

Research Article

Medicinal plant Diversity of Manasagangotri Campus Flora, University of Mysore, Mysuru, Karnataka, India

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ABSTRACT

This paper through knowledge regarding diversity and ethno-medicinal uses of existing flowering plants of the Manasagangotri campus, University of Mysore, Mysuru. The campus comprises one third of the Kukkarahalli tank bed is under water, rest being waste land covered by weeds and grasses. Natural vegetation on the campus is vestigial and comprises grassland on which a few trees are scattered. The campus has a rich diversity of plant species, which includes herbs, shrubs, trees and climbers. Herbs are more dominant in the campus. Among the recorded 193 species of plants 89 species are herbs, 52 species are trees, 28 species are shrubs, and 24 species are climbers. At present global scenario herbal medicine play a vital role in curing different types of ailments. The purpose of the present work is documenting the flowering plants of each taxon scientific name and medicinal uses of the campus are provided for the benefit of students, researchers and public.

Key words: Diversity, Plant survey, Medicinal plants, Documentation.

INTRODUCTION

The flowering plants are the most economically important group of green plants which serve as a source of pharmaceuticals, nutraceuticals, fiber, timber, ornamentals and other commercial products (John Parrotta. 2001). Mysore is the third largest city in the state of Karnataka, India, which is located at 12.30°N and 74.65°E and has an average altitude of 770 meters (Yogananda *et al.*, 2015), it is spread across an area of 128.42 km at the base of the Chamundi Hills in the southern region of Karnataka. The summer season from March to end of May is followed by the south-west monsoon lasting up to September end. The area has the record of receiving an average of 834.2 mm rainfall. The highest temperature recorded in Mysore was 38.5° C and the lowest was 7.7° C (Yogananda *et al.*, 2015).

Mysore is situated in the angular area where the Eastern and Western Ghats ranges converge into the Nilgiri hills. The vegetation is described as thorn-scrub and non-forest habitat due to prolonged disturbance of deciduous forest over a long period (Rao, R.R., & Razi, B.A., 1981). Dry deciduous trees scattered amid the stretches of shrub, herb and grass undergrowth is common. The area covered by forest is 4,126.45 sq. km, 34.52 per cent of the total area, of which 3,875.6 sq. km, are reserved forest. Mysuru has two types of forests, and they are moist deciduous where the rainfall is 900-1100 mm and dry deciduous where the rainfall is 700 – 900 mm. Mysuru district is the ninth richest in forest wealth in the State (https://fsi.nic.in/cover_2011/karnatka.pdf). The forest belt in the district begins from

the western part of Hunsur taluk, spreads along the border of Kerala and Tamil Nadu into the south and east. The thickest and richest forest areas are in H D Kote. The Principal species of trees in the forests are teak, Honne, Rosewood, Dindiga, eucalyptus and sandalwood (Yogananda *et al.*, 2015). The soil type of the district is grouped into three types viz., the red sandy soils, red loamy soils and deep black soils. Mysore area flora is quite rich and diverse with 1601 species of flowering plants belonging to 170 families and 778 genera (Rao, R.R., & Razi, B.A., 1981).

The main campus named "Manasagangotri" – eternal flow of the mind – by the Poet-laureate 'Kuvempu', the former Vice-Chancellor, and the first 'Jnanapeetha' awardee. This campus is comprising, 739 acres of land containing a sprawling Kukkarahalli lake surrounded by verdurous trees extending to an area of 261 acres. The campus of Manasagangotri is bounded on north by the Mysore - Hunsur road, on east by Crawford Hall, on the south by Radhakrishnan Avenue (formerly Bhogadi road) and on the west by Regional College of Education and J.S.S College Of Engineering. The campus has a rich diversity of plant species, which includes herbs, shrubs, trees and climbers. One third of the Kukkarahalli tank bed is under water, rest being waste land covered by weeds and grasses (Manjunatha *et al.*, 2019). Natural vegetation on the campus is vestigial and comprises grassland on which a few trees are scattered. The gardens, lawns and avenues accounts for a majority of plant species on the campus.

The purpose of the present work is to provide images of plants and document the flowering plants and

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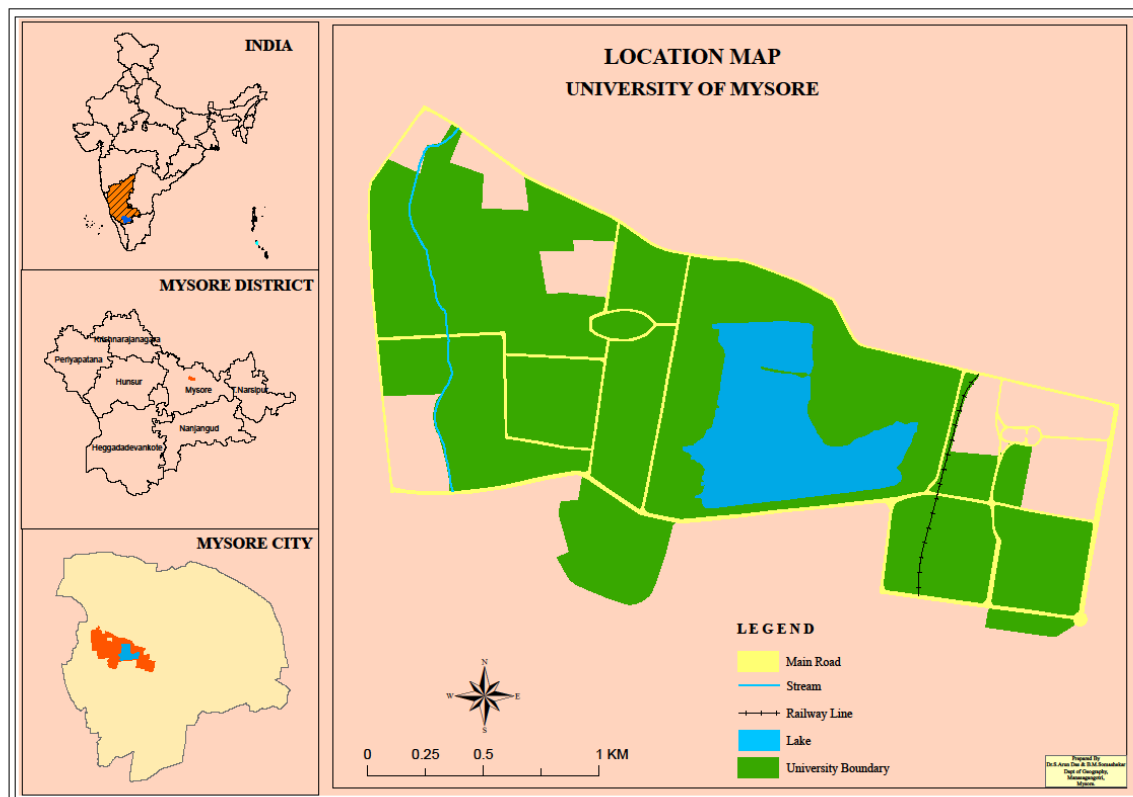


