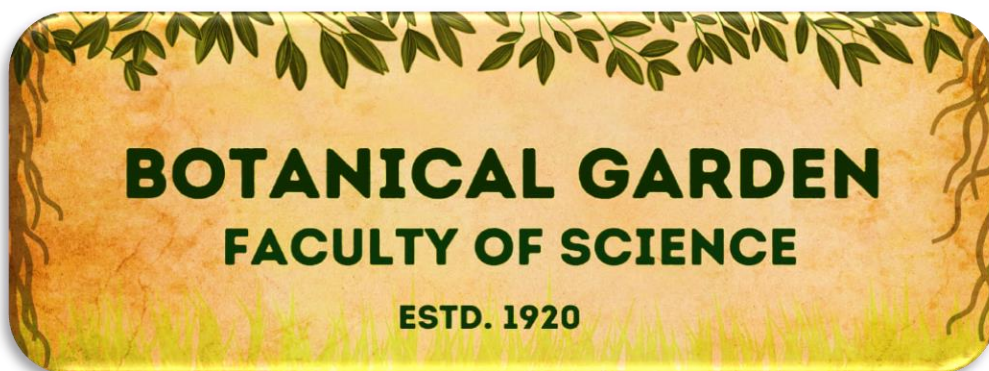




**ANNUAL REPORT
2022-2023**



**BOTANICAL GARDEN AND ARBORETUM CUM
MEDICINAL PLANT GARDEN**

FACULTY OF SCIENCE

Submitted by

Snehal Chavda & Tanmay Rohit

Garden Supervisor

Under the supervision of

Dr. P.S. Nagar

Garden Superintendent

Prof. H.R. Kataria

Dean, Faculty of Science

**THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA,
VADODARA, GUJARAT**

CONTENTS

INTRODUCTION.....	1
VISION & MISSION.....	2
ACTION PLAN.....	3
OBJECTIVES	4
MAP OF BOTANICAL GARDEN	5
MAP OF ARBORETUM	6
OBJECTIVE 1: Conservation, study, and propagation of plant species especially, Rare, Endangered and Threatened plants.	7
OBJECTIVE 2: Collection, documentation, and maintenance of indigenous and exotic plant species.....	8
TARGETS ACHIEVED BY GARDENERS DURING 2022-23	9
OBJECTIVE 3: To create an awareness about the conservation and importance of plants in society through innovative activities.	11
OBJECTIVE 4: Sale and exchange of seeds, plants, and other planting materials to individuals and research institutions.	17
OBJECTIVE 5: Provide recreation facilities to the public in general and expose them to different hands-on learning.....	18
OBJECTIVE 6: Research: to pursue Botanical Garden, horticultural, and other appropriate research programs of quality, as judged by nationally accepted standards.....	29
OBJECTIVE 7: Interpretation, education, and information: to promote community awareness and knowledge of plants and the importance of their conservation.....	30
FUTURISTIC PLANS AND OBJECTIVES.....	53
ANNEXURE 1.....	55
ANNEXURE 3.....	56
Suggestions	64
Signature.....	65



MESSAGE

Botanical Garden has completed 100 years of its existence. It is a centennial year of botanical garden and I am happy to know that this year the botanical garden has been reframed and we have revived the garden with new innovations and start-ups for sustainable development. I also appreciate the hard efforts of the “GREEN ARMY” for reviving the natural vegetation along Bhukhi-kaans as a prime Eco-restoration work. I am happy to know that Botanical Garden still has those plants that were planted by **H.H' Maharaja Sayajirao Gaekwad** 100 years back which are a branched *Cycas* and *Phoenix dactylifera*. Botanical Garden and Arboretum of The Maharaja Sayajirao University of Baroda devote their resources to the study and conservation of plants, as well as making the world's plant species diversity known to the public.

I would like to congratulate and appreciate the dynamic students and hardworking staff of botanical garden for their dedication to revive and maintaining this heritage garden for so long.

