir of floral diversity due to variable climatic conditions and large percentage of crude drugs in market come from this region. Himachal Pradesh is one of hilly state of India with altitude ranging from 350 to 7000 meters and located in the Western Himalaya region between 30° 22' N to 33° 12' N and 75° 45' E to 79° 04' E, extends over an area of about 55,673 Km². About 13082 Km² areas are covered by different types of forest (Kumar, 2014a-o; Meena et. al, 2009; Rawat et. al, 2013).

Tehsil Joginder Nagar lies between 31° 50' N and 76° 45' E in Mandi district of Himachal Pradesh. Area of tehsil Joginder Nagar lies between lower and Mid Himalaya at 900 to 2800 meters above sea level. Haulage way trolley goes from Shanan Power House to Winch Camp (highest hill of tehsil Joginder Nagar) and then descends down to Barot (where main water reservoirs on Uhl River have been made for Shanan power house and Bassi power House). It is the repository of floral diversity due to variable environmental conditions. Due to increased demand and various other factors, many valuable species are under threat and some are at the

edge of extinction. About 1000 plant species are under threat in different geographical regions of the country. Various studies have been carried out on floristic and medicinally important diversity of Himachal Pradesh including tehsil Joginder Nagar (Atkinson (1882); Collett (1902); Hooker (1872-1897); Kumar, 2014a-o; Murugeswaran et. al, 2014), but many biodiversity rich areas are still unexplored. Keeping in view the importance of floral and medicinally important diversity, the present study has been undertaken to assess and document the important information.

Material and Methods

The field surveys were conducted during May 2012 to April 2013 in different areas of Tehsil Joginder Nagar. The plant specimens collected during field visits were identified and preserved in the form of herbarium after drying in the folds of blotting sheets. The herbarium was prepared after treating the collected plant specimens with 2% mercuric chloride solution to provide protection against insects and fungal attack. The collected specimens were identified with the help of the various flora and books (Sood et. al, 2009; Collett, 1902; Ambasta, et.al, 1986; Prajapati et. al., 2003; and Kirtikar and Basu, 1935) and carefully matched with the specimens housed at the herbarium of Botanical Survey of India, Dehradun. All the plant specimens were arranged alphabetically and enumerated along with their Botanical, Family and Local name. All plants were compared with the existing literature for their medicinal value. Local name of the collected plant specimens were recorded by interview and discussion with the local people.

Results

During the course of study, 50 plant species of 48 genera and 37 families belonging to three different taxonomic groups i.e. angiosperms, gymnosperms and pteridophytes, were collected from the different areas of tehsil Joginder Nagar (Table. 1). Out of these 37 families, 35 families belong to angiosperms [31 families belong to Dicotyledons (42 genera and 44 species) [83. 78 %] and 04 belong to Monocotyledons (4 genera and 4 species) [10.81 %]]. Among these families the predominant families are Euphorbiaceae and Rutaceae with 4 species each; Rosaceae with 3 species; Apocynaceae, Asteraceae, Lamiaceae, Papilionaceae and Solanaceae with 2 species each; and remaining 29 families represented by single species only [Fig. 1]. It is analyzed from the survey record that maximum plant species were collected in the month of March and April (7+5 =12) i.e. 24%; July and August (13 + 4 = 17) i.e 34%. Survey record reveals that maximum floral diversity found in the month of March and April (spring season) and June and July (monsoon). All collected plant species were compared with the existing literature for their medicinal value and it is found that all plants have medicinal values.

Discussion

During the field visit, plant samples were collected at flowering and fruiting season to ease the identification and arranged according to Bentham and Hooker (1862-1883) system of classification. The Northern Western Himalaya is a reservoir of floral diversity due to variable climatic conditions. Floral diversity is one of the major resources that fulfill the basic needs of the rural population. Plants have been used since long to heal and cure diseases. Medicinal plants are available in the wild habitat. Demand of herbal medicines and timber has increased in the developing countries. Consequently, many plant species are under threat and some are at the verge of extinction. Keeping in view of importance and increased demand of herbal medicine in the world, the study has been undertaken (Kumar, 2014a-o; Murugeswaran et. al, 2014).