Figure 1. Geographical location of study area

their medicinal importance of each taxon, scientific name, photographs, and medicinal uses are provided for the benefit of students, researchers and public.

MATERIALS AND METHODS

The flowering plants in the campus are critically surveyed in different localities of the campus (Figure 1). Digital photographs were taken for each flora either in the flowering or fruiting stage during quadrat studies. Ten quadrats of 50x50m. size were laid randomly covering about 2.5 hectares of the total 296 hectares area considering the richness of the flora to estimate the density (Mouna *et al.*, 2019) Field notes were taken so as to have information on the habit, habitat and the characteristics of the species along with the plant family. Plant specimens were collected along with their flowering parts for preparing herbaria. This was useful for identifying plant specimens from the flora. Collected specimens were pressed and treated with 5% formaldehyde to protect plant specimens from molds, insects etc. Old Newspapers were used to remove moisture content and they were changed every day. Weight was kept on the stack of newspaper containing plant samples to accelerate moisture removal and to make them flat. Pressed plant specimens were mounted on herbarium sheets. The herbarium sheets were labelled, and deposited in the department of Botany, Yuvaraja's college, Mysuru.

Identification of plants was done with the help of literature available in college library (Flora of Karnataka (Cecil J Saldanha, 1984), Flora of Hassan district (Cecil J Saldanha, Dan H. Nicolson, 1968), Flora of Udupi (Gopalakrishna Bhat, 2003), Flora of the presidency of Madras (Gamble, 2014) and Authentication was done

with the help of expertise available in the department of Botany, Yuvaraja's college, Mysuru. The identification of the plants was done by comparison with authentic specimens deposited in the herbarium of Manasa-gangotri, University of Mysore, Mysuru. And also comparing digital flora of Karnataka, IISC, Bangalore (Raghavendra Rao R, & Basheer Ahamed Razi.,1974) and The plant List (www.theplant.org.) were followed for provide accepted name to each taxon.

For each taxon, scientific name, family names, medicinal uses are provided (Table 1) and few important photographs of plants (Figure 2A-R). Medicinal importance of the different taxa in the campus were recorded from some relevant literature (Chopra *et al.*, 1992, Nadkarni.2004 and Kirtikar *et al.*, 1998).

RESULT AND DISCUSSION

In the present investigation, a total of 193 medicinal plant species representing 146 genera belonging to 53 families have been recorded based on the literatures (Chopra *et al.*, 1992, Nadkarni.2004 and Kirtikar *et al.*, 1998). Of the 53 families, the most dominant families are *Asteraceae* (17 species), *Fabaceae* (16 species), followed by *Malvaceae* (14 species), *Apocynaceae* (13 species), *Euphorbiaceae* (12species), *Mimosaceae* (12 species), *Caesalpiniaceae* (8 species), *Bignoniaceae* (8 species), *Convolvulaceae* (8 species), *Acanthaceae*, *Amaranthaceae*, *Solanaceae* with 7 species and remaining families with 1-4 species. In the collected 146 genera 11 are dominant with more than 2 species which includes, *Alternanthera*, *Senna*, *Ipomoea*, *Acalypha*, *Euphorbia*, *Crotalaria*, *Sida*, *Acacia*, *Albizia*, *Phyllanthus* and *Solanum*.

