International Journal of Theoretical & Applied Sciences, 11(1): 18-39(2019)

ISSN No. (Print): 0975-1718
ISSN No. (Online): 2249-3247

Ethnomedicinal Diversity of Aromatic Plants in Foot Hill Regions of Himachal Pradesh, India

Gulshan Kumar and Sampy Duggal
Division Botany, Department of Bio-Sciences,
Career Point University Hamirpur (Himachal Pradesh), INDIA

(Corresponding author: Gulshan Kumar)
(Received 12 January, 2019 accepted 14 March, 2019)
(Published by Research Trend, Website: www.researchtrend.net)

ABSTRACT: The ethno botanically different aromatic plants and plant parts are used as food, medicine, fodder, dye for festivals, rituals and various other functions. Comparatively, information pertaining to ethno-medicinal practices is scanty for Western Himalaya in general. Hence, an attempt has been made to document the precious information on the usage of wild as well as cultivated plants from foot hill regions of Himachal Pradesh with a view regards of its utilization as edible, medicinal and aromatic plants. The extensive survey was conducted in four selected districts *viz.,* Una, Hamirpur, Bilaspur and Mandi respectively. Interviews were conducted through stratified questionnaire prepared for local people. Out of hundred plants, 19% leaves, 17% seeds, 14% fruits & roots, 13% flowers & bark, 4% whole plant & stem, 1% bulbs & rhizomes of plant species are used for the treatment of various diseases. Documentation, preservation and recording of medicinally important plant species and traditional knowledge associated with the use of local plant species should be necessary step for the conservation of plant species and traditional knowledge associated with them for future generation.

Keywords: Ethnomedicinal, Aromatic, Traditional-Knowledge, Foot hill regions, Himachal Pradesh.

I. INTRODUCTION

Aromatic plants have traditionally occupied an important position in socio-cultural, spiritual and health area of rural and tribal live of India. India is one of the main centers of Ancient human civilization in the world where aromatic plants have been utilized for various purposes including herbal medicines [1]. The term "Phytodiversity" is a concept, which refers to the range of variations of difference along the same set of entities, thus refers to variety within the plant kingdom [2]. When plant is designated as 'medicinal' it implies that plant is useful as a drug or therapeutic agent or an active ingredient of a medicinal preparation [3]. These aromatic and medicinal plants are used as food, flavonoid, medicine, and perfume. Plants are the basic source of knowledge of modern medicine. Utilizations of plants for medicinal purposes in India have been documented long back in ancient literature [4]. The utilization of plants by primitive man and tribal has been studied under the branch of science known as "Ethno botany" [5]. The ethno botanically different plants and plant parts are used as food, medicine, fodder, dye for festivals, rituals and various other functions [6]. Though it is believed that after the advent of synthetic drug, the plant drugs lost their significant importance for some time [7]. However, the ethno medicine gained considerable importance in the recent past, because of safe and with no side effects [8]. In today's time aromatic plants are the backbone of the traditional medicine being used over the world wide [9]. Yet 80% of population of the developing countries depends upon the use of local plant resources for their primary wealth [11]. The local people have huge knowledge about the uses of aromatic plants and plant parts [12].

There are about 3500 known plants species recorded in the state; about 500 are reported on the medicinal value [13]. Some aromatic plants provide raw material for pharmaceutical, phyto-chemical, food, flavorings and cosmetic industries [14]. About 42% of 25 top selling drugs marketed worldwide are either directly obtained from natural resources or entities derived from plant products [15]. Ethno botanical knowledge comprises of both wild and domesticated species, and rooted in observation, relationship, needs and traditional ways of knowing [16]. Medicinal plants can also be defined as groups of plants that possess some special properties that qualify them as ingredient of drugs and therapeutic agents, and, are used for medicinal purposes [17]. These medicinal plants are used as food, flavonoid, medicine, perfume [18]. Forest occupies the largest landmass in India after agriculture and the storage of herbal plants resources for the rural people [19]. Himachal Pradesh one of the pioneer Himalayan states, is rich repository of medicinal wealth, which occupy an important place in the Vedic treaties [20].

The ancient science of medicine has its origin in Himachal Pradesh [21]. It is estimated that herbal drugs contribute about 80 per cent in Indian medicines. Himachal Pradesh, a hilly state with altitude ranging from 350 to 700 m above sea level covers an area of 55,673 sq km. The extensive survey was conducted in four selected districts *viz.,* Una, Hamirpur, Bilaspur and Mandi respectively. It is covered by Foot hill regions of Himachal Pradesh; the elevation varies from 350 meters to 2000 meters having almost flat-lands and precipitous slopes of hill ranges. The Foot hills of Himachal Pradesh fall in humid sub tropic zone [22, 23]. The rural communities have a vast knowledge of ethno-botanical and aromatic plants and their utilization. Rural people collect and preserve these locally available wild and cultivated ethno-botanical plant species in their daily life even today [24]. Different parts of ethno botanical plants (cultivated or wild plant species) such as fruits, flowers, leaves, seeds, tubers and rhizome are the best nature's gift to the all man-kind and these parts are the main sources of vitamins, proteins, minerals and have a great medicinal values for curing many diseases and are also the great source of income for the poor people [25]. Edible ethno-botanical fruits have high nutritional value. India is one of the twelve mega-biodiversity countries of the world having rich importance, whether it is nutritional, medicinal, and ritual or magical value [26]. Comparatively, information pertaining to ethno botanical practices is scanty for Himachal Pradesh in general. Hence, an attempt has been made to document the precious information on the usage of wild as well as cultivated plants from Foot hill regions of Himachal Pradesh with a view regards of its utilization as medicinal and aromatic plants.

II. MATERIAL AND METHODS

Study Area: The extensive survey was conducted in four selected districts in Foot hills of Himachal Pradesh viz., Una, Hamirpur, Bilaspur and Mandi respectively. Interviews were conducted through stratified questionnaire prepared for local people.

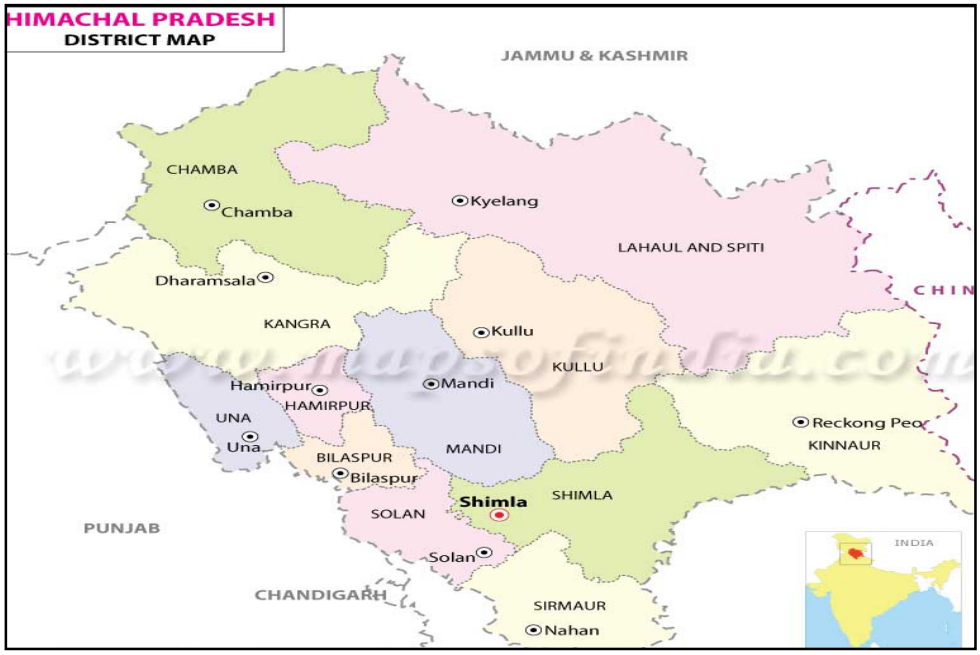

Fig. 1. Map of Foot Hill Regions of Himachal Pradesh, India (representing Una, Hamirpur, Bilaspur, and Mandi districts respectively).

Collected Plants were identified and nomenclature with the help of "Flora of British India". The data collected was compared by the literature on the medicinal plants of Himachal Pradesh. The freshly collected samples of plants were arranged properly within the folded sheets of pressing papers, each of which was placed between two dry blotters of same size. The blotters should be changed regularly till the proper drying was done. Each specimen was mounted on a herbarium sheet with the help of glue. The surveys were conducted throughout the study period of 2017-2018. The plant specimens were collected during fruiting and flowering stage. Collected plant specimen during the surveys were indentified and preserved in the form of herbarium.

Interviews were conducted among local people and useful information was gathered through Participatory Appraisal Technique (PAT) such as:

1. What is your name of person?
2. How old are you?
3. What is your qualification?
4. Gender: a] Male b] Female
5. What about your occupation?
6. Which place you belong to?
7. What is local name of this plant?
8. What are the uses of this plant?
9. What is the status of this plant?
   a] Herb b] Shrub c] Tree
10. What are their religious & aesthetic values?
11. What are the miscellaneous uses of this plant?
    a] household items b] agricultural implements c] livestock fodders d] none of them

During the informal interviews with local and older persons, questions were asked about the plants used for different purposes like medicine, food, aromatic, are facts and the information were recorded. The language used by the informants was the local language of the study area *viz.* Pahari and Hindi. Later the plants were collected with help of the local people. The informants included the men, women, youths and elder between the ages of 30-75 years. The specimens were identified with the help of floras and later confirmed with the help of authentically identified specimens of Career Point University's herbarium. The specimens were labeled with field data recorded during the field visits and the botanical names were worked out as per the international code of botanical nomenclature. Local names recorded from the field are incorporated [28].

III. RESULT AND DISCUSSION

Detailed description of local plants:

Botanical Name: *Acacia catechu* Willd.
Local Name: Khair
Family: Mimosaceae
Habitat: wet lands
Distribution: Burma, Eastern Africa, Maharashtra, Gujarat, Rajasthan
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, flowers, leaves
Elevation: 400-2000m
Morphological Description: A tree with re-curved prickles inserted below the leaf base. Flowers white. Pods stalked, glabrous, oblong.
Common Uses: The twigs are browsed by goats and sheep. When one requires anything from a tight-fisted person through the thing may of no use to him, as to the person requiring it) and he (miser) turns a deaf ear to, the other s who so ever comes to know, say "Khairan Te Bair Ni Tirde" (here, Khairan Te = from Kair, *Acasica catechu*; Kair=Drupes of *Zizyphus*, *mauritiana*; Ni=no Tirde= fall) Or the berries of *Zizyphus mauritiana* don't fall from the trees of *Acacia catechu* means; one should not hope form a wicked.
Ethnomedicinal uses: Cough diarrhea, piles, bronchial infection, and colic pain.

Botanical Name: *Acacia indica* Benth.
Local Name: Kikar
Family: Fabaceae
Habitat: Wetlands and agricultural fields
Distribution: China, Pakistan, Nepal, Temperate Himalaya
Foot Hill regions of Himachal Pradesh: Mandi, Hamirpur
Plant Part used: Bark, flower, leaves, seeds
Elevation: 400-1200 m
Morphological Description: A tree or shrub. Flowers are yellow, fragrant, globose heads. Pods are stalked, flat, contracted between the seeds.
Common uses: The green pods and young leaves make an excellent fodder for the goats and for this reason, the tree is much lopped and mutilated.
Ethnomedicinal uses: Asthma, diabetes, diarrhea, dysentery

Botanical Name: *Adhatoda vasica* Nees.
Local Name: Vasaka
Family: Acanthaceae
Habitat: Cultivated in gardens
Distribution: China, Pakistan, Nepal, Bhutan, Western Himalaya
Foot Hill regions of Himachal Pradesh: Hamirpur, Bilaspur, Mandi
Plant Part used: Flowers, fruits, leaves, roots
Elevation: 450-1100 m
Morphological Description: A shrub. Leaves ovate-lancealate, Corolla 2- lipped, pubescent outside, white-streaked and pink dotted
Common uses: It is used as bed-sheet of cattle during rainy season which protect them from insects.
Ethnomedicinal uses: Leprosy, fever, jaundice, sore eyes.

Botanical Name: *Aegle marmelos* Corr.
Local Name: Bill
Family: Rutaceae
Habitat: Common in temple surrounding
Distribution: Burma, South India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, flowers, fruits, leaves, roots, seeds
Elevation: 380-1200 m
Morphological Description: A tree. Flowers are greenish white, axillaries, panicles. Fruits grey or yellowish, woody
Common uses: The pulp of the ripe fruits is nutritious and is relished by all sections of people also made into jams and on battering with sugar and water. It is made into a regressing cola or drinks ("Sharvat") to be enjoyed in summer.
Ethnomedicinal uses: Diarrhoea, dysentery

Botanical Name: *Adonis aestivalis* M. Bieb.
Local Name: Ban-saunf
Family: Ranunculaceae
Habitat: Sub-tropical Western Himalayas
Distribution: China, Nepal, Bhutan, Himalayas of Uttarakhand

Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur
Plant Part used: Seeds
Elevation: 500- 1200 m
Morphological Description: Biennial herb. Leaves are glabrous, sessile.
Common uses: Used for treating heart weaknesses but the risks involved it's used are much higher.
Ethnomedicinal uses: Heart weakness, stomachic, vomiting, dysentery

Botanical Name: *Artocarpus integra* Merrill.
Local Name: Kat-hal
Family: Moraceae
Habitat: Common in evergreen forests and cultivated
Distribution: Indonesia, Malaysia, Singapore, Burma, Sumatra, Andhra Pradesh, Assam, Bihar, Kerala, Meghalaya, Tamil Nadu, Karnataka, Maharashtra
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, seeds, fruits.
Elevation: 650-1500 m
Morphological Description: A tree. Leaves are ovate, entire, and elliptic. Flowers axillaries, solitary, cauliflower
Common uses: The ripe fruits are eaten fresh, unripe ones as vegetable, also pickled.
Ethnomedicinal uses: Skin disease, asthma, fever, diarrheoa, jaundice

Botanical Name: *Albezzia lebbek* Benth.
Local Name: Sirinh
Family: Mimosaceae
Habitat: Common in roadside
Distribution: Native to Indo malaya, New Guinea, Northern Australia, Andaman & Nicobar, Assam, Kerala, Rajasthan, Odhisa, Uttar Pradesh, Andhra Pradesh, West Indies, South America, India
Foot Hill regions of Himachal Pradesh: Mandi, Bilaspur, Mandi
Plant Part used: Bark, leaf, seed
Elevation: 450-1200 m
Morphological Description: A tree. The leaves are bipinnate, with one to four pairs of pinnae. Flowers are white, fragrant. Fruits are a pod broad, containing seeds
Common uses: The wood is used for furniture.
Ethnomedicinal uses: Cough, inflammation, astringent, lung problems, eye infection.

