

Criteria 7: Institutional Values & Best Practices
7.3 : Institutional Distinctiveness

Botanical Garden
(From Idea to Reality)



Assessment Period : 2018 - 2023

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1

Objective:

- **Ex-situ conservation** of rare plants collected from various parts of Maharashtra
- **Display** of economically important & RET species
- **Field training** in Horticulture and Nursery Management
- **Research** on Medicinal Plants: establishing the **authenticity** of the crude drug and checking the adulteration in crude drugs available in the market.
- **Identification** of plants
- **Citizen Science Activity - arranging regular excursion** to the garden for awareness generation



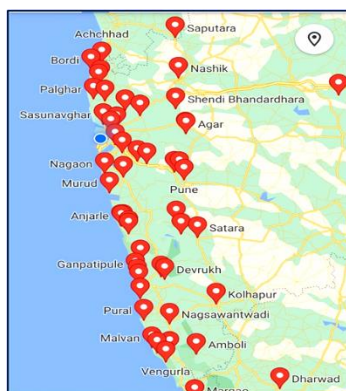
Collection & Post Collection activity:

• Collation of botanical information

• Authenticaton of medicinal use

• Preparation of plant display poster

• The dissemination of knowledge for medicinal plants is done through a QR coded label.




Plants in the Garden – 407 sp.

Medicinal Plants: 250 sp.

- Anti bacterial, Anti fungal
- Anti cancer
- Anti hypertensive
- Antioxidative
- Anti-arthritis, Rheumatic disorders
- Bile disorder
- Blood ailments & Blood purifier
- Bone & Joint disorders
- Chest disorders & Plants used in COVID
- Diabetes
- Digestion disorders
- Fertility disorders
- Gastric disorders
- Glandular disease
- Immunity boosters
- Laxatives
- Liver disorders
- Memory enhancers & Mind ailments
- Muscle disorder
- Nervine disorder
- Obesity
- Purgatives
- Pulmonary complaints
- Renal disorders
- Skin ailments
- Stimulators
- Stomach disorders
- Stone breakers
- Throat ailments
- Tooth & gum ailments
- Wound healers
- Nutritives

CARDAMON

Elettaria cardamomum (L.) Maton
(ZINGIBERACEAE)

LOCAL NAME	←	
Ela (S.), Cardamon (E.), Chhoti elachi (H.), Veldode (M.)		
HABIT	←	
Rhizomatous herb		
NATIVE	←	
India		
KEY CONSTITUENT	←	MEDICINAL USE Bile disorder, COVID, Bronchial infection, Digestive, Improves digestion, decreases cough, creation of food, Mouth freshener.
Cineole, Terpineol		
PART USED	←	OTHER USE Used in cooking, perfumery.
Dried ripe seed, Fruit, Oil		
PROPAGATION	←	
Rhizome		

Medicinal Plants: 250 sp.

SAPTAPARNI

Alstonia scholaris (L.) R. Br.

(APOCYNACEAE)

LOCAL NAME

Saptarni (S.), Dita bark, Devil tree, Backboard tree (E.), Chhatium (H.), Satveen (M.)



HABIT

Tree

NATIVE

Tropical & Subtropical Asia to N. Australia.

KEY CONSTITUENT

Ditamine, Echitamine, Echitenine, Echicaoutchin

MEDICINAL USE

Blood purifier, Carminative, astringent, Gastro-intestinal sedative, fever and Amoebic dysentery,

OTHER USE

Avenue tree with fragrant flower, Bark used in making writing slate, Pollen allergenic (causing seasonal fever) Garlands of leaves is awarded ceremonially to the graduates students of Vishva Bharati University by the chancellor-A tradition once initiated by Rabindranath Tagore

PART USED

Leaves, bark, latex

PROPAGATION

Seed

VILAYATI CHINCH

Pithecellobium dulce (Roxb.) Benth.

