Original Research Article

Assessment of Plant Diversity: a medicinal, conservational and environmental study

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ABSTRACT

An assessment study of the plant diversity in the campus of Prananath College (Autonomous), Khordha was carried out during 2019-20 and a checklist was prepared. A total of 241 vascular plant species belonging to 72 different families were recorded including four species of Gymnosperms. Among the families, Fabaceae, Apocynaceae, Euphorbiaceae, Malvaceae, Lamiaceae and Poaceae were the dominating families of the vascular plants in the study area. Aquatic plants, medicinal plants and ornamental plants are included in the study area. The floristic composition also include occurrence of invasive alien species such as *Parthenium*, *Ageratum*, *Cassia*, *Croton sparsiflorus*. The study also gives attention towards the conservation of bio-resources of the campus, toxic effects of the plants along with their medicinal values, proper utilization of bio-wealth in research and academic activities. Documentation of flora check list will be helpful in the environmental study too.

Keywords: Assessment, plant diversity, habitat, medicinal plants, aquatic plants, toxic plants

1. INTRODUCTION

Phyto-diversity refers to wide variety of plant species in their natural environment. It is concerned with the ecosystem balance, climate, erosion and shelter. Floristic studies provide information on floristic pattern, present position, new entrant, rare, endemic and threatened taxa in a particular phytogeographical area. Knowledge of flora of any region is essential for the study of its biodiversity. It is essential to prepare documentations of local flora of urban areas where there is severe threat to natural vegetation that are in different stage of vulnerability (31). Preparation of the flora of smaller areas like districts, sub-divisions, villages or institutions is essential for understanding the ecosystem function and conservation and accordingly natural resource management and planning activities can be taken up at local level.

Urbanization is spreading at a gallop across the world, pivotal challenge for conservation is to understand how it affects the biodiversity (30). Urban-institutional ecosystems differ from forest one in a number of ways (29,20). Natural landscapes, peculiar species composition and habitat add to nature conservation. Kumar and Satapathy (2011) studied the floral wealth of the campus of Regional Institute of Education and reported 77 herbaceous medicinal plants species with their utilization in research as well as in conservation of bio-resources. It is believed that the plant resources play a vital role in balancing pollution and other environmental factors in the institutional campus.

The objectives of the present study is to survey, identify and assess the plant diversity in the campus of Prananath College (Autonomous), Khordha and to evaluate the socio-economic importance and need conservation of these plants for maintaining the ecosystem of the institution.

The plant biodiversity of Prananath College has been carried out to assess the plant and their effect on climate change and assess their medicinal value and conserving and protecting the endangered species from their depletion.

2. METHODOLOGY

2.1 Study Area

Prananath College, named after the great freedom fighter Late PrananathPattanaik, the founder Secretary of this institution established in the year 1959. Later it became a degree college in Arts in the year 1963. About seven thousands of students are studying in this institution. At Present Prananath College (Autonomous)is located in the Khordha district along the NH16 at 20°10'48"N latitude and 85°38'21"E longitude covering an area of 74.428 Acre and about 25 Km from Bhubaneswar, State Capital of Odisha. The built up area for class rooms, laboratories, halls, library, office, hostels etc. covers only 4 Acres of land approximately. Khordha comes under the laterite sub-region. The temperature varies in an average from 41.4^{0}C in summer to 9.5^{0}C in winter. The annual rainfall is 1443 mm (http://khordha.nic.in/topography.htm). Though the institution is in the outskirt of Khordha town and free from pollution, its environment is very fresh and healthy due to presence of large number of plants.

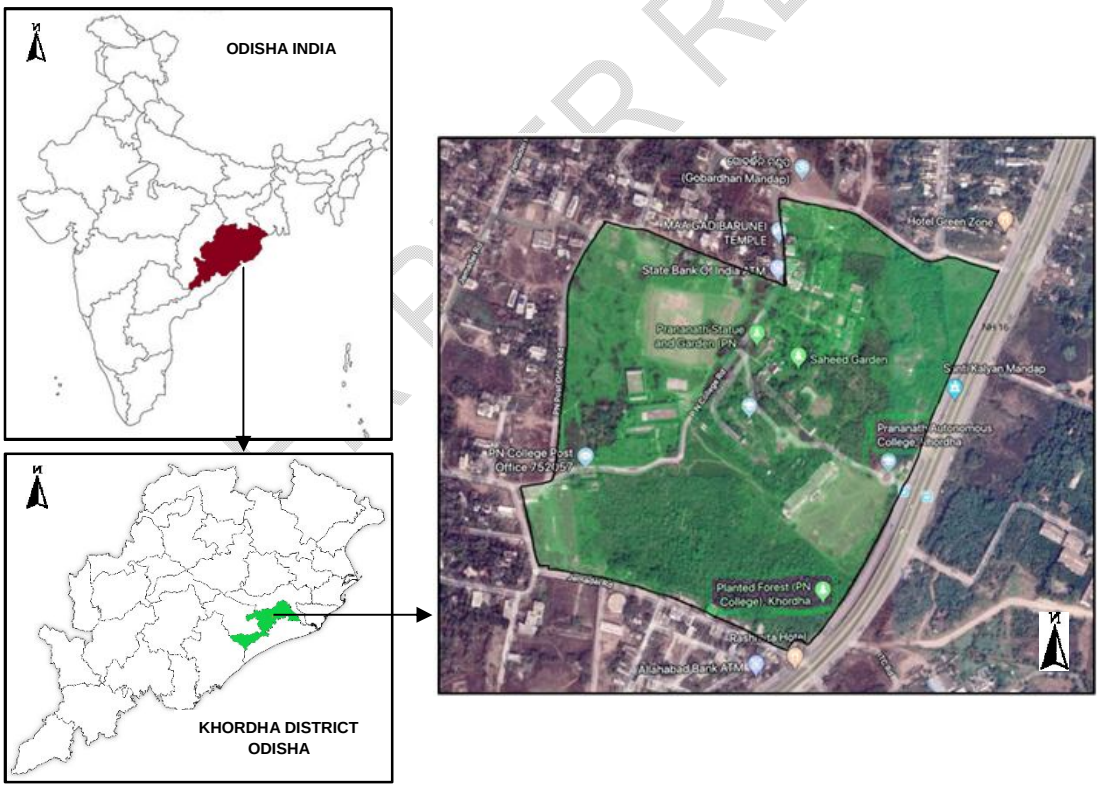

Fig.1: Prananath College (Autonomous), Khordha, Odisha in Google Map.

2.2 Data collection and identification of plants

Field study was undertaken at different months of the year during 2019-20 in the campus of Prananath College (Auto.), Khordha. The campus was made into different units to locate the position of plants. Plant specimens focusing on the habits of the flowering plants like herbs, shrubs, climbers,grassesand trees were studied for their identification and systematic position. The Botany of Bihar and Odisha (Haines, 1921-1925), The Flora of Odisha (Saxena and Brahmam, 1994-1996) were referred. Photographs were taken and vernacular names were mentioned against the plant.

Table1: List of species recorded from the campus of Prananath College (Autonomous), Khordha, Odisha

Sl. no.	Botanical names	Family	Local name	English Name	Diseases for which used
Tree					
1.	*Acacia auriculiformis*A.Cunn. ex Benth.	Fabaceae	Acacia	Black wattle	Sore eyes, aches, rheumatism, allergy, itching, rashes,CNS depressant, antioxidant, antifungal, antimalarial, pesticidal, antidiabetic activities (40)
2.	*Acacia nilotica* (Linn.) Willd.	Fabaceae	Babul	Gum arabic tree	Antimicrobial, antiplasmodial and antioxidant activity, treatment of human immunodeficiency virus, hepatitis C virus and cancer, venereal diseases, nausea, burns and wounds, stomachache and diarrhea (38)
3.	*Adina cordifolia* (Roxb.) Brandis syn *Haldinia cordifolia*	Rubiaceae	Kuruma/ Holondo	Haldu	Chronic cough, jaundice, stomachache, cancer, diabetes. The roots are astringent and constipating, and are useful in diarrhea and dysentery. (11)
4.	*Aegle marmelos* (Linn.) Corr.	Rutaceae	Bela	bael	Leaf extract: ulcers, abscess, backache, vomiting, cuts, weakness of heart, acute bronchitis, blood sugars, diarrhea, dropsy, beriberi, laxative. (17) Root bark: intermittent fevers, fish poison, heart palpitation, melancholia and hypoglysemia (16). Flower extract: tonic for the stomach, intestine, antidysenteric, antidiabetic, diaphoretic and local anesthetic (35);Fruits: diarrhoea, dysentery, gastric troubles, constipation, laxative, tonic, digestive, brain and heart tonic, ulcer, intestinal parasites, gonorrhea, epilepsy (16)
5.	*Albizia lebbeck* (L.) Benth.	Fabaceae	Sirisa (Kala)	Woman'stongue	Blood purifier, jundice, antidote, general tonic, anti-inflamatory, migraine, leprosy, toothache (55)
6.	*Albizia odoratissima* (L.f.)Benth.	Fabaceae	Tinia	Ceylon rosewood	Leprosy, ulcers, burns and asthma (22), Bark: antibacterial and antifungal (13)
7.	*Albizzia procera* (Roxb.) Benth.	Fabaceae	Sirisa (Dhala)	White Siris	Anticancer activity. common traditional use: spermicidal activity, rheumatism, ulcers, haemorrhage and useful in treating problems of