Botanical Name: *Allium sativum* L.
Local Name: Jangli-Lahsun
Family: Amaryllidaceae
Habitat: Commonly cultivated in home and agriculture fields
Distribution: Native to Central Asia, North eastern Iran, Egypt, Myanmar, Singapore, Punjab, Vitenam, India, Thailand
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Bulblets, leaves
Elevation: 350-1200 m
Morphological Description: An herb. Leaves are long narrow. Bulbs are compound having bulblets. Flowers are whitish an in umbel.
Common uses: The extract is used with hot water in asthma; also applied on worm-infested wounds.
Ethnomedicinal uses: Antifungal, arthritis, fever, flatulence, earache.

Botanical Name: *Allium cepa* L.
Local Name: Jangli-Piyaz
Family: Amaryllidaceae
Habitat: Cultivate in Kitchen gardens.
Distribution: Throughout China, Argentina, Bangladesh, California, Central Europe, France, Italy, India, Tibet, and Thailand
Foot Hill regions of Himachal Pradesh: Hamirpur, Mandi
Plant Part used: Shoots, bulbs, seeds
Elevation: 450-1200 m
Morphological Description: An herb. Stem are erect and stiff. Flowers white on the top of stem. Seeds are black and small.
Common uses: Poultice of roasted bulbs is applied on unripe sores and them an incision is made in them after ripening. Old barbers used to do this job with their tool "Nhernu".
Ethnomedicinal uses: Common cough & cold, asthma, bronchitis, hair loss, insomnia, eye infection, high blood pressure, high cholesterol.

Botanical Name: *Ageratum conzyoides* L.
Local Name: jungali pudina
Family: Asteraceae
Habitat: Found in waste places, humid areas, roadsides as a weed throughout.
Distribution: Throughout India, all hot countries
Foot Hill regions of Himachal Pradesh: Hamirpur, Bilaspur, Mandi
Plant Part used: Flowers, leaves, roots
Elevation: 400-1700 m
Morphological Description: An annual herb. Leaves opposite, stalked, lanceolate. Heads are numerous. Flowers pale blue or white.
Common uses: The leaves are applied to cuts and sores.
Ethnomedicinal uses: Wounds, fever, headache.

Botanical Name: *Argemone mexicana* L.
Local Name: Bharband
Family: Papaveraceae
Habitat: Abundant in waste places, cultivated in fields and road sides.
Distribution: Native to America, throughout India
Foot Hill regions of Himachal Pradesh: Hamirpur, Bilaspur, Mandi
Plant Part used: Leaves, seeds, roots
Elevation: 650-1500 m
Morphological Description: An annual prickly herb with flowers bright yellow. Seeds rounded blackish brown with free tubercles.
Common uses: The latex is collected in the month of November, mixed to three times of butter and filled in a phial for use.
Ethnomedicinal uses: Scabies, ophthalmic

Botanical Name: *Anacyclus pyrethrum* L.
Local Name: Karkara
Family: Asteraceae

Distribution: China, Nepal, Pakistan, Myanmar and sub tropical Himalaya
Foot Hill regions of Himachal Pradesh: Hamirpur, Bilaspur, Mandi
Plant Part used: Roots, flowers
Elevation: 400-1900 m
Morphological Description: A perennial herb. Leaves are smooth, alternate and pinnate. Flowers heads are terminal, disk flowers are yellow, and ray flowers are white
Common uses: Poultice of grinded root is applied at the place of scorpion-sting.
Ethnomedicinal uses: Toothache, sore throat, chronic cough, mouth ulcers, dental cavities, fever, headache, migraine

Botanical Name: *Berberis aristata* Royle
Local Name: Kashmalya
Family: Berberidaceae
Habitat: Common in forests, roadside
Distribution: Native to Himalayas, Sri Lanka, Asia, Europe, America, Bhutan, Nepal
Foot Hill regions of Himachal Pradesh: Hamirpur, Bilaspur, Mandi
Plant Part used: Fruit, stem, roots
Elevation: 1200-2000 m
Morphological Description: Evergreen herb. The bark is covered with three branched thorns. Leaves are modified, simple, toothed, simple and sessile. Flowers are stalked, yellow. Fruits are ovoid, violet in color. Seeds are varying in color from yellow to pink.
Common uses: The ripe-fruits are edible.

Ethnomedicinal uses: Ulcer, fever, inflammation, cuts, wound, eye and skin disease, diarrhea, constipation, jaundice, piles, diabetes.

Botanical Name: *Bauhinia variegata* Linn.
Local Name: Karyala
Family: Caesalpinaceae
Habitat: Commonly cultivate, usually occurs in Pine forests & limestone soil.
Distribution: Sub-Himalayan tracked from the Indus East wards Eastern, Central, South India.
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, flower, fruit and roots
Elevation: 300-1800 m
Morphological Description: A tree. Flowers in raceme white to purplish. White pods glabrous.
Common uses: The flower-buds are made into an excellent vegetable, also eaten as "Rita" after boiling and mixing with curd. These are specially relished when prepared with meat into a dry curry. The flower-bud is also pickled.
Ethnomedicinal uses: Diarrhoea, dysentery, piles.

Botanical Name: *Butea monosperma* Kuntze.
Local Name: Dhak
Family: Fabaceae
Habitat: Abundant in grazing grounds.
Distribution: Himalaya to Ceylon, Burma, Myanmar/Sub-tropical region of India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, leaves, flowers, fruits, seeds
Elevation: 700-1400 m
Morphological Description: A tree. Leaves trifoliate, leaflet unequal sides, flowers are orange red. Pods are velvety.
Common uses: The yellow color obtained from the flowers is used for spraying on "Holi" festival, by the Hindus. The twigs are used in "Yajna".
Ethnomedicinal uses: Inflammation, diabetes, analgesic, diuretic, dysentery, ulcers

Botanical Name: *Bambusa arundinacea* Willd.
Local Name: Bans
Family: Poaceae
Habitat: Common throughout forests.
Distribution: Myanmar, Sri Lanka, occurs throughout greater parts of India including Assam, Manipur, and Meghalaya
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Leaves, roots, stems, seeds.
Elevation: 350-1000 m
Morphological Description: A tall erect green bamboo with spines, culms, thick and erect culms. Sheath is triangular with spiny hairs. Leaf sheath are glabrous, ligule short.
Common uses: Different kinds of articles (for domestic use) are made by the peoples of a particular caste "Bhanjaira", The articles include baskets of different sizes, the small ones, locally called "Tokru", for drawing out grains From "Peru", a big –sized cylindrical bottomed article again made up of the same plant.
Ethnomedicinal uses: Cough and cold.

Botanical Name: *Bombax ceiba* Linn.
Local Name: Sembal
Family: Bombacaceae
Habitat: Common in the plains as a roadside and garden tree.
Distribution: It is found in Malaysia, Sri Lanka, Australia, Africa, Bangladesh, Pakistan, Thailand, Myanmar, China, India
Foot Hill regions of Himachal Pradesh: Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, flowers, roots, leaves
Elevation: 450-1400 meters
Morphological Description: A tree. Leaves are compound, green, entire, and elliptic to lanceolate. Flowers are large, red fleshy, cup-shaped, appearing on branches before leaves. Fruit are woody, capsule
Common uses: The ripen fruits are used to make "sabji" and eaten with 'Chhali-ri-roti"(*Zea mays*) in winter.
Ethnomedicinal uses: Asthma, Diarrhea, anemia, wound, skin problems, diuretic, cough and cold

Botanical Name: *Bauhinia vahlii* Wight & Arnott, Prodr.
Local Name: Torreya
Family: Ceasalpiniaceae
Habitat: Open areas, roadside, forest edges.
Distribution: East Asia, India, Nepal, Pakistan, Assam, Madhya Pradesh, Odisha, Maharashtra, Tamil Nadu
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Seeds, leaves
Elevation: 450-1500 m

Morphological Description: A climbing shrub. Stem is woody. Large leaves, 2-lobed with broad cut. Flowers are white turn yellow when old. Fruits ate flat woody pod with rusty hairs, dark brown in color.
Common uses: The leaves are used to make biodegradable plates which are used in local "Dham".
Ethnomedicinal uses: Inflammation, tuberculosis, dysentery, fever, toothbrush, skin disease, diarrhea, pimples, indigestion.

Botanical Name: *Byronia laciniosa* L.
Local Name: Shivlingi
Family: Cucurbiatceae
Habitat: In hot warm conditions.
Distribution: Throughout Himalayas, warmer parts of India, China and Pakistan
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur
Plant Part used: Seeds
Elevation: 450-1000 m
Morphological Description: A thin stemmed climber, that grows as weed. Matured fruits turned red.
Common uses: The fruit juices are used as coolant in summer seasons by old ones.
Ethnomedicinal uses: Stimulate fertility in women

Botanical Name: *Bryophllum calycinum* Salisb.
Local Name: Patharchat
Family: Crassulaceae
Habitat: Often cultivated
Distribution: Throughout tropical regions of India, Nepal Myanmar and Malaysia
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Leaves
Elevation: 650-1000 m
Morphological Description: A perennial herb. Flowers green, reddish purple, fruits enclosed in persistent papery corolla
Common uses: The leaves extract is used in stone problems.
Ethnomedicinal uses: Wounds, boils, bites of insects

Botanical Name: *Caccinia grandis* L.
Local Name: Kunduri
Family: Cucurbitaceae
Habitat: Common on hedges and bushes in the wastelands.
Distribution: Throughout India
Foot Hill regions of Himachal Pradesh: Bilaspur, Mandi
Plant Part used: Flowers, fruits, leaves, roots
Elevation: 550-1500 m
Description: An annual or perennial herb. Tendrils are simple. Flowers are white.
Common uses: The fruits are eaten with "lasi".
Ethnomedicinal uses: Constipation, wounds and diabetes.

Botanical Name: *Cinnamomum camphora* L.
Local Name: Kapoor
Family: Lauraceae
Habitat: Commonly cultivate in wet lands forests.
Distribution: Native to East Asia, China, Korea, Japan, Vietnam, Nepal, India, Assam, Meghalaya,
Foot Hill regions of Himachal Pradesh: Una, Hamirpur
Plant Part used: Stem, Flowers, Leaves, Seeds
Elevation: 450-750 m
Morphological Description: A tree. Stem woody, leaves green, simple, petiolate, shiny. Flowers are white bisexual. Fruits red berries, globular. Seeds brown in color.
Common uses: The dried leaves are uses as "Havan Samagri" by Hindus.
Ethnomedicinal uses: Cough and cold, skin disorders, carminative, analgesic, lowering the blood pressure, vomiting.

Botanical Name: *Coriandrum sativum* L.
Local Name: Dhania
Family: Apiaceae
Habitat: Commonly cultivate in meadow and fields.
Distribution: China, India, Indonesia, Japan, Pakistan, North America, Africa, Europe
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Seeds, leaves
Elevation: 850-2000 m
Morphological Description: An herb. Leaves are compound. Flowers are umbels white or pale pink in color. Fruits are globular.
Common uses: The leaves are used as flavoring agent and the fruits and seeds are used as condiment and spice.
Ethnomedicinal uses: Diarrhea, stomachic, flatulence

Botanical Name: *Curcuma longa* L.
Local Name: Haldi
Family: Zingiberaceae
Habitat: Grows wild or cultivate in plains
Distribution: China, India, Indonesia, Malaysia, Philippines, China, Thailand, Africa
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Rhizome
Elevation: 350-2000 m
Morphological Description: Perennial herb. Leaves simple, long as blade, oblong, lanceolate. Flowers are zygomorphic, yellow petals. Rhizomes are oblong, intense yellow in color.
Common uses: On a specific evening of "*Sair*" (Local festival) every year, the local barber goes form door to door, until next morning, with a sacred seat in his hands; in the seat he keeps pictures of gods and goddess, the relevant paraphernalia and burning lamp. Every native has to offer "Kakri" (*Cucumis sativus*), "Chhali" (*Zea mays*), "Khata" (*Citrus*) and coins, only coins are also acceptable. The native starts eating the above said fruits only after the offerings.
Ethnomedicinal uses: Cough cold, flu, skin disorder, diabetes, arthritis, fever, wound, allergic reactions.

Botanical Name: *Carissa opaca* Stapf ex Haines
Local Name: Garnu
Family: Apocynaceae
Habitat: Common in the plains fro coast, in scrub jungles
Distribution: India, Sri Lanka, Myanmar,
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur
Plant Part used: Whole plant
Elevation: 500-900 m
Morphological Description: A spiny shrub. Leaves simple, opposite, upper surface shiny, dark green, lower surface hairy and light green, oval shaped.

