



Documentation of medicinal plants in Uchangidurga of Harapanahalli taluk Vijayanagar district

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Abstract

Documentation of Medicinal plants is the only way to preserve the fundamental knowledge of the plant resources for future endower. The present survey is designed to study the medicinal plants in Anjigere, Thumbigere, Alur hatti, Kadajji, Anaji block of Uchangidurga Harapanahalli taluk Vijayanagar District. This study resulted in the documentation of 34 ethno-medicinal plants. The 34-plant species are belonging to 28 families of 07 genera. The documented families in the study area are Acanthaceae, Amaranthaceae, Annonaceae, Apocyanaceae, Caricaceae, Combretaceae, Euphorbiaceae, Fabaceae (Papilionaceae, Caesalpinaceae & Mimosaceae) Lamiaceae Malvaceae, Menispermaceae, Myrtaceae, Rutaceae, Santalaceae, Solanaceae, Verbenaceae, Srophulariaceae, Umbelliferae, Rubiaceae, Magnoliaceae, Apocyanaceae, Capparidaceae etc. The survey shows that, Fabaceae and Apocyanaceae, is the dominant family with 12 species. The survey also reveals that, the shrubs are dominant ones followed by the trees, climbers and herbs. Majority of the documented plants are used against several diseases, either alone or in combination with other plants.

Keywords: Ethnomedicinal plants, family, species, Uchangidurga

Introduction

India has one of the richest plant medical traditions in the world. Traditional medicine and ethnobotanical information's play an important role in plant science research. Herbal medicine is still practiced about 75 - 80% of the world population mainly in the developing countries for their primary health care needs [1]. It is estimated that, around 46,000 plant species including higher plants such as angiosperms and gymnosperms and lower groups wise pteridophytes, bryophytes, fungi, lichen and algae are known to occur in India of which 19,395 taxa including infra-specific level are angiosperms. About 8,000 flowering plant species have been recorded in different codified and non-codified system systems of medicine practiced by 4,635 ethnic communities [2]. In India, there are about 7,000 species of angiosperms reported to be in medicinal use [3]. These figures have now obviously increased. Plants and its products have been used traditionally by the inhabitants of India from the time immemorial.

The state of Karnataka boasts an unparalleled diversity of medicinal plants in the country. It is estimated that, Karnataka is the home to about 4800 species of flowering plants out of which about 2000 species are medicinal [4]. This is quite remarkable, as this number accounts for about 27% of the country's flora, with just 10% of the geographical area. Karnataka with its unique wild habitats spread across the Western Ghats and the Deccan Peninsula is also the home to several endemic species of commercial importance [5]. Some of the studies related to ethno botany and floristic diversity have been reported from Karnataka state [6, 7]. Nevertheless, there is a lack of current exact estimations concerning the use of medicinal plant resources by local people across the globe [8]. Up to date quantitative estimations about the plants used in home and folk therapies are needed, especially those supported by a complex analysis of variables influencing the importance and

persistence of plant medicines in local communities [9]. Measuring medicinal plant knowledge can give an insight into the cultural importance of plant resources, i.e., which species are recognized as effective, appreciated and reported with major frequency. Measuring this knowledge may also provide information about the proportions of agreement (consensus) and variation in medicinal plant use by groups within the same region, as well as distant but culturally similar groups [10].

Hence, the current study on diversity indices and documentation of medicinal plants will provide the awareness and traditional knowledge of medicinal plants.

Material and method

Study area: The present study provides, the study area main Holy & Historical village/town in Harapanahalli Taluk of Vijayanagara District in Karnataka, India. It is 29km away from both Harapanahalli and Davanagere, it is located on state highway 47, it is situated 14.5634° N latitude and 76.0531° E longitude in the heart of Karnataka at an elevation of 602.5m above sea level. The total geographical area of Uchangidurga village is 3976.89 Hectares / 39.76 Sq.KM². The study area harbor diverse types of vegetation evergreen, semi evergreen, moist and dry forest and is medium rich in diverse plants with medicinal values. Uchangidurga medicinal plant area falls in Anjigere, thumbigere, Alur hatti, Anaji and kadanayakana halli, it is the slopy area forming valley portion with local species and good generations, this is situated on main road from Harapana halli to Davanagere and 18 km away from Davanagere town shown in Figure 1. Regular field visits to the study areas were made for observation and documentation of medicinal plants for a period of five months from first week of January 2024 till last week of May 2024. Personal interactions were conducted with the knowledgeable officers of Range forest officer (RFO),