**H.H' Srimati Shubhangini Raje
Gaekwad**
Chancellor,
The M.S. University of Baroda,



MESSAGE

I am happy to know that the Botanical Garden of the M.S University of Baroda has completed its 100 years. The university has a Botanical Garden spanning an area of about 2.5 acres of land at the MSU Campus. The Garden established during 1920 has been planned meticulously and now as it is celebrating its 100th year, it has been reframed and reconstructed resulting into the organised sections of various significance. The botanical garden and arboretum of MSU is one of the recognised gardens at the national and international level. Over the years the botanical garden and arboretum has become a phenomenal centre of learning for both graduate and post graduate students of the university. The botanical garden has different zones representing indigenous and exotic plant species within medicinal plot, RET plot, Cacti and succulents garden, Palm plot, Aquatic Pond, Sacred grove plot, etc. The botanical garden of the M.S University is the first in the Gujarat state to develop a garden for specially abled people.

I appreciate all the hard-working students, Garden supervisors, Botanical Garden superintendent and staff members of the Botanical Garden for their consistent efforts to maintain invaluable bioresources of the M.S University.

Prof. (Dr.) Vijay k. Srivastava
Vice-Chancellor,
The M.S. University of Baroda,
Vadodara



MESSAGE

I am glad to share that The Botanical Garden has completed 100 years of its existence and it has been celebrated in the finest way this year. The well-known garden established hundred years back has gone through number of ups and down but still preserves the heritage of Vadodara in form of many exclusive plants aging more than 100 years or around 100 years. All these trees were identified and categorised into a special list of heritage trees with representing their girth, height, and age. I am happy that on the centennial occasion we have been able to revive existing Botanical Garden and have been able to reframe the garden into different zones i.e., Garden for specially abled, Why Vadodara? Plot, Sacred grove plot, Arogyam plot, Cacti and succulents garden, Fern house, Oxygen plot, etc. In addition to this we have played an important role in eco-restoration of Bhukhi-kaans by introducing endemic and threatened plant species. On this great occasion, I would like to dedicate this garden to the society for their love and affection. I am thankful to all the students, garden supervisors, garden superintendent and staff for maintaining the invaluable bio resources of our university campus.

Prof. H.R Kataria
Dean, faculty of science,
The M.S. University of Baroda,
Vadodara



PREFACE

Botanical gardens are important centres for education. There are 1600 botanical gardens in the world which, between them, maintain the largest collection of plant species outside nature. As many as 60000 of these plant species may be threatened with genetic impoverishment or even extinction within the next 30-40 years. Threats include factors such as habitat loss and fragmentation, invasive species, over-exploitation of plant and animal species, pollution of soil, water and atmosphere, global climate change, industry, agriculture, and forestry.

Botanical gardens have an obvious and vital role to play in conserving plants but conservation cannot succeed without education. Gardens are uniquely placed to teach people about the importance of the plants in our lives and in the global ecosystem. Present report gives an insight into the recent developments in Botanical Garden of the Faculty of Science, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat. The Botanical Garden is first of its kind in Vadodara to harbour ornamentals, Wild herbs, Shrubs, trees, and climbers spread in an approximate area of **16 acres** (10 acres @ Science Faculty and 6 acres @ Arboretum cum Medicinal plant Garden). The Garden has been divided into different plots, which represent the Different aspects covering Cacti Garden, Garden for specially abled, Arogyam plot, Sacred grove, Journey into the plants of Jurassic era, Fern zone, Rare and Threatened plot, Orchid plot and above all observing the vast diversity of insect, butterfly, ants, birds, snakes, porcupine and many unobserved phenomena occurring in nature. The booklet is first of its kind which gives insight into the unexplored wealth of the Botanical Garden, of which some of them has been not even incorporated in the Flora of Gujarat too. The information in the book will definitely ignite the interest of among students, scholars, faculty, foresters, and environmentalist.