Flowers are sweet-scented, small and white. Fruit are black, purple, oblong berry with milky latex.
Common uses: The fine-grained wood is used for making wooden-combs locally called "Kanghu", These are so designed as to be pressed from the two sides while combing, the lice are easily trapped.
Ethnomedicinal uses: Asthma, jaundice, kidney stones, anemia

Botanical Name: *Cordia diacotoma* G. Forst.
Local Name: Lasura
Family: Barginaceae
Habitat: Drier (arid and sub-arid), warmer region
Distribution: Sri Lanka, Malaysia, South China, Java, New Guinea, Philippine and Tropical Australia, India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: bark, fruits, seeds
Elevation: 800-1500 m
Morphological Description: Deciduous tree. Leaves are simple, alternate, broad, oval, ovate, and serrate in upper half. Flowers are bisexual, white; fruits are drupe, ovoid, and yellow on ripening, green when unripe.
Common uses: The unripe fruits are cooked as a vegetable and are also pickled.
Ethnomedicinal uses: Fever, ulcers, headache, inflammation, diabetes, immune- modulator, analgesic, cough, cold.

Botanical Name: *Colebrookea oppositifolia* Smith
Local Name: Gadoos
Family: Lamiaceae
Habitat: Common in open, dry and rocky places
Distribution: Common in Himalayas, Kashmir, Bhutan, Punjab, Western Ghats, India, South West China, Indo-China
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Leaves, roots
Elevation: 450-1100 m
Morphological Description: A shrub. Oppositely arranged light green leaves, oblong, lanceolate, serrated. White flowers look hairy like squirrel's tail.
Common uses: If a lady holds in her secret organ the root grinded in her own urine the male partner ejaculates within no time in the process and she vanquish him.
Ethnomedicinal uses: Dermatitis, nose bleeding, cough, fever, headache, dysentery, epilepsy, ulcers.

Botanical Name: *Citrus medica* Linn
Local Name: Galgal
Family: Rutaceae
Habitat: Cultivated in gardens, common in fields, agriculture.
Distribution: Native to Southeast Asia, India, Burma, Western Ghats, Pakistan, Europe, Italy
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: flowers, fruits, seeds
Elevation: 450-1300 m
Morphological Description: A small tree. Leaves are unifoliate, petioles naked or winged, ovate serrate. Flowers are white, unisexual. Fruits are berry globose or oblong, yellow when ripe, thick and irregularly shaped.
Common uses: Hing (*Asafetida*), roasted in the decoction of rind with some salt in it, is given in case of intestinal worms.
Ethnomedicinal uses: Headache, stomach ache, coughs, cold.

Botanical Name: *Cynodon dactylon* Linn.
Local Name: Doob
Family: Poaceae
Habitat: Common in gardens, roadside, uncultivated lands.
Distribution: Africa, Western parts of the Indian Ocean, Kenya, Uganda
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Whole plant
Elevation: 450-800 m
Morphological Description: Blades are grey-green color and are short. The erect stem is slightly flattened. Seeds are produced in clusters.
Common uses: The herb is considered most sacred in Hindu Mythology. It is required in every religious ceremony and is included in all offerings to the gods and goddesses. There is a tradition that the Shudras offer it to their "Bajiya" (Member of the family, in whose home the ceremony was performed) as a shagun (a good omen) to be kept of the ear-base and in turn, the Shudra is given something as a tip (bakshish).The herb is known for its modesty as it remains spreader on the earth and does not rise its head against, though full of virtues. Many a times, the olds, cite its example that the one who is full of virtues remains calm, on its politeness Guru Nanak has also remarked.

"Nankani chaho chale, jaisi neechi doob; Aur ghas sookh jayega, doob khoob ki khoob"

Ethnomedicinal uses: Fever, ulcers, stomach infection, nose bleeding.

Botanical Name: *Cascuta reflexa* Roxb.
Local Name: Amarbel
Family: Cascutaceae
Habitat: Dry deciduous forests at lower altitude.
Distribution: China, Indo-Malaysia, Assam, Maharashtra, Meghalaya, Odisha, Kerala,
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Mandi
Plant Part used: Whole plant
Elevation: 500-1200 m
Morphological Description: Parasitic plant. Leafless twined sprawling thin vine grows over a host plant.
Common uses: Give and take of any times is a common practice in villages but if someone borrow and then turn a deaf ear to, he is cited the example of "Amarbel". Of its habit of complete parasitism, they remark that she is receiving with interest what so ever she had landed in the previous birth. Through this example, they wish to convey that one should be fair in dealings. Its powder, ginger-powder, mixed with butter is applied on long standing wounds.
Ethnomedicinal uses: Prevent hair fall, headache, fever, rheumatism, constipation.

Botanical Name: *Cannabis sativa* Linn.
Local Name: Bhang
Family: Cannabaceae
Habitat: Cultivate as well grow wild.

Distribution: South Africa, China, India, Nepal, Bhutan, Myanmar
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Leaves, flowers
Elevation: 650-1700 m
Morphological Description: Annual herb. Erect stems. Flowers are monoecious, dioecious. Leaves are palmately compound with serrate leaflets.
Common uses: The root of bhang, if dug on Sunday or Tuesday and tied on the head, the turbulence of evil spirits is vanished. "*Ghota*" (a special preparation from the leaves and seeds battered in milk and water with sugar in it) is relished by many on the occasion of "Shiva Ratri".
Ethnomedicinal uses: Asthma, bronchitis, coughs and pains, treatment of cancer.

Botanical Name: *Cinnamomum tamala* Nees & Ebesm.
Local Name: Tejpata
Family: Lauraceae
Habitat: In valleys, hills and warm places.
Distribution: Sub-Tropical Himalayas, Kashi
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Leaves.
Elevation: 750-1800 m
Morphological Description: A tree. Leaves glabrous, three nerved from the base long pointed. Flowers are unisexual, white.
Common uses: The leaves are sometimes in lawfully used to poison the cattle.
Ethnomedicinal uses: Colic diarrheoa

Botanical Name: *Cedrela toona* Roxb.
Local Name: Tooni
Family: Meliaceae
Habitat: Along road side and waste places
Distribution: Sub-Himalayan tracks, Eastern India, Assam, South India, and Western Ghats.
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, flower.
Elevation: 450-1000 m
Morphological Description: A tree. Flowers are fragrant, petals ciliate. Seeds 1-3cm long winged at both ends
Common uses: In case of throat blockage to cough, powder of dried bark is Put in "*Chilam*" (Cylindrical pipes made by potter for smoking) and smoked. In case the person is unable to smoke, another person can store the smoke in his mouth and reek on to the mouth or nose of the sufferer.
Ethnomedicinal uses: Dysentery, ulcers

Botanical Name: *Cassia fistula* Linn.
Local Name: Amaltas
Family: Caesalpiniaaceae
Habitat: Common in Deciduous forests, sub-tropical, tropical region
Distribution: Sri Lanka, Thailand, Malaysia, Mexico, India, Pakistan
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Mandi
Plant Part used: Fruits, bark, roots, leave
Elevation: 750-1800 m
Morphological Description: A medium size tree. Leaves are smooth, ovate, alternate, pinate. Flowers are bright yellow. Fruits long pods green in colour.
Common uses: The seeds are picked and are also used as a substitute for coffee.
Ethnomedicinal uses: Constipation, cough, rheumatism, diabetes, malaria.

Botanical Name: *Carica papaya* Roxb.
Local Name: Papeeta
Family: Caricaceae
Habitat: Cultivate for its delicious fruits.
Distribution: Native of Tropical Central America, Commonly in India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, fruit, leaves, roots, seeds.
Elevation: 450-2000 m
Morphological Description: A tree. Large glabrous palamtifid and palaminerved leaves.
Common uses: The unripe fruits are cooked as vegetable while the ripe ones are eaten as such. These are also used for preparing soft drinks.
Ethnomedicinal uses: Lower cholesterol level, jaundice.

Botanical Name: *Calotropis procera* R.Br.
Local Name: Ak
Family: Asclepiadaceae
Habitat: In warm dry places, common in wastelands.
Distribution: Persia, Tropical Africa, Common in India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, flower, leaves.
Elevation: 450-1050 m
Morphological Description: A shrub. Flowers pink, spotted with purple, follicles thick, wrinkled, covered with wooly pubescence.
Common uses: In acute pain during delivery, the leaves if tied to the head are effective. According to a conception the leaves are only effective of the plant is solicitude as day before and told that your leaves are required for the welfare of some one.
Ethnomedicinal uses: Leprosy, dysentery, diarrhea.

Botanical Name: *Centella asiatica* L.
Local Name: Bhrami
Family: Apaiceae
Habitat: Grows in swampy areas.
Distribution: Native to China, Japan, Indonesia, India, Pakistan, Sri Lanka, South Africa, Eastern Europe.
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Whole plant
Elevation: 450-1800 m
Morphological Description: Perennial herb. Leaves are fan shaped. Flowers pink or white. Fruit is oval.
Common uses: Fresh leaves (if dried), almond (10 in number), seeds of Cardamom and of cucumber, musk-melon and water-melon. After detaching the seed-coats and black-pepper (7 in Number) are taken finely grounded and filtered. Sugar-candy is added to it. The mixture if used I summer regularly for a month it gives strength to heart and mind.

Ethnomedicinal uses: Memory enhancement, depression, leprosy, ulcers, cold, fever, asthma, cancer

Botanical Name: *Catharanthus roseus* (L.) G. Don
Local Name: Sadabahar
Family: Apocynaceae
Habitat: Commonly available in gardens, wastelands, roadsides.
Distribution: Vietnam, Sri Lanka, Philippines, Australia, India, Tamil Nadu, Karnataka, Gujarat, Madhya Pradesh, Assam
Foot Hill regions of Himachal Pradesh: Hamirpur, Bilaspur, Mandi
Plant Part used: Leaves, roots
Elevation: 450-1000 m
Morphological Description: An evergreen shrub. Leaves are shiny, dark green, glossy and oval. Flowers are purple or white in color.
Common uses: The flowers heads are considered patient and unerring to root out any kind of mole on the face or any other part of the body.
Ethnomedicinal uses: Diabetes, skin diseases, pimples, sedative

Botanical Name: *Colocasia esculenta* L.
Local Name: Kachalu
Family: Araceae
Habitat: Cultivated in hotter parts.
Distribution: South east Asia, Southern India, Africa, East India, Nepal, Bangladesh, East Asia, America
Foot Hill regions of Himachal Pradesh: Hamirpur, Bilaspur, Mandi
Plant Part used: Leaves, corns
Elevation: 450-2000 m
Morphological Description: Perennial herb. Leaves are pellate, ovate with cordate lamina, long petiole. Underground stem are swollen, fleshy, dark brown color
Common uses: The tuber are boiled or fried and eaten as a vegetable. The leaves are spiced, folded and boiled. These are locally called "Patroru" a very delicious dish.
Ethnomedicinal uses: Constipation, stomachic, weakness.

Botanical Name: *Datura stramonium* Linn.
Local Name: Datura
Family: Solanaceae
Habitat: Common in agricultural fields, roadside and waste grounds, along coastal beaches.
Distribution: Native to Central America, Mexico, Southern part of United States, Asia, England
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Mandi
Plant Part used: Roots, leaves, stem, fruits, seeds.
Elevation: 350-1000 m
Morphological Description: An herbaceous annual. Green to purplish stems hollow. Leaves are ovate to sub ovate leaves serrate margin, white to purple, axillary, trumpet shaped flowers. Seeds are ovoid, dark, wrinkled seeds.
Common uses: The seeds are sometimes used illicitly for homicidal proposes and to poison the cattle.
Ethnomedicinal uses: Rheumatism, inflammation, asthma, diarrhea, dermatisis, congestion, skin diseases.

Botanical Name: *Dalbergia sissoo* Grah.
Local Name: Taali
Family: Fabaceae
Habitat: Common near streams and rivers, agricultural areas and roadside.
Distribution: Pakistan, Afghanistan, Persia, Iraq, Kenya, Burma, Mauritius, Africa, Nepal, Punjab
Foot Hill regions of Himachal Pradesh: Una, Hamirpur
Plant Part used: Seeds, bark
Elevation: 400-1300m.
Morphological Description: A tree. Leaves are imparipinate, alternate, and broad ovate. Flowers are pale white to dull yellow. Pods are narrowed at the base, glabrous. Seeds are kidney shaped, thin, light brown.
Common uses: The dried leaves are used as "Patri" (Biomass mulch) in corm crops.
Ethnomedicinal uses: Vomiting, piles, diarrhea, jaundice, pimples, skin diseases.

Botanical Name: *Dodonaea viscose* L. Jcab. Subsp.
Local Name: Mehndu
Family: Sapindaceae
Habitat: Occur in coastland bush land, on the landward side of mangrove forest, on sand dune also cultivate in gardens
Distribution: Australia, Africa, Madagascar
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur
Plant Part used: Stem, leaves, roots
Elevation: 350-1000 m
Morphological Description: A shrub. Bark blackish, rough. Leaves alternate, simple, margin entire. Flowers are bisexual, unisexual, and whitish to greenish-yellow. Fruits winged papery capsule, white to brown in color. Seeds are sub-globose.
Common uses: The boiled leaves are used as pain relievers in bone fracturing.
Ethnomedicinal Uses: Poultice, sore throats, cold, cough, rheumatism.

Botanical Name: *Dendrocalamus strictus* Nees.
Local Name: Bans Kaban
Family: Poaceae
Habitat: Widely spread
Distribution: Nepal, Myanmar, Java, all over India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur
Plant Part used: Leaves
Elevation: 350-1000m
Morphological Description: A perennial bamboo, Culm tall
Common uses: The culms are used to make "Nalpi" for ingesting milk and mustered oil to heifers.
Ethnomedicinal uses: Cough, asthma, ulcers.