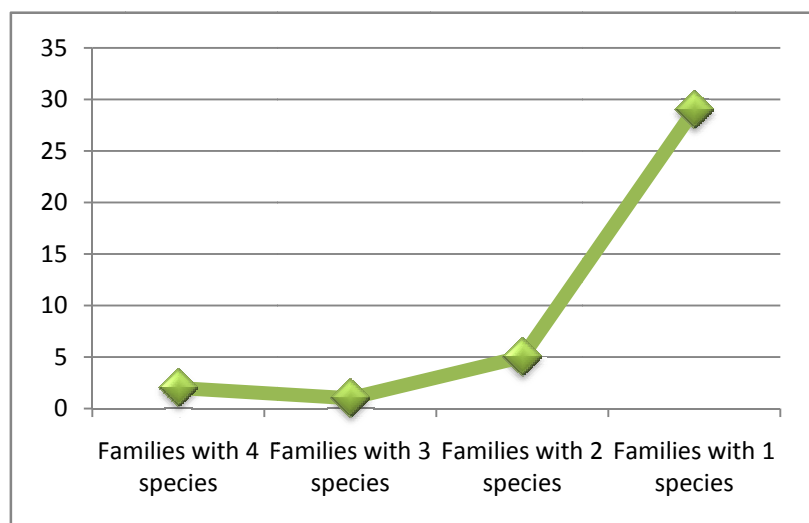


Figure 1. Distribution of families based on number of species.

Table 1. List of plants with their uses, available at tehsil Joginder Nagar, District Mandi

S. No.	Botanical Name (Family)	Local Name	Month of collection	Part used	Uses
1	<i>Adiantum capillus-veneris</i> Linn. (Adiantaceae)	Hansraj or Hanspadi	July	Aerial parts and fronds	Expectorant, tonic and chronic nasal catarrh (Ambasta, 1986; Chatterjee and Pakrashi, 1991; Prajapati et al., 2003).
2	<i>Albizia stipulata</i> Boiv. (Fabaceae; Mimosaceae)	Oyee	May	Fruits, leaves, bark and stem	2-4 gm mixture of bark powder of oyee (250gm) +Mulathi (25gm) is used to restore the normal function of the liver and also have oxytocic properties. (Anonymous, 1985; Sood, et al., 2009).
3	<i>Anagallis arvensis</i> Linn. (Primulaceae)	Krishan-nili, Jonkmari	March	Aerial parts	Expectorant, dropsy, anti-leprosy, stimulant and diaphoretic (Ambasta, 1986; Prajapati et al., 2003).
4	<i>Bergenia ciliata</i> Sternb. (Saxifragaceae)	Patharchat, Pashanbed	March	Rhizomes	Laxative, used in spleen enlargement, urinary calculi, renal and pulmonary affections and dysuria (Ambasta, 1986; Sharma, 1978).
5	<i>Bombax ceiba</i> Linn. (Bombacaceae)	Semal, Simbal	February	Root, gum, bark, leaves, flowers, young fruits and seeds	Skin diseases, ulceration of bladder and kidney, dysentery and impotency (Ambasta, 1986; Anonymous, 2002; Chatterjee and Pakrashi, 1994; Prajapati et al., 2003; Sharma, 1978; Sood, et al., 2009).
6	<i>Canna indica</i> Linn. (Cannaceae)	Aeran, Hardarshan, Sudarshan	July	Flowers, leaves and root	Diaphoretic, diuretic, dropsy, febrifuge, demulcent and useful in eye diseases (Ambasta, 1986; Chatterjee and Pakrashi, 2001; Pandey, 1992; Sood, et al., 2009).
7	<i>Capsicum annuum</i> Linn. (Solanaceae)	Lal Mirch	July	Fruits	Anti-diarrhoeal, stimulant, carminative, useful in atonic dyspepsia (Chatterjee and Pakrashi, 1995;

