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RESEARCH ARTICLE **OPEN ACCESS**

EX-SITU CONSERVATION AND PROMOTION OF HERBAL GARDEN AT FOREST COLLEGE AND RESEARCH INSTITUTE, TELANGANA

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ABSTRACT

Herbal Garden play an important role in the ex-situ conservation and propagation of commonly available and frequently used medicinal and aromatic plants to create awareness about traditional usage of medicinal plants among the various stakeholders. Institutional Herbal Garden established at Forest College and Research Institute (FCRI), Telangana provides information on traditional and modern uses and propagation of medicinal plants. More than 150 species of medicinal plants belonging tomore than 50 Families Viz., Fabaceae, Euphorbiaceae, Asteraceae, Amaranthaceae, Solanaceae, Zingiberaceae, Lamiaceae, Acanthaceae etc. have been planted,established and maintained in the Institutional Herbal Garden at FCRI, Telangana during 2019-2020 with the support of National Medicinal Plants Board, New Delhi.

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INTRODUCTION

India has an abundant heritage of valuable indigenous plants with recognized medicinal value. The importance of medicinal plants have been ascribed to their ancient therapeutic uses, as well as relevance to human culture and nutrition (chen et al 2016). A vast number of medicinal plants have been studied regarding their phytochemical constituents (Egamberdieva et al 2017), including those commonly used in the treatment of specific diseases and considered to play a beneficial role in health-care. Over harvesting and habitat loss of medicinal and aromatic plants has reduced its population in the wild and threatened the sustainability of species (Negi et al 2018). This calls for an urgent attention for promotion of importance of medicinal and aromatic plants among the various stakeholders and sensitize the public about traditional knowledge by conserving the medicinal and aromatic plants (Lakshman 2016 & Pandey et al 2021). Conservation aims at management of human use of the biodiversity to yield greatest sustainable benefit to present generation while maintaining its potential to meet the needs and aspirations of future generations.

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Conservation of medicinal and aromatic plants and their genetic resources can be undertaken by in-situ and ex-situ conservation. Ex-situ conservation involves conservation of medicinal and aromatic plants outside their natural habitats used to safeguard them from destruction, replacement or deterioration.

MATERIALS AND METHODS

Details of Experimental site

Location: Towards realizing the objectives of establishing the herbal garden, the experimental plot was laid in 1 hectare of land at FCRI, Hyderabad, Telanganalocated at an altitude of 590 M above MSL with a latitude and longitude of $17^0$43'N and78^0 38' E respectively. The garden site is devoid of shade with good exposure to sunlight. The soil type is red lateritic and is well connected to road.

Layout: The site is rectangular in shape to minimize the length of boundary for fencing and watch and ward point of view. The raised beds of 4m X 4m X 0.15m are laid to concentrate soil preparation in small areas resulting in effective use of soil amendments and creating an ideal environment for plant growth.

Table 1. The list of Medicinal and Aromatic plants available in Herbal Garden established at Forest College and Research Institute, Telangana