Botanical Name: *Eclipta alba* Hassk.
Local Name: Babri
Family: Asteraceae
Habitat: Found in rice fields or marshy grounds.
Distribution: All warm countries, throughout India
Foot Hill regions of Himachal Pradesh: Bilaspur, Mandi
Plant Part used: Leaves, roots

Elevation: 400-1800 m
Morphological Description: A small annual herb. Achenes are oblong, ribbed, glabrous.
Common uses: The leaves are used to make "Beuden" and seeds are used as "haven Samagri" by Hindus.
Ethnomedicinal uses: Cough, toothache, indigestion

Botanical Name: *Eucalyptus tereticornis* Sm.
Local Name: Safeda
Family: Myrtaceae
Habitat: Commonly available on roadsides
Distribution: Native to Eastern Australia, New Guinea, Victoria, Uganda, Zimbabwe, Ethiopia, India, Brazil
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Leaves, seeds, bark
Elevation: 1200-1500 m
Morphological Description: A tree. The bark is shed in irregular sheets, smooth trunk and patches of white, grey and blue color. Leaves are narrow, lance late and green. Flowers are axillary, solitary, white. Fruits are ovoid capsule. Seeds are rough, brown-black.
Common uses: The dried leaves are used as organic pesticides in granaries.
Ethnomedicinal uses: Bronchitis, asthma, fever, pulmonary problems, diabetes, ulcers.

Botanical Name: *Emblica officinalis* Gaertn.
Local Name: Amla
Family: Euphorbiaceae
Habitat: Common in forests, cultivate in gardens and home yards
Distribution: Throughout tropical and subtropical India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, fruits, roots, seeds
Elevation: 350-1500 m
Morphological Description: A tree. Bark grayish brown with irregular flakes. Drooping branches and compound leaves are present. Leaflets small and numerous, flowers produced below the leaves.
Common uses: The fruits are either eaten raw, pickled or marmalade. According to a folk-tale, on an auspicious day, "Bhagwati Parvati" and "Laxmi" had been to a pilgrimage. "Parvati" said to "Laxmi" that today she wishes to worship "Hari" with something new Laxmi was also desirous of doing so. Both were very happy with the proposal and at the same moment tears of joy tricked down. It is with these tears, the tree (*Emblica officinalis*) is thought to have originated. Local proverbs:

"Syanyan Ra Galai-Ra kane Amlyan Ra Swad Pichhe Te Auan da"

Means, as the taste of Amla (*Emblica officinalis*), is relished only after it is eaten, the advice of olds is also paying in long run.The olds relate the proverb to the young's, in the condition when they unnoticed their advice. To wear the garland of "Amla" in dreams is considered a good-omen.
Ethnomedicinal uses: Diarrhea, jaundice, indigestion.

Botanical Name: *Ficus bengelensis* Linn.
Local Name: Bargad
Family: Moraceae
Habitat: Sides near temples, roads.
Distribution: Sub-Himalayan regions, throughout India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Fruits, latex, leaves, roots
Elevation: 600-1200 m
Morphological Description: A tree. Roots are aerial and pubescent young parts. Leaves are ovate, obtuse, and entire. Figs are pubescent, sessile, axillary.
Common uses: The wood is used in Yajna. The leaves and twigs are used in spiritual ceremonies. The beads purchased from market for muttering of prayers, are first embellished by putting in "Dona or Dunna" (Leaves, folded up in the form of a scup and used for holding things) made of its fresh leaves and then expunged before use.
Ethnomedicinal uses: Diarrhea, dysentery, diabetes.

Botanical Name: *Ficus glomerata* Roxb.
Local Name: Tryambloo
Family: Moraceae
Habitat: Common in tropical forests.
Distribution: Outer Himalayas, Burma, eastern parts of Punjab
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur
Plant Part used: Bark, leaves, latex
Elevation: 400-1000m
Morphological Description: A tree. Achenes 1-2 mm long, ovoid, yellowish-brown with red dots.
Common uses: The fruits are edibles. The wood is mainly used as a fuel.
Ethnomedicinal uses: Diarrhea, diabetes, piles

Botanical Name: *Ficus religiosa* Linn.
Local Name: Pepal
Family: Moraceae
Habitat: Commonly planted on village sides as an avenue tree.
Distribution: Pakistan- Butan, Punjab, Eastern part of Shivalik tracked
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur
Plant Part used: Bark, fruits, roots, seeds.
Elevation: 750-1500 m
Morphological Description: A tree. Lives long petioled, tip narrowed into a linear tail like point young foliage pinkish, axillary slightly vertically flattened.
Common uses: The powder of dried fruits it taken with boiled milk for 14 days after the menstruation period, it overcomes infertility. In Hindu Mythology, no other tree is considered as sacred as the "Pipal". In "Bhagwat Geeta", the sacred book of Hindus, Lord "Krishna" has compared himself with this tree; rather he has considered himself, the Pipal among trees.

"Ashvath Sarv-Brikshanam"

Ethnomedicinal uses: Ulcers, skin diseases.

Botanical Name: *Prunus domestica* Linn.
Local Name: Plum
Family: Flacourtiaceae
Habitat: on dry rocky hills.
Distribution: Afghanistan, Pakistan, Delhi- West
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, fruits, roots
Elevation: 750-1700 m

Morphological Description: A tree. Flower greenish yellow, dioecious. Fruit are dark brown tored, edible.
Common uses: Used as a favorite table fruit, also canned or prepared into jams.
Ethnomedicinal uses: Jaundice.

Botanical Name: *Fumaria parpviflora* Linn.

Local Name: Pitpapra
Family: Papaveraceae
Habitat: Common weed in fields
Distribution: Temperate regions of North hemisphere/ occurs in gardens of temperate region of India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Leaves, seeds, whole plant
Elevation: 750-2000 m
Morphological Description: An annual herb. Corolla is pinkish-white. Fruit are 2 mm in diameter, globose, 1-seeded nutlet, hard, glabrous.
Common uses: The leaves are used as seasonal leafy vegetables and eaten with "Chhali-ki-roti" (Zea mays).
Ethnomedicinal uses: Indigestion, fever, vomiting.

Botanical Name: *Foeniculum vulgare* Mill.
Local Name: Bann-Saunf
Family: Apiaceae
Habitat: Cultivate in kitchen gardens.
Distribution: Native to Southern Europe, South East Asia and Mediterranean region cultivated throughout the India
Foot Hill regions of Himachal Pradesh: Hamirpur, Mandi
Plant Part used: Seeds,
Elevation: 1100-1850 m
Morphological Description: An herb. Stem erect, leaves thrice pinnate, awl-shaped leaflets. Flowers are golden yellow, terminal umbels. Seeds are glabrous, greenish in color.
Common uses: The dried seeds are roasted and mixed with candy sugar. It is consumed during dehydration.
Ethnomedicinal uses: Reduce cough, mouth freshener, dysentery, headache, improve digestive system.

Botanical Name: *Grewia optiva* JR.D ex B
Local Name: Beul
Family: Malvaceae
Habitat: Grow near agricultural field, naturally occurred in field bunds in villages.
Distribution: Found in Himalayan region in Pakistan, Nepal, India, Bengal, Punjab, Uttarakhand, Jammu and Kashmir
Foot Hill regions of Himachal Pradesh: Bilaspur, Mandi
Plant Part used: Leaves, bark, fruits
Elevation: 500- 2000 m.
Morphological Description: A deciduous tree. Bark dark brown, leaves are opposite, ovate, toothed, rough, hairy. Flowers pale yellow with white petals, seeds are round olive green in color when unripe and black in color when ripe.
Common uses: The leaves are used as excellent fodder for milch animals. The cellulose of sticks converted into hard fibers after soaking them in stagnant water through fermentation process. The hard fibers are used to make ropes.
Ethnomedicinal uses: Shampoo from bark is used for washing hairs, arthritis, and diarrhoea

Botanical Name: *Heteropogon contortus* Linn.

Local Name: Jar
Family: Poaceae
Habitat: Common in open grassland
Distribution: Myanmar, Africa, W. Bengal, Meghalaya, Nagaland , Jammu and Kashmir, Delhi, Uttar Pradesh, Manipur, Orissa
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Roots
Elevation: 350-1950 m
Morphological Description: A glabrous perennial grass. Fertile spiklets long awned, sessile spikelets and contain only stamens.
Common uses: The plant is transplanted on bunds of crop-fields as biofencing.
Ethnomedicinal uses: Burns, wound, mouth ulcers.

Botanical Name: *Holoptelia intergifolia* Planch
Local Name: Papri
Family: Ulmaceae
Habitat: Common in wastelands, forests, and along road sides.
Distribution: Sri Lanka, Burma, China
Foot Hill regions of Himachal Pradesh: Una, Hamirpur
Plant Part used: Bark, fruits, leaves, seeds
Elevation: 350-600 m
Morphological Description: A tree. Leaves are alternate, elliptic, and entire. Flowers are in fascicles on leafless branches.
Common uses: It is used as fuel and fodder.
Ethnomedicinal uses: Diabetes, wounds, piles, vomiting

Botanical Name: *Hollarrhena antidysentrica* Wall.

Local Name: Inderjau
Family: Apocynaceae
Habitat: Common in wild and open wastelands
Distribution: Found in Asian countries, Sub Himalayan tract, tropical India, Sub-Himalayan tract, Assam, Utter Pradesh
Foot Hill regions of Himachal Pradesh: Hamirpur, Bilaspur
Plant Part used: Bark, seeds, flowers, fruits
Elevation: 600-1100 m
Morphological Description: A tree. Leaves are broad, opposite, oval. Flowers are white; fruits are paired cylindrical in shape. Seeds are light brown in color.
Common uses: The leaves are sometimes used as a flavoring agent.
Ethnomedicinal uses: Diabetes, piles, arthritis, inflammation, dysentery, diarrhea

Botanical Name: *Hibiscus-rosa-sinensis* L.
Local Name: Gulmehnda
Family: Malvaceae
Habitat: Cultivate as an ornament in gardens, hedge.
Distribution: Africa, Asia, Australia, Bangladesh, Indonesia, Malaysia, Italy, Pakistan, Myanmar, Sri Lanka
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Leaves, buds, flowers
Elevation: 650-1500 m
Morphological Description: A shrub. Leaves are simple, ovate, and entire at the base and coarsely toothed at the apex. Flowers are actinomorphic, pentamerous, and red in color.

Common uses: The plant used hedge plant in kitchen gardening.
Ethnomedicinal uses: Leaves, buds, flowers

Botanical Name: *Hordeum vulgare* L.
Local Name: Jau
Family: Poaceae
Habitat: Grown in temperate region worldwide.
Distribution: Native to Middle East, from Afghanistan to northern India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur
Plant Part used: Seeds
Elevation: 450-800 m
Morphological Description: Annual herb. Stem erect, stout. Leaves few, alternate, and linear, spikes terminal, linear-oblong, compressed, and densely flowered.
Common uses: The flour either alone or mixed with wheat flour is used for brad making.
Ethnomedicinal uses: Diuretic, diabetes, burning sensation, anemia, cough, piles, cholesterol

Botanical Name: *Mallotus philippensis* Arg.
Local Name: Kambal
Family: Euphorbiaceae
Habitat: Grows in miscellaneous and sal forests.
Distribution: Burma, Singapore, Andaman Island, Sindh, Ceylon, China, Australia throughout India
Foot Hill regions of Himachal Pradesh: Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, flower, leaves, fruits, seeds (whole plant
Elevation: 750-1800 m
Morphological Description: A tree. Inflorescence is rusty pubescent. Flowers are yellowish, diocious. Seeds sub globose, black, wrinkled.
Common uses: The wood is not good for furniture except some tool handles and mainly as a fire-wood.
Ethnomedicinal uses: Constipation, wounds, ulcers

Botanical Name: *Mangifera indica* Linn.
Local Name: Amb
Family: Anarcardiaceae
Habitat: Common tree all over India, cultivate for its delicious fruits.
Distribution: Tropical Himalayas throughout warmer parts of India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur
Plant Part used: Bark, flowers, fruits, leaves, roots, seeds.
Elevation: 350-1300 m
Morphological Description: A tree. Flowers are yellowish green, drupes fleshy, compressed. Ovoid, oblique, stone fibrous compressed.
Common uses: The king of fruits is generally grown for its delicious fruits. The unripe fruits are used for Chutney and preparation of powder ("Amchur"). These are also dried after making pieces, without the stone. These are locally called "Bukrian" and store for months to make sour vegetable called "Mhani".
Ethnomedicinal uses: Asthma, diarrhea, loose motions, dysentery, bleeding piles

Botanical Name: *Momordica charantia* L.
Local Name: Karela
Family: Cucurbutaceae
Habitat: Wild as well as cultivate
Distribution: South East Asia, East Africa Andaman & Nicobar, Thialand, Sri Lanka ,Vietnam
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur
Plant Part used: Seeds, fruits
Elevation: 350-1000 m
Morphological Description: Stem selender, green. Leaves are long, rounded and deeply lobed. Flowers yellow. Fruit are pendulus cylindrical. Seeds are woody and orange yellow.
Common uses: Young fruits are consumed as vegetable; these are also sliced and preserved for later use.
Ethnomedicinal uses: Diabetes, stomached, rheumatism, cough, ulcers.

Botanical Name: *Melia azedarach* Linn.
Local Name: Drek
Family: Meliaceae
Habitat: Cultivate along road sides.
Distribution: Sub-Himalayas tract, commonly cultivated in India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, fruits, seeds.
Elevation: 450-2000 m
Morphological Description: A tree. Drupe 1.2-1.6 cm long, ovoid or oblong, yellow and wrinkled when ripe, stone 5-seeded.
Common uses: The wood is considered the best for agricultural implements, particularly ploughs.
Ethnomedicinal uses: Malaria, skin diseases, indigestion, headache.

Botanical Name: *Mentha piperita* Linn.
Local Name: Pudina
Family: Lamiaceae
Habitat: Common in marshes places and near water course.
Distribution: Europe, Asia, North America throughout tropics of India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Whole plant.
Elevation: 450-1300 m
Morphological Description: A perennial herb. The leaves are oblong, lanceolate, rounded at the base, serrate. Flowers are in whorls, small purplish.
Common uses: The leaves are used to make "chatani" during Summer season.
Ethnomedicinal uses: Stomach disorders, indigestion, cough and cold.

