



**FLORISTIC AND ETHNO BOTANICAL SURVEY OF
AMBALA DISTRICT, HARYANA**

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ABSTRACT

A floristic and ethnobotanical survey was carried out in Ambala district, Haryana, India during 2011 to 2012. Field surveys were conducted during different seasons of the year to collect data about the knowledge and practise of using wild plant species by local people and traditional healers. A total of 101 species were collected during the survey out of which 70 species of ethno botanical importance belonging to 62 genera and 33 families have been recorded. The study shows a high degree of ethno botanical use of plants by local people. The most frequently used plant parts are leaves (30%), whole plant (19%), roots (17%), fruits (12%) etc. They are useful in the treatment of various diseases like fever, cough, rheumatism, asthma, indigestion, piles, stomach pain, wounds, kidney stone, skin diseases, snake and scorpion bite and leukaemia etc.

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INTRODUCTION

Human being is dependent on plants for its survival since his existence on earth. Plants fulfil all our requirements in the form of food, fodder, fuel, medicine, timber and resins etc¹. In addition, several wild plants are also used as medicine by local people living in and around the forest area. Traditional medicines based on herbal remedies have always play a key role in the health system of our country. According to WHO about 80% of the world's population of most developing countries relies on herbal medicines for their primary healthcare needs. These herbal medicines can provide some clues for the development of drugs to treat human diseases². Of the 17500 species of flowering plants found in India, about 17% are considered to be of medicinal value³⁻⁷. In India, villages comprise 15% of the total geographical area of Indian landmasses, representing one of the greatest emporia of ethnobotanical wealth⁸. The knowledge of wild plants as medicines is found in ancient Vedic literature, particularly in Rigveda, Charak Samhita and Shusruta Samhita. Lots of information about ethnobotanical data has been collected from the different parts of India⁹⁻¹⁴. But not much information is available about the ethnobotanical data of Ambala district. With the increasing rate of deforestation and the concurrent loss of floristic diversity, there is a need for accurate documentation of the knowledge and experience of the traditional herbalists. In order to gather knowledge of natural resources for their scientific and

economic exploitation for various uses, the botanical information at micro level need special attention and thus requires afresh survey to be conducted to know the floristic richness and ethnobotanical practices prevalent in various parts of India. Keeping in view this, the survey of Ambala district has been conducted to record the plant of medicinal importance used by the local populations.

MATERIALS AND METHODS

A) Study Area

Ambala district (30°21'45"N and 76°48'54"E) lies on the north-eastern edge of state Haryana (India) bordered in South-East by Yamuna Nagar district, in south by Kurukshetra and in west lies Patiala and Ropar district of Punjab (Fig1). The Shivalik Range of Solan and Sirmaur districts of Himachal Pradesh bound the Ambala district in the North and North-East. The height from the sea level is 264 metres. It has an area of 1568.85 sq. kms. The climate of Ambala is very hot in summers and markedly cold in winters. May and June can be really hot with the temperature soaring to over 48°C, while in winter it can be as low as -1°C. Average annual rainfall is 1076 mm, out of which 70% rainfall is received during the month of July to September and the remaining during December to February



Figure 1
Location map of Ambala District

B) Methodology

The surveys were conducted in the different areas of Ambala district during the year 2011 to 2012. Standard methods were adopted for collection of voucher specimens, preservation, and for the collection of ethnobotanical information¹⁵. The information about the folk medicinal uses of plants was collected from traditional healers, vaidhyas, hakims, tribes and older rural people. The information about local name, part used, and its medicinal importance was collected. The plants were identified with the help of available literature. The specimens were deposited in herbarium of Department of Botany, Kurukshetra University Kurukshetra, Haryana (India).

RESULTS AND DISCUSSION

A total of 101 species were recorded during the survey out of which 70 species of medicinal plants belonging to 62 genera and 33 families have been recorded(Fig 2). The most commonly represented families were Amaranthaceae (9 sp.), Asteraceae (7sp.), Poaceae (6 sp.), Solanaceae (5 sp.) etc (Fig 3). The plant parts used widely to treat human and livestock health problems included whole plant, root, leaves, seeds, stems and others. Plants have been arranged alphabetically with