					pregnancy and worm infection (46)
8.	*Alstoniascholaris* (L.) R.Br.	Apocynaceae	Chhatiana	White cheesewood	Fever, asthma, leucorrhea, eczema, indigestion and also to heal spider bites (7)
9.	*Anacardium occidentale* L.	Anacardiaceae	Cashew	Cashew	Diarrhoea, constipation, pain and inflammation, antioxidant, antimicrobial, and anticancer (51)
10.	*Anthocephaluscadamba* (Roxb.) Miq.	Rubiaceae	Kadamba	Kadam	Diabetes, diarrhoea, fever, inflammation, haemoptysis, cold, vomit, infections, wounds, debilitation, snake bite and antibacterial activity (33)
11.	*Araucaria heterophylla* (Salisb.) Franco.	Araucariaceae	Aurakaria	Chilian pine	Anti-inflammatory, antiulcer, antiviral, neuroprotective, antidepressant andanticoagulant (3).
12.	*Areca catechu* L.	Arecaceae	Gua	Betel-nut Palm	Leucoderma, diarrhoea, anaemia, obesity, leprosy, astringent, diuretic, digestion-promoting, stimulant, wound healing and laxative agent, antidepressant, antihelmintic, antihypertensive, antioxidant, antiallergic, antifungal and antimicrobial but it is considered as carcinogenic(18)
13.	*Artocarpus heterophyllus* Lam.	Moraceae	Panasa	Jackfruit	Anticancer,antihypertensive, diarrhoea and dysentery,asthma, prevent ringworm infection, and heal cracking of the feet.Bark: as nasal drops for headache (52)
14.	*Azadirachta indica* A. Juss	Meliaceae	Nimba	Neem (The Wonder Tree)	Dermatitis, Antioxidant, antifungal and antibacterial, anti-inflammatory antiarthritic, antipyretic, hypoglycemic, antigastric ulcer, antimalarial and antitumour, anticancer activities (43)
15.	*Bombax ceiba* L.	Malvaceae	Simuli /Bura	cotton tree	Bark: combat fever, heartwood: antidiabetics; bark juice reduces stomachache.(37)
16.	*Bridelia retusa* (L.) A.Juss.	Phyllanthaceae	Kasi	Spinous Kino Tree	Rheumatism, diabetes, diarrhoea, dysentery, removal of urinary concretions,
17.	*Buchananialanzan*Spreng.	Anacardiaceae	Chara	chironji	Antidiabetic, antihyperlipidemic, antioxidant, anti-inflammatory, wound healing, antidiarrheal, antivenom activity (34)
18.	*Butea superba*Roxb.	Fabaceae	Palasa	Butea Gum Tree	Root: to cure goitre, Herbal Viagra
19.	*Caesalpinia pulcherrima* (L.) Sw.	Fabaceae	Krusnachuda	Peacock Flower	Anti-inflammatory, antiobesity, to treat minor injuries or to relieve fever (2)
20.	*Callistemon citrinus* (Curtis) Dum.Cours.	Myrtaceae	Bottle brush	lemon bottlebrush	Treatment of diarrhoea, dysentery and rheumatism, anticough, antibronchtits and insecticide (49)
21.	*Carica papaya* L.	Rubiaceae	Amrutabhanda	Papaya	Vitamins A, B and C, proteolytic enzymes (papain and chymopapain) thus anti-viral, antibacterial, antifungal, anti-inflammatory, anti-hypertensive, hypoglycaemic and

					hypolipidaemic, wound healing, free radical scavenging, anti-sickling, neuroprotective, diuretic, abortifacient and antifertility properties.(3)
22.	*Caryotaurens* L.	Arecaceae	Jaggary Palm	fishtail palm	Seminal weakness and urinary disorders, gastric ulcer, migraine headaches, snake bite poisoning, as well as rheumatic swellings.(53)
23.	*Cassia alata* L.	Fabaceae	Jadumari	Candle Bush	As laxative, hyper tension, leprosy, ringworm infection, ophthalmic, skin diseases and liver disorders. (12)
24.	*Cassia fistula* L.	Fabaceae	Sunari	Amaltas	Joint pain, migraine, chest pain and blood dysentery, laxative. Root: useful in fever, heart diseases, retained excretions and biliousness.(https://www.nhp.gov.in/amaltas-cassia-fistula)
25.	*Cassia siamea* Lam.	Fabaceae	Chakundi	cassia tree	Antimicrobial, antimalarial, antidiabetic, anticancer, hypotensive, diuretic, antioxidant, laxative, anti-inflammatory, analgesic, antipyretic, anxiolytic, antidepressant, and sedative activities. (9)
26.	*Casuarina equisetifolia* Linn.	Casuarinaceae	Jhaun	Australian pine	Nervous disorders, acne, throat infections, stomach ulcer, constipation, cough, diabetes, diarrhoea, dysentery, gonorrhea (27)
27.	*Ceiba pentandra* (L.) Gaertn.	Malvaceae	Sweta Simili	cotton	Diuretic, aphrodisiac, headache, type II diabetes.
28.	*Cleistanthuscollinus* (Roxb.) Benth. ex Hook.f.	Phyllanthaceae	Karada	Karra	Poisonous plant, antiseptic, antifungal, insecticidal, and larvicidal, anticancer property
29.	*Cocos nucifera* L.	Arecaceae	Nadia	Coconut	Antibacterial, antifungal, antiviral, antiparasitic, antidermatophytic, antioxidant, hypoglycemic, hepatoprotective, immunostimulant, antidiabetic
30.	*Dalbergia latifolia*Roxb.	Fabaceae	Sisoo	Indian rosewood/ shisham	Tannins from the bark are used to produce medicines for the treatment of diarrhea, worms, indigestion, and leprosy.
31.	*Dalbergia paniculata*Roxb.	Fabaceae	Barbakulia / Dhobi	Passi	Dyspepsia, leprosy and allied obstinate skin diseases. Seed oil is usedin rheumatism and cutaneous diseases
32.	*Delonix regia* (Bojer ex Hook.) Raf.	fabaceae	Krushnachuda	Flame Tree	Antidiabetic, antibacterial, antidiarrhoeal, hepatoprotective or cytotoxic property, antmicrobial, anti-inflammatory.
33.	*Desmodiumoojeinensis* (Roxb.) H.Ohashi	Fabaceae	Bandhana	Ujjain Desmodium	Anti-inflammatory, antispasmodic, astringent, anaemia, leucoderma, ulcers, diarrhoea, dysentery and fevers.
34.	*Dillenia indica* L.	Dilleniaceae	Oau	Elephant Apple	Indigestion, asthma, influenza, dysentery, jaundice, weakness and rheumatic pain

35.	*Diospyros sylvatica*Roxb.	Ebenaceae	Kalucha	Forest Ebony	Diarrhoea, cholera, dysentery, intermittent fevers, bleeding gums, bronchitis, carbuncles, cough, cramps, pneumonia, syphilis, tumors, etc.
36.	*Dypsislutescens* (H.Wendl.) Beentje&J.Dransf.	Arecaceae	Areca palm	Butterfly palm	Diabetes, GI diseases, ulcer preventive, heart diseases, CNS disorder (depression, seizures), antiallergic
37.	*Elaeodendron glaucum* (Rottb.) Pers.	Celastraceae	Chauli	Ceylon Tea	Treatment of certain nerve diseases, particularly to rouse women from hysteria, anti-inflammatory, antioxidant
38.	*Erythrina indica* Lam.	Fabaceae	Paladhua	Indian coral tree	Inhaling of well crushed leaves by nostrils relieves headache.
39.	*Ficus bengalensis* L.	Moraceae	Bara	banyan	Antiarthritic, antimicrobial, analgesic & antipyretic
40.	*Ficus infectoria* (Miq.) Miq.	Moraceae	Jari	White Fig	Antiulcer, antibacterial, antidiabetic, in the treatment of gonorrhea and skin diseases.
41.	*Ficus recemosa* L.	Moraceae	Dimiri	Cluster fig	Diabetes, liver disorders, diarrhea, inflammatory conditions, hemorrhoids, respiratory, and urinary diseases. (22)
42.	*Ficus religiosa* L.	Moraceae	Aswatha	Sacred fig tree	Antiulcer, antibacterial, antidiabetic, in the treatment of gonorrhea and skin diseases.
43.	*Flacourtia indica* (Burm. f.) Merr.	Salicaceae	Bhaincha	Indian plum	Blood disorders, digestive, jaundice, liver disorders
44.	*Garuga pinnata*Roxb.	Burseraceae	Pitamoi	grey downy balsam	Fruit: stomachic, leaf: astringent, anti-asthmatic, bark: anti-diabetic
45.	*Gmelina arborea*Roxb.	Lamiaceae	Gambhari	White Teak	Astringent, bitter, digestive, cardiotonic, diuretic, laxative and pulmonary and nervine tonic. (24)
46.	*Holarrhenaantidysenterica* (L.) Wall. ex A. DC.	Apocynaceae	Kurei	Kurchi	Analgesic, antibacterial, antidiarrhoeal, antiamoebic, anti-inflammatory and anti-haemorrhoidal antimalarial, antidiabetic, antioxidant, antiurolithic, antimutagenic
47.	*Hyophorbelagenicaulis* (L.H.Bailey) H.E.Moore	Arecaceae	Bottle palm	Bottle palm	Anemia, chronic fatigue, cyanide poisoning, digestion problems, emollient, fights depression, high cholestrol, indigestion, skin disorders
48.	*Ixora parviflora* Lam.	Rubiaceae	Tellu/ kuruan	Torch Tree	Hemoptysis, catarrhal bronchitis, and dysmenorrhea.
49.	*Kydiacalycina*Roxb.	Malvaceae	Kapasia	Kydia	Leaves: skin diseases and body pains. Bark: clarifying sugar.
50.	*Lagerstroemia parviflora*Roxb.	Lythraceae	Sidha	crape myrtle	Edema, diabetes, urinary dysfunction, fevers, and digestive disorders, control cholesterol and blood pressure, helps in weight loss.
51.	*Lagerstroemia speciosa* (L.) Pers.	Lythraceae	Patuli	Pride of India	To lower blood sugar in the body (antidiabetic)
52.	*Madhuca indica* J. F. Gmel.	Sapotaceae	Mahula	Butternut tree	Antidiabetic, antiulcer, hepato protective, antipyretic, antifertility, analgesic, antioxidant, swelling, inflammation, piles, emetic,

