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**Research Article**

# TRADITIONAL MEDICINAL PLANTS OF DISTRICT BIJNOR, U.P., INDIA

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**ABSTRACT**

Recent re-emergence of herbal medicine along with the ever-escalating threats to biodiversity, and the intensifying biopracy controversies, have necessitated for an urgent documentation of the traditional uses of bioresources. Thus a survey was carried out to record the traditional healthcare remedies currently practiced by the local people. The information regarding the indigenous use of medicinal plants was gathered by the local population especially medicinal healers (Hakims). Present study was confined to interview people in and around the Bijnor district, U.P. Frequent field trips were arranged to record local information. A total of 37 species belonging to 20 families and 32 genera were recorded. Euphorbiaceae, Fabaceae, Rutaceae, Myrtaceae, Poaceae, Alliaceae, Cucurbitaceae and Lamiaceae were the major families. Twelve families were monogeneric. Among these ecologically and economically important species, tree (20 sp.), herb (09 sp.), shrub (04 sp.) and climbers (04) were present. Almost all the plant parts like leaves, seeds, roots, bark and bulb and even whole plants have medicinal properties to alleviate various diseases.



## INTRODUCTION

Ethnobotany is the study of direct relationship between man and plants. The modern man uses plant products to fulfil various human needs (food, clothing, shelter and medicine) that are actually the gifts of earlier human civilization which is a key factor fuelling the world wide importance of ethnobotany. The utility of plants and man-plant relationship is a considerable part of the knowledge of early man which has continued down to modern day by faith and folk tradition. Such a knowledge which follows the traditional system of medicine is progressively entering into the urban areas so that the people living in the cities could get rid from the side effects of the medicines formulated by the use of chemicals. The villagers of Bijnor district have their own remedies for medicinal treatment by using various plants or plant products present in their vicinity. It is also believed that the people in ancient time were healthier than that of today that is only because of their life style and harmony with the nature. The indigenous knowledge regarding the medicinal plants is passing from generation to generation, but it is now restricted only to the villages.

Different workers have documented the uses of medicinal plants from different parts of India. Some are Murthy and Singh (1961), Maheshwari (1963), Kanjilal *et. al*. (1982), Singh *et al.* (1984), Rao and Sreeramulu (1985), Gupta and Chadha (1995), Pareek (1996), Malkhuri *et. al.*(1998), Mukhopadhyay (1998), Dikshit (1999), Singh (2000), Kathikeyani (2003), Choudhary *et al.* (2008), Verma *et al.* (2012), Kumar and Bhagat (2012), Bhushan and Kumar (2013), Juyal and Ghildiyal (2013), and Gwalwanshi *et al.* (2014). Chaudhary (2011), Chaudhary and Kumar (2011, 2015) and Sharma G *et. al*. (2014) have listed the medicinal plants of Bijnor district.

### STUDY AREA

Bijnor district is situated in the western part of Uttar Pradesh. The district of Bijnor forms the north-western part of the Moradabad division of Uttar Pradesh. The district lies between $29^0$ 2' - $29^0$58' N latitude and $78^0$ 0' -$78^0$ 59' E longitude. It covers an area of 4561 sq. Km. Major part of the district forms a part of the Indo-gangetic alluvium. The flowing rivers of the area like Ganga here have deposited the fertile soil which is worth for cultivation. The climate of the area is continental type, the summer season is hot and winter season is cold. The average summer temperature is $40^0$ to $42^0$ C, sometimes the temperature reaches upto $47^0$ C. While the winter temperature remains $18^0$ to $20^0$C with minimum temperature in the month of January. The average rainfall of the area is 60-100 cms. *Mangifera indica*, *Syzygium cumini*, *Azadirachta indica*,

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*Dalbergia sissoo*, *Ficus religiosa*, etc. are the common plants found in this region.