Table 1. List of plants with their scientific names and medicinal properties

Family Name	Botanical name	Conservation Status	Plant parts used in Treatment
	<i>Asystasia gangetica</i> (L.) T.Anderson	NE	Whole plant (Plant juice is used cure swelling and rheumatism)
	<i>Barleria buxifolia</i> L.	NE	Leaves, root (used cure cough, inflammation)
	<i>Blepharis maderaspatensis</i> (L.) B.Heyne ex Roth	NE	Seed (Diseases of nervous system, diuretic, aphrodisiacs)
	<i>Dicliptera paniculata</i> (Forssk.) I.Darbysh.	NE	Whole plant traditional herb recommended to treatment for tuberculosis.
Acanthaceae	<i>Ecbolium viride</i> (Forssk.) Alston	NE	Leaf, root (Decoction of leaves is given for stricture. Roots are used for jaundice, rheumatism. Roots and leaves together are used against tumors)
	<i>Justicia tranquebariensis</i> L.f.	NE	Leaf (Juice of leaves act as a cooling agent and aperients and also given to children in Small pox)
	<i>Ruellia prostrata</i> Poir.	NE	Leaf (Used in the treatment of chronic rheumatism, eczema, facial paralysis. Leaf juice is an efficient remedy in colic of children)
Aizoaceae	<i>Trianthema triquetra</i> Rottler & Willd.	NE	Whole plant is used in gastric disorders and jaundice.
	<i>Achyranthes aspera</i> L.	NE	Roots, seeds (Roots used to cure piles, eye disease, wound, and jaundice. Seeds used to cure sinus, ear disease, stomach disorders)
	<i>Alternanthera pungens</i> Kunth.	NE	Whole plant (Plant is diuretic, decoction given in gonorrhoea)
Amaranthaceae	<i>Alternanthera sessilis</i> (L.) R.Br. ex DC.	LC	Whole plant (Used to cure leprosy, night blindness and fever)
	<i>Amaranthus spinosus</i> L.	NE	Whole plant (Used as Expectorant, Laxative)
	<i>Amaranthus viridis</i> L.	NE	Whole plant (The plant is cooling, alexiteric, laxative, stomachic, appetizer and antipyretic also used in burning sensation, hallucination, leprosy, bronchitis, piles, leucorrhoea and constipation)
	<i>Gomphrena serrata</i> L.	NE	Whole plant (The leaf extracts having natural blood coagulatory properties. The whole plant extracts are used to treat for cancer and diabetes)
Amaryllidaceae	<i>Crinum asiaticum</i> L.	NE	Leaf, bulbs (Diaphoretic, emollient, burns)
Anacardiaceae	<i>Mangifera indica</i> L.	NE	Bark, seed (Used to cure Cough, diarrhea)
Annonaceae	<i>Polyalthia longifolia</i> (Sonn.) Thwaites	NE	Leaves, fruit (Used to cure fever)

Table 1 continued in next page

Apocynaceae	<i>Allamanda cathartica</i> L.	NE	Bark, leaf (Bark and leaves are used as a purgative. Leaf extract used to cure wounds)
	<i>Asclepias curassavica</i> L.	NE	Whole plant (Whole plant for hair falling, epilepsy, cough, leprosy, mental disorders. Roots emetic, and cathartic, used in piles, leaf juice anthelmintic, antidysenteric. Latex used to remove warts and Corn)
	<i>Calotropis gigantea</i> (L.) Dryand.	NE	Whole plant (Diseases of nervous system, leprosy, splenic disorders, abdominal disorders, piles, worm infestation, cough, snake bite, convulsions, swelling in joints, skin diseases)
	<i>Cryptolepis dubia</i> (Burm.f.) M.R.Almeida	NE	Roots, fruits, latex (Roots and fruits are used for the treatment of chills and oedema. Latex from the stem is applied to the skin to treat wounds)
	<i>Hemidesmus indicus</i> (L.) R. Br. ex Schult.	NE	Entire Plant (Used to cure cold and fever. Root used as blood purifier and also used to Skin diseases)
	<i>Nerium oleander</i> L.	NE	Leaf and flower (Leaves and the flowers are cardiotoxic, diaphoretic, diuretic, emetic, expectorant and sternutatory. A decoction of the leaves has been applied externally in the treatment of scabies, and to reduce swellings. This is a very poisonous plant, containing a powerful cardiac toxin, and should only be used with extreme caution)
	<i>Pergularia daemia</i> (Forssk.) Chiov.	LC	Whole plant, latex (Expectorant, anthelmintic, asthma, infantile diarrhoea, rheumatic swelling, uterine and menstrual troubles, mental disorders, anemia, leprosy, convulsions, poisoning, digestive disorders)
	<i>Plumeria alba</i> L.	NE	Whole plant (Used to cure Malaria, Leprosy, Rheumatism, and abdominal tumors. Milky sap of the stem and leaf is applied to skin diseases such as herpes, scabies, and ulcers)
	<i>Tylophora indica</i> (Burm. f.) Merr.	NT	Whole plant (Stimulant, expectorant, stomachic, diaphoretic, asthma, bronchitis, whooping cough)
	<i>Vallisneria spiralis</i> (L.) Kuntze	NE	Latex (Latex is used to apply to old wounds and sores. Bark is astringent. Seeds are used in cardiac tonic)
<i>Wrightia tinctoria</i> R.Br.	NE	Bark, seed (Bark used in bilious troubles, stomachache, dysentery, diarrhea. Seeds used in piles, worm infestation and pain)	
Araceae	<i>Colocasia esculenta</i> (L.) Schott	NE	Rhizome (Used to cure wound)