					dermatological, laxative, tonic, anti-burn, antiearth worm, wound healing headache and many more problems.
53.	*Mangifera indica* L.	Anacardiaceae	Amba	Mango	Antioxidant, anti-inflammatory, and anticancer
54.	*Manilkara zapota* (L.) P.Royen	Sapotaceae	Sapota	naseberry	Treat coughs and colds and possess diuretic, antidiarrheal, antibiotic, antihyperglycemic, and hypocholesterolemic effects.
55.	*Melia azedarach* L.	Meliaceae	Mahalimba	Persian Lilac	Antioxidative, analgesic, anti-inflammatory, insecticidal, rodenticidal, antidiarrhoeal, diuretic, antidiabetic, cathartic, emetic, anti-rheumatic and antihypertensive.
56.	*Micheliachampaca* (L.) Baill. ex Pierre-	Magnoliaceae	Champa	champak	Bleeding disorders, urinary infection, poisoning, worm infestation, cardiac tonic, ulcers, wounds, diabetes
57.	*Millettia pinnata* (L.) Panigrahi syn. *Pongamia glabra* Vent.	Fabaceae	Karanja	Indian beech	Treatment of tumors, piles, skin diseases, gonorrhea, cleaning gums, teeth, and ulcers
58.	*Mimusopselengi* L.	Sapotaceae	Baula	Spanish Cherry	Strengthening teeth, anthelmintic, astringent tonic, anti-dote to snake-venom, diarrhea, antifungal, antibacterial
59.	*Moringa oleifera* Lam.	Moringaceae	Sajana	Drum stick	Antidiabetic, Anticancer, antioxidant, anti-inflammatory, lower cholesterol
60.	*Murrayakoenigii* (L) Sprengel	Rutaceae	Bhursunga	Curry Leaf	Antioxidant, antidiabetic, anti-inflammatory, antitumor, reduce high cholesterol and neuroprotective activities
61.	*Nyctanthesarbortristis* L.	Oleaceae	Gangasiuli	Night Blooming Jasmine	Antihelminthic and antipyretic besides its use as a laxative, in rheumatism, skin ailments and as a sedative. (22)
62.	*Phyllanthus acidus* (Linn.) Skeels	Phyllanthaceae	Narakoli	Gooseberry	Used in inflammatory, antirheumatism, bronchitis, asthma, respiratory disorder, hepatic diseases and diabetes
63.	*Phyllanthus emblica* Linn.	Phyllanthaceae	Amla/Anla	Indian gooseberry	Source of vitamin C, amino acids, minerals, diarrhea, jaundice, and inflammation, antidiabetic, hypolipidemic, antibacterial, antioxidant, antiulcerogenic, hepatoprotective, gastro protective, and chemo preventive
64.	*Pistacia vera* L.	Anacardiaceae	Pestabadam	Pistachio	Tonic, aphrodisiac, antiseptic, antihypertensive and management of dental, gastrointestinal, liver, urinary tract, and respiratory tract disorders.
65.	*Plumeria rubra* L.	Apocycaeae	Katha Champa	Frangipani	Antifertility, anti-inflammatory, antioxidant, hepatoprotective and antimicrobial activities, used in toothache and for carious teeth
66.	*Polyalthia longifolia*Sonn.	Annonaceae	Debdaru	false ashoka	Used in fever, helminthiasis, diabetes and various cardiac problems.(40)
67.	*Psidium guajava* L.	Myrtaceae	Pijuli	Guava	Diarrhea, dysentery, gastroenteritis, hypertension, diabetes, caries, pain

					relief, cough, oral ulcers and to improve locomotors coordination and liver damage inflammation.
68.	*Pterocarpus marsupium*Roxb.	Fabaceae	Piasala	Indian kino	Bark: bleeding & toothaches, leaves: skin diseases, anti-diabetic.
69.	*Pterocarpus santalinus*L.f.	Fabaceae	Rakta Chandan	Red Sandal wood	Antioxidative, antidiabetic, antimicrobial, anticancer, and anti-inflammatory
70.	*Santalum album* Linn.	Santalaceae	Chandan	sandalwood	Oil: incense, cosmetic, antiseptic, astringent, for the treatment of headache, stomachache, inflammatory and eruptive skin diseases, stomachache, urinary and genital disorders
71.	*Saracaasoca* (Roxb.) Wild	Fabaceae	Ashoka	Sorrowless Tree	Analgesic, antidote, cardiotonic, blood purifier, antipyretic, improves reproductive system
72.	*Schleicheraoleosa* (Lour.) Oken	Sapindaceae	Kusuma	Macassar oil tree	Antimicrobial, antioxidant, anticancer activity, and can be used for the production of biodiesel.
73.	*Sesbania grandiflora* (L.) Poiret	Fabaceae	Agasti	Agate	Smallpox, headache, stuffy nose
74.	*Sonneratia apetala* Buch.-Ham.	Lythraceae	Keruan	Mangrove Apple	Coughs, hematuria, smallpox, and cuts and bruises
75.	*Soymidafabrifuga* (Roxb.) Juss.	Meliaceae	Suam	Indian redwood	Bark used in the treatment of diarrhoea, dysentery and fever and also as a general tonic; decoction used in gargles, vaginal infections, rheumatism swellings and as enemata.
76.	*Stereospermum angustifolium* Haines	Bignoniaceae	Chhuinpatuli	Yellow Snake Tree	Stomach problems, pain, diabetes, liver disorders
77.	*Streblus asper*Lour.	Moraceae	Sahada	Toothbrush tree	Filariasis, leprosy, toothache, diarrhea, dysentery and cancer.
78.	*Strychnosnux-vomica* L.	Loganiaceae	Kochila	nux vomica	Poisonous (all parts),treatment of neurodisorders, arthritis, and vomiting, inflammation, microbial infections, gastrointestinal problem, nervous system, bones cells, cardiovascular systems, cancer and blood glucose level.
79.	*Strychnospotatorum*L.f.	Loganiaceae	Katakala	Clearing-nut tree	Gonorrhea, leukeorrhea, gastropathy, bronchitis, chronic diarrhea, dysentery, renal and vesicle calculi, diabetes, conjunctivitis, scleritis, ulcers and other eye disease.
80.	*Syzigiumcumini* (L.) Skeels.	Myrtaceae	Jamu	Java plum	Treatment of diabetes, sore throat, bronchitis, cardiometabolic disorders, asthma, thirst, biliousness, dysentery and ulcers.
81.	*Tamarindus indica* L.	Fabaceae	Kaiyan / Tentuli	Tamarind	Wound healing, abdominal pain, diarrhea, dysentery, parasitic infestation, fever, malaria and respiratory problems, laxative
82.	*Tectona grandis*L.f.	Lamiaceae	Saguan	Teak	Wood is acrid, cooling, laxative, sedative to gravid uterus and useful in treatment of piles, leucoderma and dysentery. Flowers are acrid,

					bitter and dry and useful in bronchitis, biliousness, urinary discharges etc.
83.	*Terminalia arjuna* (Roxb.) Wight &Arn.	Combretaceae	Arjuna	Arjuna	Asthma, bile duct disorders, scorpion stings, and poisonings.
84.	*Terminalia bellirica* (Gaernt.) Roxb.	Combretaceae	Bahada	Baheda	Protect the liver and to treat respiratory conditions, including respiratory tract infections, cough, and sore throat
85.	*Terminalia catappa* L.	Combretaceae	Badam	Almond	Scabies, leprosy wounds and other skin diseases, diarrhea and fever
86.	*Terminalia chebula* Retz.	Combretaceae	Harida	Myrobalan	Dementia, constipation, cardioprotective, antiarthritic and diabetes.
87.	*Thuja occidentalis* L.	Cupressaceae Gymnosperms	Thuja	White cedar	Respiratory tract infections such as bronchitis, bacterial skin infections, and cold sores, osteoarthritis, psoriasis
88.	*Trewianudiflora* L.	Euphorbiaceae	Panigambhari	False White Teak	Plant: antibilious, antiflatulent, bechic, anti-inflammatory. Root: carminative, applied as poultice in gout and rheumatism. Plant extract showed anti-leukaemic activity.
89.	*Zizyphus jujuba* Mill.	Rhamnaceae	Barkoli	Red date	Respiratory system diseases (asthma, cough, and laryngitis), gastrointestinal problems (constipation, colitis and liver diseases), as well as cardiovascular and genitourinary system diseases
Shrubs					
90.	*Abutilon indicum* (Link) Sweet	Malvaceae	Pedipedika	Monkey Bush/ Mallow	Laxative, emollient, analgesic, antidiabetic, anti-inflammatory and blood tonic agent and also in the treatment of leprosy, urinary disease, jaundice, piles, relieving thirst, cleaning wounds and ulcers, vaginal infections, diarrhoea, rheumatism, mumps, pulmonary tuberculosis, bronchitis, allergy, blood dysentery, some nervous and some ear problems (36)
91.	*Adhatodavasica* Linn.	Acanthaceae	Basanga	Malabar Nut	Asthma, cough, fever, stomachache, tuberculosis, malaria, constipation, sprain
92.	*Andrographis paniculata* (Burm.f.) Nees	Acanthaceae	Bhuinnimba/ Chireitta	Bitterweed	Anticancer, common cold and influenza, jaundice, COVID-19 therapeutic
93.	*Annona squamosa* L.	Annonaceae	Meghua	Custard apple	Analgesic, anti-inflammatory, antimicrobial, cytotoxic, antioxidant, antilipidimic, antiulcer, antitumor, molluscicidal properties, genotoxic effect, vasorelaxant, hepatoprotective, larvicidal,insecticidal, anthelmintic, etc. (15)
94.	*Barleriaprionitis* L.	Acanthaceae	Dasakerenta	porcupine flower	Toothache, catarrhal affections, whooping cough, inflammations, glandular swellings, urinary