S.No	Scientificname	Common name	Family	Medicinal use
1	*Rauvolfia tetraphylla*	Wild Snake Root	Apocynaceae	Antimicrobial, Antihypertensive, Cardioprotective and anti-inflammatory
2	*Withaniasomnifera*	Ashwagandha	Solanaceae	Liver tonic, Anti-inflammatory agent, Astringent.
3	*Asystasiagangetica*	Chinese Violet	Acanthaceae	Hypertension, Rheumatism, Asthma, Diabetes Mellitus, and as an Antihelminthic.
4	*Mirabilis jalapa*	Four o'clock plant	Nyctaginaceae	Diuretic, Purgative, Aphrodisiac.
5	*Crotalaria verrucosa*	Blue Rattlepod	Fabaceae	Scabies, Jaundice, Cough and Fever.
6	*Gymnemasylvestre*	Australian cowplant	Apocynaceae	Diabetis, Malaria, Jaundice.
7	*Pelargonium graveolens*	Rose Geranium	Geraniaceae	Acne, Hemorrhoids, Eczema, Bruises, Ringworm and Lice.
8	*Sauropusandrogynus*	Multi vitamin plant	Phyllanthaceae	Vit. A, C and D Cough, Lung problems, Fever, Urinary problems and Eye infections
9	*Lavendula angustifolia*	Lavender	Lamiaceae	Anxiety, Insomnia, Depression, and Restlessness.
10	*Trema orientalis*	Charcoal tree	Cannabaceae	Cough, Bronchitis and Yellow fever
11	*Plectranthus scutellarioides*	Coleus	Lamiaceae	Ophthalmia, Headache, Bruises etc.
12	*Aloe vera Linn.*	Ghirt Kumari	Asphodelaceae	Heals burns,Digestive health, Acne, Relieves.
13	*Cymbopoganmartini*	Palmarosa	Poaceae	Respiratory diseases, Intestinal worms, Leprosy, Mosquito repellent.
14	*Ruta graveolens*	Rue	Rutaceae	Eczema, Ulcers and Arthritis.
15	*Zizyphus mauritiana*	Indian jujube	Rhamnaceae	Anti-platelet, Anti-inflammation, Wound healing and Anti-bacterial
16	*Hemidesmus indicus*	Indian Sarsaparilla	Asclepiadaceae	Rheumatism, Blood purifier.
17	*Abrus precatorius*	Rosary pea	Fabaceae	Traditionally used to treat tetanus, and to prevent rabies
18	*Asparagus racemosus*	Pilli teegalu	Asparagaceae	Fluid retention, Pain, Anxiety, Cancer and Diarrhoea.
19	*Mentha piperita*	Pepper mint	Lamiaceae	Flavouring, Tooth ache, Dyspepsia and Nausea.
20	*Aloe barbadensis*	Aloe	Asphodelaceae	Antibacterial, Antiviral and Antiseptic , Skin disorders, Spleen ailments.
21	*Curcuma aromatica*	Turmeric	Zingiberaceae	Sprains, Bruises, Anti-septic.
22	*Senna alexandrina*	Alexandrian senna	Fabaceae	Stomach pain and Constipation.
23	*Hyptis species*	Bush mint	Lamiaceae	Glowing skin, Sores, Ringworm and Blisters.
24	*Plantago oavta*	Isabgol	Plantaginaceae	Laxative, Diarrhea and High blood pressure.
25	*Cassia auriculata*	Avaram	Fabaceae	Astringent, Antihelminthic, Eye troubles, Skin diseases, Ulcers, Leprosy and Liver disease.
26	*Gymnosporiafalconeri*	Gymnosporia	Celastraceae	Gastro Intestinal troubles, Dysentery, Tooth ache.
27	*Tagetes erecta*	Marigold	Asteraceae	Wounds, Burns & Rashes.
28	*Justicia gendarussa*	Warer Willow	Acanthaceae	Bronchitis, Inflammations, Dyspepsia and Eye diseases.