Botanical Name: *Murraya koengii* Spreng
Local Name: Gandhala
Family: Rutaceae
Habitat: Common on hills, slopes, in forests.
Distribution: Sri Lanka, China, Laos, Java, Cambodia, throughout India

Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Leaves, Bark, fruits, roots.
Elevation: 800-1450 m
Morphological Description: A shrub. Flowers white, fruit berry, black, wrinkled, seeds oblong plano convex, glabrous.
Common uses: The leaves are used as coolant and also used in flavor "Kaddi'. The twigs and leaves are used as a fodder.
Ethnomedicinal uses: Dysentery, renal pain, control blood pressure, lower cholesterol level.

Botanical Name: *Nerium indicum* Mill.
Local Name: Kaner
Family: Apocynaceae
Habitat: Open hills sides, common in foot hills
Distribution: Baluchistan, Afghanistan, Himalayas, Central India
Foot Hill regions of Himachal Pradesh: Mandi
Plant Part used: Bark, leave, roots (whole plant)
Elevation: 750-1950 m
Morphological Description: A shrub. Leaves are narrowly lanceolate, flowers red or pink fragrant.
Common uses: The twigs and leaves are used as "Patri'(Biomass mulch) in corm crops.
Ethnomedicinal uses: Skin diseases, diabetes, ear ache

Botanical Name: *Ocimum sanctum* L.
Local Name: Tulsi
Family: Lamiaceae
Habitat: Common in homes, temples and farms
Distribution: Native to Indian subcontinent, southeast Asia, India, Nepal, Punjab
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Leaves, roots, seeds
Elevation: 350-2000 m
Morphological Description: A shrub. Leaves are green or purple, simple, petioled, ovate, slightly toothed margin. Flowers are purplish in color.
Common uses: The leaves are used as a flavoring material for cooking. 2-3 leaves are generally used to flavor tea. "Tulsi" is considered the most sacred herb in Hindu mythology. Brahmins hold it sacred to the Gods, *Krishna* and *Vishnu.* The herb can be seen growing in almost every third house of the Hindus; even some makes a special dais for it, so that they may have a first glimpse of it, in the early morning. An old tradition of marrying 'Tulsi' still prevails in areas. The natives arrange special function for that. The herb is decorated (in a seat, specially designed for it) and taken around the village, in palanquin. Various food items are prepared in the occasion relished by the villagers and the trespassers.
Ethnomedicinal uses: Fever, common cold cough, mouth ulcers, headache, skin problems

Botanical Name: *Ocimum basilicum* L.
Local Name: Barbari
Family: Lamiaceae
Habitat: Growing wild in tropical region as well as cultivated as a kitchen herb.
Distribution: Native to India and Iran
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur
Plant Part used: Leaves, seeds, flowers
Elevation: 450-1000 m
Morphological Description: Perennial herb. Leaves are shiny, aromatic, and green in color. Flowers are small white grows in spike at the end of stem. Seeds are small, oval black in color.
Common uses: Used as a flavoring agent for pulses, pickles, sauces and confectionery.
Ethnomedicinal uses: Nose infection, piles, constipation, pimples, acne

Botanical Name: *Paspalum scorbiculatum* Linn.
Local Name: Kodra
Family: Poaceae
Habitat: Cultivate or wild
Distribution: Sri Lanka, Singapore, Tropical and Sub-Tropical parts of India, Assam, Madras
Foot Hill regions of Himachal Pradesh: Bilaspur, Mandi
Plant Part used: Seeds, roots, stems
Elevation: 700-2000 m
Morphological Description: Annual and perennial grass.
Common uses: The leaves are given to cattle and it brings them in their heat period frequently.
Ethnomedicinal uses: Diabetes

Botanical Name: *Phoenix sylvestris* Roxb.
Local Name: Khajoor
Family: Arecaceae
Habitat: Common in village boundries and areas.
Distribution: Burma, throughout India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Fruits, leaves, roots.
Elevation: 350-1500 m
Morphological Description: A tree. Stem rough with prominent scars of fallen petioles. No root suckers
Common uses: The leaves are used to make cushion and mats.
Ethnomedicinal uses: Respiratory diseases, fever.

Botanical Name: *Pistacia integrrima* Stewat
Local Name: Kakarsingi
Family: Anacardiaceae
Habitat: Common along road sides and rivulents.
Distribution: Western Himalayas
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Fruits, leaves, seeds
Elevation: 600- 1800 m
Morphological Description: A tree. Leaves pinnae, petals absent stamen large deep red
Common uses: The fruits are burnt on dung-cake and given to children in cough and cold.
Ethnomedicinal uses: Asthma, dysentery, tuberculosis.

Botanical Name: *Psidium guajava* Linn
Local Name: Amrud
Family: Myrtaceae
Habitat: Commonly cultivate in and around villages, sometimes wild
Distribution: Mexico to Columbia, throughout India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi

Plant Part used: Leaves, Bark, flower, fruits, roots, seeds
Elevation: 350-800 m
Morphological Description: A tree. Stem smooth with pealing bark. Leaves elliptic oblong, base rounded to obtuse.
Common uses: Fruits are eaten. The leaves ae sometimes used as a flavoring agent.
Ethnomedicinal uses: Ulcer, constipation

Botanical Name: *Punica granatum* Linn
Local Name: Anar
Family: Lythraceae
Habitat: Common on dry slopes
Distribution: Native of Iran, Afghanistan, Baluchistan, cultivated throughout India
Foot Hill regions of Himachal Pradesh: Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, fruits, flowers, roots, seeds
Elevation: 700-1800 m
Morphological Description: A shrub or a tree. Petals wrinkled red. Fruits woody, tipped with persistant calyx. Seeds angular, red or pink, testa thick fleshy, juicy
Common uses: Fleshy testa is edibles; seed-juice is a favorite drink. The dried seeds are a source of "anardana" which is mainly used for acidification of chatneys.
Ethnomedicinal uses: Diarrhoea, dysentery, bronchitis

Botanical Name: *Phyllanthus niruri* Schum & Thonn
Local Name: Jangliamli
Family: Euphorbiaceae
Habitat: Grow as weed throughout the hotter part of country. Abundantly in gardens, roadside, open areas.
Distribution: Tropical and sub-tropical region of Asia, Africa, America
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Whole plant
Elevation: 350-1200 m
Morphological Description: Annual herb. Leaves are compound, arranged in two rows, alternate, and opposite, sessile, oblong, and entire. Stem is slender, light brown, taste slightly bitter.
Common uses: Decoction of leaves is given for "sokra", a xerantic disease in children.
Ethnomedicinal uses: Malarial fever, inflammation, jaundice, dysentery, lowers blood pressure, wounds, and ulcers.

Botanical Name: *Papaver somniferum* L.
Local Name: Afhem
Family: Papaveraceae
Habitat: Grown as legal agricultural crop as well s grows wildly
Distribution: Native to southern Europe and Northern Africa, France, India, Iran, Turkey, Asia
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Leaves, Seeds,
Elevation: 450-2400 m
Morphological Description: Annual herb. Leaves are simple with serrated margin. Flowers are red in color, hermaphrodite.
Common uses: The unripe fruits are sometimes used illicitly for homicidal proposes and to poison the cattle.
Ethnomedicinal uses: Sedative, astringent, narcotic, cough, cold, respiratory depressant

Botanical Name: *Pongamia pinnata* L.
Local Name: Pongam
Family: Fabaceae
Habitat: Cultivated tree
Distribution: Eastern Asia, East Asia, North Eastern Asia, Fiji, Japan
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Stem, bark, leaves, flowers, seeds
Elevation: 450-1200 m
Morphological Description: A tree. Leaves are alternate, dark green. Flowers are pink. Pods smooth, oblique, 1-2 seeded.
Common uses: The leaves of *Pongamia pinnata*, Karanj (*Derris indica*), Neem (*Azadirachta indica*) and Khair (*Acacia catechu*) are grinded in the urine of cow, are applied as a poultice on the body and the leaves of all the three plants are boiled in water and the patient of Leprosy is made to bath. The same boiled water is given to drink.
Ethnomedicinal uses: Stomachic, cough and cold, rheumatism, skin pigmentation, liver disorders

Botanical Name: *Pyrus malus* L.
Local Name: Saeb
Family: Rosaceae
Habitat: Grow wild in temperate regions as well as cultivated in gardens, agriculture, and horticulture.
Distribution: Native to Europe, west Asia, Himalayas, Punjab, Central India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Fruits, dried fruit peels, flowers, leaves
Elevation: 650-1500 m
Morphological Description: Perennial tree. Leaves are alternate, ovate, and finely crenate-serrate. Flowers are umbelled racemes, white, and pink in color. Fruits are large, globose, intruded at both ends.
Common uses: The ripe fruits are eaten.
Ethnomedicinal uses: Cancer, diabetes, heart diseases, hypertension

Botanical Name: *Rosa kordesii* H. Wulff
Local Name: Gulab
Family: Rosaceae
Habitat: Commonly cultivate in gardens, agriculture
Distribution: China, America, Africa, India, Punjab
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Flower
Elevation: 450-1500 m
Morphological Description: Deciduous shrub. Leaves are opposite, toothed margins, dark green in color. Flowers are red in color.
Common uses: The petals are used to make "Gul-Kand" as coolant.
Ethnomedicinal uses: Infection in digestive tract & intestine, sore throat, skin problems, diarrhea

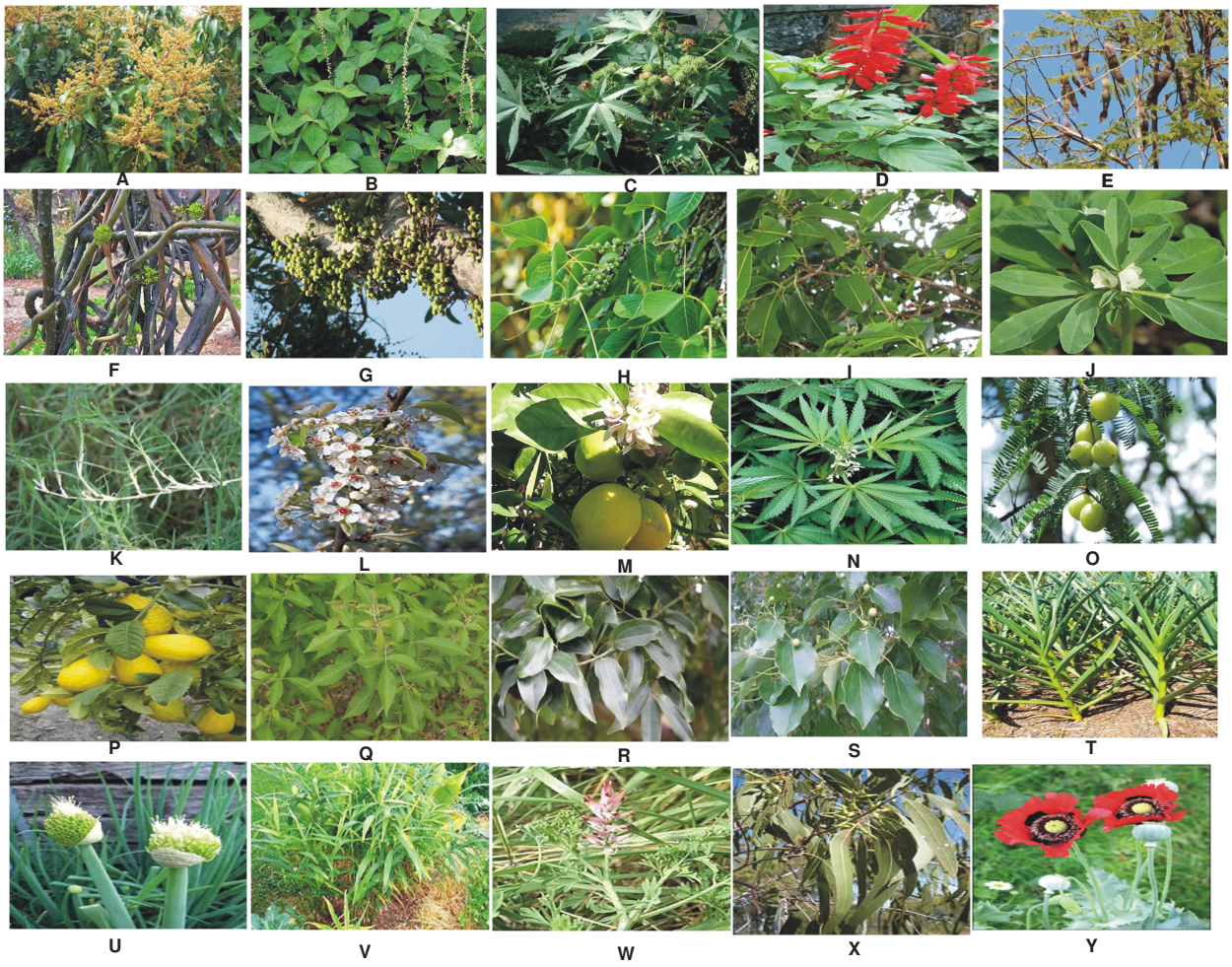

PLATE 1. A. *Mangifera indica* Linn. (Aam), **B.** *Achyranthes bidentata* Linn. (Puthkanda) **C.** *Ricinus communis* Linn. (Arand) **D.** *Salvia splendens* Linn. (sage) **E.** *Acacia catechu* Willd (Khair) **F.** *Tinospora cordifolia* Bunge. (Galoye) **G.** *Ficus glomerata* Roxb. (Tryambloo) **H.** *Ficus religosa* Roxb. (Peepal) **I.** *Syzygium cuminii* Linn. (Jamun) **J.** *Trigonella foenum-graecum* Linn. (Methi) **K.** *Cynodon dactylon* Linn. (Doob) **L.** *Pyrus pashia* Buch.-Ham. (Kainth) **M.** *Citrus limon Linn*. (Nimbu) **N.** *Cannabis sativa* Linn. (Bhang) **O.** *Emblica officinalis* Gaertn.(Amla) **P.** *Citrus medica* Linn. (Galgal) **Q.** *Vitex negundo* Linn. (Banna) **R.** *Cinnamomum tamala* Roxb. (Tejpatta) **S.** *Cinnamomum camphora* Linn. (kapoor) **T.** *Allium sativum* Linn. (Lahasun) **U.** *Allium cepa* Linn. (Pyaz) **V.** *Zingiber officinale* Linn.(Adarak) **W.** *Fumaria officinalis* Roxb. (Pithpapda) **X.** *Eucalyptus tereticornis* Linn. (Safeda) **Y.** *Papaver somniferum* Roxb. (Afem).