(FABACEAE)

LOCAL NAME

Manila Tamarind (E.), Jungle Jalebi (H.), Vilayati chinch (M.),



HABIT

Tree

NATIVE

Mexico to Guyana & Peru

KEY CONSTITUENT

Tannin(Catechol type), Olein, Quercetin, Kaempferol, Dulciton, Afzeilin, Glutamic acid, Arginine, Aspartic acid, Leucine

MEDICINAL USE

Bile Disorders, Dryness of Mouth. Digestive appetizer, Improves digestion process, Tonic - Mind stimulator

PART USED

Bark, Leaves, Seeds, Aril

OTHER USE

Aril from ripe fruit is edible.

PROPAGATION

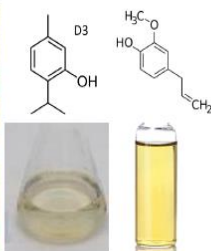
Seeds

Aromatic plants : 24 species

Clove Basil

Botanical Name: *Ocimum gratissimum* L.

Family: Lamiaceae



Habit

Herb

Parts used

Flowers & Leaves

Method of extraction

Hydro Distillation

Color of Oil

Pale color, Hint of green

Important constituents

Thymol & Eugenol

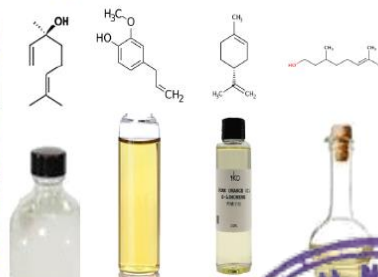
Use:

To treat respiratory problems

Sweet Basil / Sabja

Botanical Name: *Ocimum basilicum* L.

Family: Lamiaceae



Habit

Herb

Parts used

Leaves

Method of extraction

Hydro Distillation

Color of Oil

Off white, Pale color, Hint of green

Important constituents

Linalool, Eugenol, Limonene, Citronellol

Use:

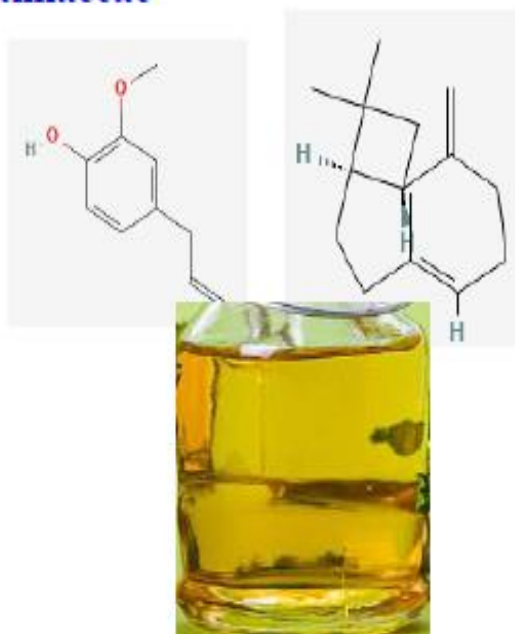
To treat respiratory problems, gout, muscular aches, pains, insect bites & as insect repellent



Holy Basil / Tulsi

Botanical Name: *Ocimum tenuiflorum* L.

Family: Lamiaceae



Habit	Herb
Parts used	Leaves
Method of extraction	Hydro Distillation
Color of Oil	Pale Yellow
Important constituents	Eugenol, Caryophyllene
Use:	To decrease pain and swelling; to improve hair growth, reduce skin inflammation, and increase the speed of hair growth



Trees in the campus and Census Information

Tree census of the campus are carried out by the students once in every 5 years.

At present 102 trees of various sizes are present in the campus.

Every tree is numbered.

Botanical name, Identification character, Flowering & Fruiting season, Uses, Native country and Gardening tips are mentioned (in this booklet) for all tree species

DBH and Geotag information is mentioned for every tree

Ideal Carbon sequestration rate for each tree is calculated (in kg.)



RET Species: 12 species & 3 CITES species

Dipterocarpus turbinatus Gaertn.

Dipterocarpaceae

Gurjan



Native E. India – Indochina
VULNERABLE A2cd

Habit: Tree

Flowers White – Pink, Fragrant

Flowering January – March (April)

Remark Important source of wood used in plywood industry & cabinet work; Gurjan resin is known to have use in torch making in Cambodia

Dipterocarpus indicus Bedd.