29	*Andrographis paniculate*	Green chiretta	Acanthaceae	Dyspepsia, Influenza and Dysentery
30	*Artemisia vulgaris*	Mugwort	Asteraceae	Diarrhea, Constipation, Cramps and Weak digestion
31	*Centella asiatica*	Indian Pennywort	Apiaceae	Leprosy, Varicose ulcers, Eczema, Psoriasis and Fever
32	*Kalanchoe pinnata*	Life plant	Crassulaceae	Kidney stones, Gastric ulcer and Pulmonary infection.
33	*Zingiber officinale*	Ginger	Zingiberaceae	Dropsy, Asthma, Cough, Diarrhoea, Cholera.
34	*Cassia alata*	Candle bush	Fabaceae	Leprosy, Skin diseases.
35	*Abelmoschus moschatus*	Musk mallow	Malvaceae	Cholesterol, Atherosclerosis.
36	*Clitoria ternatia*	Butterfly pea	Fabaceae	Memory enhancer, Nootropic, Antistress, Anxiolytic, Antidepressant, Anticonvulsant.
37	*Acalypha indica*	Indian copperleaf	Euphorbiaceae	Leprosy, Rheumatism,Ulcers, Ringworms and Eczema.
38	*Datura stramonium*	Thorn apple	Solanaceae	Stomach and Intestinal pain.
39	*Derris scandens*	Jewel vine	Fabaceae	Muscle pain, and Headache.
40	*Achyranthus aspera*	Chaff-flower	Amaranthaceae	Cough, Bronchitis and Rheumatism.
41	*Swietenia macrophylla*	Mahogany	Meliaceae	Antimicrobial, Anti-inflammatory, Anticancer and Antitumor.
42	*Citrus limon*	Lemon	Rutaceae	Common cold and Flu, H1N1 (Swine) flu, Scurvy, Fever, Sore throats and Rheumatism.
43	*Plumbago indica*	Indian leadwort	Plumbaginaceae	Menstrual disorders, Viral warts and Chronic diseases.
44	*Cymbopogon citratus*	Lemon grass	Poaceae	Antispasmodic, Hypotensive, Anticonvulsant, Analgesic and Antiseptic
45	*Elaeocarpus ganitrus*	Rudraksha	Elaeocarpaceae	Mental illness, Epilepsy, Hysteria and Hepatitis diseases.
46	*Bauhinia variegata*	Orchid tree	Fabaceae	Antitumor, Antimicrobial and Anti-inflammatory.
47	*Euphorbia hirta*	Asthma-plant	Euphorbiaceae	Cancer, Diarrhea, Cough, Bronchial infections and Kidney stones.
48	*Tridax procumbens*	Coatbuttons	Asteraceae	Wound healing, Anticoagulant, Antifungal, and Insect repellent.
49	*Rauvolfia serpentina*	Sarpagandha	Apocynaceae	Hypertension, Skin diseases.
50	*Ocimum sanctum*	Tulsi	Lamiaceae	Cold, Fever, Dysentery Bronchitis and Cough.
51	*Ocimumbasilicum*	Basil	Lamiaceae	Headaches, Coughs, Diarrhoea and Kidney Malfunctions.
52	*Ocimum sps.*	White basil	Lamiaceae	Stomach spasms, Intestinal gas, Kidney conditions, Fluid retention, Head colds, Warts.
53	*Ocimumkilimandscharium*	Camphor basil	Lamiaceae	Cough, Bronchitis, Bacterial and Viral infections.
54	*Ocimumtenuiflorum*	Holy basil	Lamiaceae	Bronchitis, Bronchial asthma, Malaria, Diarrhea, Dysentery and Skin diseases.
55	*Ocimumgratissimum*	Clove basil	Lamiaceae	Anti-bacterial, Antiseptic, Dysentery, Mosquito repellent, Rheumatism and Paralysis.