					Prajapati et al., 2003; Sharma, 1978).
8	<i>Catharanthus roseus</i> G. Don (Apocynaceae)	Sadabahar	August	Whole plant, flowers, leaves and root	Anti-leukemic, anti-cancerous, anti-diabetic, hypotensive and have tranquillizing properties (Ambasta, 1986; Chatterjee and Pakrashi, 1995; Prajapati et al., 2003; Sood, et al., 2009).
9	<i>Chenopodium ambrosioides</i> Linn. (Chenopodiaceae)	Banbathu, Sugandhvastuk	July	Whole plant and flowers	Anthelmintic, anti-spasmodic and as a wash for haemorrhoid (Ambasta, 1986; Chatterjee and Pakrashi, 1991; Prajapati et al., 2003).
10	<i>Citrus jhambiri</i> Lush. (Rutaceae)	Jhambirdi, Jhamirdi	March	Fruits and rind	Anti-emetic, arthritis and for digestive disorders (Anonymous, 1993; Sood, et al., 2009).
11	<i>Citrus reticulata</i> Blanco (Rutaceae)	Santara	November	Flowers, fruits and rind	Anti-emetic, blood purifier, anti-spasmodic, anthelmintic, tonic and anti-rheumatic (Ambasta, 1986; Chatterjee and Pakrashi, 1994; Prajapati et al., 1978; Sood, et al., 2009).
12	<i>Cuscuta reflexa</i> Roxb. (Cuscutaceae ; Convolvulaceae)	Akashbel, Amarbel	November	Whole plant, stem, fruits and seeds	Purgative, liver complaints, tonic, demulcent and blood purifier (Ambasta, 1986; Chatterjee and Pakrashi, 1995; Prajapati et al., 2003; Sood, et al., 2009).
13	<i>Datura suaveolens</i> Humb. & Bonpl. ex Willd. (Solanaceae)	Dhatura	November	Flowers, seeds and roots	Febrifuge and seed intoxicating (Sood, et al., 2009).
14	<i>Duranta repens</i> Linn. (Verbenaceae)	Neel Kanta	December	Flowers, leaves and aerial parts	Insecticidal, in Chinese system of medicine, fruits are used for malaria and leaves for abscess (Anonymous, 2006; Sood et al., 2009).
15	<i>Euphorbia helioscopia</i> Linn. (Euphorbiaceae)	Dudhli, Dudhi	April	Root, seeds, latex and juice	Anthelmintic, cholera, rheumatism, and to remove warts (Ambasta, 1986).
16	<i>Euphorbia thymifolia</i> Linn. (Euphorbiaceae)	Choti-Dudhi	July	Whole plant, seeds, leaves and root	Laxative, ringworm, anti-asthmatic, leprosy, bleeding piles, vermifuge, and cardiac debility (Ambasta, 1986; Anonymous, 2002; Chatterjee and Pakrashi, 1994; Prajapati et al., 2003; Sharma, 1978).
17	<i>Ficus religiosa</i> Linn. (Moraceae)	Pipal, Peepal	July	Stem-bark, fruits, apical bud, latex, root, leaves and seeds	Gonorrhoea, dysentery, aphrodisiac, skin diseases, laxative, haemorrhages and urinary complaints (Anonymous, 2001a; Chatterjee and Pakrashi, 1991; Prajapati et al., 2003; Sharma, 1978; Sood et al., 2009).
18	<i>Flemingia macrophylla</i> (Willd.) Kuntze ex Prain (Fabaceae)	Jungli-Chana	August	Twigs, root and pods	Ulcer, swelling, fistula, skin diseases, small pox and anthelmintic (Ambasta, 1986; Anonymous, 2006; Sood et al., 2009).
19	<i>Holarrhena antidysenterica</i> (Linn.) Wall. (Apocynaceae)	Keor, Kurchi	June	Stem-bark, leaves, seeds and root	Anti-dysenteric, febrifuge, tonic, liver complaints, asthma and spermatorrhoea (Ambasta, 1986; Anonymous, 2001; Chatterjee and Pakrashi, 1995; Prajapati et al., 2003; Sharma, 1978).