An effort has been made to give a brief account on Botanical Garden, MSU, and a colourful journey into the exclusive plants of the garden on its completion of century (1920-2022). The information incorporated here is of the recent developments at Botanical Garden featuring the Garden with new perspective. **Save Garden-Save Mother Earth.**

Padamnabhi S. Nagar
Garden Superintendent
Faculty of Science



ACKNOWLEDGEMENT

First of all, we would like to give tribute to all those unknown Malis, garden caretaker and scholars who have contributed to the real treasure of MSU Botanical Garden since its inception. We are highly thankful to the Vice-Chancellor and Registrar of The Maharaja Sayajirao University Vadodara, for taking interest in plant diversity awareness and providing necessary assistance. We also thankful to Prof. H. R. Kataria, Dean, Faculty of Science for giving necessary environment and motivation to develop the Garden as per the present-day needs. We are equally thankful Prof. Krishanayya (Head) and Garden committee members, Department of Botany, Faculty of Science, The Maharaja Sayajirao University Vadodara, for providing necessary inputs.

Authors are highly thankful to all the research scholars viz. Roshan Parmar, Mannu Dwivedi, Kalpana Pal, Jaydeep Sharma, Ankur Rajwadi, Gulzar Malek, Krishna Singh Rajput, Agradeep Mohanta, Arpita Gupta, and students of MSc. Final and previous batches of the department of Botany who has contributed and served in the numerous activities organised in the botanical garden and arboretum throughout the year of 2022-23. We are also thankful to all the volunteers of the Green Army for their noticeable services during this year.

At last, we are thankful to all the teaching and non-teaching staff whoever has visited the Botanical Garden and provided us necessary suggestions during this year.

Dr. Padamnabhi S. Nagar

Ms. Snehal Chavda

Mr. Tanmay Rohit

Advisory committee:

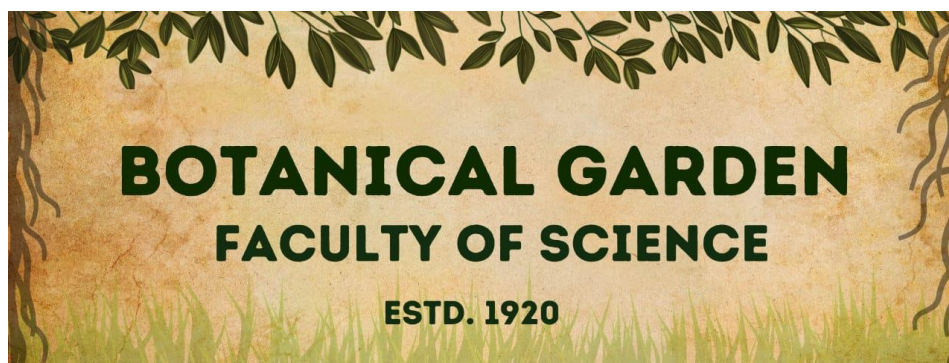
An advisory committee was made on _____ by Dean, faculty of science.

1. Prof. H.R. Kataria, Dean, Faculty of Science, M.S. University, Vadodara.
 2. Prof. N.S.R. Krishnayya, Head, Dept. of Botany, M.S. University, Vadodara.
 3. Prof. Sandhya Kiran, M.S. University, Vadodara.
 4. Prof. Vinay. M. Raole, M.S. University, Vadodara.
 5. Prof. Aruna Joshi, M.S. University, Vadodara.
 6. Prof. Sunil Singh, M.S. University, Vadodara.
 7. Dr. Padamnabhi Nagar, M.S. University, Vadodara (Garden Superintendent).
 8. Dr. Kishore Rajput, M.S. University, Vadodara.
 9. Dr. Dharmendra Shah, M.S. University, Vadodara.
 10. Mr. Sanket Charola, M.S. University, Vadodara.
-