Deputy Range Forest Officer (DRFO), Forest guides and herbal healers of study area during field trips and recorded ethnomedicinal information about the plants. Medicinal plants were documented and detailed field notes were taken along with voucher number, locality, habit, local name, floral characteristics, nature of the fruit, local medicinal uses, etc. The identification of plants was made by referring

flora [11, 12] and some medicinal plants books [13]. Plants were photographed and identified by floras such as Gamble and Ramaswamy *et al.* with the help of Taxonomists. During the fieldwork, the plant species are given in alphabetical sequence with other details such as botanical name, vernacular name, family, habit of the plant, Plant parts used and medicinal properties.

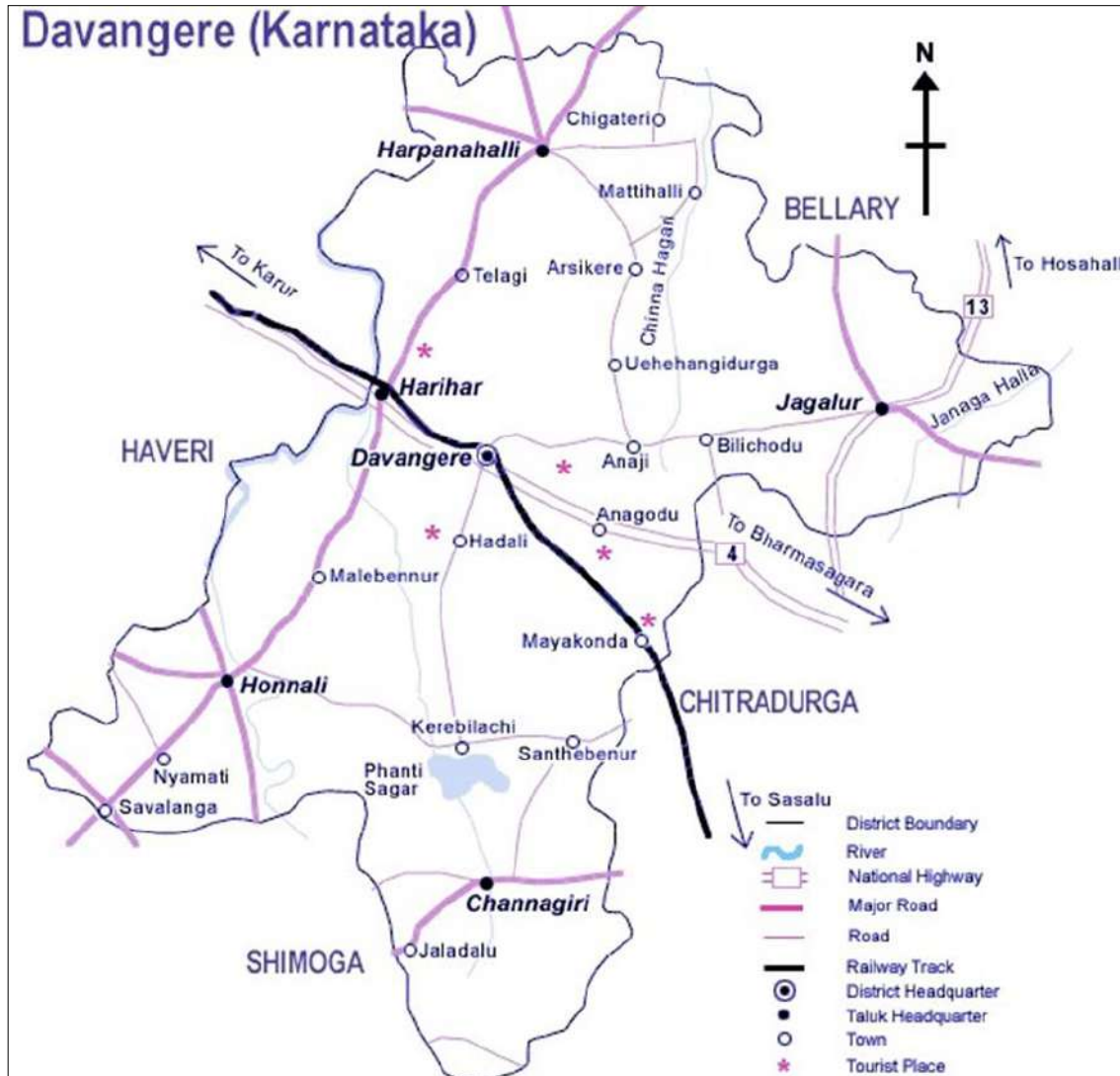


Fig 1: Maps showing medicinal plant conservation area (study area) in Uchangidurga Harapanahalli- Taluk, Vijayanagar district

Results

In the current study, plants belonging to medicinal uses were studied and were identified and collected during flowering, fruiting and seed developing stages described accordingly in a detailed alphabetic manner with respect to their family names. Total 34 plants were collected from the different parts of the study area. Those 34 plants include trees, herbs, climbers and shrubs. The documented plant species consists of 28 families of 07 genera. Present study shows that dicotyledons vegetation is dominating in the area. The dominant families such as Fabaceae (06) followed by Euphorbiaceae (03), Apocyanaceae (02), Acanthaceae (01), Amaranthaceae (02), Annonaceae (01), Caricaceae (01), Combretaceae (01), Papilionaceae (02), Caesalpinaceae (02) & Mimosaceae (02), Lamiaceae (01) Malvaceae (01), Menispermaceae (01), Rutaceae (01), Santalaceae (01), Solanaceae (02), Verbenaceae (01), Srophulariaceae (01), Umbelliferae (01), Rubiaceae (01),

Magnoliaceae (01), Capparidaceae (01) etc. The Shrubs are the dominant ones (16 species) followed by the Herbs (08 species), Trees (10 species) are shown in Figure 2. Number of genera and the number of species are listed in the (Table 1 & Plate-1,2,3).

The documented medicinal plants are used in the treatment of various ailments like Arthritis, Boils, Bleeding Hemorrhoids, Diarrhea, Dysentery, Gastric Ulcer, Head ache, Inflammation, Skin diseases, Stomach disorders, Asthma, cholera, cold, cough, rheumatism, ringworm, small pox, stomach disorders, toothache and swelling, Urinary diseases, Antioxidant, antibacterial, antiinflammatory, antiphretic, hepatoprotective, antidiabetic, antiulcer etc. *Catharanthus roseus* is used as an anticancer agent. Root, leaf, fruit, flower, bark or whole plant is used to cure disease. Medicinal plants are rich resources to cure the various diseases. The plant species which are falls under

vulnerable, rare and endangered category are due to various external factors. Hence these wild plant species should be conserved and to be encouraged for large scale cultivation and to develop many herbal gardens for medicinal plants in

the suitable areas adopting the modern agronomical techniques.

Some of the photographs of documented medicinal plants are included below:

Table 1: Name of the family, Habit and medicinal uses of the medicinal plants in study area