Botanical Name: *Rubus ellipticus* Smith
Local Name: Aakhae
Family: Rosaceae
Habitat: Common in road side
Distribution: Native to China, Nepal, Indian subcontinent, Indochina, Philippines
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Fruits, roots
Elevation: 450-2000 m
Morphological Description: A large shrub. Stout stem, leaves are trifoliate, elliptic, ovate toothed margin, flowers are short, white, grow in clusters. Fruits are golden yellow in color.
Common uses: Fruits are edible, have excellent flavor (as that of raspberry) and taste.
Ethnomedicinal uses: Stomach pain, headache, and indigestion.

Botanical Name: *Ricinus communis* Linn.
Local Name: Erandi
Family: Euphorbiaceae
Habitat: Frequently met within wastelands, usually near habitations throughout.
Distribution: Throughout the tropics, indigenous to Africa, throughout India
Foot Hill regions of Himachal Pradesh: Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, flower, leaves, roots, stems, seeds.
Elevation: 700-2000 m
Morphological Description: A perennial shrub. Leaves are peltate, large, palmately lobed, and serrate. Flowers are large in terminal, racemes, monoecious.
Common uses: The fruits are emetic and expectorant; these are used in epilepsy, chlorosis and excessive salvation.

Ethnomedicinal uses: Constipation, joint pains, stomach ache.

Botanical Name: *Salvia splendens* Linn.
Local Name: Sefakuss
Family: Lamiaceae
Habitat: Commonly cultivate in and around villages, along road sides.
Distribution: Philippines, Baguio city, native to Brazil
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, leaves
Elevation: 650-1200 m
Morphological Description: A perennial shrub, growing 90 cm. Leaves are ovate, light green with toothed margins. Flowers are glabrous, bilabiate, bright red.
Common uses: The dried leaves are smoked to relieve irritation.
Ethnomedicinal uses: Epilepsy, diabetes, bronchitis, tuberculosis, hemorrhage, menstrual disorders, aches.

Botanical Name: *Solanum indicum* Linn
Local Name: Barhanta
Family: Solananceae
Habitat: Common in rubbishy places, deserted toungyas, savannahs, along river banks
Distribution: China, Malaya to Philippines, grows in warmer parts of India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Leaves, fruits, roots, stems
Elevation: 700-1600 m
Morphological Description: A perennial shrub. Flowers white to bluish violet. Fruits yellow.
Common uses: Ripe berries are eaten as such or salted.
Ethnomedicinal uses: Cough colic, nasal, ulcers.

Botanical Name: *Solanum xanthocarpum* Schard & Wendl.
Local Name: Kateli
Family: Kateli
Habitat: Common in wastelands, open moist fields, riverbeds, slopes and cultivated fields
Distribution: Throughout Australia, Malaya, Polynesia, South East Asia, common throughout India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Flowers, fruits, roots, stems
Elevation: 650-2000 m
Morphological Description: A perennial herb. Flowers blue, fruit yellow berries, globous, smooth, yellow or whitish with green streaks.
Common uses: Fruits are used to make chutneys, pickles and jams.
Ethnomedicinal uses: Asthma, cold, cough, piles, snake bites

Botanical Name: *Sorghum halepense* Linn.
Local Name: Wild Sorghum
Family: Wild Sorghum
Habitat: Common in tropical parts.
Distribution: Bangladesh, Sri Lanka, Tropical Parts of India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Seeds.
Elevation: 800-1800 m
Morphological Description: A perennial grass. Leaf blades 0.5-2 cm, wide culms, slender, panicle up to 25 cm long
Ethnomedicinal uses: Diuretic

Botanical Name: *Syzgium cumini* Linn.
Local Name: Jamun
Family: Myrtaceae
Habitat: Wastelands, near streams in the forests and in damp places.
Distribution: China, Australia, Sri Lanka, throughout India
Foot Hill regions of Himachal Pradesh: Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, fruits, leaves, seeds
Elevation: 700-1800 m
Morphological Description: A tree. Fruits are 2-2.5 cm long, bovid-oblong, black with juicy pulp, calyx persistent.
Common uses: The fruit decoction is used as sedative.
Ethnomedicinal uses: Diabetes

Botanical Name: *Trigonella-foenum-graecum*
Local Name: Methi
Family: Fabaceae
Habitat: Commonly cultivated home and agriculture fields
Distribution: Southern Europe, Northern Africa, India
Foot Hill regions of Himachal Pradesh: Hamirpur, Bilaspur, Mandi
Plant Part used: Leaves, seeds
Elevation: 650-1500 m
Morphological Description: Annual herb. Leaves are light green in color, pinnately trifoliate. Flowers are white or yellowish white and axillary. Fruits are legumes; narrow, curved, seeds are present in pods.
Common uses: Leaves are used as 'Sag' (pot-herb), commonly consumed in winters. Seeds are used as flavoring agent, spice and condiment. The herb also serves as a fodder but the excessive use adversely affects the milk yield.
Ethnomedicinal uses: Indigestion, liver problems, promoting hair growth, curing dandruff, carminative, diuretic, diabetes, loose motion, diarrhea, dysentery, constipation.

Botanical Name: *Trachyspermum ammi* L.
Local Name: Jungli Ajwain
Family: Apiaceae
Habitat: Widely grown in arid and arid regions semi
Distribution: Native of Egypt, cultivate in Iraq, Iran, Afghanistan, Pakistan, India, Gujarat, Rajasthan, Maharashtra, Bihar, West Bengal
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Seeds
Elevation: 550-2000 m
Morphological Description: Annual herb. Stem is striated. Leaves are pinnate with a terminal and 7 pairs of lateral leaflets. Flowers are actinomorphic, white. Fruits are aromatic, ovoid.
Common uses: Fruit-powder of *Trachyspermum ammi,* "Harad" (*Terminalia chebula*), "Bahera" (*Terminalia belerica*), "Amla" (*Emblica officinalis)* are mixed with candysugar. These are battered in rose wart and made into small tablets. The tablets are used for curing pile.
Ethnomedicinal uses: Abdominal gas, diarrhea, piles, asthma, dysentery, indigestion, flatulence, cough

Botanical Name: *Tinospora cordifoila* Willd.
Local Name: Galoye
Family: Menispermaceae
Habitat: Common in hedges
Distribution: India, Nepal, Sri Lanka, Pakistan
Foot Hill regions of Himachal Pradesh: Hamirpur, Bilaspur, Mandi
Plant Part used: Fruits, leaves, roots, stems
Elevation: 450-900 m
Morphological Description: A climbing shrub. Flowers green, yellowish, green drupes, smooth red
Common uses: The stem is chopped into pieces, kept in water-filled utensil for the night Next day, these are squeezed and filtered. The residue is collected and used in small pinches with cow's milk. It gives coolness to the body for days.
Ethnomedicinal uses: A climbing shrub. Flowers green, yellowish, green drupes, smooth red

Botanical Name: *Terminalia chebula* Retz.
Local Name: Harad
Family: Combretaceae
Habitat: Sporadic in warm valleys.
Distribution: Ceylon, Burma, India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, fruits
Area of Collection: Elevation: 450-1500 m
Morphological Description: A tree. Flowers are in spike, all hermaphrodites. Fruits non winged only ribbed when dry
Common uses: The fruit is used as main ingredient of "Trifla" as digestive powder. In this opinion of local Herbal Doctors (*Vaidyas*), no plant is as much used in native medicines are "Harar". The herbal expert of ancient times has also eulogized the plant as under:

"Haritki Manushyanam Matev Hitkarini;
Kadachit Kupyate Mata, Nodarasya Haritki".

Means the "Harar" is as a well-wisher of the humans as their own mother, and even, the mother can be resentful at times but the engulfed "Harar" never.
Ethnomedicinal uses: Asthma, Diarrhoea, constipation.

Botanical Name: *Thevetia nerifolia* J uss
Local Name: Pila Kaner
Family: Apocynaceae
Habitat: Commonly cultivate as an ornamental plant.
Distribution: Native to Tropical America
Foot Hill regions of Himachal Pradesh: Bilaspur, Mandi
Plant Part used: Bark, kernel, leaves, roots, seeds
Elevation: 400-1200 m
Morphological Description: A shrub with milky latex and linear lenceolate leaves, flowers yellow, drupes angular.
Common uses: The leaves are used as a fodder but the excessive use adversely affects the milk yield.
Ethnomedicinal uses: Fever, constipation

Botanical Name: *Terminalia bellerica* Roxb.
Local Name: Bhera
Family: Combretaceae
Habitat: Found in deciduous forests
Distribution: Pakistan, Sri Lanka, Indo Malaysia, Malacca, throughout greater part of India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, fruits, kernel, seeds
Elevation: 350-1500 m
Morphological Description: A tree. Flowers in spike, greenish yellow, upper one males, lower one, hermaphrodite
Common uses: The stem-bark and 'Laung' (Flower buds of *Syzygium aromaticum*) are grounded, mixed with honey, are given for diarrhoea. The wood is used for inferior kind of furniture, rough planking and packing cases etc.
Ethnomedicinal uses: Constipation

Botanical Name: *Terminalia arjuna* Roxb.
Local Name: Arjun
Family: Combretaceae
Habitat: Growing near river banks and sometimes cultivates
Distribution: Native to India, Sri Lanka, Myanmar, Uttar Pradesh, Madhya Pradesh, West Bengal, Rajasthan
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Bark, fruits
Elevation: 450-1200 m
Morphological Description: A tree. Smooth trunk, pinkish grey bark. Leaves are simple, conical and rounded. Flowers are white born in spikes. Fruits are ovoid, oblong.
Common uses: The bark-powder is useful in throat problems and mouth washes.
Ethnomedicinal uses: Fever, diabetes, dysentery, cancer, heart diseases, stones in kidney

Botanical Name: *Urginea indica* Roxbs
Local Name: Jungli Piyaz
Family: Liliaceae
Habitat: Wild grows on sandy shores
Distribution: Western Himalaya, Bihar
Foot Hill regions of Himachal Pradesh: Bilaspur, Mandi
Plant Part used: Rhizome
Elevation: 550-2000
Morphological Description: An herb. Bulbs like onion white
Common uses: Drops of bulb-extract are poured in case of buzzing in the ears and ear ache.
Ethnomedicinal uses: Cough, cold, respiratory disorders.

Botanical Name: *Vitex negundo* Linn
Local Name: Banna
Family: Verbenaceae
Habitat: Common in home gardens, often found as escape.
Distribution: Tropical regions, Afghanistan to Bhutan, China, South Eastern Asia, throughout India
Foot Hill regions of Himachal Pradesh: Hamirpur, Bilaspur, Mandi
Plant Part used: Flowers, fruits, leaves, roots
Elevation: 650-1300 m
Morphological Description: A shrub or a tree. Leaflet crenate-serrate. Fruits are 3.5-4 mm long, black, succulent endocarp bony.
Common uses: Some of the natives (a separate section of people other than herbal experts or "Vaidyas") treat snake-bitten person by a quite different method using the plant.

These experts are locally called "Dalyah" bundles of fresh twigs are brought and every expert takes 10-15 twigs to start the job. The twigs are vibrated over the snake-bitten place, at one time and thumped on the ground, the other, accompanied with uttering of related "mantras". The twigs are replaced on turning the leaves black. For experimentation, whether the venon has speeded throughout or is still under check, they give 'pipliyan' (*Capsicum annuum)* to chew. If the sufferer feels the acrid taste, the venom is thought to be under check. The process is repeated until he recovers.
Ethnomedicinal uses: Headache, skin diseases.

Botanical Name: *Viola odorata* Linn.
Local Name: Vanska
Family: Apiaceae
Habitat: Common in hedge, wood lands.
Distribution: Native of Asia, North Africa, Europe, Pakistan, Iran, Afghanistan, Iraq
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Whole plant
Elevation: 450-1800 m
Morphological Description: Perennial evergreen herb. Leaves are ovate, with rounded apex. Flowers are violet and scented. Fruit is many seeded and unilocular capsule.
Common uses: The decoction of flowers alongwith "Mulatthi" (*Glycyrrhiza glabra*), "Pudina" (*Mentha piperita*) is given in fevers.
Ethnomedicinal uses: Cough, inflammation, diuretic, laxative, bronchitis, fever, headache, migraine, insomnia.

Botanical Name: *Vitis vinifera* L.
Local Name: Angoor
Family: Vitaceae
Habitat: Riversides and damp woods.
Distribution: Native to Mediterranean region, Central Europe, Southwestern Asia, North Africa
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Ripe & unripe fruits, leaves
Elevation: 400-1200 m
Morphological Description: Perennial woody liana. Leaves are alternate, palmately lobed, long and broad. The fruit is berry, green, red or purple in color .Flowers are numerous & are arranged opposite to the leaves grouped in clusters.
Common uses: The fruit are edible. The wood is burnt and the ashes, mixed with vinegar are applied on the place of dog-biting.
Ethnomedicinal uses: Inflammation, constipation, tuberculosis, stomachic, analgesic, sore throat, smallpox

Botanical Name: *Withania somnifera* Dunal.
Local Name: Ashwgandha
Family: Solanaceae
Habitat: Common in weeds of waste places, road sides.
Distribution: Baluchistan, Ceylon, drier parts of India
Foot Hill regions of Himachal Pradesh: Hamirpur, Bilaspur, Mandi
Plant Part used: Whole plant
Elevation: 650-1200 m
Morphological Description: A shrub. Flowers in sub-sessile, fruit berry, globose, yellow or red.
Common uses: The fruit is used as a substitute for remnant to co-angulated milk.
Ethnomedicinal uses: Dropsy, cough, painful swellings, sore eyes.