INTRODUCTION

The Botanical Garden and Arboretum are the highly significant and diverse parts of the botanical treasure of the Maharaja Sayajirao University of Baroda (MSU). The old Botanical Garden was established in 1920 under the supervision and guidance of Prof. S. V. Shevade, HOD, Biology, Baroda College. Initially, the Botanical Garden included a large area spread from the existing Garden towards that of Vikram Bagh, Pratapganj on one hand, and on the other hand towards the Fatehganj. Presently the old Botanical Garden is restricted to three acres of land behind Art's Faculty. Initially, a good part of the area coming under the Botanical Garden was used for construction purposes for the development plan of the university and therefore, another area of about ten acres was given by the University to develop an Arboretum on the left side of the University Head office. The Arboretum was established in 1962 under the supervision of Prof. A. R. Chavan, then HOD and the Superintendent of the Botanical Garden. The Arboretum, spanning about 3.5 acres, lies on the left side of the University head office building and behind the Boy's Hostels. The natural and introduced plant taxa were arranged and planted following the Bentham and Hooker classification and further development has also been done in the same manner. It contains a rich collection of 1,059 species inclusive of 680 Angiosperms, 281 Trees, 37 Cactus, 38 Succulents, 21 Orchids, and 23 Pteridophytes have been reported.

As the botanical garden has completed its 100 years of existence, with the collective efforts of students and staff members, the garden has been reconstructed and reframed in the innovative ways. The botanical garden is now made available with approach pathways of paver blocks and then separate zones are been developed like Garden for specially abled, Nakshatra udhyan, Why Vadodara? Plot, Palm Plot, etc. The garden now entertains and serves a large number of interested guests from various institutes, schools, colleges, and universities.