Table 1 continued in next page

Arecaceae	<i>Caryota urens</i> L.	LC	Seed, root, bark, flower (A porridge prepared from the seed flour is prescribed by local physicians to treat gastric ulcers, migraine headaches, snake-bite poisoning and rheumatic swellings. Root is used for treating tooth ailments. Bark and seeds are used to treat boils. Tender flowers are used for promoting hair growth)
	<i>Cocos nucifera</i> L.	NE	Coconut oil, milk (Oil is used to treat rheumatism and back pains or as an ointment to maintain smooth, soft skin. Coconut milk is diuretic. The juice from a green coconut is given to women who have difficult pregnancies)
	<i>Phoenix sylvestris</i> (L.) Roxb.	NE	Fruit, root (Fruit is good in heart complaints, abdominal complaints, fevers, vomiting and loss of consciousness. Roots are used to stop toothache. Juice obtained from the tree is considered to be a cooling beverage)
Asparagaceae	<i>Sansevieria trifasciata</i> Prain	NE	Whole plant (Plant is used to treat ringworm and fungal diseases. Leaf sap is applied directly on infected sores, cuts and grazes, it is also used to treat fungal and scabies infections)
	<i>Acanthospermum hispidum</i> DC.	NE	Roots (Used to treat cough and bronchitis)
Asteraceae	<i>Bidens pilosa</i> L.	NE	Whole plant (Whole plant is antirheumatic, it is also used in enemas to treat intestinal ailments. Roots are used to treat constipation and malaria)
	<i>Chromolaena odorata</i> (L.) R.M.King & H.Rob.	NE	Leaves (used to cure cold, stomach ache)
	<i>Cosmos sulphureus</i> Cav.	NE	Rhizome (used in the treatment of malaria)
	<i>Crassocephalum crepidioides</i> (Benth.) S.Moore	NE	Leaves (used to cure indigestion)
	<i>Cyanthillium cinereum</i> (L.) H.Rob.	NE	Flower (Used in stomachic, asthma fever cough, boils, vomiting, blood disorders, skin diseases and filaria)
	<i>Eclipta prostrata</i> (L.) L.	LC	Oil (Used in graying of hair)
	<i>Emilia sonchifolia</i> (L.) DC. ex DC.	NE	Whole plant (Plant is astringent, depurative, diuretic, expectorant, it is used in the treatment of infantile tympanites and bowel complaints. Juice of the root is used in the treatment of diarrhoea)
	<i>Erigeron canadensis</i> (L.) E.H.L.Krause	NE	Whole plant (Antirheumatic, astringent, balsamic, diuretic)
	<i>Lagascea mollis</i> Cav.	NE	Leaf (Paste is used to cure wound)
	<i>Parthenium hysterophorus</i> L.	NE	Whole plant (Used in the treatments of skin inflammation, rheumatic pain, diarrhoea, urinary tract infections, dysentery, malaria and neuralgia)
<i>Pentanema indicum</i> (L.) Ling	NE	Root (Roots used to cure fever in children)	

Table 1 continued in next page

Asteraceae	<i>Sonchus oleraceus</i> (L.) L.	NE	Leaves (Diuretic, hepatic, sedative and stomachic)
	<i>Synedrella nodiflora</i> (L.) Gaertn.	NE	Whole plant (Used for the treatment of leprosy, cardiac troubles, sores, skin infection)
	<i>Tridax procumbens</i> (L.) L	NE	Leaf (Used in bleeding, scorpion bite, head ache)
	<i>Xanthium strumarium</i> L.	NE	Fruit, root (Used to cure sinusitis, rheumatism, rheumatoid arthritis, constipation, diarrhoea, lumbago, leprosy and pruritus. Decoction of the root used to cure high fever)
Bignoniaceae	<i>Jacaranda mimosifolia</i> D.Don	NE	Bark, root (Bark and roots are used in the treatment of syphilis)
	<i>Kigelia africana</i> (Lam.) Benth.	NE	Bark, fruits (Bark used to cure toothache, Fruits used in stomach problems)
	<i>Spathodea campanulata</i> P.Beauv.	NE	Bark, infusion of leaves (Skin diseases, dysentery, renal and gastrointestinal troubles, urethral inflammation)
	<i>Tecoma capensis</i> (Thunb.) Lindl.	NE	Bark (Bark is used in the treatment of fevers, pneumonia and stomach troubles)
Boraginaceae	<i>Trichodesma indicum</i> (L.) Lehm.	NE	Whole plant (Used in the treatment of arthralgia, inflammations, dyspepsia, diarrhoea, dysentery, strangury, skin diseases)
Caesalpinaceae	<i>Bauhinia purpurea</i> L.	LC	Root, flower (Root is carminative. Flowers are laxative)
	<i>Bauhinia racemosa</i> Lam.	NE	Bark, leaves (Bark astringent, used in dysentery. Leaves given with onions in diarrhoea and as an anthelmintic. Decoction of leaves in malaria)
	<i>Caesalpinia pulcherrima</i> (L.) SW	NE	Bark, leaves (Bark used as abortifacient. Leaves purgative, tonic and emmenagogue)
	<i>Saraca asoca</i> (Roxb.) Willd.	VU	Leaf (Used to cure inflammation, anaemia)
	<i>Senna hirsuta</i> (L.) H.S.Irwin & Barneby	NE	Leaf (Leaves are used for treating kidney disorders and herpes)
	<i>Senna occidentalis</i> (L.) Link	NE	Root, leaf, seed (Constipation, diseases of vatam, rejuvenator)
Capparaceae	<i>Capparis zeylanica</i> L.	NE	Leaves (Used to treat boils, swellings and hemorrhoids)
	<i>Casuarinaceae</i>	<i>Casuarina equisetifolia</i> L.	NE
Cleomaceae	<i>Cleome viscosa</i> L.	NE	Whole plant (Skin eruptions, fever, worm infestation, abdominal disorders)
Combretaceae	<i>Terminalia arjuna</i> (Roxb. ex DC.) Wight & Arn.	NE	Seed (Used to cure wound, piles, and cough)
	<i>Terminalia catappa</i> L.	NE	Seeds (Used to cure cold)