## METHODOLOGY

Present study was conducted to identify the ethnomedicinal plants used by traditional healers belonging to the different villages of Bijnor district. The study was carried out during February, 2012 to January, 2013 in the different localities of the district Bijnor. Frequent field trips were arranged to gather information regarding the traditional knowledge of medicinal plants used by the local people to cure them from various diseases. During field trips, the questionnaire was used to interview the local inhabitants, older people including men and women both, who were familiar with traditional uses of indigenous plants. In total of 20 informants including 14 men and 6 women were interviewed during survey. Interviews were conducted with local peoples in different villages individually. Repeated queries were made to get the data confirmed. Ethnomedicinal inventory was developed consisting of botanical name followed by their local name, family, habit, plant part used and ethnomedicinal uses.

***Enumeration***

***Acacia nilotica* (Linn.) Del.**

Vernacular Name: Kikar
Family: Fabaceae
Habit: Tree
Plant part used: Bark
Uses:

Bark is used to cure skin diseases and bleeding piles.

***Acacia catechu* Willd**

Vernacular Name: Kher
Family: Fabaceae
Habit: Tree
Plant part used: Bark
Uses:

Paste of bark called '**Katha**' cures ulcers of mouth.

***Azadirachta indica* A. Juss.**

Vernacular Name: Neem
Family: Meliaceae
Habit: Tree
Plant part used: Leaves and stem
Uses:

1. It is used as a blood purifier when its leaves get boiled in water and taken in morning.
2. Its stick is used as a meswak.
3. It is also used for taking bath which avoid boils, acne and pimples.
4. It is also beneficial for diabetic patient when its leaves are taken in morning.

***Aloe barbadensis* Mill**

Vernacular Name: Aloevera, gheekunwar
Family: Liliaceae
Habit: Herb
Plant part used: Gel of the leaves
Uses:

1. It is used as moisturizer when its gel is applied over the body.
2. It is applied on scalp to remove dandruff and to lubricate the joints.

***Allium cepa* L.**

Vernacular Name: Payaz
Family: Alliaceae
Habit: Herb
Plant part used: Bulb
Uses:

1. It is used to remove the pus from the boils.
2. It also protects the body from flu.
3. It is also used to improve the eye-sight.

***Allium sativum* L.**

Vernacular Name: Lahasun
Family: Alliaceae
Habit: Herb
Plant part used: Bulb
Uses:

It is very effective to reduce the cholesterol level of the body.

***Aegle marmelos* Corr.**

Vernacular Name: Bel
Family: Rutaceae
Habit: Tree
Plant part used: Leaves and Fruits
Uses:

The juice of leaves and fruits is used against diarrhoea and various intestinal problems.

***Albizia lebbeck* (Linn.) Willd**

Vernacular Name: Sirus
Family: Fabaceae
Habit: Tree
Plant part used: Bark
Uses:

Bark provides strength to the gums.

***Beta vulgaris* L.**

Vernacular Name: Shakarkand
Family: Chenopodiaceae
Habit: Herb
Plant part used: Whole Plant
Uses:

1. It is used to increase the amount of blood.
2. It also purifies the blood.

***Brassica campestris* Linn.**

Vernacular Name: Sarson
Family: Brassicaceae
Habit: Herb
Plant part used: Seed Oil
Uses:

Its oil is used to remove dandruff from hair.

***Cucumis sativus* Linn.**

Vernacular Name: Khira
Family: Cucurbitaceae
Habit: Climber
Plant part used: Fruits
Uses:

1. It is used to improve digestion if taken as churn.
2. It is used to cure dehydration.
3. It is used to cure dark spot and increase the fairness of skin.

***Cordia dichotoma* G. Frost.**

Vernacular Name: Sapistan, Lasora
Family: Boraginaceae
Habit: Tree
Plant part used: Fruit
Uses:

1. It is used for throat problems.
2. It decreases the swelling of the throat and it also clears the throat if taken regularly by boiling it in hot water

***Coccinia grandis* J. Voigt.**

Vernacular Name: Kanduri
Family: Cucurbitaceae
Habit: Climber
Plant part used: Leaves and Roots
Uses:

The juice of its leaves and roots is given in diabetes to control blood sugar level.