Dipterocarpaceae

Gurjan



Native S. W. India
ENDANGERED C2a(i)

Habit: Evergreen trees

Flowers White

Flowering December - January

Remark Harvested for its timber for making plywood which is used for interior and other commercial purposes. as well as for oleo resin.

Pterocarpus santalinus L.f.

Fabaceae

Red Sandal Wood



Native South India; **ENDANGERED, B1 +2de**

Habit: Moderate sized deciduous tree; slow growing

Flowers Yellow

Flowering April - June

Remark Inner bark reddish in color; medicinal; face mask of red sandal powder and milk is an excellent remedy against pigmentation

Santalum album L.

Santalaceae

Chandan, Sandal wood



Native Asia – Australia
VULNERABLE A2de

Habit: Semi parasitic evergreen tree

Flowers Maroon

Flowering December - April

Remark Heart wood contains essential oil, extracted for its use in perfumery. Has religious significance and medicinal

Ornamental Plants : 40 species



Hibiscus syriacus L.
(Malvaceae)
Purple Hibiscus



Pieroma urvilleanum (DC)
Guim. & Mich.
(Melastomataceae)



Plectranthus sp.
(Lamiaceae)



Crossandra infundibuliformis (L.) Nees
(Acanthaceae) Aboli



Aclepias curassavica L.
(Apocynaceae)
Haldi-Kumkum



Artabotrys hexanetalis
(L.f.) Bhandari
(Annonaceae)
Hirva champa



Barleria prionitis L.
(Acanthaceae)
Koranti/ Porcupine flower

Foliage : 35 species



Zebrina pendula
Schubl.
(Commelinaceae)



Collisia repens
(Ophioglossaceae)
Adder's Tongue Fern



Tradescantia pallida
(Rose) Hunt
(Commelinaceae)



Pilea nummulariifolia
(Sw.) Wedd.
(Urticaceae)



Epipremnum aureum
(Araceae)
Money Plant



Epipremnum aureum
"neon"
(Araceae)
Money Plant



Epipremnum aureum
"variegatum"
(Ophioglossaceae)
Adder's Tongue Fern



Collisia repens
L. (Ophioglossaceae)



Sansevieria sp. (Asparagaceae)
Snake Plant



Pteridophytes : 12 species



Ophioglossum sp.
(Ophioglossaceae)
Adder's Tongue Fern



Platycerium sp.
(Polypodiaceae)
Staghorn Fern



Cyathea sp.
(Cyatheaceae)
Tree Fern



Pteris vittata L.
(Pteridaceae)
Chinese Brake Fern



Asplenium nidus L.
(Aspleniaceae)
Birds Nest fern



Unidentified fern



Silver Fern



Salvinia natans (L.) All
(Salviniaceae)
Water Fern




Geophytes : 32 species



Curcuma longa L.
(Zingiberaceae)
(Turmeric)



Curcuma amada Roxb.
(Zingiberaceae)
(Mango ginger)



Curcuma caesia Roxb.
(Zingiberaceae)
(Black Turmeric)



Curcuma pseudo-montana
Graham (Zingiberaceae)



Curcuma decipens Dalzell
(Zingiberaceae)



Curcuma aromatic Salisb.
(Zingiberaceae)



Hedychium coronarium J.
Koenig. (Zingiberaceae)



Hedychium flavescens Carey &
Roscoe (Zingiberaceae)



Hedychium griseum Roxb.
(Zingiberaceae)



Crinum jagus (J. Thoms)
Dandy (Amaryllidaceae)



Crinum latifolium L.
(Amaryllidaceae)



Crinum bulbigerum (Burm.f.)
Milne-Redh & Schweick L.