Continue ….

56	*Ocimum sps.*	Laxmi tulasi	Lamiaceae	Anti-aging, Kidney Stones, Headaches, Fights Acne, Relives Fever, Eye Health.
57	*Ocimum sps.*	Vishnu tulasi	Lamiaceae	Fever, Acne, Blackheads and Premature ageing.
58	*Carissa carandas*	Karandang	Apocynaceae	Acidity, Indigestion, Skin diseases, Neurological disorders, Leprosy, Cough, Urinary disorders.
59	*Madhuca longifolia*	Mahua	Sapotaceae	Skin diseases, Nerve disorders, Cough, Burning sensation and Diarrhea.
60	*Basella alba*	Malabar spinach	Basellaceae	Improve testosterone levels in males, Laxative.
61	*Murrayakoenigii*	Curry leaf	Rutaceae	Rich in Vitamin A, B, C and B2, Piles, Inflammation, Itching, Bruises and Edema.
62	*Vitex negundo*	Horseshoe vitex	Lamiaceae	Anti-inflammatory, Expectorant, Anti-arthritic, Antihelminthic, Anti-fungal and Antipyretic.
63	*Cereus pterogonus*	Columnar cactus	Cactaceae	Cardiac stimulant, Dropsy.
64	*Opuntia dilleni*	Prickly pear	Cactaceae	Guinea worms, Ophthalmia, Antidepressant, Hypotensive.
65	*Catheranthus roseus*	Periwinkle	Apocynaceae	Muscle pain, Stomach ache.
66	*Cissus quadrangularis*	Devils backbone	Vitaceae	Bone fractures.
67	*Bambusa vulgaris*	Common bamboo	Poaceae	Epilepsy, Fever and Kidney troubles.
68	*Aerva lanata*	Mountain knotgrass	Amaranthaceae	Anti-inflammatory, Antihelminthic and Anti-bacterial.
69	*Eclipta alba*	False daisy	Asteraceae	Gastro intestinal disorders and Respiratory tract disorders
70	*Mentha arvensis*	Wild mint	Lamiaceae	Stomach problems, Arthritis, Rheumatic pains and Allergy.
71	*Dracaena trifasciata*	Snake plant	Asparagaceae	Detoxification, Anti-inflammatory, Sore, Snake bites, Boils, Cough, Bronchitis.
72	*Phyllanthus emblica*	Indian gooseberry	Phyllanthaceae	Immuno modulatory, Anti-inflammatory, Antiulcer, Diarrhea, Jaundice and Inflammation.
73	*Sesamum alatum*	Wing-seed sesame	Pedaliaceae	Aphrodisiac, Diarrhoea and other Intestinal disorders.
74	*Aegle marmelos*	Golden apple	Rutaceae	Antidiarrheal, Antimicrobial, Antiviral, Radio protective and Anticancer.
75	*Syzygium cumini*	Java plum	Myrtaceae	Diabetes, Worm infection, Asthma, Diarrhea, Cough and Cold.
76	*Jasminum auriculatum*	Juhi	Oleaceae	Burning micturition, Wounds.
77	*Calotropis gigantea*	Giant milkweed	Apocynaceae	Skin, Digestive, Respiratory, Circulatory and Neurological disorders.
78	*Acorus calamus*	Sweet flag	Acoraceae	Ulcers, Inflammation of the stomach lining, Upset stomach and Appetite.
79	*Artemisia pallens*	Davanam	Asteraceae	Diabetes mellitus, Wound healing and Immuno-modulating, Antihelminthic, Antipyretic, Antibacterial, Antifungal.
80	*Chaemaecostuscuspidatus*	Insulin plant	Costaceae	Lower the blood glucose levels
81	*Euphorbia neriifolia*	Indian Spurge tree	Euphorbiaceae	Asthma, Jaundice, Tumours and Stone in the bladder
82	*Adhatodavasica*	Malabar nut	Acanthaceae	Asthama, Bronchitis, Tumors, Fever, Vomiting, Mouth troubles, Heart troubles and Blood disorders
83	*Sterculia urens*	Indian tragakanth	Malvaceae	Cosmetics, Denture adhesives and as a binder and stabilizer in foods and beverages.
84	*Jatropha curcas*	Barbados nut	Euphorbiaceae	Skin, Cancer, Digestive, Respiratory and Infectious diseases.
85	*Cyperus rotundus*	Nut sedge	Cyperaceae	Astringent, Diaphoretic, Diuretic, Analgesic, Antispasmodic, Aromatic, Carminative.
86	*Morus alba*	Mulberry	Moraceae	Dizziness, Insomnia, Premature aging, and DM2, Atherosclerosis, Liver and kidney disorders.
87	*Pimentadiocia*	Allspice	Myrtaceae	Indigestion (dyspepsia), Intestinal gas, Abdominal pain, Menstrual periods, Vomiting, Diarrhea, Fever, Colds.
88	*Coleus ambonicus*	Mexican mint	Lamiaceae	Malaria, Epilepsy, Asthma, Bronchitis and Hepatopathy.
89	*Musa Lin.*	Banana	Musaceae	Diabetes, Epilepsy, Leprosy, Fever and Hemorrhages.
90	*Calotropis procera*	Apple of Sodom	Apocynaceae	Diarrhea, Constipation and Stomach ulcers, Toothache, Cramps and Joint pains.
91	*Bacopa monnieri*	Waterhyssop	Plantaginaceae	Alzheimer's disease, Improving memory, Anxiety, Irritable bowel syndrome.
92	*Cinnamomum tamala*	Malabar leaf	Lauraceae	Diabetes, Cough, Common cold and Rheumatoid arthritis.
93	*Prosophis cineraria*	Khejri	Mimosaceae	Skin diseases, Blood purifier, Leprosy, Dysentery, Bronchitis, Asthma, Diabetes, Anemia, Kidney &Liver disorders.
94	*Hibiscus rosa sinensis*	China rose	Malvaceae	Inflammation, Fever, Cough and Diabetes.
95	*Annona squamosa*	Custard apple	Annonaceae	Antidiabetis, Antilipidemic and Anti-inflammatory.
96	*Vetiveriaziziniodes*	Khus-khus	Poaceae	Tonic and Blood purifier.
97	*Agave woodrose*	Century plant	Agavaceae	Used for pain relief.
98	*Trigonella foenum graecum*	Fenugreek	Fabaceae	Antibacterial, Gastric stimulant, an Antidiabetic, and a Galactagogue.
99	*Tecoma stans*	Yellow bells	Bignoniaceae	Diuretic, Hypoglycemic, Vermifuge and Tonic.
100	*Holoptelea integrifolia*	Indian elm	Ulmaceae	Inflammation, Gastritis, Dyspepsia, Colic, Intestinal worms, Vomiting, Wound healing, Leprosy, Diabetes.