***Carica papaya* Linn.**

Vernacular Name: Papita
Family: Caricaceae
Habit: Tree
Plant part used: Fruits
Uses:

1. It is very useful for constipation if used on regular basis.
2. It is used to decrease cholesterol level and also make our digestive system in proper function.
3. It is used to increase blood level and also improves eyesight.

***Citrus limon* (L.) Burm.**

Vernacular Name: Nimbu
Family: Rutaceae
Habit: Shrub
Plant part used: Fruits
Uses:

1. It is used to stop vomiting specially while travelling.
2. It improves digestion by stimulating liver to produce more bile which is useful in digesting food.
3. It is used to decrease the weight by taking it with a glass of warm water with honey early morning.
4. Its tea is used for clearing the throat.

***Cyanodon dactylon* (Linn.) Pers.**

Vernacular Name: Dubra Ghaas/ Doob Ghaas
Family: Poaceae
Habit: Herb
Plant part used: Whole Plant
Uses:

1. Infusion of root is given in bleeding piles and gleets.
2. Juice of plant is astringent, antiseptic, applied in wounds, cuts also given in hysteria, epilepsy, chronic diarrhoea, dysentery.

***Emblica officinalis* Gaertn.**

Vernacular Name: Amla
Family: Euphorbiaceae
Habit: Tree
Plant part used: Fruits
Uses:

Dried fruits useful in haemorrhages, dysentery and diarrhoea, in combination with iron used to treat jaundice, anaemia and dyspepsia.

***Eucalyptus citridora* Hook**

Vernacular Name: Liptis
Family: Myrtaceae
Habit: Tree
Plant part used: Leaves oil
Uses:

The oil of eucalyptus leaves is used for the treatment of cough and cold, when few drops of eucalyptus oil are massaged on chest and throat.

***Ficus benghalensis* Linn.**

Vernacular Name: Bargad
Family: Euphorbiaceae
Habit: Tree
Plant part used: Fruits
Uses:

A powder of its fruits in shade is prepared, which is taken with honey in the morning and evening for a week in spermatorrhoea.

***Ficus carica* Linn.**

Vernacular Name: Anjeer
Family: Euphorbiaceae
Habit: Tree
Plant part used: Fruits
Uses:

1. It is very good remedy for digestion as it washes the stomach.
2. It is also used for constipation problems.

***Ficus racemosa* Linn.**

Vernacular Name: Gular
Family: Euphorbiaceae
Habit: Tree
Plant part used: Leaves
Uses:

The small blister-like galls common on the leaves are soaked in milk and mixed with honey are given to prevent pitting in small pox.

***Ficus religiosa* Linn.**

Vernacular Name: Peepal
Family: Euphorbiaceae
Habit: Tree
Plant part used: Leaves
Uses:

Thick paste of curd and boiled rice is applied over the dorsal surface of leaf of papal and is tied over the affected part daily till abscess is cured.

***Glycyrrhiza glabra* Linn.**

Vernacular Name: Mulathi
Family: Fabaceae
Habit: Tree
Plant part used: Stem
Uses:

It is an expellant medicine of cough if taken with a pan or simply by warm water.

***Lawsonia inermis* Linn.**

Vernacular Name: Mehndi
Family: Lythraceae
Habit: Tree
Plant part used: Leaf
Uses:

The leaf decoction is given to the patient suffering from jaundice.

***Mentha piperita* Linn.**

Vernacular Name: Pudina
Family: Lamiaceae
Habit: Herb
Plant part used: Leaves
Uses:

1. It is used as an acidity neutralizer.
2. Chewing 4-5 mint leaves is used to cure dental problem.
3. A teaspoon of dried mint leaves, consumed daily in the powdered form can help to lower the blood pressure.
4. It is also used for treatment of insect bite by crushing some leaves on affected area.