Table 1 continued in next page

Convolvulaceae	<i>Cuscuta reflexa</i> Roxb.	NE	Whole plant (Purgative, flatulence, liver complaints, externally for itching, diaphoretic, demulcent and tonic)
	<i>Evolvulus alsinoides</i> (L.) L.	NE	Whole plant (Anorexia, stomatitis, piles, abdominal disorders, sterility in female, epilepsy, psychosis skin diseases, carminative, rejuvenator, fever, cough)
	<i>Ipomoea alba</i> L.	NE	Whole plant (Used in treating snake-bite)
	<i>Ipomoea cairica</i> (L.) Sweet	NE	Whole plant (Used for treating external infections)
	<i>Ipomoea obscura</i> (L.) Ker Gawl.	NE	Root (Used to cure dysentery)
	<i>Merremia dissecta</i> (Jacq.) Hallier f.	NE	Whole plant (Effective remedy for scabies and itch)
Cucurbitaceae	<i>Coccinia grandis</i> (L.) Voigt	NE	Leaves (Used to reduce acidity)
	<i>Cucumis dipsaceus</i> Ehrenb. ex Spach	NE	Leaves, root (Used to cure wounds)
	<i>Diplocyclos palmatus</i> (L.) C.Jeffrey	NE	Roots, fruits, stem (Roots are used as an antivenom. Fruits and leaves are used to cure stomach-ache)
Euphorbiaceae	<i>Mukia maderaspatana</i> (L.) M.Roem.	NE	Leaf, root (Used to cure Constipation, gas problems)
	<i>Acalypha hispida</i> Burm.f.	NE	Roots, flower (Used to cure haemoptysis)
	<i>Acalypha indica</i> L.	NE	Flowers, leaves (Flowers used against diarrhea, colds and coughs. The juice of the leaves used cure cutaneous infections)
	<i>Acalypha wilkesiana</i> Mull.Arg.	NE	Leaves (Used to cure diarrhoea and dysentery)
	<i>Euphorbia heterophylla</i> L.	NE	Stem, leaves (Used as purgative and laxative, also used to cure constipation and to expel intestinal worm)
	<i>Euphorbia hirta</i> L.	NE	Whole plant (Urinary disorders, worm infestation, sterility, purgative, aphrodisiac, leucorrhoea, constipation, polyuria, genitourinary tract diseases)
	<i>Euphorbia hypericifolia</i> L.	NE	Leaves, roots, latex (Leaves and roots for the treatment of a wide variety of gastro-intestinal disorders. Latex used to cure wounds)
	<i>Euphorbia umbellata</i> (Pax) Bruyns	NE	Latex (Used to expel intestinal parasites)
	<i>Jatropha gossypifolia</i> L.	NE	Seeds (Purgative and cancer)
	<i>Ricinus communis</i> L.	NE	Oil (Used to cure pneumonia, body pain)
Fabaceae	<i>Butea monosperma</i> (Lam.) Taub.	NE	Flowers, leaves (Flowers and leaves are diuretic, aphrodisiac, astringent and increase flow of blood in pelvic region)
	<i>Clitoria ternatea</i> L.	NE	Whole plant (Anorexia, stomatitis, piles, abdominal disorders, skin diseases, constipation, retention of urine)
	<i>Crotalaria juncea</i> L.	NE	Leaf, seeds (leaf used in obesity, and blood disorders. Seed used in skin diseases)
	<i>Crotalaria pallida</i> var. <i>obovata</i> (G.Don) Polhill	NE	Leaves (Leaves are used to treat wounds and also taken as a vermifuge)

Table 1 continued in next page

Fabaceae	<i>Dalbergia latifolia</i> Roxb.	NE	Bark (Used to treat diarrhoea, indigestion and leprosy, and used as a vermifuge)
	<i>Dalbergia sissoo</i> DC.	NE	Wood, leaves, seed oil (Skin diseases)
	<i>Desmodium triflorum</i> (L.) DC.	NE	Whole plant (Antipyretic, antiseptic, expectorant)
	<i>Gliricidia sepium</i> (Jacq.) Walp.	NE	Leaves (Leaves are crushed and used to rub skin for the treatment of skin rashes and all inflammatory skin disorders)
	<i>Indigofera hirsuta</i> L.	NE	Leaves (Decoction made from the leaves is used for the treatment stomach problems)
	<i>Peltophorum pterocarpum</i> (DC.) K.Heyne	NE	Leaves (Leaves used to cure skin disorders)
	<i>Pongamia pinnata</i> (L.) Pierre	NE	Leaf (Leaf in vomiting. Seed in cough, wounds and skin diseases)
	<i>Sesbania sesban</i> (L.) Merr.	LC	Roots, leaves (Used to treat scorpion stings, boils and abscesses)
	<i>Tephrosia villosa</i> (L.) Pers.	LC	Leaf (Juice is used to treat dropsy and diabetes)
Hypoxidaceae	<i>Curculios orchoides</i> Gaertn.	NE	Root (Used in treatment of piles, biliousness, fatigue, blood related disorders)
	<i>Hyptis suaveolens</i> (L.) Poit.	NE	Root (Decoction of the roots is used as appetizer)
Lamiaceae	<i>Leucas aspera</i> (Willd.) Link	NE	Whole plant (Used to cure jaundice, intermittent fever, skin diseases, coughs, cold and fever)
	<i>Tectona grandis</i> L.f.	NE	Bark, flower, seeds (Bark is used for the treatment of bronchitis)
Lythraceae	<i>Lagerstroemia speciosa</i> (L.) Pers.	NE	Leaves (purgative)
	<i>Abutilon hirtum</i> (Lam.) Sweet	NE	Roots (Roots are antipyretic and also used in the treatment of coughs and toothache)
	<i>Abutilon indicum</i> (L.) Sweet	NE	Whole plant (used as an anthelmintic and anti-inflammatory, also in urinary troubles. Bark is astringent and diuretic)
Malvaceae	<i>Corchorus olitorius</i> L.	NE	Leaf (Leaves are demulcent, diuretic, febrifuge and tonic, used in the treatment of chronic cystitis, gonorrhoea and dysuria)
	<i>Guazuma ulmifolia</i> Lam.	LC	Bark (Digestive tract problems such as gastrointestinal pain, liver problems, diarrhoea and dysentery)
	<i>Hibiscus vitifolius</i> L.	NE	Root (Extract used to treat jaundice)
	<i>Sida acuta</i> Burm.f.	NE	Whole plant (Decoction of the whole plant is used in the treatment of fevers. Juice of the plant is used to treat indigestion)
	<i>Sida cordata</i> (Burm.f.) Borss.Waalk.	NE	Whole plant (Used to cure boils and pimples)
	<i>Sida cordifolia</i> L.	NE	Bark, seed, root (Bark used in blood, throat, urinary system related troubles. Seeds are considered as aphrodisiacs. Roots are considered as cooling, astringent, stomachic, tonic, aromatic, bitter, diuretic)
	<i>Thespesia populnea</i> (L.) Sol. ex Correa	NE	Bark, leaf (Cutaneous infection, skin troubles, astringent, dysentery, purgative)