Sl. No	Botanical name	Common name	Habit	Family	Medicinal uses
1	<i>Abrus precatorius</i> Linn	Rosary pea	Climber	Fabaceae	Leaves and roots of this plant are used to cure diseases like asthma, cough, tuberculosis, bronchitis, and chest pain. The purified seeds are a nerve stimulant and is used in vata disorders like joint pains and paralysis. The paste of seeds is applied locally in alopecia and skin diseases.
2	<i>Cassia auriculata</i> Roxb	Tanner's Cassia	Shrub	Fabaceae	The whole plant especially in Ayurvedic medicine. People use for diabetes, pink eye, joint and muscle pain (rheumatism), constipation, and other conditions, the bark used to skin diseases.
3	<i>Mimosa pudica</i> Linn	Touch me-not	Prostrate Herb	Fabaceae	Leaves and roots are used antibacterial, antiviral, antifertility, anticonvulsant, antidepressant, aphrodisiac, and various other pharmacological activities. The herb has been used traditionally for ages, in the treatment of urogenital disorders, piles, dysentery, sinus, and also applied on wounds.
4	<i>Caesalpinia pulcherrima</i>	Peacock tree	Shrub	Fabaceae	Control LDL Cholesterol, protect against heart diseases, cancer. A combination of the roots bark and leaves may be boiled into a medicinal tea, which is given to a patient a treatment for fever, Jaundice, Kidney disease and gastrointestinal disorder. Gurgling with a tea is also said to treat sores in the mouth (or) throat.
5	<i>Bauhinia purpuria</i> Linn	Butterfly tree	Tree	Fabaceae	Seed powder is used to control intestinal parasites. Flowers and leaves are used in blood purification quality.
6	<i>Butea monosperma</i>	Flame of the forest	Tree	Fabaceae	Control Crotch itch, Ringworm, Inflammation, sprain, swelling due to any reason (arthritis, mox), Dysentery, Intestinal parasites, remedy for snakebite and helps in Urine retention, Blood purification, Sexual dysfunction, intestinal infection, ulcer, Diabetes
7	<i>Euphorbia tirucalli</i> Linn	Barki-tohar	Shrub	Euphorbiaceae	Entire plant used to syphilis, as an antimicrobial; a laxative agent to control intestinal parasites to treat asthma, cough, earache, rheumatism, verrucae, cancer, epithelioma, sarcoma, and skin tumors.
8	<i>Emblica officinalis</i> Linn	Indian gooseberry	Shrub	Euphorbiaceae	Seeds and leaves used to treat skin disorders, respiratory infections, and premature aging. Useful in hemorrhage, diarrhea, dysentery, and has therapeutic value in treating diabetes. Entire plant has antioxidant, anti-inflammatory, anticancer, adaptogenic, anti-diabetic, nootropic, antimicrobial and immunomodulatory potential.
9	<i>Euphorbia heterophylla</i> Linn	Milkweed,	Shrub	Euphorbiaceae	Leaves, roots and flowers are used including gonorrhoea, wounds, diabetes, caries, dysentery, asthma, bronchitis, cancer, snake and scorpion bites, earache and toothache, diarrhea and warts etc.
10	<i>Cascabella thevetia</i> Pers.	Yellow Oleander	Shrub	Apocyanaceae	Bark and leaves are effective in preparations for eye infections, as well as for fever, leprosy, and hemorrhoids. Bark preparations are used for fevers, burns, ringworm, and rashes. seeds are used for a purgative and heart tonic quality.
11	<i>Catharanthus roseus</i> Linn	Periwinkle	Herb	Apocyanaceae	Whole plant is used in cancer and diabetes; root paste is used in septic wounds; root of the plant decoction is used in fever; leaves are used in menorrhagia; leaf juice is used in blood purification, dysentery. The decoction of leaf is used for babies in gripping pain while the latex is useful in scabies.
12	<i>Adathoda vasica</i> Linn	Malabar nut	Shrub	Acanthaceae	Leaves and bark of the plant used in bronchitis, leprosy, blood disorders, heart troubles, thirst, asthma, fever, vomiting, loss of memory, leucoderma, jaundice, tumors, mouth troubles, sore-eye, fever, and gonorrhoea.
13	<i>Achyranthus aspera</i> Linn	devil's horsewhip	Herb	Amaranthaceae	Entire plant is highly nutritious and has caloric value, it might have anti-diabetic activity and can be useful in managing diabetes. In medicine the drug used in antidiabetic, antiasthmatic, diuretic, Antiviral, anticarcinogenic, toothbrush, appetizer and cure gastric disorders. Roots of the plant are used in treatment of snake bites.
14	<i>Annona reticulata</i> Linn	Bullock's heart,	Tree	Annonaceae	A bark decoction is used to stop diarrhea, while the root is used in the treatment of dysentery. The fruits of plant are known to have anti-oxidants and help boost digestive health and prevent blood pressure or purifying qualities.
15	<i>Carica papaya</i> Linn	Pawpaw	Shrub	Caricaceae	Leaves are used for the treatment of fever, pyrexia, diabetes, gonorrhoea, syphilis, inflammation, and as dressing for foul wounds. In traditional medicine, Plant used as a therapeutic agent due to its wound healing, anti-cancer, hypolipidemic and hypoglycemic properties. Extracts of leaves have also been used to treat digestive disorders, arthritis, ringworm, and hypertension.
16	<i>Terminalia arjuna</i> Roxb	Arjuna	Tree	Combretaceae	Bark decoction is being used in 66nti-i pain, hypertension, congestive heart failure, and dyslipidemia, Peoples use for chest pain, asthma, athletic performance, heart disease, high cholesterol, high blood pressure, obesity.
17	<i>Lucas aspera</i> Linn	Thumbai'	Herb	Lamiaceae	The plant is used traditionally as an antipyretic and insecticide. Whole plant has been used to treat cold-related issues such as sinus and dry cough, as well as aid in digestion, treat skin problems, and even are used as a mosquito repellent. It is also said to help with headaches, sore throats, and snake and scorpion stings.