Botanical Name: *Woodfordia fruticosa* L.
Local Name: Ban-Mahendi
Family: Lythraceae
Habitat: Waste lands & open grasslands but also cultivated in gardens.
Distribution: Native to Asia, Africa, India., Pakistan, Nepal, Bhutan, Myanmar, Indonesia, China, Arunachal Pradesh, Mizoram, West Bengal
Foot Hill regions of Himachal Pradesh: Mandi, Bilaspur
Plant Part used: Flower, leaves, fruits
Elevation: 1200- 1800 m
Morphological Description: A deciduous shrub. Bark smooth, reddish, brown. Leaves are oblong, ovate lanceolate. Flowers are slender tube curved & greenish base. Fruits are capsules, ellipsoid. Seeds are brown in color.
Common uses: The fruits are cooling and demulcent. The seed-oil is effective in herpes.
Ethnomedicinal uses: Diarrhea, piles, dysentery, wounds, ulcers, burns, immune modulator, rheumatism, headache caused by pitta dosha, diabetes.

Botanical Name: *Zingiber officinale* Rosc.
Local Name: Adarak
Family: Zingiberaceae
Habitat: Commonly cultivate in fields
Distribution: Indonesia, Malaysia, Philippines, Vietnam, Japan, Australia, Subtropical regions, India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: rhizome
Elevation: 450-1500 m
Morphological Description: An herb. Leaves are alternate, sessile, leaf blade. Flowers are yellow-green, aromatic. Underground tuberous stem or rhizomes are present.
Common uses: The extract mixed with "Piaz" (*Allium cepa*) extract is given to control vomiting; the extract is given with old molasses to rancid the swellings of the body.
Ethnomedicinal uses: Allergy, ulcers, inflammation, vomiting, cough and cold

Botanical Name: *Zizyphus jujube* Mill.
Local Name: Ber
Family: Rhamnaceae
Distribution: Philippines, Japan, Subtropical regions, India
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Seeds, fruits, bark, roots
Elevation: 350-1700 m
Morphological Description: A deciduous tree. Leaves are shiny green, ovate with toothed margin. Flowers are small, yellowish green in color. Fruits are oval drupe green when unripe, brownish in color when ripe.
Common uses: The ripe drupes are palatable. The leaves are browed by the goats with ease; other cattle find it difficult due to the presence of thorns.
Ethnomedicinal uses: Sedative, astringent, diuretic, stomachic, fever, increase immune system

Botanical Name: *Zanthoxylum armatum* Linn.
Local Name: Tirmira
Family: Rutaceae
Habitat: Wildly grow cultivated in home gardens, road sides.
Distribution: East Asia, China, Japan, Korea, India, Bhutan, Bangladesh, Myanmar, Thailand, Vietnam, Malaysia, Indonesia
Foot Hill regions of Himachal Pradesh: Una, Hamirpur, Bilaspur, Mandi
Plant Part used: Leaves, flowers, stem, seeds
Elevation: 450-1750 m
Morphological Description: A shrub. Leaves are trifoliate, leaf stalk winged, sharp tipped, edges are toothed, flowers are minute yellow in color, and seed are round shiny black in color.
Common uses: Stem is peeled and used as a brush to clean teeth. Seeds are chewed to relieve toothache. Fruits are ground along with alum.
Ethnomedicinal uses: Fever, cholera, arthritis, carminative, stomachic, toothache

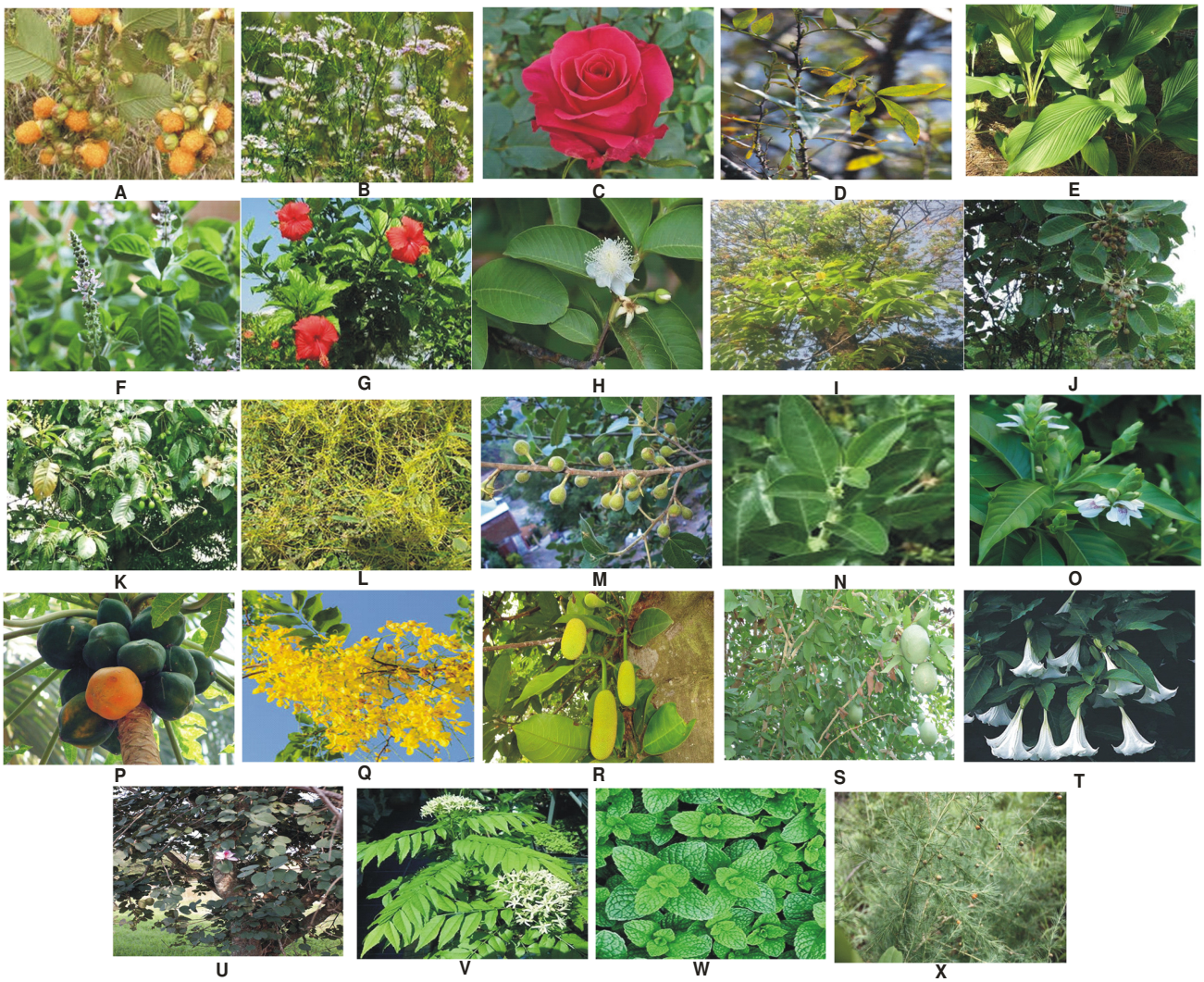

PLATE 2. A. *Rubus ellipticus* Linn. (Akaha) **B.** *Coriandrum sativum* Linn. (Dhania) **C**. *Rosa kordesii* Linn. (Gulab) **D.** *Zanthoxylum alatum* Linn. (Tirmira) **E.** *Curcuma longa* Roxb. (Haldi) **F.** *Ocimum sanctum* Linn. (Tulsi) **G.** *Hibiscus-rosa-sinensis* Linn. (Gulmehnda) **H.** *Psidium guajava* Linn. (Amrud) **I.** *Pistacia integerrima* Linn. (Kakarsingi) **J.** *Terminalia bellerica* Roxb. (Bhera) **K.** *Terminalia chebula* Retz. (Harad) **L.** *Cuscuta reflexa* Linn. (Amarbel) **M.** *Ficus palmata* Forrsk. (Khashra) **N.** *Withania somnifera* Linn. (Ashwagandha) **O.** *Justicia adhatoda* Linn. (Basuti) **P.** *Carica papaya* Linn. (Papita) **Q.** *Cassia fistula* Linn. (Amaltas) **R.** *Artocarpus integra* Merrill (Kathal) **S.** *Aegle marmelos* Corr. (Bil) **T.** *Datura stramonium* Linn. (Datura) **U.** *Bauhinia variegata* Linn. (Karyala) **V.** *Morraya koenigii* Linn. (Kandhela) **W.** *Mentha arvensis* Linn. (Pudina) **X.** *Asparagus adscendens* Roxb. (Sanspai).

Traditionally, the local people of Foot hill regions of Himachal Pradesh maintained a rich diversity of cultivated and wild edible plants. The multiple uses of the plant species are one of the major causes of local people. Wild aromatic plants such as *Bauhinia variegate, Ficus palmate, Rubus ellipiticus* and *Syzygium cuminii* are the most common preferences of local people. The heterogeneity in Indigenous Knowledge System within a given area is important in order to understand the society and also to design the localized sustainable management strategies. The systematic study includes 100 aromatic plants belonging to 44 families for the treatment of various diseases. Out of 100 aromatic plants, 19% leaves, 17% seeds, 14% fruits & roots, 13% flowers & bark, 4% whole plant & stem, 1% bulbs & rhizomes of plant species are used for the treatment of various chronic diseases. The aromatic and medicinal plants have been used since primordial period for healing variety of diseases.

The folks living in villages have been using these growing aromatic plants as medicine since ages because this information transfers from generation to generation. This can be easily understood from the following local sayings which are very popular in the study area. "Harad, bahera, amla bich payi giloye, jithonye char chijan utho admi kyon moye" [29]. It means that a person will not succumb to disease in an area where *T. chebula* (harad), *T. bellerica* (bahera), *Emblica officinalis* (Amla) and *Tinospora cordifolia* (giloye) plants are available. "Bana, basuti te bare Jethi houan Thethi Manu kian mare" Means a man cannot die of disease in an area where *Vitex negundo* (bana), *Adhatoda vasica* (basuti) and *Acorus calamus* (bare) are found, provided that he knows how to use them [30-33]. Since, these are in common use by the local people and are of great importance. The information generated from the study regarding the medicinal plants used by the local peoples. This could help in creating mass wakefulness concerning their preservation of ethno-botanical knowledge [34-40].

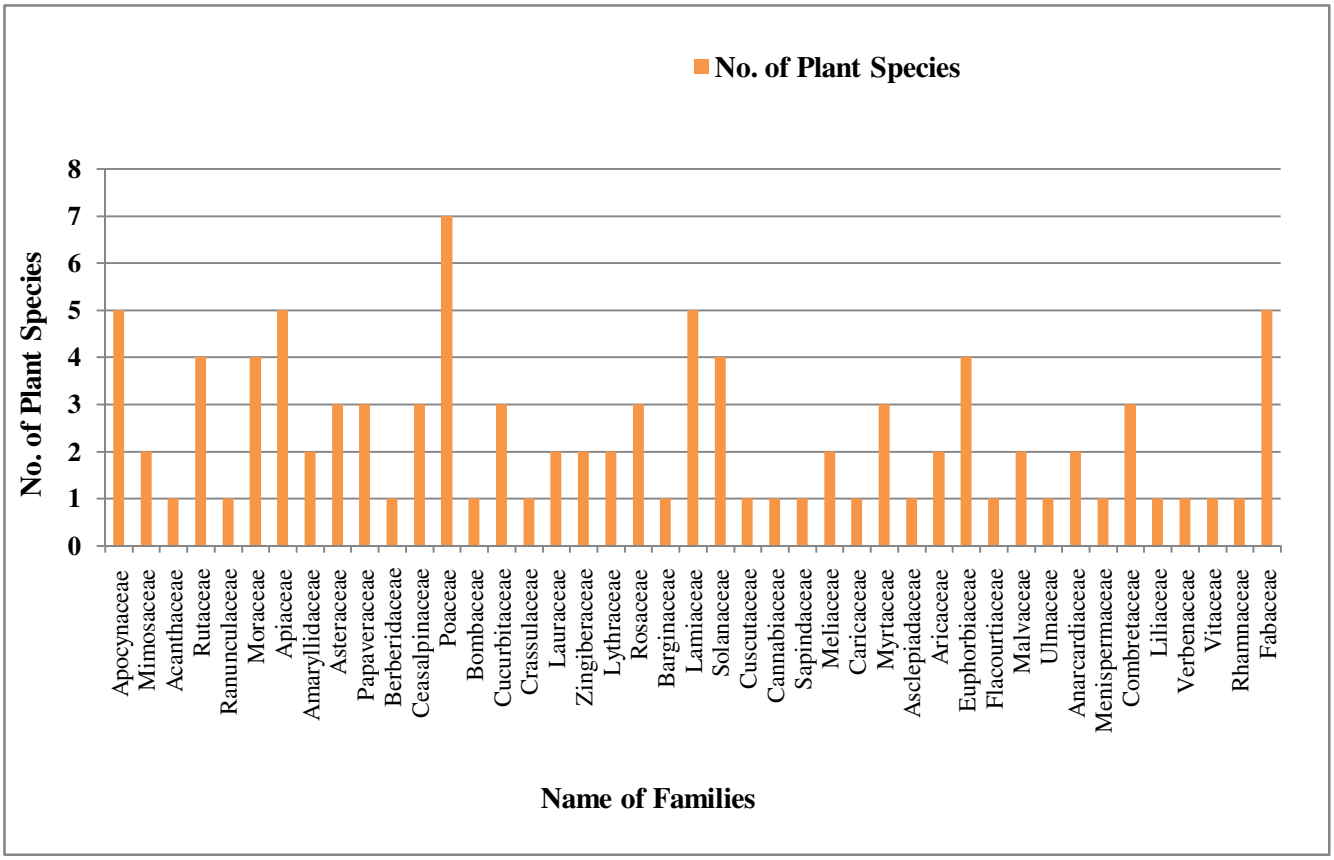

Fig. 2. Graphical representation showing the Number of Plant species Present in the different Families.