					infection, jaundice, fever, gastrointestinal disorders and as diuretic and tonic
95.	*Bauhinia acuminata* L.	Fabaceae	Kanchana	Dwarf White Orchid Tree	Antioxidant, antidiabetic, antinociceptive, antihelmintic, antidiarrheal, anticancer
96.	*Blumeamembranacea* Wall. ex DC.	Asteraceae	Pokasungha	Panicled Camphorweed	Anticancer, antioxidant, antifungal, anti-inflammatory
97.	*Bougainvillea spectabilis*Willd.	Nyctaginaceae	Kagajaphula	Great bougainvillea	Anticancer, antidiabetic, antihepatotoxic, anti-inflammatory, antihyperlipidemic, antimicrobial, antioxidant, and antiulcer properties. (18)
98.	*Butea superba*Roxb.	Fabaceae	Lahapalasa	Butea Gum Tree	Reduce fatigue, lower cholesterol, increase libido, stimulate male fertility and reduce inflammation.
99.	*Calotropis gigantea* (L.) Dryand.	Apocynaceae	Arakha	Crown flower	Used for digestive disorders including diarrhoea, constipation and stomach ulcers; for painful conditions including toothache, cramps, and joint pain; for parasitic infections including elephantiasis and worms.
100.	*Calotropis procera* (Aiton.) R.Br.	Asclepiadaceae	DhalaArakha	Giant milkweed	Poisonous(latex), antidote for snake bite, sinus fistula, rheumatism, mumps, burn injuries, and body pain (18)
101.	*Canthiumdicoccum* (Gaertn.) Merr.	Rubiaceae	Kuruma	Ceylon Boxwood	Treatment of diabetes
102.	*Carissa carandus*L.	Apocynaceae	Ankhukoli	Christ's thorn	Digestion, skin diseases, wound treatment, cure acidity, urinary disorders, and diabetic ulcer.
103.	*Carissa spinarum* L.	Apocynaceae	Khirkoli	Bush plum	Antimicrobial, anthelmintic and antimalarial agent, stomach-ache, diarrhoea, dysentery, treat ulcers and muscle cramps, treat rabies, typhoid fever, syphilis, herpes simplex viruses (HSV I and II), gonorrhea, hepatitis, measles, chickenpox, and polio, cataracts, anemia, constipation, anticancer, antidiabetic, and antirheumatic (6)
104.	*Cascabelathevetia* (L.) H. Lippold	Apocynaceae	Kaniara	Yellow oleander	Poisonous,antimicrobial, antioxidant, antidiabetic, piscicidal, larvicidal, pesticidal,antifertility, antitumor (1)
105.	*Cassia tora* L.	Fabaceae	Chakundi	Sickle senna	Antioxidant, anti-inflammatory, antiproliferative, hypolipidemic, antidiabetic, antimicrobial, hepatoprotective, antigenotoxic, immunostimulatory (45)
106.	*Catunaregam spinosa* (Thunb.) Tirveng.	Rubiaceae	Salara koli	Common Emetic Nut	Fruit: acute bronchitis and asthma, bark: sedative and nervine carminative, diarrhoea and dysentery
107.	*Cipadessafruiticosa* Blume.	Meliaceae	Nahalbeli	Hill neem	Leaves have powerful antivenom properties, especially for the treatment of cobra poison. In treating indigestion, cough and cold

108.	*Citrus limon* L.	Rutaceae	Lembu	Lemon	Antimicrobial, antifungal, anti-inflammatory, anticancer, depurative, antimigraine, diuretic effect and antiscorbutic, colds and the flu, fight fatigue etc. especially in pregnancy, nursing and radiation exposure, lemon essential oil is poisonous
109.	*Clerodendrum indicum* (Linn.) Gaertn	Verbenaceae	Brahmajusti	Tubeflower	Stomachic, expectorant, anti-inflammatory, antibronchitis, febrifuge, hence useful for asthma, cough, and scrofulous affections
110.	*Codiaeum variegatum* (L.) A.Juss.	Euphorbiaceae	Croton	Garden croton	Anticancerous and anti-inflammatory (8)
111.	*Cycas circinalis* L.	Cycadaceae	Cycas	Sago palm	The bark and the seeds are ground to a paste with oil and used as a poultice on sores and swellings. The juice of tender leaves is useful in the treatment of flatulence and vomiting
112.	*Datura stramonium* L.	Solanaceae	Dudura	Jimsonweed	Remedy for ulcers, wounds, inflammation, rheumatism and gout, sciatica, bruises and swellings, fever, asthma, bronchitis and toothache(48), to treat dandruff and falling hair
113.	*Dieffenbachia seguine* (Jacq.) Schott	Araceae	Dumb cane	Dumb cane	Poisonous (all parts),An antidote (counter-irritant) against snakebites, and to treat rheumatism and gout externally. It is also used to treat tumors and warts
114.	*Durantaerecta* L.	Verbenaceae	Golden hedge	Golden dewdrop	Beneficial for itches, infertility, fever, pneumonia, malaria, asthma, bronchitis, cataracts, abscesses and parasitism
115.	*Ecboliumviride* (Forssk.) Alston	Acanthaceae	piccokatho	Ice crossandra	Tumors, jaundice, menorrhea, rheumatism, inflammation.
116.	*Eupatorium odoratum* L.	Asteraceae		Jack in the bush	Diarrhoea, diuretic activity, wound healing, Antimycobacterial activity and insect repellant properties
117.	*Euphorbia neriifolia* L., *Euphorbia antiquorum* L.	Euphorbiaceae	Siju	Common milk hedge	Latex: laxative, purgative, carminative and expectorant as well as in treatment of whooping cough, gonorrhoea, leprosy, asthma, dyspepsia, jaundice, roots: symptomatic treatment of snake bite, scorpion sting and antispasmodic.
118.	*Flacourtiajangomos* (Lour.) Raeusch.	Salicaceae	Bainchakoli	Indian sour cherry	Dried leaves: effective for bronchitis and roots: suppress toothache. Bark: antifungal and antibacterial.
119.	*Gardenia jasminoides*J.Ellis	Rubiaceae	Sugandharaj	Cape Jasmine	Cathartic, antispasmodic, anthelmintic, antiperiodic, antidaibetic, antidysenteric
120.	*Glycosmis pentaphylla* (Retz.)DC.	Rutaceae	Anachara	Toothbrush plant	Treatment of cough, fever, bronchitis, chest pain, anemia, jaundice, liver disorders, inflammation, rheumatism, fractures, pain, urinary tract infections, gonorrhea, diabetes, cancer and

					other chronic diseases.
121.	*Hibiscus mutabilis* L.	Malvaceae	Sthala Padma	Cotton rose	Leaves: anodyne, antidotal, demulcent, expectorant and refrigerant. Flowers: burns, swellings and other skin problems
122.	*Hibiscus rosa-sinensis* L.	Malvaceae	Mandara	China rose	Treating wounds, inflammation, fever and coughs, diabetes, infections caused by bacteria and fungi, hair loss, and gastric ulcers
123.	*Hibiscus syriacus* L.	Malvaceae	Mandara	Rosemallow	Leaves: diuretic, expectorant and stomachic. Flowers: diuretic, ophthalmic and stomachic, treatment of itch and other skin diseases, dizziness and bloody stools accompanied by much gas. Root bark: treatment of diarrhoea, dysentery, abdominal pain, leucorrhoea, dysmenorrhea, dermaphytosis.
124.	*Ixora coccinea* L.	Rubiaceae	Ixora (rangani)	Jungle flame	Dysentery, ulcers and gonorrhea.
125.	*Jasminum multiflorum* (Burm. f.) Andrews	Oleaceae	Kunda	Indian jusmine	Cough and cold, headache, poisoning
126.	*Kopsiafruticosa*(Ker-Gawl.) A. DC.	Apocynaceae		Shrub Vinca	For sores and syphilis
127.	*Lantana camara* L.	Verbenaceae	Lantana (Naga airi)	Sage	Poisonous (entire plant),for various therapeutic applications such as cancers, chicken pox, measles, asthma, ulcers, swellings, eczema, tumors, high blood pressure, bilious fevers, catarrhal infections, tetanus, rheumatism, malaria, antiseptic, antispasmodic, carminative and diaphoretic. (26)
128.	*Murrayapaniculata* (L.) Jack	Rutaceae	Kamini	Orange jasmine	Bark: as antidote in snake bites, root: cure body ache, leaves: stimulant, astringent: relief from diarrhoea and dysentery , to treat cough, hysteria and rheumatism
129.	*Musa paradisiac* L.	Musaceae	Kadali	Banana	Tonic, diarrhoea, dysentery, intestinal lesions in ulcerative colitis, diabetes, sprue, uremia, nephritis, gout, hypertension and cardiac disease.
130.	*Nerium oleander* L.	Apocynaceae	Karabira	Oleander	Poisonous (All parts),Treating ulcers, haemorrhoids, leprosy, to treat ringworm, herpes, and abscesses (14).
131.	*Nyctanthes arbor-tristis* L.	Oleaceae	Gangasiuli	Night Blooming Jasmine	Sciatica, arthritis, stimulate the immune system
132.	*Opuntia* Mill.	Cactaceae	Saptapheni	Cactus	Cardiovascular diseases, cholesterol-lowering properties, antiatherogenic, antidiabetic, anitiobesity, anticancer, skin wound healing (41)
133.	*Phyllanthus niruri* L.	Phyllanthaceae	BhuinAnala	Stone breaker	Ulcers, urinary tract stones, dysentery, swelling, antiviral,