18	<i>Abutilon indica</i> Linn	Indian mallow	Tree	Malvaceae	Atibala is considered balya in Ayurveda, which means that it increases strength, vigor and vitality. It is used in facial paralysis and joint disorders. It is also indicated as a uterine tonic as well as an aphrodisiac activity.
19	<i>Tinospora cardifolia</i> Willd, Miers	Heart-leaved moonseed	Climber	Minispermaceae	Whole plant is used for diabetes, high cholesterol, allergic rhinitis (hay fever), upset stomach, gout, lymphoma and other cancers, rheumatoid arthritis (RA), hepatitis, peptic ulcer disease (PUD), fever, gonorrhea, syphilis, and to boost the immune system qualities.
20	<i>Eagle marmalose</i> Linn	Bili or Bhel	Tree	Rutaceae	Lowering of blood cholesterol, anti-inflammatory, roots are anti-diarrhoeic, antidote to snake venom. Chewing of raw leaves help to solve many gastric problems. Bael juice is rich in vitamin 'c', and good for scurvy treatment also acidity, heartburn, indigestion and hyperacidity.
21	<i>Santalum alba</i> Linn	Sandlewood	Tree	Santalaceae	White sandalwood is used for treating the common cold, cough, bronchitis, fever, and sore mouth and throat. It is also used to treat urinary tract infections (UTIs), liver disease, gallbladder problems, heatstroke, gonorrhea, headache, and conditions of the heart and blood vessels (cardiovascular disease) and blood purifying activity.
22	<i>Solanum torvum</i> Sw	Turkey berry	Shrub	Solanaceae	Entire plant is used to treat a wide range of illnesses, including high blood pressure, wounds, anemia, and bacterial and viral infections.
23	<i>Vitex nigundo</i> Linn	Lakki	Shrub	Verbinaceae	Whole plant with anti-inflammatory and analgesic properties, Nirgundi has been found to have antimicrobial and antioxidant properties, the leaves and roots of Nirgundi are used to make herbal remedies.
24	<i>Becopa moneri</i> L. Pennell	Brahmi	Herb	Scrophulariaceae	In ayurvedic medicine the whole plant are used memory improvement, insomnia, epilepsy, and as an anxiolytic. The drug might increase certain brain chemicals that are involved in thinking, learning, and memory. It might also protect brain cells from chemicals involved in Alzheimer disease.
25	<i>Rubia cardifolia</i> Linn	Indian madder	Herb	Rubiaceae	Roots of this plant acts as blood purifier, immunomodulator, 67nti-inflammatory, and antioxidant. In Unani medicine, the dark red root of <i>R. cordifolia</i> is used to invigorate spleen and soothing liver, dysmenorrhea, diuresis, paralysis, jaundice, amenorrhea, skin disorders of many varieties, renal stone and blood detoxification. In Indian medicine, traditional healers use the drug to treat tuberculosis cases.
26	<i>Centella asiatica</i> Linn	Indian Pennywort	Herb	Apiaceae	The whole plant is used for medicinal purposes. It is widely used as a blood purifier as well as for treating high blood pressure, for memory enhancement and promoting longevity. In Ayurveda, the drug is one of the main herbs for revitalizing the nerves and brain cells.
