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EX-SITU CONSERVATION OF CLIMBING PLANTS AT UNIVERSITY OF AGRICULTURAL SCIENCES, BANGALORE, KARNATAKA

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Abstract

Ex-situ conservation center for climbing plants has been established at the Botanical Garden, University of Agricultural Sciences, GKVK, Bangalore. The Botanical garden of this university is of unique type adopting systematic classification for conservation plants of Karnataka in particular and country in general. The dedicated Climber plants block has the collection More than 50 species collected from all parts of the Karnataka, which are used by various tribals and local people to cure different ailments ranging from simple injuries, wounds, cuts, fever, diarrhea, ulcers, bone fractures, potency, antidote, skin care, night blindness, toothache, asthma, cough & cold. The present study work provides detailed account of Climbing shrub and woody climber plants conserved with their unique uses.

Keywords: Ex-situ conservation, Climbing plants, Botanical Garden

Introduction

India is one of the 12-mega biodiversity centers in the country with two hotspots of biodiversity, viz., Western Ghats and Eastern Himalayas. From the ages plants used as source of medicine and are closely associated with cultural traditions. Most of common Climber are found in the forest. The use of some Climber herbs is still a traditional, continued by ethnic communities who are living in undulating planes and at foothills of dense forests. From ancient times in India, they are using a large number of wild and cultivated plants for the treatment of various ailments thus; a considerable amount of information on Medicinal Climber plants and is available with these communities. The plant growing around form an integral part of their culture. These people are largely dependant on their traditional healing system for their healthcare and the information is passed on from generation to generation through the word of mouth. There is little or nothing in written. In earlier day many of the plants used by tribal communities are at the verge of extinction due to over exploitation and for many plants there are no information about the identity and the proper usage and there will be mis-identification for many species. In order to maintain a plant repository of species in danger, which are largely used by tribal communities from ages and also to make proper identification of all those plants with information on uses, the garden has established aim to conserve and disseminate the information about the usage and the status of the plants.

Methodology

This Garden Established in 1973 (November 1st 1973) Total area 65 acres. The garden is divided into 10 blocks with Block-1 earmarked for Medicinal plants; Medicinal Climbing plants were collected from all over Karnataka and their identification is confirmed with the help of local floras^{2, 5, 6, 7} and literature.

Information on use of Climbing plants was collected from local elder persons of the family. The vernacular names given by the informers were confirmed with local flora and also their botanical name, family and local name were identified with the help of available literature^{3,4,10}.

Result and Discussion

Total of 50 plants species belonging to 44 genera and 26 families have been conserved in Climbing plants in Botanical Garden. The data on ethno-medicinal uses with method of drugs administration in different ailments were presented. These plants are being used by various ethnic groups for the treatment of various diseases ranging from simple injuries, wounds, cuts, fever, diarrhea, ulcers, swelling, bone fractures, potency, antidote, skin care, night blindness, toothache, asthma, cough & cold (Table 1). Based on the data collected by consulting various ethnic groups and local people an analysis has been done on the use of different parts of plants as source of medicine. The analysis showed that leaves, bark and root are the major source of medicine (Fig. 1). The medicinal plants with root as medicinal part need to be given more attention for conservation as collection of such plants will lead to the endangerness of those plants. Those information need to be disseminate in the public for sustainable utilization.

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Fig. 1: Percentage of different parts of the medicinal plants used by tribals and local people

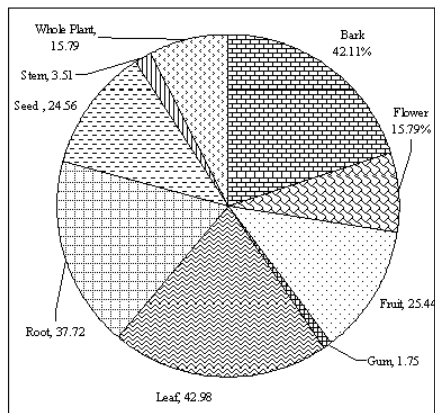


Table 1: List of climbing plants conserved in the Botanical Garden, University of Agricultural Sciences, Bangalore with their uses