their scientific name, local name, part used and ethnobotanical uses. (Table 1) The commonly used plant parts are leaves (30%), followed by whole plant (19%), roots (17%), fruits (12%) etc(Fig 4). They are useful in the treatment of various diseases like fever, cough, rheumatism, asthma, indigestion, piles, stomach pain, wounds, kidney stone, skin diseases, snake and scorpion bite, leukaemia, impotency, night emission, etc. Plants are also used by local people as a food, fodder, fuel and wood for making furniture and to cure animal diseases. The natural remedies include powder, decoction, paste and juice of plants to cure diseases. Some of them are used in the powder form such as, *Argemone mexicana*, *Chenopodium murale*, *C. album*, *Gnaphalium indicum* etc. Plants used as paste are *Ageratum conyzoides*, *Ziziphus jujuba*, *Fumaria indica*, *Withania somnifera* etc. Used in the form of decoction are *Croton bonapladianum*, *Sonchus oleraceus*, *Ranunculus scleratus* etc. Rapid industrialization and urbanization along with over exploitation may cause loss of this valuable resource. Hence, efforts must be taken to protect these immensely useful species in the study area and other parts of the country

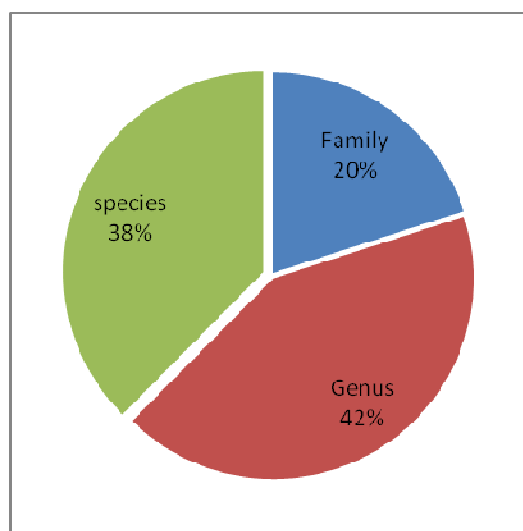


Figure2
Represents No. of species, genera and family of ethnobotanical important plants