27	<i>Magnolia grandiflora</i> . Linn	Bull-bay, Big-laurel	Tree	Magnoliaceae	Bark and leaves used in the treatment of malaria and rheumatism. A decoction has been used as a wash and a bath for prickly heat itching. The decoction has also been used as a wash for sores and as a steam bath for treating dropsy
28	<i>Barlaria cristata</i> Linn	Philippine violet	Shrub	Acanthaceae	Plant is used in different ethnomedical systems for the treatment of a wide range of ailments. The parts of drug have been used in the treatment of variety of diseases including anemia, toothache and cough. Roots and leaves were used to reduce swellings and inflammation.
29	<i>Plumbago zeylenica</i> Linn	Chitrakmool	Shrub	Plumbaginaceae	The root of the plant and its constituents are credited with potential therapeutic properties including anti-atherogenic, cardiotoxic, hepatoprotective and neuroprotective properties.
30	<i>Semicarpus anacardium</i> Linn	Marking nut	Tree	Anacardiaceae	It is an important medicinal plant in Ayurveda, Siddha, and various folk medicines of India. The fruit and nut extract show various activities like antiatherogenic, 67nti-inflammatory, antioxidant, antimicrobial, anti-reproductive, CNS stimulant, hypoglycemic, anticarcinogenic and hair growth promoter.
31	<i>Callisteman lanceolatus</i> Linn	Bottle brush	Tree	Myrtaceae	Woody aromatic trees and the different parts of this tree have been used in common remedies for treatment of 67nti-inf, dysentery and rheumatism. It is also used as a water accent, anticough, antibronchitis and insecticide in folk medicine.
32	<i>Argeria cunata</i> Linn	Kallana gida.	Shrub	Convolvulaceae	In the traditional medicinal system, A. nervosa is mainly used to treat sexual disorders, skin disorders, nootropics, ulcers, 67nti-infl, diabetes, etc. In addition, the seeds of this plant are hallucinogenic activities.
33	<i>Psidium gujava</i> Linn	Guava	Tree	Myrtaceae	Guava leaf extract has analgesic, Anti-inflammatory, Antimicrobial, hepato protective and Anti-oxidant activities, inhibits pancreatic cholesterol esterase, which decrease cholesterol levels, diabetes. The Anti-oxidant properties of the guava seeds extract can be associated to anti-cancer effects on both Hematological and solid neoplasm.
34	<i>Moringa oleifera</i> Linn	Moringa	Tree	Moringaceae	It is a good source of protein, vitamins, beta-carotene, amino acids & various phenolics. Moringa can act as cardiac & circulatory stimulants, possess anti-tumor, antipyretic antiepileptic, 67nti-inflammatory, anti-ulcer anti-oxidant, anti-diabetic, antifungal & anti-bacterial activities, Flower juice improve the quality & flow of mother's milk when breast feeding & useful for urinary problems.
35	<i>Withania somnifera</i> Linn	Ashwagandha	Herb	Solanaceae	The whole plant has been used as an aphrodisiac, liver tonic, anti-inflammatory agent, and more recently to treat asthma, ulcers, insomnia, and senile dementia. Root and berry seeds of the ashwagandha plant are a traditional Ayurvedic medicine in India. It used as a tonic to improve physical and mental health,
36	<i>Ocimum americanum</i>	Hoary basil	Herb	Lamiaceae	Used to treat arthritis, have anti-aging & antibacterial properties and help to prevent certain types of skin, Liver oral & lung cancers.