***Murraya koenigii* Spreng.**

Vernacular Name: Kari Patta
Family: Rutaceae
Habit: Tree
Plant part used: Stem
Uses:

Stem used for scouring teeth and makes the gums healthy.

***Nigella sativa* Linn.**

Vernacular Name: Kalonji
Family: Ranunculaceae
Habit: Tree
Plant part used: Fruits
Uses:

1. It is very useful to a patient suffering from acidity.
2. It neutralizes the acidity if taken regularly every morning.
3. It is beneficial for diabetic patients.

***Ocimum sanctum* Linn.**

Vernacular Name: Tulsi
Family: Lamiaceae
Habit: Herb
Plant part used: Leaves
Uses:

Decoction of leaves reduces ear ache and fever.

***Psidium guajava* Linn.**

Vernacular Name: Amrud
Family: Myrtaceae
Habit: Tree
Plant part used: Fruits
Uses:

1. It is useful for cough if it is heated for some time and then taken.
2. It is very good for curing constipation problem.
3. It is also useful in acidity.

***Piper betle* Linn.**

Vernacular Name: Pan
Family: Piperaceae
Habit: Climber
Plant part used: Leaves
Uses:

If it is taken with a piece of mulathi then it is useful for cough.

***Ricinus communis* Linn.**

Vernacular Name: Arand
Family: Euphorbiaceae
Habit: Shrub
Plant part used: Leaves oil & leaves
Uses:

1. It is beneficial for curing constipation by drinking a glass of milk with one teaspoon castor oil.
2. Its leaves are used as a pain killer by tiding leaves over the affected area.
3. It helps in vomiting when wrong drug has been taken.

***Rosa indica* Linn.**

Vernacular Name: Gulab
Family: Rosaceae
Habit: Shrub
Plant part used: Flowers and oil
Uses:

1. Its petals are used to remove the pus from boils.
2. It is used to make rosewater which is very beneficial for cleaning of eyes.
3. Rose oil also acts as an antiseptic.
4. Gulkand is used for clearing the stomach and also improves digestion.

***Syzygium cumini* (Linn.) Skeels.**

Vernacular Name: Jamun
Family: Myrtaceae
Habit: Tree
Plant part used: Seeds and leaves
Uses:

1. The seeds are eaten by local folks to control diabetes.
2. Extraction of leaves cures wounds.

***Trachyspermum ammi* (Linn.) Sprague**

Vernacular Name: Ajwain
Family: Apiaceae
Habit: Herb
Plant part used: Seeds
Uses:

It is used for respiratory problems when taken with a paan.

***Tinospora cordifolia* (Willd.) Miers.**

Vernacular Name: Giloe
Family: Menispermaceae
Habit: Climber
Plant part used: Stem
Uses:

It is used to improve the quality and quantity of platelets in blood which is very essential during dengue.

***Saccharum officinarum* Linn.**

Vernacular Name: Ganna
Family: Poaceae
Habit: Shrub
Plant part used: Stem
Uses:

1. Drinking fresh sugarcane juice in enough amount help in treating kidney disorders and other urinary problem.
2. It is useful for the person suffering from the fever and maintains the protein loss in the body.

***Tamarindus indica* Linn.**

Vernacular Name: Imli
Family: Fabaceae
Habit: Tree
Plant part used: Fruits
Uses:

Tamarind is rich in vitamin C and is used to cure the variety of skin diseases.

## RESULTS AND DISCUSSION

The ethnomedicinal data on 37 plant species belonging to 32 genera of 20 families, during summer, rainy and winter seasons were collected. For each species the following ethnomedicinal information was provided: botanical name, local name, family, plant part used and their ethnomedicinal uses in the treatment of diseases.