Table 1

S. No.	Botanical Name	Family	Local Name	Part(s) Used	Ethnobotanical uses
1.	<i>Abutilon indicum</i> (L.) Sweet	Malvaceae	Kanghi	Leaf	Leaf juice is given in early morning to cure kidney stones.
2.	<i>Achyranthes aspera</i> L.	Amaranthaceae	Kutri	Whole plant	Plant is used in asthma and cough. Crushed plant is boiled in water and useful in pneumonia. Flowering spikes or seeds paste is applied externally over bites of poisonous snakes and reptiles and useful in night blindness. Paste of fresh leaves is used for allaying pain from bite of wasps.
3.	<i>Aegle marmelos</i> Correa ex Roxb.	Rutaceae	Bel	Fruit and leaves	Fruit juice is used as coolant during summer and also beneficial in diarrhoea, constipation and any stomach disorder like indigestion. Inner fleshy pulp is cut into small thin pieces and dried in sunlight, after that dried pieces soaked in water overnight and taken empty stomach for 2-4 weeks in summer. Leaves are offered to worship Lord Shiva.
4.	<i>Albizia procera</i> Benth.	Mimosaceae	Safed siris	Stem and leaves	Leaves are poulticed onto ulcers. Wood is used chiefly for construction, furniture, carts and carriages, cane crushers, carvings, and, of course, fuel.
5.	<i>Alternanthera pungens</i> Kunth	Amaranthaceae	Bhakadi	Whole plant	Decoction of whole plant with neem leaves is used in gonorrhoea.
6.	<i>Alternanthera sessilis</i> (L.) R. Br. ex DC.	Amaranthaceae	Garundi, Bngro	Leaves and fruits	Decoction of the fruits relieves itching and leaves are cooked as vegetable.
7.	<i>Ageratum conyzoides</i> L.	Asteraceae	Khoobi	Roots, leaves	Root extract is used in skin diseases. Leaf paste with rhizome of <i>Zingiber officinale</i> is used to cure snake bites.
8.	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Chaulai	Leaf, stem and roots	Root powder is mixed with lime and then applied on boils to promote maturation of boils. Leaves juice is used in indigestion. Leaves are also given to cattles for easy delivery, a special "Kadda" of leaves os chaulai, metha and gudd boils in water, cooled and given to cattles. Used as a vegetable.
9.	<i>Amaranthus viridis</i> L.	Amaranthaceae	Chaulai	Leaves	Leaves paste are applied on scorpion sting and snake bite. Leaves are used as vegetables.
10.	<i>Anagallis arvensis</i> L.	Primulaceae	Jonkmari	Whole plant	Juice of whole plant is administered orally in mental problems and to treat leprosy. Used as fodder. It is used in treating gouts and also for killing moths.
11.	<i>Argemone mexicana</i> L.	Papaveraceae	Pillibhutti, satyanasi	whole plant	Plant juice is used orally, 2-3 spoons daily for one week to cure jaundice. Tea from dried leaves is used to quit smoking and drug abuse.
12.	<i>Boerhaavia diffusa</i> L.	Nyctaginaceae	Santhi	Root, seeds and leaves.	Root paste is useful in skin diseases like scabies. Leaves are eaten raw to feel energetic.
13.	<i>Calotropis gigantea</i> (L.) R. ex Ait.	Asclepiadaceae	Aak	Leaves and roots	Paste of the root is applied for reducing swelling caused by scorpion sting on cattle. Leaves are dried in shade and smoke in low doses in case of asthma and bronchitis.
14.	<i>Calotropis procera</i> (Ait.) R. Br.	Asclepiadaceae	Akaada	Leaf and root	Ash of root is used to remove pus from gums. Ash of leaves mixed with honey is used to cure asthma and bronchitis.
15.	<i>Cannabis sativa</i> L.	Cannbinaceae	Bhaang	Leaves and seeds	Whole plant is narcotic, sedative, tonic and refrigerant. Leaf juice added with milk and nuts to make "Thandai" a cold drink which produces a pleasant excitement and astringent.
16.	<i>Celastrus paniculatus</i> Willd.	Celastraceae	Malkanghi	Seed and bark	Oil of seed is used for massage in paralysis. Powdered bark is taken with cow milk once a day for a month to cure leucorrhoea.
17.	<i>Centella asiatica</i> (L.) Urb.	Apiaceae	Bhrahmi bhooti	Leaf	Leaves are administered in indigestion and stomach infection. Leaves juice are taken internally for nervous problems and use as a brain tonic.
18.	<i>Chenopodium album</i> L.	Amaranthaceae	Bathu sag	Whole plant	Used as laxative and fodder for cattle. Root is used in jaundice and urinary problems.
19.	<i>Chenopodium murale</i> L.	Amaranthaceae	Bathu	Whole plant	Paste of leaves and stem is applied to relieve backache and joint pains. Powder of dried leaves with gudd is taken during winter to relief from cold and cough and to stop motion in infants. Cooked as