Colocasia affinis var
jenningsii (Araceae)



Kaempferia rotunda
L. (Zingiberaceae)



Kaempferia galanga
L. (Zingiberaceae)



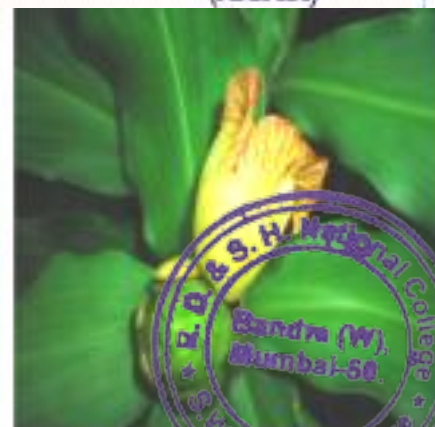
Anthurium andraeanum
Linden ex Andre
(Araceae)



Hellenia speciosa (J.
Koenig.) S. R. Dutta
(Costaceae)



Costus woodsonii Maas
(Costaceae)



Costus pictus De. Don
(Costaceae)
Insulin plant

Climbing plants : 45 species



Salacia chinensis L.
(Celastraceae) Saptarangi



Dioscorea alata L.
(Dioscoreaceae) Chinikanda



Campsis grandiflora (Thunb.)
K. Schum. (Bignoniaceae)



Aristolochia indica L.
(Aristolochiaceae)
Ishwamul



Clitoria ternatea L.
(Fabaceae)
Aparajita



Paederia foetida L.
(Rubiaceae)
Skunk vine



Guilandina bonduc L.
(Fabaceae)
Sagargota



Argyreia nervosa (Burm f)
Bojer (Convolvulaceae)
Samudrashok



Spermadioson quinacolum
Roxb. (Rubiaceae)
Jeetsaya

Fragrant Flowers: 15 species



Jasminum sambac (L.) Aiton
(Oleaceae)
Mogra



Jasminum auriculatum Vahl
(Oleaceae)
Jui



Jasminum officinale L.
(Oleaceae)
Chameli



Jasminum flexile Vahl
(Oleaceae)
Sayali



Lonicera japonica Thunb.
(Caprifoliaceae)
Honeysuckle



Trachelospermum jasminoides (Lindl.) Lem.
(Apocynaceae)



Strophanthus gratus (Wall. & Hook.) Baill (Apocynaceae)



Clematis gouriana Roxb. ex DC
(Ranunculaceae)
Ran Jai



Hoya carnata (L.f) R. Br.
(Apocynaceae)
Wax Flower



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Aquatic plants : 22 species



Nymphaea nouchali var. *versicolor* (Sims) Guruge & Yakand. (Nymphaeaceae)



Nymphaea nouchali var. *cyanea* (Hk.f. & T.) Almeida (Nymphaeaceae) Waterlily



Nymphaea 'Panama Pacific' (Nymphaeaceae) Water Lily



Nymphaea mexicana Zucc. (Nymphaeaceae) Yellow Water Lily



Myriophyllum aquaticum (Vell.) Verdc. (Haloragaceae)



Alpinia nigra (Gaertn.) B. L. Burtt. (Zingiberaceae)



Pistia stratiotes L (Araceae) Water Cabbage



Eichhornia crassipes (Mart.) Solms (Pontederiaceae) Water Hyacinth



Hydrocotyle vulgaris (Apiaceae)

Aquatic plants : 22 species



Eriocaulon sp.
(Eriocaulaceae)
Button grass



Eriocaulon sp.
(Eriocaulaceae)
Button grass



Ammania baccifera L.
(Lythraceae)



Oryza rufipogon Griff
(Poaceae)
Wild rice / Red Rice



Nymphaeoides indica L.
(Menyanthaceae)