20	<i>Impatiens balsamina</i> Linn. (Balsaminaceae)	Taur, Tayur	July	Whole plant and flowers	Diuretic, emetic, laxative, improves circulation, relieve stasis, tonic and used for pain in joints (Ambasta, 1986; Chatterjee and Pakrashi, 1994; Prajapati et al., 2003).
21	<i>Ipomoea quamoclit</i> Linn. (Convolvulaceae)	Nagar-bel	September	Whole plant, leaves, root and flowers	Refrigerant, haemorrhoids, demulcent, sternutatory, bleeding piles (Ambasta, 1986; Chatterjee and Pakrashi, 1995; Prajapati et al., 2003).
22	<i>Jasminum multiflorum</i> (Burm. f.) Andr. (Oleaceae)	Chameli	January	Whole plant, leaves, flowers and root	Gastric stimulant, digestive, emmenagogue, indolent ulcers and promote hair growth (Ambasta, 1986; Chatterjee and Pakrashi, 1995; Prajapati et al., 2003; Sood, et al., 2009).
23	<i>Leptodermis lanceolata</i> Wall. (Rubiaceae)	Padari	October	Leaves and seeds	Diarrhoea, boils, blisters in mouth and throat (Ambasta, 1986; Sood, et.al., 2009).
24	<i>Linum usitatissimum</i> Linn. (Linaceae)	Alsi	June	Seeds, flowers, leaves, bark and oil	Cardiotonic, laxative, gonorrhoea, gout and rheumatic swellings, used in bronchitis and cough (Chatterjee and Pakrashi, 1994; Khare, 1992; Prajapati et al., 2003).
25	<i>Lonicera japonica</i> Thunb. (Caprifoliaceae)	Lushai	July	Whole plant	Antipyretic, stomachic, dysentery, diuretic and abortifacient (Ambasta, 1986; Anonymous, 2003; Anonymous, 2007; Prajapati et al., 2003; Sood, et al., 2009).
26	<i>Malvastrum coromandelianum</i> (L.) Garcke (Malvaceae)	Kharenti	July	Whole plant and flowers	Dysentery, diaphoretic and emollient (Ambasta, 1986).
27	<i>Melia azedarach</i> Linn. (Meliaceae)	Drek	April	Root, wood, stem-bark, leaves, flowers, seeds and gum	Antiseptic, emmenagogue, skin diseases, piles, spleen enlargement, bitter and tonic (Ambasta, 1986; Anonymous, 2001; Chatterjee and Pakrashi, 1994; Sharma, 1978; Sood et al., 2009).
28	<i>Monstera deliciosa</i> Liebm. (Araceae)	Jahrili bael	August	Fruits	Sometime cause allergy or anaphylaxis, arthritis and snakebite (Ambasta, 1986; Wiart, 2012).
29	<i>Murraya koenigii</i> (Linn.) Spreng. (Rutaceae)	Gandla, Kadi-Patta	April	Whole plant, leaves, root-bark, seeds, and fruits	Anti-emetic, tonic, stomachic, anti-diarrhoeal, relieves renal pain and febrifuge (Ambasta, 1986; Chatterjee and Pakrashi, 1994; Prajapati et al., 2003; Sood et al., 2009).
30	<i>Myrica esculenta</i> Buch. - Ham. (Myricaceae)	Kaphal	April	Fruits, bark and leaves	Carminative, antiseptic, sinusitis, tonic, useful in asthma, fever and cough (Ambasta, 1986; Chatterjee and Pakrashi, 1991; Sood et al., 2009).
31	<i>Ocimum americanum</i> Linn. (Lamiaceae)	Kali-tulsi	June	Leaves and seeds	Expectorant, cardio-tonic, diuretic, febrifuge, digestive and carminative (Ambasta, 1986; Prajapati et al., 2003).
32	<i>Osyris arborea</i> Wall. (Santalaceae)	Banchai	July	Stem-bark and leaves	Emetic and dislocated bone (Ambasta, 1986; Sood, et al., 2009).
33	<i>Parthenium hysterophorus</i> Linn. (Asteraceae)	Phulnoo	July	Whole plant and root	Emmenagogue, tonic, febrifuge, analgesic and dysentery (Ambasta, 1986; Chatterjee and Pakrashi, 1997).