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					vegetable to make "Saag".
20	<i>Coccinia grandis</i> (L.) J. Voigt	Curcubitaceae	Chibaad, kundru	Leaves and fruits	Leaves juice are taken orally for ulcers. Fruits are consumed raw
21	<i>Cocculus hirsutus</i> (L.) Diels	Menispermaceae	Jamti kibel	Leaves	Leaves juice is taken orally to cure leukemia and used in eczema.
22	<i>Commelina benghalensis</i> L.	Commenlinaceae	Kana keerai	Whole plant	Plant juice is given in dysentery and paste is applied on body swelling and ache. Leaves are used as vegetables and as an fodder.
23	<i>Convolvulus arvensis</i> L.	Convolvulaceae	Lehli	Whole plant	Whole plant is used as purgative and useful in abdominal pains. Paste of tender shoots is applied on skin eruptions.
24	<i>Corchorus tridens</i> L.	Tiliaceae	Kadapat	Whole plant	Plant decoction is given thrice a day orally in diarrhoea. Jute bags are prepared.
25	<i>Croton bonapladianum</i> Baill.	Euphorbiaceae	Ban tulsi	Stem and leaves	Young stem juice is used as eye drop in cataract and ring worm. 2-3 drops of stem juice is used twice a day as eye drop. Leaf decoction is used to wash hair to remove dandruff.
26	<i>Coronopus didymus</i> (L.) Sm.	Brassicaceae	Thandi booti	Whole plant	It is used in rheumatism. Plant extract is used for bone disorders. Used as fumigants for insect repellent.
27	<i>Dalbergia sissoo</i> DC.	Leguminosae	Shisham	Stem and leaves	Leaves are used in Gonorrhoea. The wood is used for making furniture and wooden households.
28	<i>Datura fastuosa</i> L.	Solanaceae	Datura	Flower and seeds	Paste of roasted seeds in mustard oil is applied locally in wound.
29	<i>Dichanthium annulatum</i> (Forssk.) Stapf	Poaceae	Wakha, palvan	Shoot	Plant is used as a fodder.
30	<i>Digera muricata</i> (L.) Mart.	Amaranthaceae	Lisva, tartara	Leaves and seeds	Seeds are used to treat urinary discharge. Leaves are used as vegetables.
31	<i>Eclipta alba</i> (L.) Hassk.	Asteraceae	Bhringraj	Flower and leaves	Leaf decoction is put on head to cure headache. Leaf extract is given to cure asthma, cold and for hair clearing and lice.
32	<i>Eleusine indica</i> Gaertn.	Poaceae	Mandla	Whole plant	Whole plant mixed with gugul is useful in dandruff and hair loss. Stems used for making mats, basket, hats etc.
33	<i>Erigeron linifolius</i> Willd.	Asteraceae	Balagum	Stem and seeds	Seed is aromatic and insect repellent.
34	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Dudhi	Whole plant	Plant is used in bronchial infection and asthma. Latex is applied on warts. Whole plant along with <i>Phyllanthus niruri</i> is crushed and the juice is used in spermatorrhoea.
35	<i>Evolvulus nummularis</i> (L.) L.	Convolvulaceae	Harjhad	Whole plant	Herb is tied to the legs to reduce edema of legs during pregnancy.
36	<i>Fumaria indica</i> (Hausskn.) Pugsley	Fumariaceae	Shahtra papra	Whole plant	Shoots are used in diarrhoea and as an cooling agent. Fresh plant juice along with black pepper is given orally for blood purification.
37	<i>Gnaphalium indicum</i> L.	Asteraceae	Godi, raksha	Whole plant	Plant is crushed along with dried fish and applied as poultice to heal fractured bones. It has to be kept for 3-4 days frequently wetting it with water.
38	<i>Gomphrena celosides</i> Mart.	Amaranthaceae	Kasia	Whole plant	Whole plant juice along with 4 Piper nigrum with small amount of Heeng and lemon juice is taken twice a day to cure Urolithiasis for 10 days.
39	<i>Imperata cylindrica</i> (L.) Beauv.	Poaceae	Sawraun	Root	Root is used as an tonic.
40	<i>Ipomoea quamoclit</i> L.	Convolvulaceae	kamal lat	whole plant	Grown as an ornamental plant in the gardens.
41	<i>Lantana camara</i> L.	Verbenaceae	Ragadd	Flower, stem and root	Stems are used as fuel and for making wooden sitters. Decoction of roots, flower and stem are used as antidote to snakebite.
42	<i>Launaea aspleniifolia</i> Hook. f.	Asteraceae	Dudhliya	Roots	Root juice is given to infants in diarrhoea.
43	<i>Malva parviflora</i> L.	Malvaceae	Sonkal, gobi sag	Whole plant	Plant decoction is used in cough, flu and fever.
44	<i>Melilotus indica</i> All.	Leguminosae	Jungli methi or barseem	Leaf	It is used as a fodder for animals.
45	<i>Morus alba</i> L.	Moraceae	Shattut, tunt	Fruits, roots and leaves	Fruits are eaten raw as a food and are laxative, emollient used for cleaning throat.
46	<i>Nicotiana plumbagingiolia</i> Viv.	Solanaceae	Ban tamakec	Root	Paste of root is mixed with black pepper and cumin seeds (3:2:1) and taken empty stomach to cure piles.
47	<i>Opuntia elatior</i> Mill.	Cactaceae	Naag phani	Stem	Pulp of stem mixed with garlic is applied on swellings of nails and warm pulps is applied as a plaster on joints to cure rheumatism.
48	<i>Oxalis corniculata</i> L.	Oxalidaceae	Khatti booti	Leaf	Leaf juice is used in cataract and conjunctivitis. Leaves pounded with cumin seeds are taken water thrice a day for dysentery.