Plate 1

		
<i>Abrus precatorius</i> Linn	<i>Cassia auriculata</i> Linn	<i>Mimosa pudica</i> Linn
		
<i>Adathoda vasica</i> Linn	<i>Achyranthus aspera</i> Linn	<i>Annona reticulate</i> Linn
		
<i>Catharanthus roseus</i> Linn	<i>Carica papaya</i> Linn	<i>Terminalia arjuna</i> Linn
		
<i>Psidium gujava</i> Linn	<i>Ocimum americanum</i> Linn	<i>Bohenia purpuria</i> Linn

Plate 2

		
<i>Euphorbia titrukalli</i> Linn	<i>Leucas aspera</i> Linn	<i>Eagle marmalos</i>
		
<i>Santalum alba</i> Linn	<i>Solanum torvum</i> Sw	<i>Vitex negundo</i> Linn

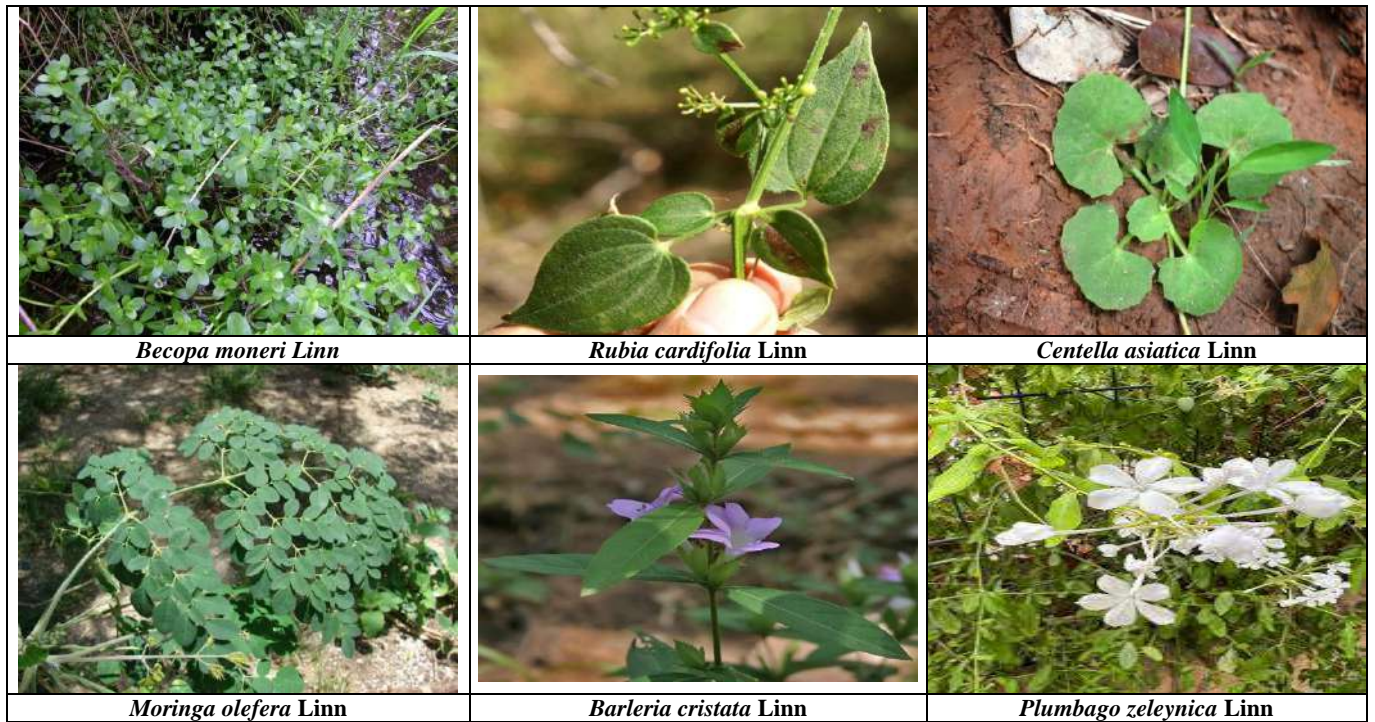
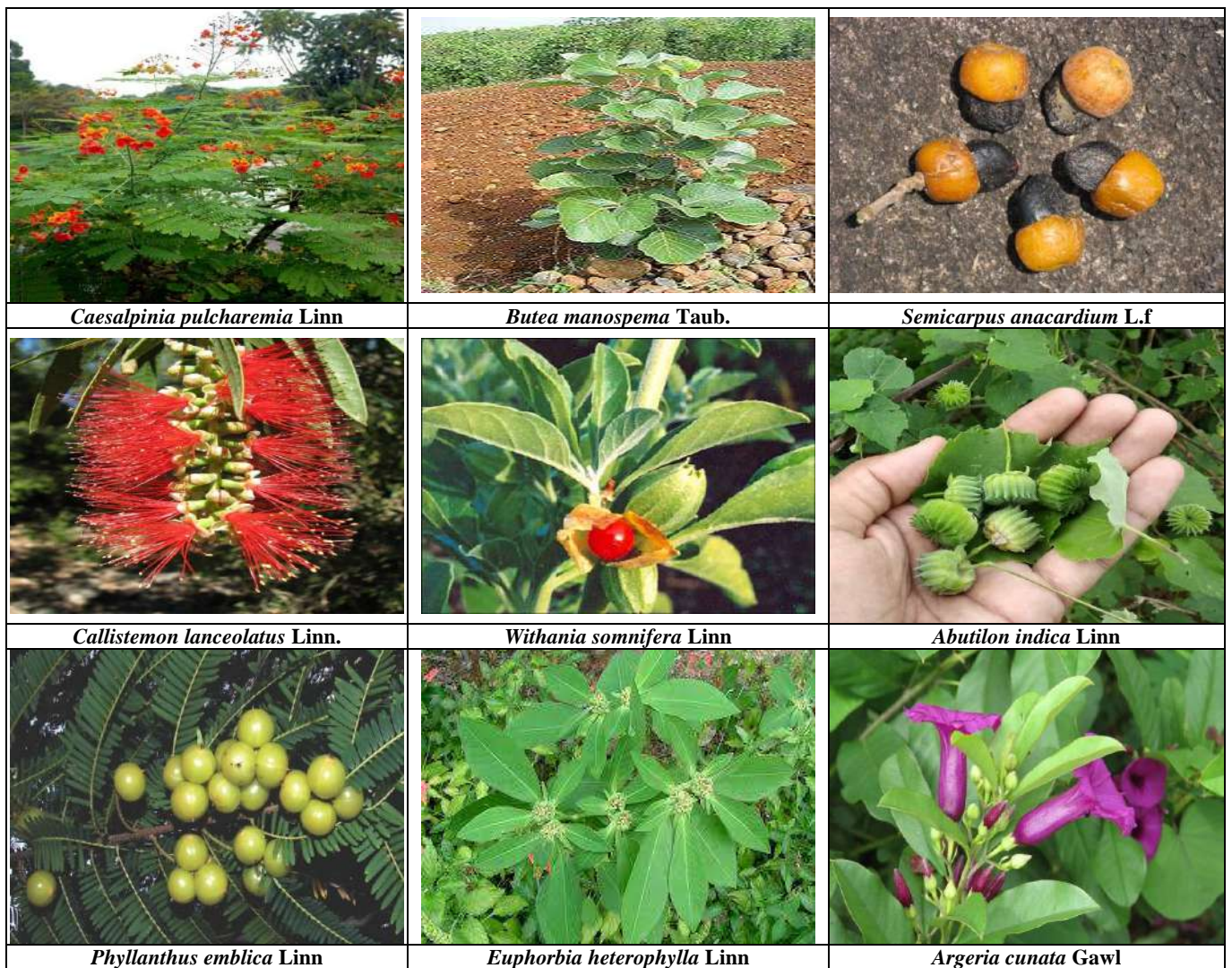


Plate 3



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