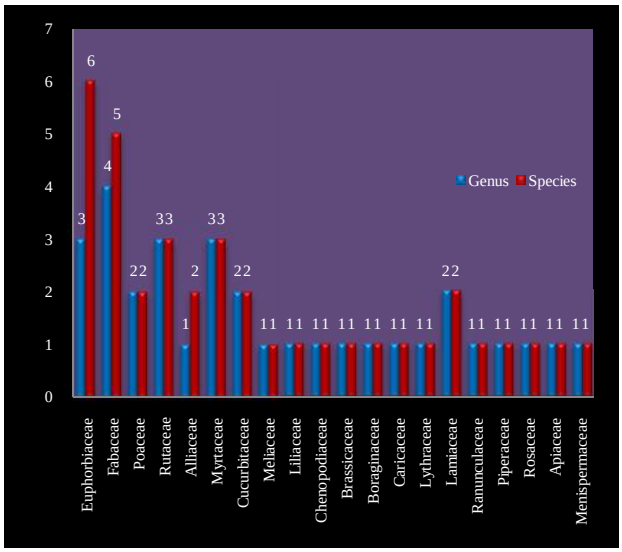


**Fig. 1** Number of plant species belonging to different habits.

The reported species are presented with a highest representative of Euphorbiaceae (06), followed by Fabaceae (05), Rutaceae and Myrtaceae (03 species each), Poaceae, Alliaceae, Cucurbitaceae and Lamiaceae (02 species each) and rest of the families like Menispermaceae, Apiaceae, Meliaceae, Liliaceae, Chenopodiaceae, Brassicaceae, Boraginaceae, Caricaceae, Lythraceae, Ranunculaceae, Piperaceae and Rosaceae are monogeneric (Fig. 1). Of these, 18 families belong to dicots and only 2 families Poaceae and Liliaceae come under the category of monocots. A total of 37 species, 35 species of medicinal plants belong to dicots while the remaining 2 plant species fall under monocots as given in Fig. 2.

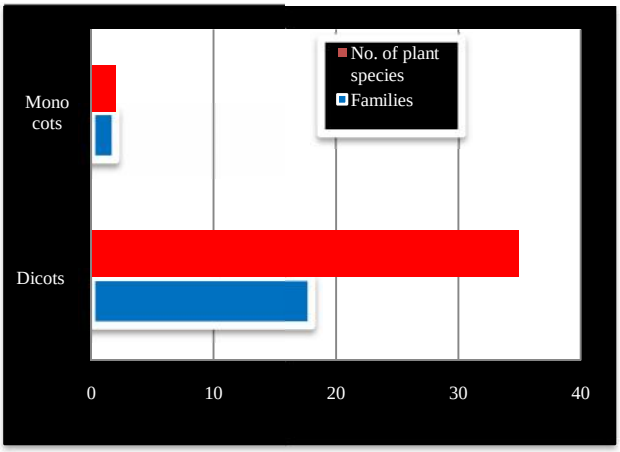


**Fig. 2** Number of plant species and families belonging to monocots and dicots.

The people of Bijnor district uses the indigenous knowledge for the treatment of various kinds of diseases like diabetes, boils, acne & pimples, blood purification, mouth ulcers, dandruff, improvement of eye-sight, cholesterol level reduction, swelling, constipation, to increase blood level, vomiting, weight loss, dehydration, digestion, piles, epilepsy, diarrhoea, dysentery, haemorrhage, dysentery, diarrhoea, jaundice, anaemia, cough & cold, spermatorrhoea, small pox, cough, insect bite, acidity, dental problems, earache, fever, respiratory problems, stomachache, dengue, kidney disorder and skin diseases.