					diabetes, jaundice, anticancer
134.	*Plumeria pudica* Jacq.	Apocynaceae	Naga champa	Wild Plumeria	Treatment of blennorrhagia, herpes and syphilis, latex from the stem: treating ulcers, dartre (skin diseases) and flowers: treating chest coughs and grippe. The oil: treating fear, anxiety, insomnia and tremors.
135.	*Rauwolfia serpentine* (L.) Benth. ex Kurz	Apocynaceae	Patalagaruda	Indian snakeroot	Hypertension, tachycardia, and thyrotoxicosis, schizophrenia and bipolar disorder, epilepsy and seizures, migraine, insomnia and sleep problems.
136.	*Ricinus communis* L.	Euphorbiaceae	Jada /Gaba	Castor oil plant	Poisonous (entire plant), anti-cancer, anti-diabetes, anti-inflammatory, anti- ulcer and anthelmintic (10)
137.	*Rosa* L.	Rosaceae	Golapa	Rose	Antidepressant, antispasmodic, aphrodisiac, astringent, increase bile production, cleansing, anti- bacterial and antiseptic
138.	*Tabernaemontanadivaricata* R.Br. ex Roem. &Schult.	Apocynaceae	Tagara	Pinwheel flower	Antioxidant, antiinfection, antitumour action, analgesia and the enhancement of cholinergic activity in both peripheral and central nervous systems
139.	*Tragiainvolacrata* L.	Euphorbiaceae	Bichhuati	Indian stinging nettle	Inflammation, wounds, eczema, scabies and skin infections. It has also been found to be effective in treating pain and bronchitis (22)
140.	*Vitex negundo* Linn.	Lamiaceae	Begunia/ Nirgundi	Chaste Tree	Ear pain, obesity, diabetes, rheumatism, muscular pain, skin disease
141.	*Zamia furfuracea*L.f.	Zamiaceae	Cardboard plant	Cardboard cycad	Poisonous, air purifying qualities
142.	*Zyzyphusoenoplia* (L.) Mill.	Rhamnaceae	Kantaikoli	Jackal jujube	Antimicrobial, wound healing activity, anthelmintic, antiplasmodial, antioxidant, antihepatotoxicity, antiulcer, antiplasmodial, anticancer, hypolipidemic, analgesic and anti-nociceptive (44)
Herbs					
143.	*Abutilon indicum* (Link) Sweet.	Malvaceae	Pedipedika	Indian mallow	Used as a demulcent, aphrodisiac, laxative, diuretic, sedative, astringent, expectorant, tonic, anticonvulsant, anti-inflammatory, anthelmintic, and analgesic and to treat leprosy, ulcers, headaches, gonorrhea, and bladder infection
144.	*Acalypha indica* L.	Euphorbiaceae	Indramaricha / Nakachana	Indian copperleaf	Anthelmintic, anti-inflammation, antibacterial, anticancer, antidiabetes, antihyperlipidemic, antiobesity, antivenom, hepatoprotective, hypoxia, and wound healing medicine.
145.	*Achyranthes aspera* Linn.	Amaranthaceae	Apamaranga	Prickly - chaff-flower/ bur weed	Treatment of boils, asthma, in facilitating delivery, bleeding, bronchitis, debility, dropsy, cold, colic, cough, dog bite, snake bite,

					scorpion bite, dysentery, earache, headache, leukoderma, renal complications, pneumonia, and skin diseases.
146.	*Ageratum conyzoides* L.	Asteraceae	Pokashungha	White weed	Toxic – causes liver lesions and tumors, act against vomiting, dysentery and diarrhoea, It is also an insecticide and nematicide.
147.	*Aloe vera* (L.) Burm.f.	Asphodelaceae/ Liliaceae	Gheekuanri	Aloe vera	Heals burns, improves digestive health, oral health, clears acne, skin care, relieves anal fissures as laxative, lowering blood sugar, anticancer
148.	*Alternanthera sessilis* (L.) R.Br ex A.P.DC.	Amaranthaceae	Madaranga	Sessile joyweed	Treatment of dysuria and haemorrhoids
149.	*Amaranthus spinosus* Linn.	Amaranthaceae	Kantaleutia	Spiny amaranth	Treatment of internal bleeding, diarrhea, excessive menstruation, snake bites, boils, stomach disorders, ulcerated mouths, vaginal discharges, nosebleeds and wounds.
150.	*Andrographis paniculata* (Burn.f.) Wall.exNees-	Acanthaceae	Bhuinnimba/ chireita-	Creat	Cancer, diabetes, high blood pressure, ulcer, leprosy, bronchitis, skin diseases, flatulence, colic, influenza, dysentery, dyspepsia and malaria
151.	*Argemone mexicana* L.	Papaveraceae	Agara	Mexican poppy	Poisonous (all parts),Diuretic. Purgative, sedative and destroys worms, cures lepsory, skin-diseases, inflammations and bilious fevers
152.	*Argyreia speciosa* (Linn.f.) Sweet.	Convolvulaceae	Brudhataraka	Elephant Creeper	Treat leucorrhea and fever
153.	*Bacopa monnieri* (Linn.) Pennell	Scrophulariaceae	Brahmi	water hyssop	Improving memory, reducing anxiety, and treating epilepsy
154.	*Barleria cristata* L.	Acanthaceae	Bana patali	Philippine violet	Antidote for Snake bite, Root-fever, anaemia, bronchitis and pneumonia
155.	*Blumea chinensis* (L.) DC.	Asteraceae	peetapushpi	Little ironweed	Decoction for diuretic, kidney disorders, inflammation, lower abdominal pains and menstrual pains
156.	*Blumeamembranacea* Wall. ex DC.	Asteraceae	Pokasungha	Panicled Camphorweed	Anticancer, antioxidant, antifungal, antiinflammatory
157.	*Boerhaviadiffusa* L.	Nyctaginaceae	Puruni	Red Spiderling	Cure disorders like intestinal colic, kidney disorders, cough, hemorrhoids, skin diseases, alcoholism, insomnia, eye diseases, asthma and jaundice, diabetes.
158.	*Caladium hortulanum* L.	Araceae	Hati kana	Elephant ear	Toxic, antimicrobial activity
159.	*Canna indica* L.	Cannaceae	Sarbajaya	Indian Shot	Anthelmintic, antibacterial, antimicrobial, antiviral, antidiabetic, antidiarrheal, anti-inflammatory, analgesic, immunomodulatory, antioxidant, cytotoxic, hemostatic, hepatoprotective, molluscicidal, and other effects

160.	*Cassia occidentalis* L.	Fabaceae	Chakunda-	Coffee senna	Antibacterial, antifungal, antidiabetic, anti-inflammatory, anticancerous, antimutagenic and hepatoprotective activity
161.	*Centella asiatica* (Linn.) Urban	Apiaceae/ Umbelliferae	Thalkudi (hatikhojia)	Gotu kola/ Spadeleaf	Wound healing, treatment of various skin conditions such as leprosy, lupus, varicose ulcers, eczema, psoriasis, diarrhoea, fever, amenorrhea, diseases of the female genitourinary tract and also for relieving anxiety and improving cognition.
162.	*Chrysanthemum indicum* L.	Asteraceae	Banasebati	Indian chrysanthemum	Anti-inflammatory, antioxidation, antipathogenic microorganism, anticancer, immune regulation, and hepatoprotective effects
163.	*Cleome viscosa*L.	Capparidaceae	arikahita	Tick weed	Rheumatic arthritis, hypertension, malaria, neurasthenia, and wound healing
164.	*Coleus amboinicus*Lour.	Lamiaceae	Karpuravalli	Indian mint	Cold, asthma, constipation, headache, cough, fever and skin diseases
165.	*Coleus scutellarioides* (L.) Benth.	Lamiaceae		Painted nettle/ Coleus	Mild relaxing and/or hallucinogenic effects when consumed, treatment of rashes, asthma, bronchitis, insomnia, epilepsy, and angina.
166.	*Colocasia esculenta* (L.) Schott	Araceae	Saru	Taro	Asthma, arthritis, diarrhea, internal hemorrhage, neurological disorders, and skin disorders.
167.	*Commelinabenghalensis* L.	Commelinaceae	Kanasiri	Benghal Dayflower	Leprosy, sore throat, opthalmia, burns, pain and infammation and also used as depressant, demulcent, emollient and laxative. Increases the milk production naturally in cows.
168.	*Commelina communis* L.	Commelinaceae	Kosapuspi	Asiatic day flower	Febrifugal, antipyretic, anti-inflammatory, and diuretic effects. Additionally, for treating sore throats and tonsillitis
169.	*Croton bonplandianus*Baill.	Euphorbiaceae	Banamaricho	Bonpland's croton	Liver disorders, skin diseases including ring worm infection, to cure the swelling of body, bronchitis and asthma, seed-jaundice, acute constipation, abdominal dropsy
170.	*Curcuma angustifolia*Roxb.	Zingiberaceae-monocot	Palua	Arrowroot	Antioxidant, anticancerous, Antimicrobial, Anti-ulcerogenic, Antidiabetic
171.	*Cymbopogon citratus* (DC.) Stapf	Poaceae	Dhanwantari	Lemon grass	Leaves: stimulant, sudorific, antiperiodic, and anticatarrhal, the essential oil: as carminative, depressant, analgesic, antipyretic, antibacterial, and antifungal agent. Ability to repel the pestilent stable fly.
172.	*Desmodiumgangeticum* L.	Fabaceae	Salaparni	Salparni	Febrifuge, aphrodisiac, analgesic, diuretic, antiinflammatory, and haemorrhagicproperties.It is used in postnatal complaints, diarrhoea, chronic fever, biliousness, cough, vomiting, and asthma.