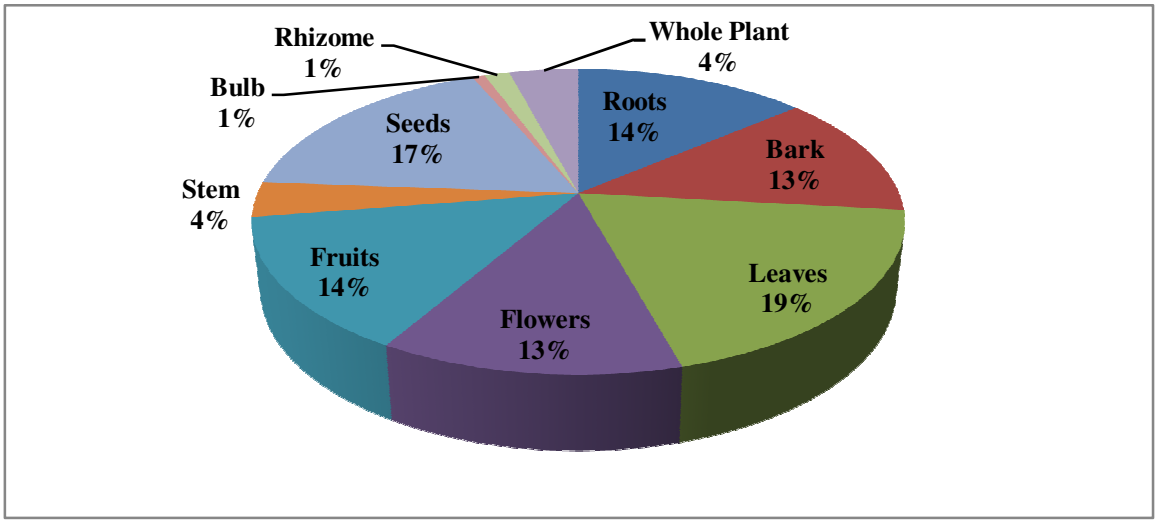

Fig. 3. Pie Chart Representation showing the Parts of the Plant used for the Ethnomedicinal uses.

IV. CONCLUSION

The present study reveals that numerous plant species will essential in the everyday life of the tribes living in lower hills of western Himalayas. The local people of the study area have a great indigenous knowledge on medicinal plants. Most of the herbal medicines are used in the form of powder, paste, decoction and extract. Some herbal plants are used for the treatment of more than one disease. This study also decline that some traditional plants are get reduced in number due to destruction of habitat, unscientific collection and lack of knowledge. Documentation, preservation and recording of medicinally important plant species and traditional knowledge associated with the use of local plant species should be necessary step for the conservation of plant species and tradition

ACKNOWLEDGEMENT

The help of forest officials, local *panchayat* representatives as well as local people of Foot Hill regions of Himachal Pradesh is duly acknowledged. The authors are also grateful to Dr Sanjeev Sharma and Dr. Hem Chander Sharma, Career Point University, Hamirpur, Himachal Pradesh, India for availing facilities and other logistic helps.

REFERENCES

[1]. V. Guleria and A. Vasisth (2009). "Ethno botanical use of wild medicinal plants by Gaddi and Gujjar tribes of Himachal Pradesh", *Ethno botanical leaflets*, Vol. **13,** pp158-167.

[2]. G. Kumar and H. Chander (2018). "Ethno-Veterinary and Fodder Plants of Awah-Devi Region of Hamirpur District, Himachal Pradesh", *J. Biol. Chem. Chron.,* Vol. **4**, no.1, pp 08-15.

[3]. F.L.S. Umberto Quattrocchi (2012). "CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology", CRC Press.

[4]. R.D. Gaur and J.K. Tiwari (1987). "Some little known medicinal plants of Garhwal Himalayas. An ethno medicinal study in Medicinal and Poisonous Plants of the Tropics" *(Leeuwenhoek AGM.ed).* Pudoc, Wageningen, the Netherlands, pp.139-142.

[5]. B.G. Unani, A. Borah, S.B. Wann, H.R. Singh, B. Devi and M. Bhattacharjee (2009). "Phytochemical and antibacterial study of traditional medicinal plants of North East India on *Escherichia coli*", *Asian J. Exp. Sci.,* Vol. **23,** no. 1, pp 103-108.

[6]. S.K. Uniyal, K.N. Singh, P. Jamwal and B. Lal (2006). "Traditional use of medicinal plants among the tribal communities of Chhota Bhangal, Western Himalaya", *J. Ethnobiol. Ethnomed,* Vol. **2**, pp 1-14.

[7]. D. Upadhyay (2013). "Ethno-botanical important plants in the parts of Shivalik hills of Kangra district, Himachal Pradesh", *Int. J. Sci. Res. Pub.,* Vol. **3,** no. 6, pp 1-4.

[8]. S. Verma and N.S. Chauhan (2007). "Indigenous medicinal plants knowledge of Kunihar forest division, District Solan", Indian *J. Tradit. Know.,* Vol. **6**, pp 494-497.

[9]. S.K. Sood, S.K. Sharma, N. Kumar and H. Kumar (2009). "Ethnobotanical studies on trees, shrubs and climbers of Himalaya", *Satish Serial Publication House*, *Delhi*.

[10]. K.S. Thakur, M. Kumar, R. Bawa and R.W. Bussmann (2014). "Ethnobotanical study of herbaceous flora along an altitudinal gradient in Bharmour forest division, District Chamba of Himachal Pradesh, India", *Evid. Based Complement. Alternat. Med.* pp1-7.

[11]. Singh K. Singh, S. Gupta and P.K. Mathur,(2010). "Investigation on ethnomedicinal plants of district Firozabad" *J. Adv. Lab. Res. Biol.,* Vol. **1,** no. 1, pp 64-66.

[12]. L. Kaur, S. Sharma and S. Lal (2011). "Ethnobotanical survey of medicinal plants used for different diseases in Mandi district of Himachal Pradesh", *Int. J. Res. Pharma. Chem.*, Vol. **1,** no. 4 pp 1167-1171.

[13]. K.J. Singh and A.K. Thakur (2014). "Medicinal plants of the Shimla hills, Himachal Pradesh: A survey", *Int. J. Herbal Med.* Vol. **2,** no. 2, pp 118-127.
[14]. S. Sharma, A. Thakur, P. Verma, S. Kumari, S. Sharma and V. Arya (2012). "Ethnomedicinal wisdom among local tribes in Hamirpur valley, Himachal Pradesh, India", *J. Med. Allied Sci.* Vol. **2,** no. 2, pp 88-94.
[15]. H. Singh (2008). "Importance of local names of some useful plants in ethnobotanical study", *Indian J. Tradit. Know*., Vol. **7**, pp 365-370.
[16]. P. Kanwar, N. Sharma and A. Rekha (2006) "Medicinal plants use in traditional healthcare systems prevalent in Western Himalayas", *Indian Journal of Traditional knowledge,* Vol. **5,** no. 3 pp 300-309.
[17]. P.K. Sharma, N.S. Chauhan, B. Lal, A.M. Husaini, J.A. Teixeira da Silva and Punam (2010). "Conservation of phyto-diversity of Parvati valley in Northwestern Himalayas of Himachal Pradesh-India", *Med. Arom. Plant Sci. Biotechnol.,* Vol. **4,** no. 1 pp x-y.
[18]. P.K. Sharma, R. Thakur, Gulshan, Deepika and D. Kumar (2013). "Studies on some important medicinal and aromatic plants and their traditional usages in district Hamirpur-A sub himalayan tropical region of Himachal Pradesh-India", *Weekly Sci. Res. J.,* Vol. **1,** no. 7, pp 2321-2340.
[19]. P.K. Sharma and N.S. Chauhan (2000). "Ethnobotanical studies of gaddies-A tribal community of district Kangra (Himachal Pradesh)", *in: Man and Forests.* R.K. Kohli, H.P. Singh, S.P. Vij, K.K. Dhir, D.R. Batish, D.K. Khurana (*Eds*.), pp. 301-312.
[20]. P.K. Sharma, N.S. Chauhan and B. Lal (2003). "Commercially important medicinal and aromatic plants of Parvati valley, Himachal Pradesh", *J. Econ. Taxon. Bot.* Vol. **27**, no. 4, pp 937-942.
[21]. P.K. Sharma (2002). "Studies on phytodiversity of medicinal and aromatic plants in Parvati valley, Himachal Pradesh", Ph.D. Thesis submitted to College of Forestry, Dr. Y.S. Parmar University of Horticulture and Forestry (H.P.), India, pp 129.
[22]. B. Sharma, S. Sharma, S.K. Bhardwaj, C.K. Ndungu and B. Dutt (2015). "Ethnobotanical uses of common plant species growing along the national highway 5 from Solan to Shimla in Himachal Pradesh", *World J. Pharm. Pharm. Sci.,* Vol. **4,** no. 2, pp 1210-1218.
[23]. N. Kumar and R. Choyal (2013). "Ethno medicinal uses of some plants of lower foothills of Himachal Pradesh for the treatment of oral health problems and other mouth disorders", *Int. J. Ad. Red.,* Vol. **1,** no.5, pp 1-7.
[24]. M. Sharma and S.K. Sood (2013). "Ethnobotanical survey for wild plants of District Solan, Himachal Pradesh, India", *Int. J. Environ. Biol.* Vol. **3,** no. 3, pp 87-95.
[25]. D. Rana and H. R. U. Masoodi (2014). "Ethno-botanical survey for wild plants in fringe villages around Shimla water catchment sanctuary, Himachal Pradesh, India", *J. Appl. Nat. Sci.* Vol. **6** no. 2, pp 720-724.
[26]. S. Rani, J.C. Rana and P.K. Rana (2013). "Ethnomedicinal plants of Chamba district, Himachal Pradesh, India" *J. Med. Plants Res.* Vol. **7,** no. 42, pp 3147-3157.
[27]. A. Sharma, V.K. Kumar, P. Sharma and S. Chandel (2014). "Studies on traditional knowledge of ethnomedicinal plants in Jawalamukhi, Himachal Pradesh, India", *Int. Res. J. Biol. Sci.,* Vol. **3** no. 10, 6-12.
[28]. S.K. Jain and A.K. Goel (1995). "Workshop Exercise- 1 Performa for Fieldwork. In: S.K. (*ed.*). A Manual of Ethnobotany", Scientific Publishers, Jodhpur, pp 142-147.
[29]. S. Kumar, R.C. Gupta, S. Kumari, K. Sharma and V.K. Sharma (2013). "Ethnobotanical study on some wild medicinal plants from district Sirmaur, Himachal Pradesh, India", *Plant Sci. Feed,* Vol. **3**, no. 4, pp 46-49.
[30]. R. Chauhan, S. Saklani (2013). "*Bauhinia vahhii*: Plants to be explored", *Int. Res. J. Pharma.,* Vol. **4**, no. 8, pp 5-9.
[31]. N. Sharma and G. Kumar (2015). "Exploration of some Ethno medicinal plants used by Natives of Hamirpur District in Himachal Pradesh", *India, Asian Agri-History,* Vol. **19**, no. 2 pp 95-104.
[32]. A.K. Gautam and R. Bhadauria (2008). "A Preliminary Survey on Ethnomedicinal Flora of Bilaspur district, Himachal Pradesh (India)", *Environmental Biology and Conservation*, Vol. **13**, pp 49–51.
[33]. A.K. Gautam and R. Bhadauria (2009). "Homeopathic Flora of Bilaspur District of Himachal Pradesh, India: A Preliminary Survey", *Ethnobotanical Leaflets*, Vol. **13**, pp 123–130.
[34]. G. Kumar and H. Chander (2018). "Ethno-Veterinary and Fodder Plants of Awah-Devi Region of Hamirpur District, Himachal Pradesh", *J. Biol. Chem. Chron.,* Vol. **4**, no. 1, pp 08-15.
[35]. G. Kumar and H. Chander (2018). "Indigenous Ethno-Medicinal and Ethno-Veterinary Practices in Shivalik Hills Zone of Himachal Pradesh, India", *Asian J. Adv. Basic Sci.,* Vol. **6**, no. 2, pp 01-14.
[36]. G. Kumar and S. Duggal (2019). "Ethnobotanical Wisdom among the *Kiratas* and *Hindu-Gujjar* Tribes in Dharampur Region of Mandi District, Himachal Pradesh, (India)", *Biological Forum – An International Journal*, Vol. **11** no. 1, pp 156-171.
[37]. M.K. Thakur and S. Waske (2018). "Study of Medicinal Plants used by Local Herbal Healers in South Block of Seoni District (M.P.)," *International Journal of Theoretical & Applied Sciences,* Vol. **10** no.11, pp 95-99.
[38]. R.K. Verma (2016). "Status of Plant Diversity along an Altitudinal Gradient in Dankund Beat of Kalatop Khajjiar Wild Life Sanctuary of District Chamba, Himachal Pradesh Himalayan Forest Research Institute,". *Biological Forum–An International Journal,* Vol. **8** no. 1, pp 540-547.
[39]. Pushpa Thakur and Sarika (2016). Ethno-medicinal uses of some plants of Potter's Hill in Shimla (Himachal Pradesh, India) *Biological Forum–An International Journal,* Vol. **8** no. 2, pp 417-422.
[40]. Radha and S. Puri (2018). "Study of Ethnomedicinal Plants used by Migratory Shepherds in Renuka Forest Division of District Sirmour (H.P.) Western Himalaya," *Bio Bulletin,* Vol. **4** no. 2, pp 103-109.