Continue ….

101	*Jasmiummultiflorum*	Star jasmine	Oleaceae	Headache, Wound, Poisoning etc.
102	*Ixora coccinea*	Jungle geranium	Rubiaceae	Fever, Headache, Colic.
103	*Cinnamomum verum*	Cinnamon	Lauraceae	Indigestion (Dyspepsia), Diarrhea, Diabetes, Obesity.
104	*Cinnamomum camphora*	Camphor	Lauraceae	Antibacterial, Antifungal, and Anti-inflammatory.
105	*Carica papaya*	Papaya	Caricaceae	Warts, Corns, Sinuses, Eczema and Dyspepsia.
106	*Bougainvillea spectabilis*	Great bougainvillea	Nyctaginaceae	Anticancer, Anti-inflammatory, Antimicrobial and Antioxidant.
107	*Punica granatum*	Pomegranate	Lythraceae	Sore throats, Coughs, Urinary infections, Digestive disorders, Skin disorders, Arthritis.
108	*Piper betle*	Betel vine	Piperaceae	Antibacterial, Antiflarial, Antimalaria, Antifungal and Antiallergic.
109	*Achyranthus aspera*	Chaff flower	Amaranthaceae	Diuretic, Renal diseases.
110	*Psidium guajava*	Guava	Myrtaceae	Diarrhea, Dysentery, Hypertension, Diabetes and Cough.
111	*Erythrina variegata*	Coral tree	Fabaceae	Nervine sedative, Opthalmia, Antiasthmatic, Antiepileptic, Antiseptic, Astringent.
112	*Tinospora cordiflora*	Gurjo	Menispermaceae	Diabetes, High cholesterol, Lymphoma, Hepatitis, Fever and Syphilis.
113	*Argyreia indica*	Hawaiian baby wood tree	Convolvulaceae	Syphilis, Bronchitis, Diabetis.
114	*Butea monosperma*	Flame of the forest	Fabaceae	Astringent, Leprosy, Strangury, Gout, Thirst sensation.
115	*Semicarpus anacardium*	Bhilwa	Anacardiaceae	Skin diseases, Fever, Piles, Epilepsy, Neuralgia and Ulcers,Anti-inflammatory, Antioxidant, Anti reproductive and Anti carcinogenic
116	*Lawsoniainermis*	Henna	Lythraceae	Anti-viral, Anti diabetic, Anti-inflammatory and Skin diseases.
117	*Nyctanthesarbortristis*	Night flowering jasmine	Oleaceae	Fever, Sedative and Rheumatism.
118	*Ficus racemosa*	Cluster fig	Moraceae	Diabetes, Liver disorders, Diarrhea, Inflammation, Respiratory diseases.
119	*Moringa oleifera*	Drum-stick tree	Moringaceae	"Tired blood" (anemia), Arthritis,Rheumatism, Asthma, Cancer, Constipation, Diabetes, Diarrhea, Seizures, Stomach pain.
120	*Neolamarkiacadamba*	Kadam	Rubiaceae	Fever, Uterine complaints, Ulcers, Wounds, Skin diseases, Inflammation, Anemia, Dysentery and Leprosy.
121	*Simarouba glauca*	Paradise tree	Simaroubaceae	Diarrhoea, Dysentery, Malaria, Water retention (Edema), Fever, and Stomach upset, Antimicrobial, Antiviral and Analgesic.
122	*Caesalpinia crista*	Squirrels' claws	Fabaceae	Malarial fever, Intermittent fever, Anti diabetic, Anti-inflammatory, Antitumor, and Antioxidant activity.
123	*Acacia concinna*	Shikakai	Fabaceae	Jaundice, Constipation and Skin problems.
124	*Putranjivaroxburghii*	Putranjiva	Putranjivaceae	Procreant, Bitter, Refrigerant and Astringent.
125	*Gloriosa superba*	Glory lilly	Colchicaceae	Snake bite, Ulcers, Arthritis, Cholera, Colic and Kidney problems.
126	*Saracaasoca*	Ashoka	Fabaceae	Internal bleeding, Hemorrhoids, Infertility, Insomnia, and Psoriasis.
127	*Celosia argentina*	Red fox	Amaranthaceae	Bloody stool, Haemorrhooid bleeding, Uterine bleeding, Leucorrhoea and Diarrhea.
128	*Cynodondactylon*	Bermuda grass	Poaceae	Laxative, Coolant, Expectorant, Carminative.
129	*Mimosa pudica*	Touch-me-not	Fabaceae	Dysentery, Small pox, Fever, Ulcer, Jaundice, Leucoderma.