Table 1 continued in next page

Malvaceae	<i>Triumfetta rhomboidea</i> Jacq.	NE	Bark, leaves, root (Diarrhea, dysentery, intestinal ulcers, leprosy, aphrodisiac, tonic)
	<i>Urena lobata</i> L.	LC	Root, leaf (Piles, abscess, wounds, vomiting, cough, aphrodisiac, pains)
	<i>Waltheria indica</i> L.	NE	Leaf, stem (Used to cure fevers, coughs, colds, bladder ailments, vaginal infections, hypertension, ulcers)
Meliaceae	<i>Swietenia mahagoni</i> (L.) Jacq.	NE	Bark (Used to increase appetite, and restore strength in cases of tuberculosis)
Menispermaceae	<i>Cocculus hirsutus</i> (L.) W.Theob.	NE	Leaf (Used to treat stomachache, nervous illnesses)
Mimosaceae	<i>Acacia auriculiformis</i> Benth	NE	Root, bark (Decoction of the root is used to treat aches, pains and sore eyes. Bark used to treat rheumatism)
	<i>Acacia catechu</i> (L.f.) Willd	NE	Bark (Decoction of bark used to cure cold and cough, severe diarrhea)
	<i>Acacia leucophloea</i> (Roxb.) Willd.	LC	Bark (used in bronchitis, rheumatic fever and arthritis)
	<i>Acacia nilotica</i> (L.) Delile	NE	Bark and gum (Toothache, Cough and Diarrhoea)
	<i>Adenantha pavonina</i> L.	LC	Leaf, bark (Decoction of the leaves is used in the treatment of rheumatism and gout. Bark is used to treat leprosy)
	<i>Albizia amara</i> (Roxb.) B.Boivin	LC	Bark, leaf (Bark is used to treat jaundice and mouth inflammations. Leaves are used in the treatment of diarrhoea, oedema and wounds)
	<i>Albizia lebbek</i> (L.) Benth.	LC	Leaves, seed, bark (Leprosy, erysipelas, wound cough, antidote for snakebite, stomatitis, thirst, leucorrhoea, dental diseases)
	<i>Albizia saman</i> (Jacq.) Merr.	NE	Bark, leaf (Decoction of the inner bark and fresh leaves is used in the treatment for diarrhoea)
	<i>Leucaena leucocephala</i> (Lam.) de Wit	NE	Root, bark (Abortifacient)
	<i>Mimosa pudica</i> L.	NE	Whole plant (Diarrhoea, leprosy, uterine disorders, haemorrhage, wounds, oedema, burning sensation, diabetes, sinus, eye diseases, diseases of urinary calculi)
Moraceae	<i>Pithecellobium dulce</i> (Roxb.) Benth.	LC	Bark (Used in diarrhoea and dysentery)
	<i>Ficus racemosa</i> L.	LC	Root, bark, latex (Root used in diarrhea and diabetes. Bark used in dysentery. Latex in wounds)
	<i>Ficus religiosa</i> L.	NE	Root, bark, leaf (Oedema, uterine disorders, thirst, burning sensation, polyuria, ulcers, constipation, cough)
Myrtaceae	<i>Eucalyptus tereticornis</i> Sm.	NE	Leaf (Decoction of the leaf to reduce fever and alleviates pulmonary problems)
Nyctaginaceae	<i>Boerhavia diffusa</i> L.	NE	Whole plant (Used in asthma, urinary disorders, piles, anemia, cardiac diseases, stomach disorders)
	<i>Mirabilis jalapa</i> L.	NE	Leaves, root, stem (Tonic, boils, abscess, wounds, itching in urticaria, piles, ulcers)