Visitors in Botanical garden : as pollinators/ casual visitor / for shelter

**R. D. & S. H. National College & S. W. A. Science College
Bandra (W.), Mumbai 400050**

Faunal Diversity of College campus- A Pictorial Depiction



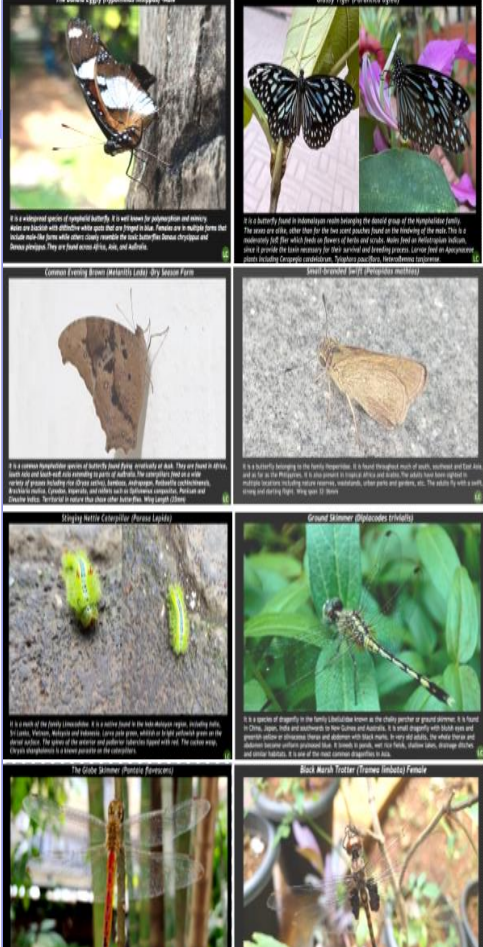
**Compiled by: Nikhil Doria, Suchandra Dutta
The Nature Club (2021-2022)**

**R. D. & S. H. National College & S. W. A. Science College
Bandra (W.), Mumbai 400050**

Faunal Diversity of College campus- A Pictorial Depiction



**Compiled by: Nikhil Doria, Suchandra Dutta
The Nature Club (2021-2022)**



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The Nature Club (2021-2022)**



More than 35—40 species of animals, namely ants, snail, dragonfly, damselfly, spiders, butterfly, moth and birds are documented since 2021 onwards.

Documented 8 Butterfly, 6 dragonfly species. Some of these are Redpirrot, Common mormone, Glossy tiger, The Danaid egg fly, Common evening brown, Small branded swift, Stinging nettle moth caterpillar during this period



R. D. & S. H. National College & S. W. A. Science College
Bandra (W), Mumbai 400050.



JANUARY 2023

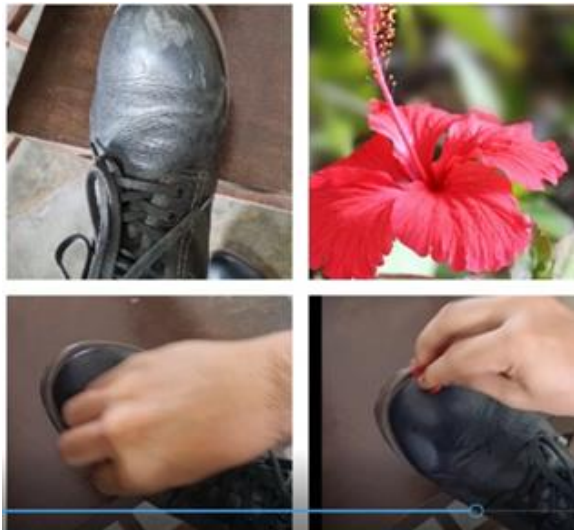
SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

12th Jan: ...
14th Jan: ...
15th Jan: ...
16th Jan: ...
17th Jan: ...




Garden as Natural Laboratory

Why *Hibiscus* is called ‘Shoe flower?’



Till date **ca 325** students of Botany, Chemistry, Marketing, Humanities faculty from **7** different colleges and personnel from Pharmaceutical and nursery; researchers of International Repute and Tour guides visited the garden



Conservation of Geophytes



BY COURIER
FRAGILE Material

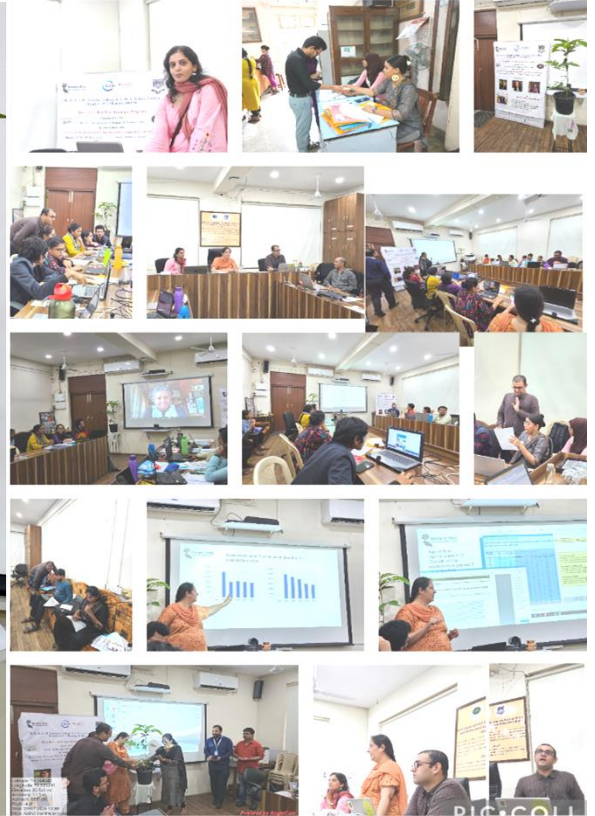
Dr. Priyanka Ashokrao Ingle
 Scientist 'C'
 Botanical Garden of Indian Republic
 Sector 38, Vijayant Thapar Marg,
 Gautam Buddh Nagar, Noida 201301
 U. P.
 Ph. - 9823371552