173.	*Dracaena fragrans* (L.) Ker Gawl.	Asparagaceae	Dracaena	Cornstalk dracaena	Indoor, poisonous to pets, improves air quality.
174.	*Dracaena marginata*Lam.			Dragon tree	
175.	*Dracaena reflexa* Lam.			Song of India	
176.	*Eclipta prostrate* L.	Asteraceae	Bhringaraj	False daisy	Infectious hepatitis, snake venom poisoning, gastritis, and respiratory diseases such as a cough and asthma.
177.	*Euphorbia hirta* L.	Euphorbiaceae	Dudhi ghasa/ harharika	Asthma Weed	For female disorders, respiratory ailments (cough, coryza, bronchitis, and asthma), worm infestations in children, dysentery, jaundice, pimples, gonorrhea, digestive problems, and tumors.
178.	*Furcraeafoetida* (L.) Haw.	Asparagaceae-monocot	Furcaria	Mauritius Hemp	The root: as blood purifying remedy, treatment for syphilis, back pain. The leaves: to treat children's obstinate colds.
179.	*Gomphrena globosa* L.	Amaranthaceae	Godibana	Globe amaranth	Hypertension, antioxidant, antimicrobial, cough, diabetes, kidney problems, hoarseness, bronchitis, jaundice and high cholesterol.
180.	*Jasminum sambac* (L.) Aiton	Oleaceae	Malli	Jasmine	Treat dysmenorrhoea, amenorrhoea, ringworm, leprosy, skin diseases and also as an analgesic, antidepressant, anti-inflammatory, antiseptic, aphrodisiac, sedative, expectorant.
181.	*Leucas aspera* (Willd.) Link	Lamiaceae	Gayasa	Thummichittu	Antipyretic, insecticide, antifungal, prostaglandin inhibitory, antioxidant, antimicrobial, antinociceptive and cytotoxic activities. Used in chronic rheumatism.
182.	*Lippiajavanica* (Burm.f.) Spreng	Verbenaceae	Naguari	Fevertea	For colds, cough, fever or malaria, wounds, repelling mosquitos, diarrhoea, chest pains, bronchitis, and asthma.
183.	*Mimosa pudica* L.	Fabaceae-Caesalpinioideae	Lajakuli	Touch me not	Treatment of urogenital disorders, piles, dysentery, sinus, and also applied on wounds. (18)
184.	*Mirabilis jalapa* L.	Nyctaginaceae	Rangani-red, yellow	Four-o-clock	Anti-inflammatory, antidote for animal bite, skin infections like rashes or boils, wounds and cuts, excellent diuretic, aphrodisiac (improve sexual health).
185.	*Ocimumbasillicum*L.	Lamiaceae	Durlava	Purple Basil	Headaches, coughs, diarrhea, constipation, warts, worms, and kidney malfunctions.
186.	*Ocimumgratissimum*L.	Lamiaceae	Bana tulasi	African basil	General tonic and anti-diarrhea agent, treatment of conjunctivitis by instilling directly into the eyes; the leaf oil when mixed with alcohol is applied as a lotion for skin infections, and taken internally for bronchitis.
187.	*Ocimumkilimandschari*	Lamiaceae	Karpuratulasi	Camphor basil	Colds, coughs, abdominal pains,

	*cum*Gürke				measles, anti-ulcer, bronchitis, anorexia, memory disorders and diarrhoea.
188.	*Ocimum sanctum*Linn.Mant	Lamiaceae	Rama tulasi	Green Tulsi	The Queen of Herbs: anti-bacterial, anti-viral and anti-fungal, anti-oxidant, antiinflammatory, analgesic, antipyretic, antidiabetic, hepatoprotective, hypolipidemic, antistress, and immunomodulatory activities.
189.	*OcimumTenuiflorum* L.	Lamiaceae	Kala/Krishna Tulasi	Holy Basil	Antioxidant, aiding cough, asthma, diarrhea, fever, dysentery, arthritis, eye diseases, indigestion, gastric ailments, etc.
190.	*Pandanus amaryllifolius*Roxb.	Pandanaceae	Arnapurna	Pandan	Diabetes, constipation, boils, and cold- or flu-like symptoms.
191.	*Parthenium hysterophorus*L.	Asteraceae	Gajarghasa	Carrot grass	Poisonous (leaves and flowers), A cause of allergic respiratory problems, asthma, bronchitis contact dermatitis, mutagenicity in human and livestock. Treatments of skin inflammation, rheumatic pain, diarrhea, urinary tract infections, dysentery, malaria and neuralgia(32).
192.	*Phyllanthus amarus*Schumach. &Thonn.	Euphorbiaceae	Bhuianla	Carry me seed	In the problems of stomach, genitourinary system, liver, kidney and spleen
193.	*Pistia stratiotes* Linn.	Araceae	Borajhanji	Water cabbage	Eczema, leprosy, ulcers, piles, stomach disorder, throat and mouth inflammation
194.	*Plumbago zeylanica* (Linn.).	Plumbaginaceae	Swetachitapa ru	Wild leadwort	Treatment of stubborn chronic rheumatoid arthritis, skin diseases and tumers in correcting chronic menstrual disorders, viral warts and chronic diseases of nervous system.
195.	*Rouvolfia serpentine* (Linn.) Benth. ex Kurz	Apocynaceae	Patalagaruda / sarpagandha	Indian snakeroot	Treat high blood pressure, severe agitation in patients with mental disorders,
196.	*Sida acuta*Burm. f.	Malvaceae	Anachanra	Common wireweed	Fevers, Dysentery, Wounds, Headache, Headache, Toothache
197.	*Sida cordifolia*Burm. f.	Malvaceae	Bajramuli	Bala	Applied directly to the skin for numbness, nerve pain, muscle cramps, skin disorders, tumors, joint pain (osteoarthritis and rheumatoid arthritis), healing wounds, ulcers, scorpion sting, snakebite, and as a massage oil
198.	*Sinapis arvensis* L.	Brassicaceae	Bana shorisa	Wild Mustard	Stimulating the appetite, treatment of melancholy or depression, reducing swelling and pain.
199.	*Spathiphyllumwallisii* Regel	Araceae monocot	Peace lily	Peace Lily	Filter the indoor air, increase the levels of humidity, helping you breathe better
200.	*Tradescantia spathacea* Sw. syn *Rhoeo discolor*	Commelinaceae	Rhoeo	Boat Lily	Anticancer, Antioxidant, Antiviral, Antifungal, Antidiabetic
201.	*Tridax procumbens* L.	Asteraceae	Bisalyakarani	Tridax daisy	Wound healing and as an anticoagulant, antifungal, and insect

					repellent.
202.	*Vinca rosea* L. syn. *Catharanthus roseus* (L.) G. Don	Apocynaceae	Sadabihari	Periwinkle	Antidiabetic, anticancer, controls nose bleeding, cough, sore throat, skin infection,
203.	*Zephyranthes rosea* Lindl.	Amaryllidaceae	Pink lily	Pink Rain lily	Highly poisonous, good for diabetes, ear & chest ailments, viral infection and breast cancer
204.	*Zingiber officinale* Roscoe	Zingiberaceae-monocot	Sunthi/Ada	Ginger	Treating nausea, dysentery, heartburn, flatulence, diarrhea, loss of appetite, infections, cough, and bronchitis
Climbers					
205.	*Abrusprecatorius* L.	Fabaceae	Kaincha	Rosary pea	Poisonous (seeds), to treat tetanus, leucoderma, scratches and sores and wounds caused by dogs, cats and mice, prevent rabies, The leaves: cure fever, cough and cold.
206.	*Allamanda blanchetii*A.DC.	apocynaceae		Purple allamanda	Treating malaria, jaundice, cough, wounds and constipation, leukemia and human carcinomamia
207.	*Asparagus racemosus*Willd.	Asparagaceae	Satabari/ chhatuari	Satavari	Dyspepsia, constipation, stomach spasms, and stomach ulcers, for fluid retention, pain, anxiety, cancer, diarrhea, bronchitis, tuberculosis, dementia, and diabetes, promote fertility
208.	*Bignonia venusta* Ker Gawl.	Bignoniaceae	Bignonia	Flamevine	Diseases of the respiratory system related to infections, such as bronchitis, flu and cold. An infusion is used to treat diarrhea, vitiligo and jaundice.
209.	*Cissus quadrangularis* Linn.	Vitaceae	Hadabhanga	Veldt grape	A tonic and analgesic, to heal broken bones and injured ligaments and tendons, strengthening bones, osteoporosis
210.	*Clitoriaternatea* L.	Fabaceae	Aparajitta	Butterfly pea	For food coloring, stress, infertility and gonorrhea
211.	*Coccinia grandis* (L.) Voigt	Cucurbitaceae	KainchiKakudi	Scarlet gourd	Analgesic, antipyretic, anti-inflammatory, antimicrobial, antiulcer, antidiabetic, antioxidant, hypoglycemic, hepatoprotective, antimalarial, antidyslipidemic, anticancer, antitussive, mutagenic.
212.	*Combretum indicum* L.	Combretaceae	Madhumalati	Rangoon creeper	Fruits: for coughs, to alleviate nephritis. Root: rheumatism.
213.	*Dioscoreaalata*L.	Dioscoreaceae	Khambaalu	Purple yam	Cough, cold, stomach ache, leprosy, burns, fungal diseases, skin diseases, contraceptive, dysentery, arthritis, rheumatism
214.	*Gouanialeptostachya* DC.	Rhamnaceae	Raktapituli	Slender Spiked Gouania	Anti-inflammatory, to treat skin complaints
215.	*Gymnemasylvestre* (Retz.) Schult.	Asclepiadaceae	Gudamari	Australian cowplant	Antioxidant, antimicrobial, aphrodisiac antidiabetic, to treat eye diseases, allergies, constipation, cough, dental caries, obesity, stomach ailments, and viral infections.