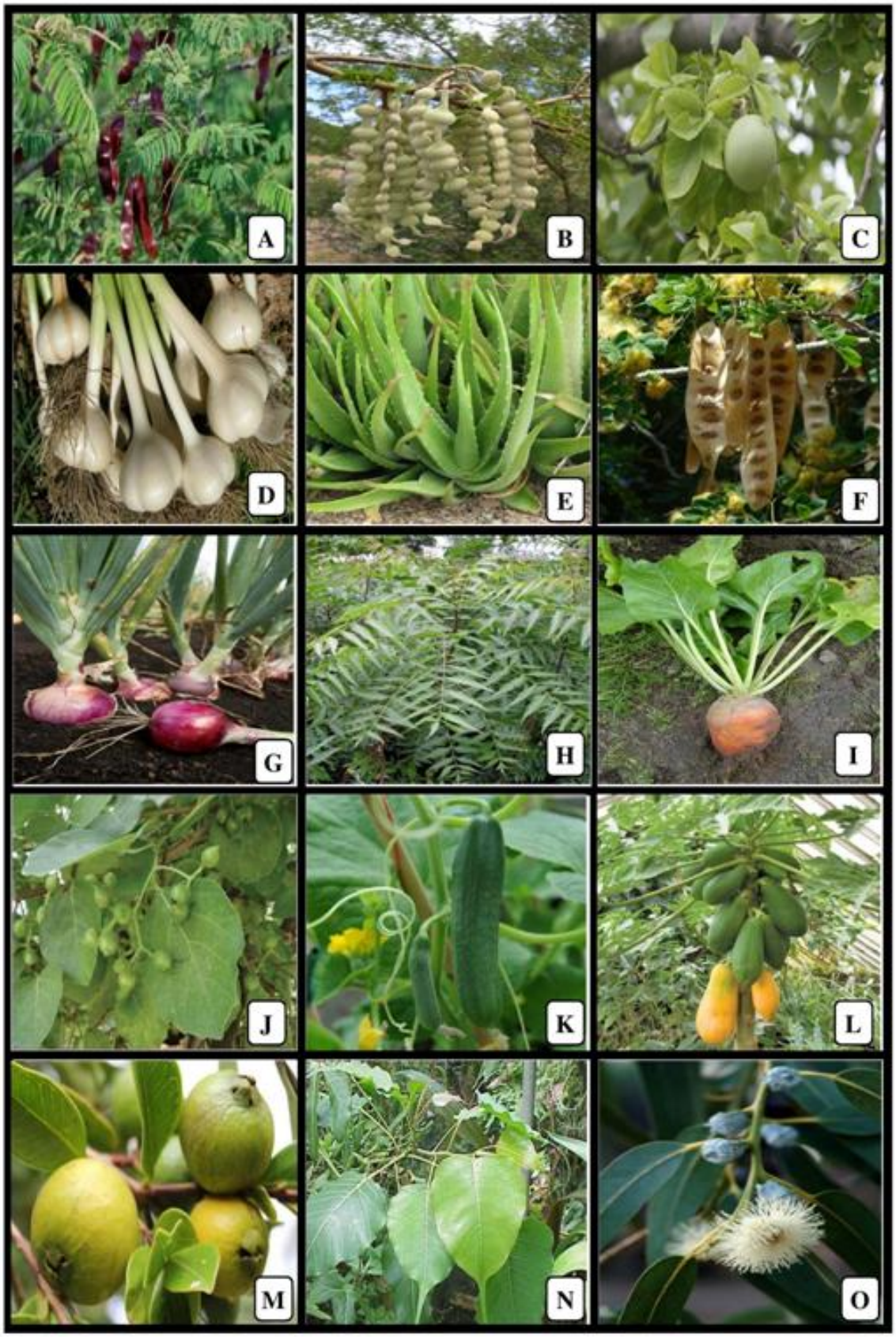


**Plate 1** Photographs of medicinal plants reported from district Bijnor. A. *Acacia catechu* Willd. B. *Acacia nilotica* (Linn.) Del. C. *Aegle marmelos* Corr. D. *Allium sativum* L. E. *Aloe barbedensis* Mill. F. *Albizia lebbeck* (Linn.) Willd. G. *Allium cepa* L. H. *Azadirachta indica* A. Juss. I. *Beta vulagris* L. J. *Cordia dichotoma* G. Frost. K. *Cucumis sativus* Linn. L. *Carica papaya* Linn. M. *Psidium gujava* Linn. N. *Ficus religiosa* Linn. O. *Eucalyptus citridora* Hook.