Suchandra R. Dutta,
 Department of Botany &
 Botanical Garden &
 MUM RDNEP,
 S.H. National College,
 Bandra (West), Linking Road,
 Mumbai - 400050, Maharashtra.
 Ph. - 26483544

Tirupati		CASH RECEIPT	
E-COURIER SERVICE		ISSUED BY PRINCIPAL/HEAD	
EST. NO. 23/17/2001/2002		EST. NO. 23/17/2001/2002	
ORIGIN	BANDRA (W), MUMBAI	DESTINATION	NOIDA - PIN CODE 201301
DATE	21-07-23	AWB NUMBER	1000000
RECEIVER	DR SUCHANDRA DUTTA	DR PRIYANKA ASHOKRAO INGLE-SCIENTIST C	BOTANICAL GARDEN OF INDIA
DESCRIPTION OF CONTENTS	SUPER-FAST	REPUBLIC SECTOR 38 QUAY	GAUTAM BUDDH NAGAR DELHI
DECLARED VALUE	300.00	INDIA	NOIDA
WEIGHT	100.00	CGST (9.00%)	22.88
TAXES		SGST (9.00%)	22.88
TOTAL			300.00



Capacity Building Programs



SCOTT Janet <Janet.SCOTT@iucn.org>
to: Aparna Watve <aparnawatve1@gmail.com>
RedList <redlist@iucn.org>
cc: Suchandra Dutta <suchandra.dutta@gmail.com>,
Kiran Chakral <kiran.chakral.kc@gmail.com>

I have now created SIS accounts for the below researchers: for each of your login details are as follows:

Username: [email address as listed below]
Password: changeme

Please change your password as soon as possible to something memorable to yourself: you can do this from the SIS login page: <https://sis.iucnsis.org/>.

On logging in, you should find that you have access to a working set called "Western_Ghats_Plants_Suchandra_Dutta" which contains blank draft assessments for the taxa listed below. You should be able to edit these assessments.

Please let me know if you encounter any problems.

Kind regards,

Janet



Capacity Building Programs



PIC-COLLAGES

Capacity Building Programs



Herbarium RDNCP



Latitude: 19.063638
Longitude: 72.83539
Elevation: 12.7743 m
Accuracy: 22.3 m
Azimuth: 269° (W)
Pitch: -28.4° (-2.1°)
Time: 16-11-2021 15:05
Date: herbarium plant



Herbarium (RDNC.P)
Coll.No - AR002
Family -
Genus - *Dioscorea*
Species -
Collected By - Atisha Khan
Location - Sarbarvaz Jale
Latitude -
Remarks -
Collection Date - 8th Nov 2021
Determined By - Subandhy
Datta



Field Study (Open Air Classroom), Photo Plate making



NIH National Library of Medicine
National Center for Biotechnology Information

Nucleotide Nucleotide Advanced

Clipboard

Dipcd1 sp. SRD-2022a internal transcribed spacer 1, partial sequence; 5.8S ribosomal RNA gene and internal transcribed spacer 2, complete sequence; and large subunit ribosomal RNA gene, partial sequence
GeneID: 10202007.1