Botanical Name/Family/Comman Name	Uses
<i>Abrus precatorius</i> L. Papilionaceae/Gulaganji	The seed extract exhibited antischistosomal activity in male hamsters. It is also useful in the treatment of hepatitis and AIDS Uterine stimulant, abortifacient, toxic. Seeds teratogenic. Detoxified seed 1-3 g powder. Root powder 3-6g.
<i>Acalypha fruticosa</i> Forsk. Euphorbiaceae/Chinni mara	Leaves: stomachic, alterative; prescribed in digestive disorders, dyspepsia, colic, diarrhoea.
<i>Adenia hondala</i> (Gaertner) Wilde..J. de Wilde. Passifloraceae/Kempu chendu hannina balli	Tubers are reportedly poisonous. use the tubers for treating hernia It may be an adulterant or an unauthorised substitute roots are reportedly used as Ayurvedic plant drug <i>Vidari</i> .
<i>Aegle marmelos</i> (L.) Correa ex Roxb. Rutaceae/Bilva pathre.	Stomachic, antimicrobial (specific for diarrhoea, colitis, dysentery and enteric infections), digestive, astringent, spasmolytic, hypoglycaemic.
<i>Anamirta cocculus</i> (Linn.)Wight & Arn. Menispermaceae/Kaagemari.	Insecticide, antifungal; highly valued in skin diseases;, used externally to kill lice and other parasites.
<i>Aristolochia indica</i> L. Aristolochiaceae/Ewshvari balli.	Oxytocic, abortifacient, emmenagogue. Gastric stimulant, leucorrhoea, antidote to snake bite Root-dyspepsia, bowel trouble in children and intermittent fever, diarrhea & cholera.
<i>Aristolochia tagala</i> Cham. Aristolochiaceae./dodda eeshvari balli	Leaves are applied to the head & treat fever. swollen abdomen or limbs. Plant is used to treat snake bites and malaria. Roots are considered a tonic, carminative and emmenagogue, high blood pressure, beri-beri and swollen feet.
<i>Artabotrys hexapetalus</i> (Linn. f.) Bhandari. Annonaceae/Manoranjani.	Cardiac stimulant, uterine stimulant, muscle relaxan.
<i>Averrhoa carambola</i> Linn. Averrhoaceae/Kamaraakshi hannu.	Root:antidote in poisoning. Leaf and shoot:applied externally in ringworm, scabies, chickenpox. Flower:vermicidal. Fruit:laxative, antidysenteric, antiplagistic, febrifuge, antiinflammatory, antispasmodic (used in hepatic colic, bleeding piles).
<i>Bridelia scandens</i> (Roxb.) Willd. Euphorbiaceae/Akshte balli.	Decotion of bark given in cough, fever and in asthma. Leaves in jaundice. Seeds yield fatty oil, fruits edible.
<i>Calycopteris floribunda</i> Lam. Combretaceae/Marsadaballi.	Leaf: antidysenteric; used externally for ulcers. Fruit: used in jaundice. Leaves containflavanol calycopterin; flowers calycopterin and quercetin. Plant pacifies vitiated pitta, kapha, skin diseases, burning sensation, constipation, worms, colic, malaria, ulcers, jaundice, pruritus and erysipelas.
<i>Capparis sepiaria</i> var. <i>sepiaria</i> Linn. Capparidaceae/Kattari gida.	Antiseptic, antipyretic. Used for eczema and scabies. Skin diseases, small wounds.
<i>Capparis zeylanica</i> Linn. Capparidaceae/Aathundi kaayi.	Root bark: sedative, stomachic, anticholerin, diuretic febrifuge. Leaves: applied as poultice to piles, swellings, boils.
<i>Cardiospermum hellicacabum</i> L. Sapindaceae/Bekkina toddina balli.	Used in rheumatism, lumbago, skeletal fractures, nervous diseases, amenorrhoea, haemorrhoids, erysipelas. The herb is used in hairoils for