130	*Euphorbia tirucalli*	Indian tree spurge	Euphorbiaceae	Rheumatism, Warts, Cough, Asthma, Ear-ache, Tooth-ache and Neuralgia.
131	*Stevia rebaudiana*	Candy leaf	Asteraceae	Diabetics, Blood pressure, Obesity etc.
132	*Alpinia galangal*	Siamese ginger	Zingiberaceae	Fever, Muscle spasms, Intestinal gas, and Swelling.
133	*Allium sativum*	Garlic	Amaryllidaceae	Fevers, Diabetes, Rheumatism, Intestinal worms, Colic, Flatulence, Dysentery, Liver disorders, Tuberculosis, Facial paralysis, High blood pressure, and Bronchitis.
134	*Morindacitrifolia*	Great morinda	Rubiaceae	High blood pressure, Arthritis, Ulcers, Depression, Sprains, Menstrual cramps, Pain relief, Inflammation, Burns, Fever, Food poisoning, and Joint problems.
135	*Capparis zeylanica*	Ceylon caper	Capparaceae	Antioxidant, Anti-inflammatory, Antipyretic, Analgesic
136	*Piper nigrum*	Black pepper	Piperaceae	Anti-inflammatory, Analgesic, Anticonvulsant, and Neuroprotective effects.
137	*Syzygium aromaticum*	Clove tree	Myrtaceae	Vomiting, Flatulence, Nausea, Liver, Bowel and Stomach disorders.
138	*Cardiospermum halicacabum*	Balloon plant	Sapindaceae	Anti-inflammatory, Antidiarrheal, Antiparasitic, Antipyretic, Antifilarial, Anxiolytic, Adulticidal activities, Urinary tract infections and antihyperglycemic-properties.
139	*Tamarindus indica*	Tamarind	Fabaceae	Wounds, Abdominal pain, Diarrhea, Dysentery, Fever, Malaria and Respiratory problems.
140	*Terminalia arjuna*	Arjun tree	Combretaceae	Cardiac tonic, Antidote to poisons.
141	*Terminalia bellerica*	Beleric myrobolon	Combretaceae	Respiratory tract infections and Cough.
142	*Woodfordiafruticosa*	Fire flame bush	Lythraceae	Leprosy, Toothache, Leucorrhea, Fever, Dysentery, Bowel disease.
143	*Albizzia lebbek*	Siris tree	Fabaceae	Lung problems and Pectoral problems.
144	*Artocarpus integra*	Chempedak	Moraceae	Inflammation, Malarial fever and Ulcers.
145	*Bignonia megapotamica*	Bignonia	Bignoniaceae	Treat anxiety.
146	*Cassia fistula*	Golden shower tree	Fabaceae	Inflammatory swellings and Ulcers.
147	*Dalbergia sissoo*	Indian rosewood	Fabaceae	Antipyretic and Analgesic.
148	*Delonix regia*	Flame tree	Fabaceae	Fever, Inflammation, Boils and Bronchitis
149	*Ficus benghalensis*	Banyan	Moraceae	Ulcers, Fever, Vomiting and Leprosy
150	*Ficus mollis*	Soft fig	Moraceae	Diabetes and Liver diseases.
151	*Ficus religiosa*	Peepal	Moraceae	Antibacterial, Antidiabetic.
152	*Hardwickiabinate*	Anjan	Caesalpiniaceae	Chronic cystitis and Gonorrhoea.
153	*Magloliachampaka*	Champa	Magnoliaceae	Cough, Bronchitis and Inflammation.
154	*Mimosopselangi*	Spanish cherry	Sapotaceae	Wounds and Ulcers.
155	*Polyalthia longifolia*	Monoonlongifolium	Annonaceae	Fever, Skin diseases and Diabetes.
156	*Prunus dulcis*	Sweet almond	Rosaceae	Cancer of bladder, Beast and Mouth.
157	*Pterocarpus marsupium*	Indian keno tree	Fabaceae	Stomach pain and Gastro intestinal disorders.
158	*Spathodeacompanulata*	Aftrican tulip tree	Bignoniaceae	Malaria, Diabetes and Dysentery.
159	*Tabebuia olenda*	Tabebuia	Bignoniaceae	Fever, Pain and Tonsil inflammation.
160	*Tabebuia rosea*	Trumpet tree	Bignoniaceae	Fever and Pain.
161	*Tecomaargentia*	Silver trumpet tree	Bignoniaceae	Fever and Pain.