Table 1 continued in next page

Oxalidaceae	<i>Oxalis corniculata</i> L.	NE	Whole plant (Used in piles, leprosy, fever, and distate)
Papaveraceae	<i>Argemone mexicana</i> L.	NE	Whole plant (Yellow juice of the plant used in scabies and in Ophthalmia, Scorpion-sting poisoning, eczema, leucorrhoea, dental diseases, eye diseases)
Passifloraceae	<i>Passiflora foetida</i> L.	NE	Whole plant (Anthelmintic, used in the treatment of tuberculosis, coughs and colds)
Phyllanthaceae	<i>Flueggea leucopyrus</i> Willd.	NE	Roots, leaves, bark (Used as diuretic, blood purifier, anthelmintic, purgative)
	<i>Phyllanthus amarus</i> Schumach. & Thonn	NE	Whole plant (Used in the problems of stomach, genitourinary system, liver, kidney and spleen)
	<i>Phyllanthus emblica</i> L.	NE	Fruit (Used to cure cardiac diseases, chronic fever, vomiting, eye diseases and cough)
	<i>Phyllanthus maderaspatensis</i> L.	LC	Leaf, seeds (Leaves are expectorant and diaphoretic. Seeds are carminative, laxative, tonic to the liver, diuretic, diaphoretic and astringent to the bowels, useful in bronchitis, earache, griping, ophthalmia and ascites)
Plumbaginaceae	<i>Plumbago auriculata</i> Lam.	NE	Root (Powdered root is used as snuff to relieve headache)
	<i>Plumbago zeylanica</i> L.	NE	Root (Sprue, leprosy, worms, oedema, piles, bronchial asthma, hemiplegia, jaundice, glandular swelling, carbuncle, carcinoma, arthritis, abdominal diseases)
Poaceae	<i>Bambusa bambos</i> (L.) Voss	NE	Leaf (Leaves are antispasmodic and emmenagogue, taken internally to stimulate menstruation and to help relieve period pain)
Polygonaceae	<i>Persicaria glabra</i> (Willd.) M.Gomez	LC	Whole plant (Juice of the herb is used as a remedy for fever, infusion of leaves is used to relieve colic pain)
Pontederiaceae	<i>Eichhornia crassipes</i> (Mart.) Solms	NE	Leaf petioles (Leaf petioles are eaten as a treatment for diarrhoea)
Rubiaceae	<i>Ixora coccinea</i> L.	NE	Leaf, bark (Leaves and bark are used to cure diarrhea. Leaves are used externally to treat sores, ulcers)
	<i>Morinda coreia</i> Buch.-Ham.	NE	Used in Thai traditional medicine to treat menstrual disorders, Used as a tonic for stomach and blood stasis.
	<i>Spermacoce ocymoides</i> Burm.f.	NE	Leaves (used to cure headache, wounds)
Rutaceae	<i>Toddalia asiatica</i> (L.) Lam.	NE	Root, bark, leaf (Diaphoretic, stomach ache, antipyretic, Carminative, pain in bowels, diseases of kapha and vata, cough, intermittent fever, tuberculosis, bronchial asthma)
Salvadoraceae	<i>Azima tetracantha</i> Lam.	NE	Root (Roots are antidote and diuretic, used in the treatment of rheumatism, dropsy and stomach disorders)
Santalaceae	<i>Santalum album</i> L.	VU	Heart wood, oil (Heart wood in vomiting, burning sensation and skin eruption. Oil in eye diseases, worm infection, fever, dysentery and piles)

Table 1 continued in next page

Sapindaceae	<i>Cardiospermum halicacabum</i> L.	LC	Root, leaf (The root is used in the form of powder to treat abdominal disorders, snake-poisoning, cough)
Sapotaceae	<i>Mimusops elengi</i> L.	LC	Bark, flower, fruit (Bark is used in dental disorders, flower is used in constipation, fruit is used in dysentery)
	<i>Datura stramonium</i> L.	NE	Leaves (Narcotic, antispasmodic, scorpion-sting poisoning, burning sensation, dog-bite poisoning)
	<i>Solanum diphyllum</i> L.	NE	Fruits (Fruits are given as tonic and laxative, to improve appetite and are useful in asthma and skin diseases)
Solanaceae	<i>Solanum nigrum</i> L.	NE	Fruits, seeds (Fruits and seeds are antiseptic and antidysenteric used in cardiac treatments. The infusion of the herb is applied to anthrax pustules. Decoction is narcotic and antispasmodic. Freshly prepared extract of the herb is effective in cirrhosis of liver. Berries are diuretic and cathartic, employed as a remedy for fever)
	<i>Solanum seaforthianum</i> Andrews	NE	Fruit, root (Diseases of vata, pitta, kapha, tonic, cough, stimulant, ulcers in the nose, liver complaints)
	<i>Solanum sisymbriifolium</i> Lam.	NE	Plant is used as a trap crop to protect potatoes from cyst nematode.
	<i>Solanum torvum</i> Sw.	NE	Root (Used to cure cough, dental diseases, arthritis, pain, and cracks in feet)
	<i>Solanum violaceum</i> Ortega		Fruits (Fruits are diuretic and expectorant, antidiabetic)
Typhaceae	<i>Typha angustifolia</i> L.	LC	Pollen grains (Anticoagulant, diuretic)
Ulmaceae	<i>Holoptelea integrifolia</i> Planch.	NE	Bark, leaves (Bark and leaves are used for treating oedema, diabetes, leprosy and other skin diseases, intestinal disorders, piles and sprue)
Verbenaceae	<i>Gmelina arborea</i> Roxb.	LC	Root, Leaves, Flower (Roots have medicinal value as a blood purifier, laxative, stomachic. Leaf sap is used as a demulcent to treat gonorrhoea and cough. Flowers used to treat leprosy and blood diseases)
	<i>Lantana camara</i> L.	NE	Leaf, stem (Leaves and stems are used to treat dermatitis, eczema, pruritus, measles and chickenpox, rashes)
Zingiberaceae	<i>Alpinia zerumbet</i> (Pers.) B.L.Burtt & R.M.Sm.	DD	Leaf, rhizome (Decoction of the leaves is used against fevers. Rhizome is astringent, carminative, sedative, stimulant, stomachic)
Zygophyllaceae	<i>Tribulus terrestris</i> L.	LC	Fruit (Diuretic and cooling agent)

NE-Not Evaluated, NT-Near Threatened LC-Least Concern, VU-Vulnerable, DD-Data Deficient