216.	*Hemidesmus indicus* (Linn.) R. Br.	Asclepiadaceae	Anantamula	Indian Sarsaparilla	Anticancerous, chemopreventive, wound healing power, antidiarrhoeal, antioxidant; antivenom, antileprotic diuretic activities.
217.	*Ipomoea quamoclit* L.	Convolvulaceae	Kunjalata	Cypress Vine	To treat hemorrhoids, ulcers, diabetes and cancer.
218.	*Mucuna pruriens* (L.) DC.	Fabaceae	Baidanka	Velvet bean	In bone fractures, cough, dog-bite, madness, pain, pleuritis, ring worm, scorpion sting, snake-bite, sores and syphilis, menstruation disorders, constipation, edema, fever, tuberculosis anticholestrolemic, antiparkinson, antidiabetic, aphrodisiac, anti- inflammatory and antimicrobial
219.	*Paederiafoetida* Linn.	Rubiaceae	Pasaruni	Stinkvine	Treatment of inflammation, piles, and diarrhea
220.	*Passiflora caerulea*L.	Passifloraceae	Krushnatamal	Blue passionflower	Sedative and anticonvulsant
221.	*Passiflora incarnata* L.	Passifloraceae	Radhatamala	Purple passionflower	Relieve anxiety and insomnia
222.	*Piper longum* Linn.	Piperaceae	Pipali	Indian long pepper	To treat chronic bronchitis, asthma, constipation, gonorrhea, paralysis of the tongue, diarrhea, cholera, chronic malaria, viral hepatitis, respiratory infections, stomachache, bronchitis, diseases of the spleen, cough, and tumors
223.	*Syngonium podophyllum* Schott	Araceae		Arrowhead vine	Poisonous and cause severe mouth pain if eaten, severe skin burning caused by plant sap. Reduce stress, anxiety, sleep disorders and arguments. Air Purifying Plant
224.	*Tinospora cordifolia* (Thunb.) Miers	Menispermaceae	Guluchi	Guduchi	Antioxidant, anti-inflammatory, antidiabetic, immunomodulatory activity, antitoxic, hepatoprotective, anticancer, cardioprotective activity, radioprotective, antimicrobial, anti-stress, anti-HIV and many more
225.	*Trichosanthesbracteata* (Lam.) Voigt	Cucurbitaceae	Salarakoli	Indrayan	Treatment of asthma, earache and ozoena (intranasal crusting, atrophy and fetid odor)
226.	*Ventilagomaderaspatana* Gaertner	Rhamnaceae	Phuluri/Raktakai	Red creeper	Antidiabetic, antioxidant, antimicrobial and antibacterial, cardioprotective,
Grass					
227.	*Acorus calamus* Linn.	Acoraceae	Bacha	Sweet-flag	Effect on central nervous system, antiulcer and cytoprotective, antispasmodic, analgesic
228.	*Cymbopogon martini (Roxb.)*	Poaceae	Dhanwantary	Palmarosa	Treatment of joint pain, respiratory diseases, anorexia, intestinal worms, skin diseases and diarrhea
229.	*Cynodondactylon* L.	Poaceae	Dubaghasa	Durva	For snake bites, gout, and rheumatic affections, anthelmintic activity anti-inflammatory
230.	*Cyperousrotundus* L.	Cyperaceae	Mutha	Coco grass	Diarrhoea, diabetes, pyresis, inflammation, malaria, and stomach

					and bowel disorders
231.	*Desmostachyabipinnata* (L.) Stapf	Poaceae	Kusha	Halfa grass	To treat dysentery and menorrhagia, and as a diuretic
232.	*Thysanolaena maxima*Roxb.	Poaceae	Phulchanchhuni	Tiger Grass	Treatment of eye infection, improve digestion
233.	*Vetiveriazizanioides* (L.)Nash.	Poaceae	Bena	Vetivergrass	Relieving stress, as well as for emotional traumas and shock, lice, and repelling insects
Bamboo					
234.	*Bambusaarundinacea* (Retz.) Willd.	Poaceae	Dababaunsa	Bamboo	Cough, skin diseases, wounds, digestive disorders, nausea, gynecological disorders and fever.
235.	*Bambusa pallida* (L.) Voss	Poaceae	Panibaunsa		
236.	*Bambusaventricosa* McClure	Poaceae	Buddha baunsa	Buddha bamboo	Hypertension, arteriosclerosis, cardiovascular disease
237.	*Dendrocalamusstrictus* (Roxb.) Nees	Poaceae	Saliabaunsa		
238.	*Gigantochloanigrociliata* (Buse) Kurz.	Poaceae	Balangibaunsa	Bamboo	Juice from young bamboo shoots is used for asthma, coughs, and gallbladder disorders.
Aquatic					
239.	*Nymphaea nouchali*Burm. f.	Nymphaeaceae	Neelakain	Blue lotus	Rhizomes: mild sedative and spasmolytic action, diarrhoea, dysentery, stomach ache, colic and dyspepsia, leaves: treatment of gonorrhea, cardiotonic
240.	*Eichhornia crassipes*Kunth.	Pontederiaceae	Bilatidala/Eichornia	Water hyacinth	Antioxidants, antiaging and anticancer.
241.	*Hydrilla verticillata* (L.f.) Royle	Hydrocharitaceae	Chingudiadala	Water Thyme	Provide complete nutrition, to improve digestion and gastrointestinal function, circulation, neurological health, blood sugar control, to strengthen immunity and increase endurance

2.3. DIVERSITY ANALYSIS

A diversity index is a quantitative tool used to assess diversity in a specific community. They are developed by ecologists to examine the number and abundance of species in a community and the density of certain species in a community. The type of diversity used here is alpha diversity of species within a community or habitat. The diversity index was calculated by using the Simpson's Diversity Index. Simpson's Diversity Index is a measure of diversity which takes into account the number of species present, as well as the relative abundance of each species. As species richness and evenness increase, so diversity increases.

Simpson's Diversity Index (D) = $1 - \left(\frac{\sum n(n-1)}{N(N-1)} \right)$

n = the total number of organisms of a particular species
N = the total number of organisms of all species
The value of D ranges between 0 and 1. With this index, 1 represents infinite diversity and 0, no diversity.

3. RESULT

3.1 Assessment of Flora

Survey of flora of Prananath College campus revealed the presence of a total of 241species under 72 families belonging to dicots, monocots and gymnosperms (Table 1). Among the plant types, the dicotyledonous plants dominates in the study areas with occurrence of about 85% and monocots with 13% while gymnosperms is only 2% of total flora recorded.

Table 2: Assessment of Angiosperms and Gymnosperms.

	Family	Family Diversity (%)	Species	Species Diversity (%)
Dicot	56	78	205	58
Monocot	12	17	32	13
Gymnosperms	4	5	4	85
Total	**72**		**241**	

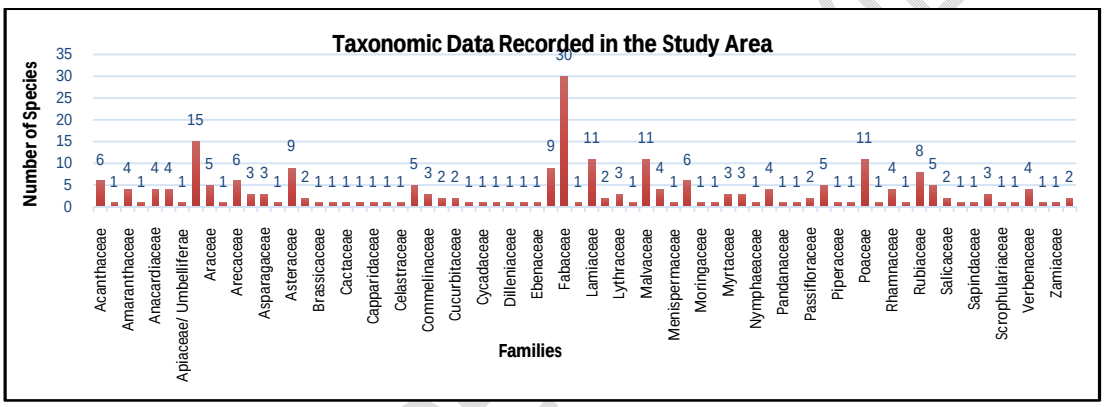

Fig.2: Taxonomic Data depicting the number of species and families

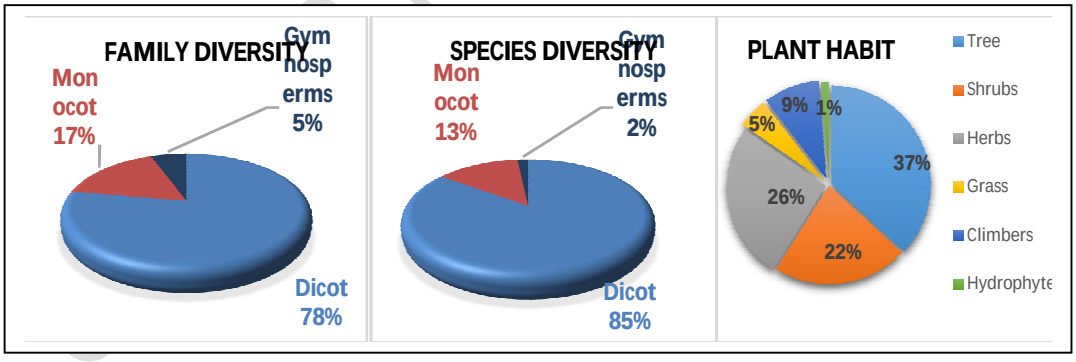

Fig. 3: Plant diversityPercentage.

Habit-wise classification of the flowering plants from the study area showed that tree (37%) were dominant followed by herbs (26%), shrubs (22%), grasses (9%), climbers (5%) and hydrophytes (1%). It was recorded that family Fabaceae dominates with 30 species followed by Apocynaceae with 15 species. Malvaceae and Poaceae were reported with 11 species each. While 36 families were reported with the genera such as *Hibiscus*, *Calotropis*, *Terminalia*, *Strychnos*, *Pterocarpus*, *Phyllanthus*, *Lagerstroemia*, *Ficus*, *Dalbergia*, *Cassia*, *Albizzia*, *Acacia*, *Sida*, *Ocimum*, *Dracaena*, *Commelina*, *Coleus*, *Blumea*, *Bambusa*,

Passiflora, recorded with more than two separate species while it is quite necessary to indicate that the campus contains nearly seven vulnerable and endangered species.
From the study area, seven plants species were found to be vulnerable, endangered and critically endangered (Table-3). It is highly essential to protect these medicinal plants through *in-situ* conservation.