It also facilitates to work from either side of the bed reducing the incidence of compaction between plants caused by walking in the soil.

Land preparation: Land preparation is the key to successful intensive gardening. The land was prepared by discing, ploughing, harrowing, planking and leveling. Weeds were removed and clods were crushed. The land was laid into different raised beds of required size. The prepared raised beds were filled with compost enriched soil mixture with proper irrigation facilities for better growth of the plants. A spacing of 1m was provided between beds to facilitate free movement.

Irrigation facilities: Water availability is ensured throughout the year for each bed by constructing overhead tank and by providing pipelines.

Procurement of plant propagules: The list of commonly used, rare, threatened and endangered Medicinal and Aromatic plants including few medicinal trees was prepared after careful examination of the requirements of various stakeholders. The seedlings were procured from the well-maintained nurseries of the recognized institutes viz., Central Institute of Medicinal and Aromatic plants (CIMAP), Hyderabad and Telangana State Medicinal Plants Board (TSMPB).

Planting of Medicinal and Aromatic plants: The healthy seedlings were planted in raised beds by maintaining the spacing required from plant to plant and row to row for each species. Pits of $30cm^3$ were dug and filled with compost before planting tree seedlings.

Monitoring of Herbal Garden: Herbal Garden was monitored and regular field inspections were conducted regularly to examine the growth and development of Medicinal and aromatic plants and the management strategies for watering, weeding, pests and disease controlwere implemented from time to time in Herbal Garden.

RESULTS AND DISCUSSION

A scientifically established Herbal Garden provides the supply of plant resources for research information on protection of endangered species and propagation practices of rare plants and to create awareness on uses of medicinal plants and their conservation through various educational programmesviz., workshops, seminars and training for teachers, students, naturalists and other stakeholders (Pandey et al 2021). The Medicinal and aromatic plants must be conserved by all possible strategy which provides better chance of propagation as well as protecting them to come near the line of endangerment (Patel 2015). There is need to encourage multiplication and cultivation of Medicinal and Aromatic plants (Lakshman 2016 & Santhosh and Ashalatha 2020). Tanga et al (2018) highlighted that the cultivation of Medicinal and Aromatic plants falls primarily within the domain of biodiversity conservation, while enhancing quality assurance and increases the availability of medicinal plants for commercialization.

National Medicinal Plants Board (NMPB) has supported a total of 50 projects during 2015-16 to 2019-20 for the establishment of Institutional Herbal Garden at different locations in India to help in popularizing the utility of medicinal and aromatic plants among various stakeholders. The herbal garden at Forest College and Research Institute would serve the purpose of conserving the valuable germplasm, while also attempts to supply quality planting stocks to its stakeholders. Apart from enhancing the biodiversity of the area, the herbal garden provides a repository of information for focused learning and research to the existing student and the scientific community.

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