49	<i>Phalaris minor</i> Retz.	Solanaceae	Rasberi or patakiri	Whole plant	Juice of plant is given in flatulence. Root is useful in stomachic. Fruits and flower are cooked and are used in constipation.
50	<i>Phyla nodiflora</i> (L.) Greene	Verbenaceae	Jal booti	Leaves	Dried powder of leaves along with cucumin is grounded and given daily for leucorrhoea. Leaves paste is applied in the scalp for dandruff.
51	<i>Portulaca oleracea</i> L.	Portulacaceae	Lonak, Kulfa	Seeds and leaves	Equal amount of seeds of Portulaca, coriander, cummins. and table salt are grounded and powder is taken daily with water to cure night emission.
52	<i>Ranunculus sceleratus</i> L.	Ranunculaceae	Bhander	Seed	Seed is used as an tonic in the treatment of colds. A decoction of the plant is used in asthma and a purgative for goats. Root of entire plant mixed with scraped coconut and a <i>Curcuma domestica</i> is pounded well and cooked, then applied as bandaged over sprained muscles.
53	<i>Ricinus communis</i> L.	Euphorbiaceae	Aarandi	Roots, leaf, seed	Juice from the root is taken with methi (<i>Trigonella foenum-graceum</i> L) and honey after delivery to increase breast milk daily. Massage also done on breast with leaf paste to increase milk. Seed oil is used to cure skin diseases.
54	<i>Rumex acetosella</i> L.	Polygonaceae	Kilmori	Leaf	Leaf extract is applied on cuts and wounds to check bleeding.
55	<i>Rumex dentatus</i> L.	Polygonaceae	jangali palak	Leaves and roots	Root powder is used in constipation.
56	<i>Saccharum bengalense</i> Retz.	Poaceae	Jhundh	Stem and leaves	Used for making baskets, ropes, ornamental sitter, shed , toys, booiya (traditional hot cases for roti).
57	<i>Saccharum spontaneum</i> L.	Poaceae	Paanfol	Leaves	Leaves paste along with mustard oil and haldi (<i>Curcuma longa</i>) is applied on the wounds as leap to cure it.
58	<i>Sesamum indicum</i> L.	Pedaliaceae	Til	Fruits and seeds	Seeds are used to extract oil, which is used as cooking oil.
59	<i>Setaria verticillata</i> (L.)P. Beauv.	Poaceae	Laptuna, chirchira	Root	Root powder is applied on the septic wounds of cattle for early cure.
60	<i>Sida cordifolia</i> L.	Malvaceae	Balu, simrak	Seeds and roots	Seed are given in dyspepsia. Root is used as an astringent and diuretic.
61	<i>Sida rhombifolia</i> L.	Malvaceae	Bal	Whole plant	Whole plant infusion is applied on bleeding piles. Fruits are eaten directly during cold to get relief from cough.
62	<i>Solanum nigrum</i> L.	Solanaceae	Makoya	Leaf and fruits	Juice of fruits has been used as an analgesic for toothaches. Fruits are edible and used in eye diseases.
63	<i>Sonchus oleraceus</i> L.	Asteraceae	Bakri booti	Leaves	Plant extract mixed with clove is taken orally to cure liver diseases, particularly enlarged liver.
64	<i>Tephrosia purpurea</i> (L.) Pers.	Fabaceae	Sarpankh, Jhojhru	Root	Root powder along with Black pepper and sonth is taken orally to cure enlarged liver.
65	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Gokhru	Leaves and fruits	Fruits powder is given orally to cure urinary disorders and mixed with methi given to the women for easy delivery. Powder of leaves is taken orally with glass of milk for curing impotency.
66	<i>Urena lobata</i> L.	Malvaceae	Unga, Bachita	Root and flower	Root paste is applied on body pain and rheumatism. Root decoction along with half a gram of ardrak(dried powder of <i>Zingiber officinale</i>) and a pinch of hing(<i>Ferula asafoetida</i> Linn.) to treat kidney stone.
67	<i>Withania somnifera</i> (L.) Dunal	Solanaceae	Aswagandha	Root	Root paste is applied in rheumatism, painful swelling, ulcers and bleeding wounds. To cure asthma, burnt root powder with honey and ajwain is taken every day early in morning.
68	<i>Xanthium strumarium</i> L.	Asteraceae	Tumbru	Fruits	Fruits are worn in the form of necklace in style.
69	<i>Ziziphus jujuba</i> Mill.	Rhamnaceae	Baad beri	Fruits and leaves	Fruits are consumed raw. Leaves paste is applied on the head to stop hairfall or hair loss.
70	<i>Ziziphus mauritiana</i> Lam.	Rhamanceae	Beri, Ber	Leaves, fruits and wood	Paste of leaf mixed with small amount of soap and ground loaf sugar (gur) is tied with cloth as a bandage on abscesses. Fruit are edible. Wood is used as a fuel and also used for making agricultural implements, house poles, sandals etc.