Table 3: List of Endangered, Vulnerable Medicinal species recorded in PNCA Campus. (The IUCN Red List of Threatened Species: https://www.gbif.org/species)

Sl.No.	Botanical Name	Common Name	Family	IUCN Status
1.	*Dalbergia latifolia*Roxb.	Sisoo/ Indian rosewood/ shisham	Fabaceae	Vulnerable
2.	*Pterocarpus marsupium*Roxb.	Piasala / Indian kino	Fabaceae	Near threatened
3.	*Pterocarpus santalinus*L.f.	Rakta Chandan / Red Sandal wood	Fabaceae	Endangered
4.	*Santalum album* Linn.	Chandan / sandalwood	Santalaceae	Vulnerable
5.	*Saracaasoca* (Roxb.) Wild	Ashoka/ Sorrowless Tree	Fabaceae	Vulnerable
6.	*Rouvolfia serpentine* (Linn.) Benth. ex Kurz	Patalagaruda/ sarpagandha/ Indian snakeroot	Apocynaceae	Critically Endangered
7.	*Zamia furfuracea*L.f.	Cardboard plant	Zamiaceae	Vulnerable

As recorded in CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) (5) *Aegle marmelos* (L.) Corrêa, *Desmodiumoojeinense* (Roxb.) H.Ohashi, *Ficus racemosa*L., *Melia azedarach* L., *Phyllanthus emblica* L., *Pterocarpus marsupium*Roxb., *Pterocarpus santalinus*L.f, *Santalum album* L., *Saracaasoca* (Roxb.) Willd., *Strychnosnux-vomica* L., *Strychnospotatorum*L.f, *Terminalia arjuna* (Roxb. ex DC.) Wight &Arn, *Terminalia bellirica* (Gaertn.) Roxb., *Andrographis paniculata* (Burm.f.) Nees, *Carissa spinarum* L., *Cycas circinalis* L., *Euphorbia neriifolia* L., *Rauvolfia serpentina* (L.) Benth. ex Kurz, *Curcuma angustifolia*Roxb, *Plumbago zeylanica* L., *Abrusprecatorius* L., *Asparagus racemosus*Willd., *Dioscoreaalata* L., *Gymnemasylvestre* (Retz.) R.Br. ex Sm., *Mucuna pruriens* (L.) DC., *Paederiafoetida* L., *Piper longum* L., *Acorus calamus* L. and *Hydrilla verticillata* (L.f.) Royle are found to be threatened plants enlisted in table-1.

3.2 Toxic Plants

Out of 35Indian traditional toxic plants (19),elevenplants like *Cleistanthuscollinus* (Roxb.) Benth. ex Hook.f., *Cascabelathevetia* (L.) H. Lippold,*Ricinus communis* L., *Zamia furfuracea*L.f, *Ageratum conyzoides* L.,*Caladium hortulanum* L.*Parthenium hysterophorus* L. *Zephyranthes rosea*Lindl., *Syngonium podophyllum* Schott, *Abrusprecatorius* L (table-1) are reported to be present in the campus havingtoxic effects though they have medicinal and ornamental values.

3.3 Calculation of Diversity Index

Table 4: Total number of families assessed with their species for valuation of Diversity Index

Sl. No.	Family	No. of Species (N)	n(n-1)	Sl. No.	Family	No. of Species (N)	n(n-1)
1.	Acanthaceae	6	30	37.	Lamiaceae	**11**	110
2.	Acoraceae	1	0	38.	Loganiaceae	2	2
3.	Amaranthaceae	4	12	39.	Lythraceae	3	6
4.	Amaryllidaceae	1	0	40.	Magnoliaceae	1	0

5.	Anacardiaceae	4	12	41.	Malvaceae	**11**	110
6.	Annonaceae	4	12	42.	Meliaceae	4	12
7.	Apiaceae/ Umbelliferae	1	0	43.	Menispermaceae	1	30
8.	Apocynaceae	**15**	**210**	44.	Moraceae	6	30
9.	Araceae	5	20	45.	Moringaceae	1	0
10.	Araucariaceae	1	0	46.	Musaceae	1	0
11.	Arecaceae	6	30	47.	Myrtaceae	3	6
12.	Asclepiadaceae	3	6	48.	Nyctaginaceae	3	6
13.	Asparagaceae	3	6	49.	Nymphaeaceae	1	0
14.	Asphodelaceae/ Liliaceae	1	0	50.	Oleaceae	4	12
15.	Asteraceae	9	72	51.	Pandanaceae	1	0
16.	Bignoniaceae	2	2	52.	Papaveraceae	1	0
17.	Brassicaceae	1	0	53.	Passifloraceae	2	2
18.	Burseraceae	1	0	54.	Phyllanthaceae	5	20
19.	Cactaceae	1	0	55.	Piperaceae	1	0
20.	Cannaceae	1	0	56.	Plumbaginaceae	1	0
21.	Capparidaceae	1	0	57.	Poaceae	**11**	110
22.	Casuarinaceae	1	0	58.	Pontederiaceae	1	0
23.	Celastraceae	1	0	59.	Rhamnaceae	4	12
24.	Combretaceae	5	20	60.	Rosaceae	1	0
25.	Commelinaceae	3	6	61.	Rubiaceae	8	56
26.	Convolvulaceae	2	2	62.	Rutaceae	5	20
27.	Cucurbitaceae	2	2	63.	Salicaceae	2	2
28.	Cupressaceae	1	0	64.	Santalaceae	1	0
29.	Cycadaceae	1	0	65.	Sapindaceae	1	0
30.	Cyperaceae	1	0	66.	Sapotaceae	3	6
31.	Dilleniaceae	1	0	67.	Scrophulariaceae	1	0
32.	Dioscoreaceae	1	0	68.	Solanaceae	1	0
33.	Ebenaceae	1	0	69.	Verbenaceae	4	12
34.	Euphorbiaceae	9	72	70.	Vitaceae	1	0
35.	Fabaceae	**30**	**870**	71.	Zamiaceae	1	0
36.	Hydrocharitaceae	1	0	72.	Zingiberaceae	2	2
					N	**241**	**Σn(n-1)= 1950**
					N(N-1)	**57840**	

Using the values, Simpson's Index (D) = 1950 / 241(241-1)
=1950/57840=**0.03371**

Simpson's Index of Diversity = 1 - D =1- 0.03371= **0.9663**

From the floral data collected from the College campus, the Simpson's Diversiy Index value was calculated to be 0.9663 which means that there are several species in the community and the population proportion of species is even. The results showed that the study area has greater level of diversity.

From the analysis it is found that almost all the plants are medicinally significant apart from their specific commercial values like wood, timber, food, oil. Some plants are reported as air purifiers (Table 1). Plants enriches the aesthetic values of the campus as the study area has seven specific gardens with a number of ornamental plants.

4. CONSERVATION OF BIODIVERSITY IN THE CAMPUS

The consequences of human activity in a natural area initiates the loss of species and unique ecosystems. Invasive species sometimes overtake the biodiversity by reducing the native plants. New construction of buildings is a major cause of depletion of biodiversity in the campus although proper care is taken to protect the plants. The areas rich in biodiversity are free from human activity and grow in their natural habitat. Every year a massive plantation programme is carried out on 19th July, the Forest Festival (Van Mahotsav)Day. The Green Brigade (SabujaBahini) of Eco Club, NCC, Rangers & Rovers, NSS also take care of plants, plantation and campus cleaning on a regular basis. Students are well aware of the biodiversity. The waste management is properly maintained. At present in order to protect the biodiversity it is necessary to reconsider the construction of infrastructure vertically but not in horizontal manner.

5. DISCUSSION

The habit analysis revealed that trees dominate while hydrophytes are very rare because of lack of natural water bodies. Among the angiosperms, Fabaceae is a large, economically and medicinally important family of flowering plants for its productivity and stability of the ecosystem. The contribution of this family to the availability of nutrients, absorption and growth of neighboring species is indeed well described throughout the scientific literature (47,28,23, 39). Collation of data from books, research articles, conducting of ethnobotanical surveys shows that all most all plants are medicinally important. According to the World Health Organization (WHO), as many as 80% of the world's people depend on traditional medicine for their primary health care needs. The best means of conservation is to ensure that the populations of species of plants continue to grow and evolve in the wild - in their natural habitats. The forest festival (Van Mahotsav) in the college campus is a best practice to involve the students and spread awareness for in situ conservation of these plants to save the ecosystem.

6. CONCLUSION

It is important to be aware of poisonous plants, especially for students who may come in to contact with them in the outdoors.Staff members and students should be educated about the toxic effect of certain plants. Seeds, flowers, latex, leaves, and roots of such plants are having toxic effect. Even all parts of the plants with toxicity such as *Argemon*, *Lantana*, *Nerium*, *Ricinus*, and *Strychnus* are also found in the campus. The toxic substance found in these plants can cause skin irritation, respiratory problems, digestive problems and even death. Students who enjoy outdoor activities should learn how to identify these plants and how to avoid coming into contact with them. Posters depicting the toxic effect may be erected near the plants for awareness. Posters containing the botanical names, local names along with medicinal values of all plants should be erected as practiced in Botanical Gardens. Students can safely enjoy the beauty of plants inside the campus without putting their health at risk.

NOTE:

The study highlights the efficacy of "Herbal " which is an ancient tradition, used in some parts of India. This ancient concept should be carefully evaluated in the light of modern medical science and can be utilized partially if found suitable.

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