Figure 2. Some of the wild plant species recorded in the study area- (A) *Coccinia grandis* (L.) Voigt (B) *Cucumis dipsaceus* Ehrenb. ex Spach (C) *Diplocyclos palmatus* (L.) C. Jeffrey (D) *Mukia maderaspatana* (L.) M. Roem (E) *Gliricidia sepium* (Jacq.) Wall. (F) *Indigofera hirsuta* L. (G) *Indigofera linnaei* Ali (H) *Millettia peguensis* Ali (I) *Cocculus hirsutus* (L.) W. Theob. (J) *Acacia auriculiformis* Benth. (K) *Acacia leucophloea* (Roxb.) Willd. (L) *Acacia catechu* (L.f.) Willd. (M) *Solanum diphyllum* L. (N) *Solanum nigrum* L. (O) *Solanum seafortianum* Andrews (P) *Solanum sisymbriifolium* Lam (Q) *Asclepias curassavica* L. (R) *Pergularia daemia* (Forssk.) Chiov

The campus has a rich diversity of plant species, which includes herbs, shrubs, trees and climbers. Herbs are more dominant in the campus. Among the recorded 193 species of plant 89 species are herbs, 52 species are trees, 28 species are shrubs and 24 species are climbers. Conservation status of documented species have been screened and categorised (www.iucnredlist.org) into Vulnerable, Near threatened, Least concern and Not evaluated species (Table 1).

Some of the common herbs (*Alternanthera pungens* Knuth, *Ruthenium hysterophorus* L., *Synedrella nodiflora* (L.) Gaertn. *Tridax procumbens* (L.) L, *Senna occidentalis* (L.) Link, *Croton bonplandianus* Baill, *Euphorbia hirta* L., *Crotalaria juncea* L., *Sida acuta* Burm.f., *Waltheria indica* L., *Boerhavia chinensis* (L.) Rottb. *Boerhavia diffusa* L., *Phyllanthus maderaspatensis* L. *Tribulus terrestris* L., etc.), trees (*Jacaranda mimosifolia* D.Don, *Terminalia catappa* L., *Peltophorum pterocarpum* (DC.) K.Heyne, *Pongamia pinnata* (L.) Pierre, *Swietenia mahagoni* (L.) Jacq, *Acacia auriculiformis* Benth. *Acacia leucophloea* (Roxb.) Willd. *Albizia lebbek* (L.) Benth. *Leucaena leucocephala* (Lam.) de Wit, *Holoptelea integrifolia* Planch etc. and climbers (*Pergularia daemia* (Forssk.) Chiov. *Ipomoea hederifolia* L., *Ipomoea obscura* (L.) Ker Gawl., *Cucumis dipsaceus* Ehrenb.ex Spach, *Diplocyclos palmatus* (L.) C.Jeffrey, *Cocculus hirsutus* (L.)W.Theob. *Passiflora foetida* L., etc.), of the campus.

Majority of the plants which are recorded from the campus are used as medicine to cure major diseases. Such as *Gomphrena serrata* is used as an anticancer plant (Nandini et al., 2018); *Ecbolium viride* (keerthana et al., 2014), *Achyranthes aspera* (Sanyogita Singh et al., 2014), *Plumbago zeylanica* (Babita et al., 2021) for liver disorders; *Trichodesma indicum* (Hamsalakshmi et al., 2018) and *Plumeria alba* (Zahid zaheer et al., 2010) for skin diseases; *Tephrosia villosa* (Ramesh C. and Prameela Rani A. 2018) and *Mimosa pudica* (Sutar et al., 2009) for diabetes; *Vallaris solanacea* (Greeshma et al., 2020), *Neerium oleander* (Adome et al.,2003) and *Boerhavia diffusa* (Prathapan et al., 2017) for cardiovascular problems; *Tylophora indica* (Umamaheswari et al., 2017), *Todelia asiatica* (Orwa et al., 2008) and *Acacia leucophloea* (Arun Kumar Gupta et al., 2010) for bronchitis. Herbal remedies play a fundamental role in traditional medicine, where the plants often used as therapeutic agents as antiseptic, anti-inflammatory and in treatment of other ailments.

Present work is compared with previous work of Raghavendra Rao R, & Basheer Ahamed Razi (1974) and recorded additional 77 plant species. Some of them are *Asystasia gangetica* (L.) T.Anderson, *Blepharis maderaspatensis* (L.) B.Heyne ex Roth, *Ruellia prostrata* Poir. *Cynanchum tunicatum* (Retz.) Alston, *Caryota urens* L., *Chromolaena odorata* (L.) R.M.King & H.Rob., *Pentanema indicum* (L.) Ling, *Kigelia africana* (Lam.) Benth. *Bauhinia racemosa* Lam., *Capparis zeylanica* L., *Ipomoea obscura* (L.) Ker Gawl. *Tephrosia villosa* (L.) Pers., *Millettia peguensis* Ali, *Hyptis suaveolens* (L.) Poit. *Azima tetraacantha* Lam., *Solanum sisymbriifolium* Lam., *Holoptelea integrifolia* Planch. *Gmelina arborea* Roxb. etc.

CONCLUSION

The study reveals that the plants recorded from the campus area are economically very important. Some of them have medicinal, ornamental value and few are edible.

Plants in the campus are destroying due to habitat loss by the anthropogenic activities like construction of buildings and roads, dumping of wastes. Hence, strict conservational measures are to be taken to protect these plant species from becoming rare or endangered. Every educational institute has to maintain and preserve flora in their premises. It has become obvious that the conservation of biological resource is essential for the wellbeing and the long-term survival of mankind. Since present study was taken in dry season, seasonal exploration of flowering plants in the campus is needed. In the present study grasses of the campus were not surveyed, so study of grasses of the campus is also recommended. Documentation of plant is the only way to preserve the fundamental knowledge of the plant resources.

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