Family wise distribution of species

Sr. No.	Family	No. of species	Percentage	Sr. No.	Family	No. of species	% age
1	Amaranthaceae	9	13.04	18	Verbenaceae	2	2.86
2	Asteraceae	7	10	19	Ranunculaceae	1	1.43
3	Asclepiadaceae	2	2.86	20	Portulacaceae	1	1.43
4	Apiaceae	1	1.43	21	Oxalidaceae	1	1.43
5	Cactaceae	1	1.43	22	Moraceae	1	1.43
6	Convolvulaceae	3	4.29	23	Fumariaceae	1	1.43
7	Crucifereae	1	1.43	24	Tiliaceae	1	1.43
8	Curucurbitaceae	1	1.43	25	Commenlinaceae	1	1.43
9	Euphorbiaceae	3	4.29	26	Menispermaceae	1	1.43
10	Fabaceae	3	4.29	27	Celastraceae	1	1.43
11	Malvaceae	5	7.14	28	Cannabinaceae	1	1.43
12	Zygophyllaceae	1	1.43	29	Papaveraceae	1	1.43
13	Solanaceae	5	8.57	30	Primulaceae	1	1.43
14	Rhamnaceae	2	2.86	31	Mimosaceae	1	1.43
15	Poaceae	6	8.57	32	Nyctaginaceae	1	1.43
16	Pedaliaceae	1	1.43	33	Rutaceae	1	1.43
17	Polygonaceae	2	2.86				

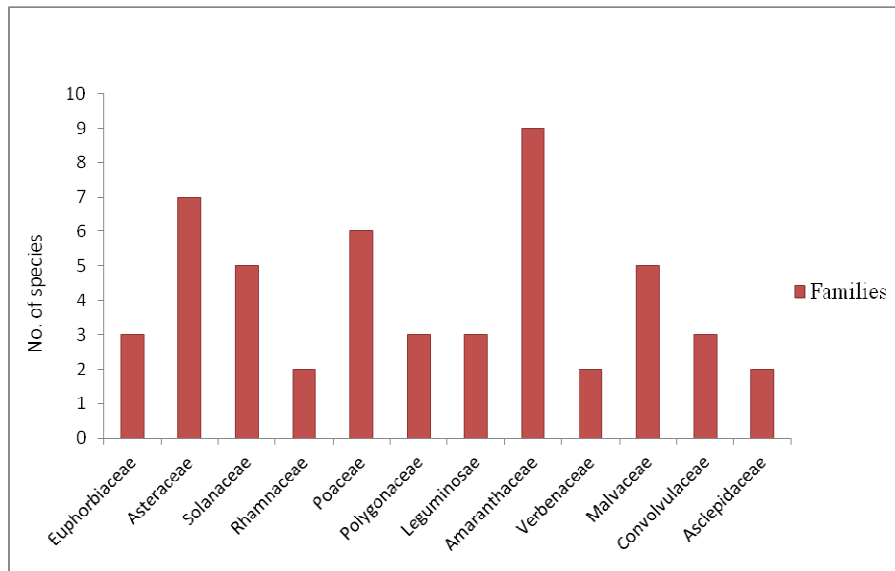


Figure 3
Number of species in prominent families of collected ethnobotanical plants

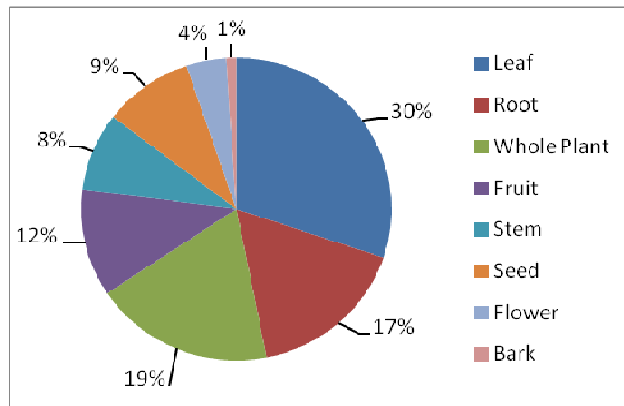


Figure 4
Represents medicinal parts of plants used for treatment of different diseases

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