	treating dandruff,
<i>Celastrus paniculatus</i> Willd. Celastraceae/Ganguga hanbu	Seeds: nervine and brain tonic, diaphoretic, febrifugal, emetic. Seed-oil: used for treating mental depression, hysteria and for improving memory; also used for scabies, eczema, wounds, rheumatic pains, paralysis. A decoction of seeds is given in gout, rheumatism, paralysis and for treating leprosy and other skin diseases. Leaves: antidyenteric, emmenagogue. Root: a paste of root bark is applied to swollen veins and pneumonic affections
<i>Chonemorpha fragrans</i> (Moon.) Alston. Apocynaceae/ chandrahoovina balli	Powdered root and stems laxative, anti bilious
<i>Cissampelos pareira</i> L. Menispermaceae/Parira baeru	Root astringent, antispasmodic (used for cramps, painful menstruation), analgesic, antipyretic, diuretic, antilithic and emmenagogue. Prescribed for mpetigo, dysentery, piles, urogenital affections (cystitis, nephritis, menorrhagia) Root paste is applied topically on scabies and eruptions on the body. Also used for preventing miscarriage
<i>Cissus quadrangula</i> L. Vitaceae/Mangarvalli	The anabolic and steroidal principles of the aerial part showed a marked influence in the rate of fracture:healing. The drug exerts influence both on the organic and mineral phase of fracture-healing. Stem: alterative in scurvy (the plant is rich in vitamin C) and irregular menstruation.
<i>Clematis gouriana</i> Roxb. Ranunculaceae/Taelejadari.	Leaf and stem vesicant, poisonous.
<i>Cocculus hirsutus</i> (L.) Diels. Menispermaceae/Daagadiballi.	Root laxative, sudorific, alterative, antirheumatic. Leaf: used externally for eczema, prurigo and mpetigo. A decoction of leaves is taken in eczema, leucorrhoea and gonorrhoea.
<i>Cryptolepis buchanani</i> Roemer & Schultes. Asclepiadaceae/Maetguli hambu.	Blood-purifier, alterative. Used for rickets in children. In combination with <i>Euphorbia microphylla</i> , the herb is used as a galactagogue. A decoction of the stem is used as a supporting drug in paralysis;
<i>Cyclea arnotii</i> Miers. Menispermaceae/	Roots: used in smallpox, bone fractures, malarial fever, jaundice, stomachache.
<i>Decalepis hamiltonii</i> Wight & Arn. Asclepiadaceae/Maakali beru.	Root: appetizer, blood purifier, bacteriostatic. Used as a substitute for Shveta Saarivaa (<i>Hemidesmus indicus</i>). Sold as Saarivaa in Kerala, Tamil Nadu and Karnataka. The root powder is given to diabetics.
<i>Dioscorea oppositifolia</i> Linn. Dioscoreaceae/Kaadu genus.	Used externally for reducing swellings
<i>Dregea volubilis</i> (Linn. F.) Benth. ex Hook. F. Asclepiadaceae/Kadu hale balli.	Root and tender stalks: emetic and expectorant, cause sneezing, used in colds, sinusitis, and biliousness. Leaves: used as an application to boils and abscesses.
<i>Embellia robusta</i> C. B. Clarke, non-Roxb. Myrsinaceae/Vaayu vilanga.	Fruit:antispasmodic, carminative, anthelmintic, antibacterial. Powdered
<i>Entada rheedii</i> DC. Mimosaceae/Halle kaai balli.	Seeds are considered alexiteric, narcotic, tonic, emetic, anthelmintic, antipyretic, febrifuge, and hemorrhoidal.Used as stomachache, carminative and anodyne. Excites appetite, control fever and relieves pain.Used in pains of the loins, in debility and in inflammatory glandular swellings and for scabies. Half-ripe seeds are used as a substitute for coffee. To cure liver troubles, and to cure mumps.
<i>Entada scandens</i> auct. non-Benth. Mimosaceae/Halle Kaai balli.	Seed:carminative, anodyne, spasmolytic bechic, anti-inflammatory, anthelmintic, antiperiodic. Used in liver complaints, glandular swellings, debility, skin diseases. The seed, stems and bark are poisonous. A paste of the seeds is applied locally for inflammatory glandular swellings. The juice of wood and bark is used as an external application for ulcers. The leaves are reported to be free from the toxic saponins. After soaking in water and roasting toxic principles can be removed from the white kernels of the seeds
<i>Gnetum ula</i> Brongran. Gnetaceae/Kaadu amrutha balli.	Seed oil: antirheumatic. Used for illumination and applied to cure rheumatism. Plant: antiperiodic. Leaves: piscic.
<i>Gymnema sylvestre</i> (Retz.) B. Br.ex Sch. Asclepiadaceae/Madhunaashini.	Leaf: antidiabetic. Stimulates the heart and circulatory system, activates the uterus. Used in parageusia and furunculosis. Plant: diuretic, antibilious. Root: emetic, expectorant, astringent, stomachic.
<i>Hemidesmus indicus</i> (L.) R. Br. Asclepiadaceae/ Sogade beru	Bloodpurifier, antisiphilitic, antileucorrhoeic, galactogenic, antidiarrhoeal, antirheumatic, febrifuge, alterative. Roots used against gonorrhoea, leucoderma, bleeding piles, jaundice and dysentery
<i>Hiptage benghalensis</i> (L.) Kurz Malpighiaceae/ Adar ganchi hambu	Kernel of seeds is prescribed for reducing abdominal girth (obesity). Leaves: used in chronic rheumatism, asthma and skin diseases. Bark:

	used in bronchial asthma.
<i>Ichnocarpus frutescens</i> (L.) R.Br. Apocynaceae/Kari hambu.	Root: demulcent, diuretic, alterative, diaphoretic; used in fevers, dyspepsia and cutaneous affections. The roots of the plant are used as a substitute for Indian sarsaparilla and are often mixed with the roots of <i>Hemidesmus indicus</i> (their therapeutic properties for use as sarsaparilla have not been established).
<i>Jasminum malabaricum</i> Wight. Oleaceae/Kadu malle.	Root: emmenagogue, blood purifier. Flowers: lactifuge. Alcoholic extract: hypotensive. Leaves: antibacterial; used against indolent and breast tumours.
<i>Jasminum multiflorum</i> (Burm. f.) Andr. Oleaceae/Kasthoorimallige.	Diuretic, emetic. Boiled bark—applied on burns.
<i>Jasminum officinale</i> Linn. var. <i>grandiflorum</i> (L.) Kobuski. Oleaceae/Jajihooovu	Flowers: calming and sedative, CNS depressant, astringent and mild anaesthetic. A syrup prepared from the flowers is used for coughs, hoarsenesses and other disorders of the chest. Plant—diuretic, anthelmintic, emmenagogue; used for healing chronic ulcers and skin diseases. Oil: externally relaxing.
<i>Leptadenia reticulata</i> (Retz.) Wight & Arn. Asclepiadaceae/Paalatheege balli.	Plant: stimulant and restorative. Improves eyesight. Found useful in the treatment of habitual abortion. Leaves and roots used in skin diseases
<i>Mucuna pruriens</i> (L.) DC. Papilionaceae/Nasugunni.	Seed: astringent, nervine tonic, local stimulant, used in impotence, spermatorrhoea, urinary troubles, leucorrhoea, traditionally used for male virility. Also used in depressive neurosis. Hair on fruit: vermifuge, mild vesicant; used for diseases of liver and gallbladder. Leaf: applied to ulcers. Pod: anthelmintic. Root and fruit: spasmolytic, hypoglycaemic. Root: CNS active.
<i>Naravelia zeylanica</i> (Linn.) DC. Ranunculaceae/Balluli hambu.	Astringent, antiinflammatory, vulnerary, anthelmintic. Used for colic, headache, inflammations, rheumatic pain, wounds and ulcers, intestinal worms, leprosy and skin diseases. Saps of stem effective in onychia
<i>Nilgiranthus ciliatus</i> (Nees) Bremek. Acanthaceae/Kadu gurgi	Used against neurological disorders, sciatica, glandular swellings and oedema.
<i>Passiflora foetida</i> L. Passifloraceae/Kukkiballi	Fruit-used emetic, Leaves-used as dressing for wounds, headache and giddainess. Decoction is used to treat asthma and biliousness. Emmenagogue and usefull for treating husteria.
<i>Quisqualis indica</i> L. Combretaceae/Rangoon kempu hoo.	Fruits and seeds: anthelmintic (particularly against ascariates and soporific). Seeds: soporific. Ripe seeds are roasted and given in diarrhoea and fever. Macerated in oil, are applied to parasitic skin diseases. Leaves: decoction prescribed in abdominal pain.
<i>Smilax zeylanica</i> L. Smilacaceae/Kaadu hambu thaavare.	Root: used in prescriptions for venereal diseases. Decoction, used for abscesses, boils, swellings and rheumatism; also for dysentery. Used as a substitute for <i>S. ornata</i> .
<i>Tinospora cardifolia</i> (Willd.) Hook.f. & Thomson. Menispermaceae/Amriithaballi.	Powerful emetic, tonic, stomach trouble, chronic diarrhoea, dyspepsia, diabetes, bleeding piles, jaundice, anaemia, skin diseases. Part used Stem, leaves, root & fruit.
<i>Toddalia asiatica</i> (Linn.) Lam. Rutaceae/Dodda Kaadu menasu.	Whole plant: febrifuge, diuretic, Leaves antispasmodic. Rootbark: antipyretic, diaphoretic, antiperiodic.
<i>Tragia involucrata</i> L. Euphorbiaceae	Root: febrifuge, diaphoretic, alterative, blood purifier. Given in fever when the extremities are cold; also for pain in arms and legs. Used as a blood purifier in venereal diseases; applied externally to skin eruptions. Fruit—paste used in baldness.
<i>Tylophora indica</i> (Burm. f.) Merrill. Asclepiadaceae/Aadu muttada balli.	Leaves: used for bronchial asthma and allergic rhinitis.
<i>Vallis solanacea</i> (Roth.) Kuntze. Apocynaceae/Bugadi hambu.	Latex: applied to old wounds and sores (mildly irritant). Bark: astringent. Seeds: cardiac tonic.
<i>Ventilago bombainesis</i> Dalz. Rhamnaceae/	Root bark: carminative, stomachic, febrifuge; used in atonic dyspepsia, debility and skin diseases. The plant is used against scabies.
<i>Ventilago madraspatana</i> Gaertn. Rhamnaceae/Poppli	Root bark: carminative, stomachic, febrifuge; used in atonic dyspepsia, debility and skin diseases. The plant is used against scabies.

Conclusion

Some of the common Climbing plants of Karnataka are used in various systems medicines. It is our responsibility to grow and conserve all the Climber

plants for the future by means *ex-situ* conservation, germplasm preservation and commercial cultivation. It is necessary to characterize the active principles contain in them, avoiding adulteration and to

authenticate the genuine drugs for the well fare of human beings.

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