LOCUS SRD2022a

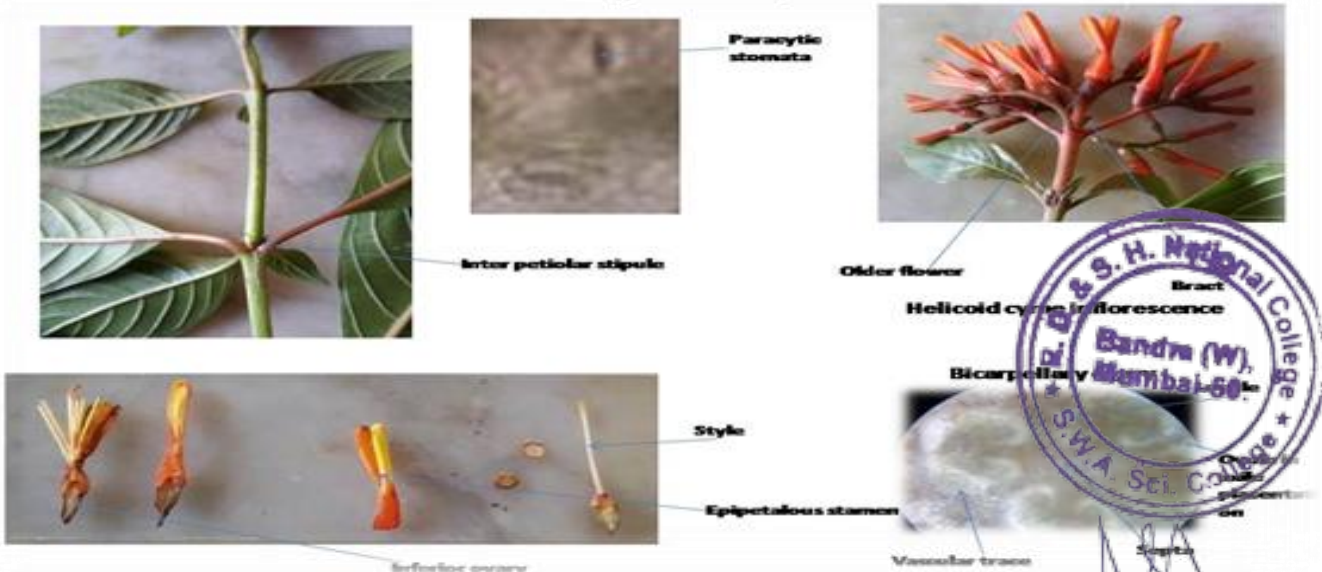
DEFINITION Dipcd1 sp. SRD-2022a internal transcribed spacer 1, partial sequence; 5.8S ribosomal RNA gene and internal transcribed spacer 2, complete sequence; and large subunit ribosomal RNA gene, partial sequence; 10202007.1

ACCESSION VERSION GI:10202007.1

ORGANISM Dipcd1 sp. SRD-2022a

REFERENCE 1. (base 1 to 600) Hoshino, M., et al. (2022) *Journal of Herpetology*, 56(3): 400-405. doi:10.1656/0013-7746-2022.0053

Rubiaceae - Eg: *Hamelia patens*



Garden based Research, Commercial Activity

- **Domestication of 5 species of wild ornamental species** (*R. serrata*, *Azanza lampus*, *Senna sophera*, *Crotalaria verrucosa*, *Curculigo latifolia*, *hazari mogra*)
- **Hazari Mogra is well established and easily propagated vegetatively.**
- **Harvesting** of Banana, Mango ginger(900 gm / plant) , Long pepper , Turmeric, etc.
- Development of **plant nursery** – mostly given as gifts in various programs





Social Outreach Activities



Handing over 'Bhringraj' saplings to NMPB - Western Regional Circle

Distribution of 1050 medicinal plant saplings



“Wild Vegetables & Ayurveda” – A popular Science Lecture



Non Remunerative Consultancy



Aabha Nagral 30/8/2021

to me ✓



Dear Suchanfra

Greetings! I am writing to you with regards to our finding some liver toxicity in patients who consumed Giloy. These patients had self medicated themselves and one of the queries from Ayush was whether these patients had inadvertently taken *T. crispa* instead of *T. cordifolia*. *T. crispa* has been described to be liver toxic in the past but so far these findings had not been described with *T. cordifolia*. It was thought that because the 2 species look very similar, the patients may have mistakenly taken *crispa* instead of *cordifolia*. We had sent the specimens which the patients took for phytochemical and plant DNA analysis. The phytochemical analysis needed definite controls for comparison on the HPLC method which was used. The lab did get a *Tinospora cordifolia* control but did not get *T. crispa* as a control. . There is some urgency in doing this. All four patients are from Mumbai and sourced the plant from Mumbai itself. I would like your help for the following