34	<i>Phyllanthus urinaria</i> Linn. (Euphorbiaceae)	Bhumi-amla, Bumi-amla	August	Whole plant, leaves and seeds	Appetizer, jaundice, dropsy, diuretic and gonorrhea (Ambasta, 1986; Chatterjee and Pakrashi, 1994; Prajapati et al., 2003; Sharma, 1978).
35	<i>Pisum sativum</i> Linn. (Fabaceae)	Matar	March	Seeds	Appetizer, expectorant, anti-fertile in male and female (reduces number of spermatozoa and pregnancy rate). [Ambasta, 1986; Chatterjee and Pakrashi, 1992].
36	<i>Plantago major</i> Linn. (Plantaginaceae)	Isfghol	September	Whole plant, leaves, root and seeds	Haemostatic, febrifuge, diarrhoea, piles, eye wash, dysentery and demulcent (Ambasta, 1986; Chatterjee and Pakrashi, 1997; Prajapati et al., 2003).
37	<i>Pogostemon benghalensis</i> Kuntze (Lamiaceae)	Kali-basuti	March	Roots	Febrifuge, anti-haemorrhagic, stimulant, cuts, boils and diarrhea (Ambasta, 1986; Sood et al., 2009).
38	<i>Prinsepia utilis</i> Royle (Rosaceae)	Bhekal	January	Whole plant, root, stem, branches, seeds and fruits	Rubefacient, tonic, rheumatism and pain due to fatigue (Ambasta, 1986; Sood et al., 2009).
39	<i>Prunus persica</i> Betsch (Rosaceae)	Aru, Adu	June	Leaves, fruits, gum, seed-oil and seeds	Whooping cough, abortifacient, anthelmintic, diuretic, purgative and eczema (Ambasta, 1986; Prajapati et al., 2003; Sood et al., 2009).
40	<i>Pyrus pashia</i> Buch.-Ham. ex D. Don (Rosaceae)	Kainth, Shegal	September	Leaves, twigs, fruits and wood	Mouth infection & eye complaints (Ambasta, 1986; Sood et al., 2009).
41	<i>Saccharum officinarum</i> Linn. (Poaceae)	Ganna	March	Stem and root	Jaundice, antiseptic, aphrodisiac, diuretic, laxative and refrigerant (Ambasta, 1986; Chatterjee and Pakrashi, 2001; Prajapati et al., 2003; Sharma, 1978; Sood et al., 2009).
42	<i>Sapium insigne</i> Trimen (Euphorbiaceae)	Balodar	February	Latex and wood.	Milky juice acrid and vesicant, germicide and removing warts (Ambasta, 1986; Anonymous, 2009; Collett, 1902; Kirtikar & Basu, 1935).
43	<i>Sesamum orientale</i> Linn. (Pedaliaceae)	Til	September	Root, leaves, seeds and oil	Diuretic, brain tonic, aphrodisiac, eye complaints, emmenagogue and analgesic (Ambasta, 1986; Anonymous, 2002; Chatterjee and Pakrashi, 1997; Sharma, 1978).
44	<i>Stephania elegans</i> Hook. f. & Thoms. (Menispermaceae)	Dhartu-bel	July	Aerial parts and leaves	For treatment of general debility (Sood, et al., 2009).
45	<i>Tagetes patula</i> Linn. (Asteraceae)	Gatakdi	October	Flowers, seeds, root and oil	Purgative, carminative, useful for cuts & wounds, jaundice and rheumatism (Ambasta, 1986; Anonymous, 2008).
46	<i>Thuja orientalis</i> Linn. (Cupressaceae)	Sarua, Morpankh	October	Leaves and seeds	Diuretic, anti-pyretic, tonic, anti-fungal, psychoactive, anti-bacterial and anti-asthmatic (Ambasta, 1986; Prajapati et al., 2003; Sood et al., 2009).
47	<i>Trichosanthes tricuspidata</i> Lour. (Cucurbitaceae)	Bimbel	October	Fruits, root, seeds and bark	Abortifacient, anti-diarrhoeal, verminifuge, anti-asthmatic, anti-epileptic, anti-leprotic (Ambasta,

					1986; Chatterjee and Pakrashi, 1997; Prajapati et.al., 2003; Sood, et.al., 2009).
48	<i>Vitis vinifera</i> Linn. (Vitaceae)	Angur	April	Ripe fruit (dried), leaves, stem, flowers, and young branch	Laxative, stomachic, diuretic, tonic, skin diseases and emmenagogue (Ambasta, 1986; Anonymous, 2002; Chatterjee and Pakrashi, 1994; Prajapati et al., 2003; Sharma, 1978).
49	<i>Zanthoxylum armatum</i> DC. (Rutaceae)	Tirmir, Tambar	July	Fruits, seeds, bark, stem, root & thorns	Toothache, tonic, stomachic, antiseptic, cholera, scabies and dyspepsia (Ambasta, 1986; Chatterjee and Pakrashi, 1994; Prajapati et.al., 2003; Sharma, 1978; Sood, et.al., 2009).
50	<i>Zephyranthes candida</i> Herb.(Amaryllidaceae)	Lily, Kamal Phool	March	Leaves	Hypoglycemic in diabetes (Ambasta, 1986).

Conclusion

The aim of present study is to provide information about the medicinally important floral diversity of Tehsil Joginder Nagar. During the course of study period, 50 plant species of 48 genera and belong to 37 families were recorded. Northern Western Himalaya is a reservoir of medicinally important floral diversity. Demand of Ayurvedic medicines mainly based on plants, has increased due to side effects of allopathic drugs in developing as well as developed countries. Market of the herbal raw material is growing continuously. The current market potential of herbal medicine is estimated about \$ 8–250 billion in Europe and USA. Due to increased demand for pharmaceutical industries and various other factors, many important plant species are under threat and even some are at the edge of extinction (Kumar, 2014a-o; Meena et al., 2009; Rawat et al., 2013). The selected study areas show great medicinally important floral diversity. So, there is need to explore and collect the information of medicinally important floristic diversity of unexplored areas to conserve.

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