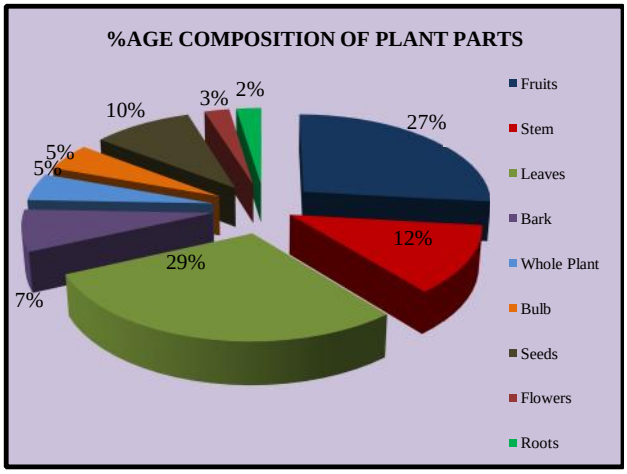


**Fig 3** Ethnomedicinal plant based on number of species as plant part used.

Each plant species has a particular part which can be used as medicine and in some plant species whole plant is used for medicinal purpose. Of the total 37 medicinal plants, leaf is used as a plant part i.e. 29% of the plant species, followed by fruit (27% ), stem (12%), seeds (10%), Bark (7%), Bulb & whole plant (5% each), flowers (3%) and roots (2%) as given in Fig. 3. Most of the medicinal plant species belong to trees (20), followed herbs (9) and climbers & shrubs (4 each) (as shown in Fig.4).

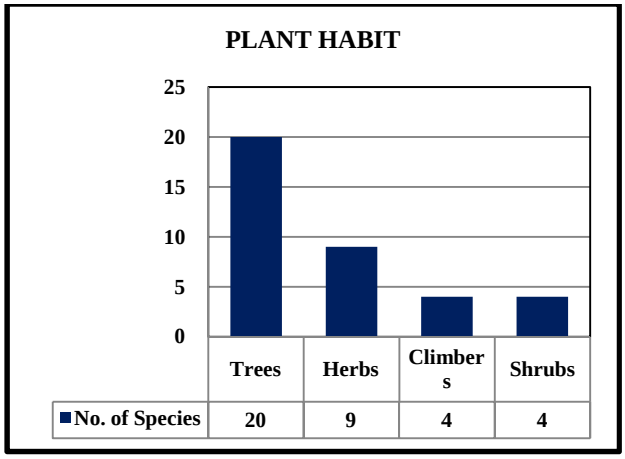


**Fig 4** Number of plant species belonging to different habits

## CONCLUSION

Despite the large scale environmental degradation, medicinal plants are still playing a significant role in the management of various human diseases in Bijnor district. 37 medicinal plants were reported to be used to treat various human diseases. The roots, leaves, bark, flower, fruits, seeds etc. are the different parts of the plants which are used by the native people as source of medicine. Fruits were the most frequently used plant part in the preparation of remedies in the district. Trees took the higher proportion of medicinal plants. Most of the land of the district is used for agriculture but this agriculture land is very rapidly decreasing due to plotting for making houses, buildings, industries, hospitals, schools, colleges, etc. the forest cover of the district is also decreasing day by day due to deforestation.

Despite this fact, there is little effort in the district to cultivate or manage medicinal plants. This awareness is needed be raised among local people on sustainable utilization and management of the plant resources. *Ex situ* and *in situ* conservation measures should be taken to protect the medicinal plants of the district.

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