1. We wanted a specimen- just a leaf and stem of *T. crispa* would do
2. Can we get the exact distribution of *T. crispa* in the country. we could say for example that *T. crispa* is rarely seen in Mumbai/Maharashtra

Thanking you
Warm regards

Dr **Aabha Nagral**
Hepatologist and Gastroenterologist
Special interest - Pediatric Hepatology and Liver Transplantation
Apollo Hospital, Navi Mumbai and Jaslok Hospital



Non Remunerative Consultancy

Date: 28/03/2023

To,
Mr. Sahir Mansuri
Faculty, Department of Biotechnology
R. D. & S. H. National College
Bandra (W.), Mumbai 400050

Dear Sir,

With reference to your letter dated 27th March 2023, I am providing the identification of your specimens submitted to Herbarium RDNCP collected from Mangrove habitat of Bhayender, District Thane, Maharashtra.

Accession Number	Name of the species	Family
RDNCP SM 01	<i>Rhizophora mucronata</i> Poir	Rhizophoraceae
RDNCP SM 02	<i>Avicennia marina</i> (Forssk.) Vierh.	Acanthaceae
RDNCP SM 03	<i>Salvadora persica</i> L.	Salvadoraceae
RDNCP SM 04	<i>Excoecaria agallocha</i> L.	Euphorbiaceae
RDNCP SM 05	<i>Volkameria inermis</i> L.	Lamiaceae

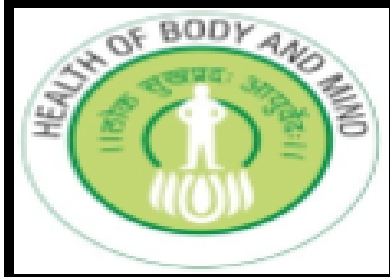
Wishing you all the best.

Thanking you,

Suchandra Dutta
Incharge, Herbarium RDNCP,
Department of Botany
R. D. & S. H. National College
Bandra (W.), Mumbai 400050



Our Associations.....



Sushila Ayurveda Hospital & Research Centre, Nashik for development of the garden & dissemination of knowledge on plants



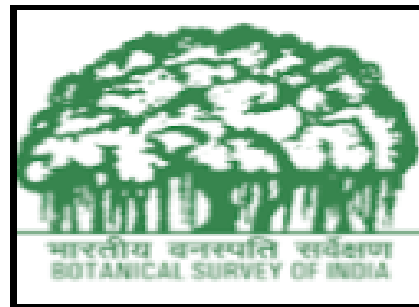
IUCN-SSC & WGPSG for the purpose of capacity building on conservation of species



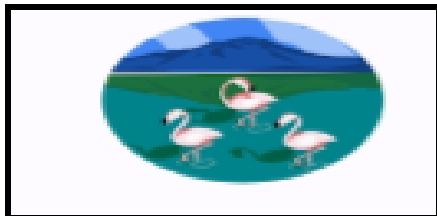
Sukh Bhumi India Trust for dissemination of knowledge



Red List Authority, India Chapter for the purpose of capacity building on conservation of species



Botanical Garden of Indian Republic, Noida under Botanical Survey of India for Conservation of Species



Hepatology & Gastroenterology, Jaslok Hospital for authentication service



Auroville Botanical Garden, Tamil Nadu for Conservation



Indian Women Scientists Association for dissemination of knowledge



REGIONAL-CUM-FACILITATION CENTRE WESTERN REGION (RCFCWRI)
NATIONAL MEDICINAL PLANTS BOARD (NMPB)
MINISTRY OF AYUSH, GOVT. OF INDIA
SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE.

RCFC, Pune for distribution of medicinal plant saplings during Vanmahotsav to common citizens