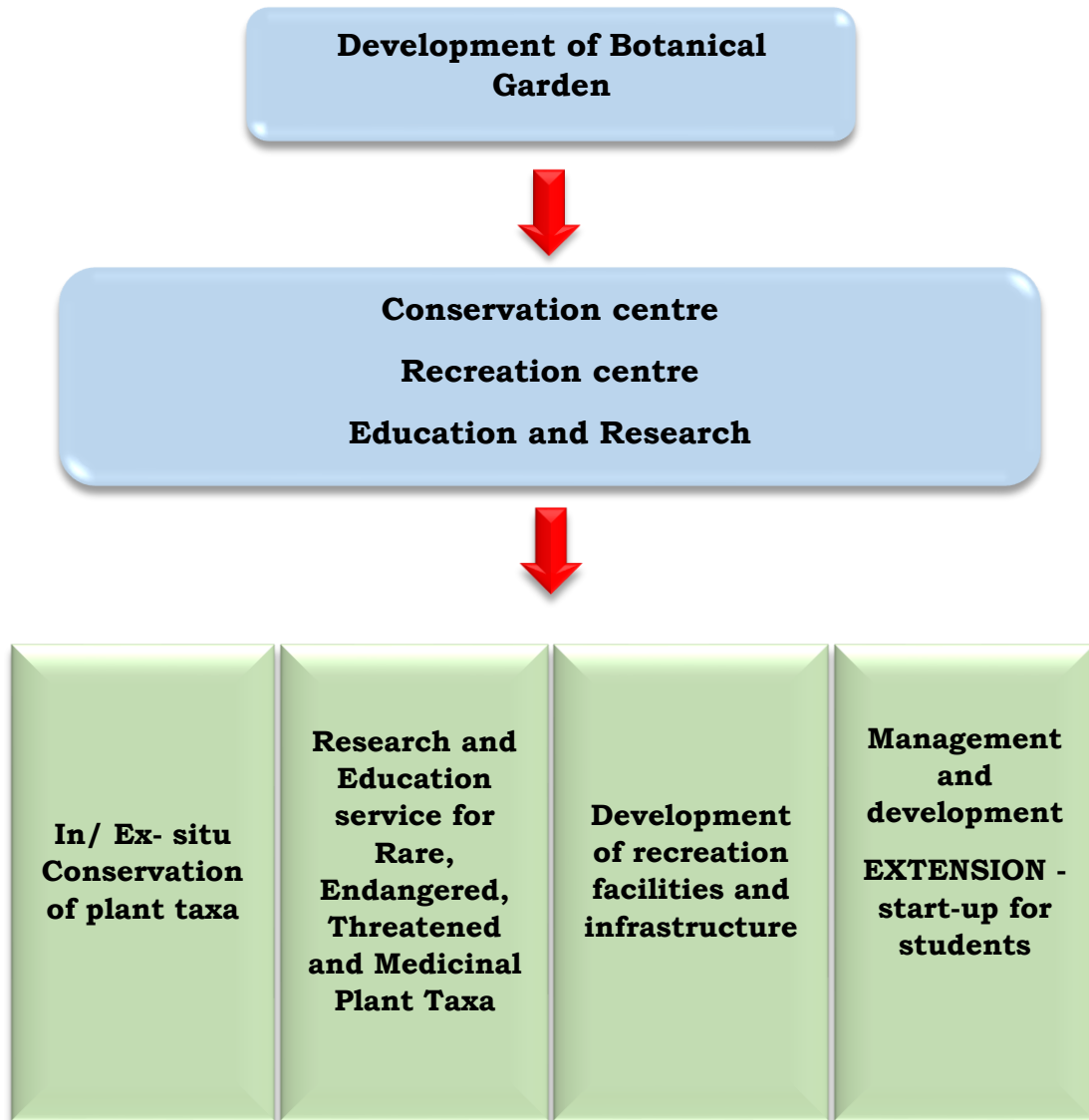
VISION

Conservation and sustainable utilization of the plant biodiversity of India, particularly of the Arid, semi-arid zone and of Western Ghats, for the wellbeing of our people.

MISSION

The mission is to advance knowledge, enjoyment and conservation of plants through excellence in biodiversity research management, horticulture displays and educational programmes.

ACTION PLAN

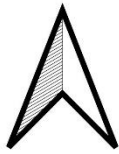


OBJECTIVES

1. Conservation, study, and propagation of plant species especially, rare, endangered, and threatened plants.
2. Collection, documentation, and maintenance of indigenous and exotic plant species.
3. To create an awareness about the conservation and importance of plants in society through innovative activities.
4. Sale and exchange of seeds, plants, and other planting materials to individuals and research institutions.
5. Provide recreation facilities to the public in general and expose them to different hands-on learning.
6. Research: to pursue Botanical Garden, horticultural, and other appropriate research programs of quality, as judged by nationally accepted standards.
7. Interpretation, education, and information: to promote community awareness and knowledge of plants and the importance of their conservation.

MAP OF BOTANICAL GARDEN (2022-2023)

The Botanical Garden



0 25 50 m

- Aboli Road
- Garden for Specially Abled
- Nakshatra Udhyan
- Why Vadodara? Plot
- Fern Road
- Arogyam Van 1
- Green House
- Arogyam Van 2
- Lily Garden
- Canna Plot
- Swastik Jal Zone
- Net House
- Healing Food
- Plants from Jurassic Era
- Sacred Groove
- Zingiberales Garden
- Nursary
- Pran Provider Plot 2
- Pran Provider Plot 1
- Succulent Garden
- Cactus & Succulent Househouse
- Office
- Store Room/Souvenir Shop
- Office Area
- Fern House
- Compost Peat 1
- Compost Peat 2
- Strobilanthus Hibiscus Road
- Pentas Road
- Thunbergia Road
- Latan Ratan Road
- Kunti Road
- Nagod Budlejja Road
- Live Wall Road
- botanical garden outline
- Ecostore Site

OBJECTIVE 1: Conservation, study, and propagation of plant species especially, Rare, Endangered and Threatened plants.

RET plants were propagated by seed germination, cuttings, grafting and other possible techniques in the year of 2022-23. Sixteen species were propagated which includes 9 trees, 5 shrubs and 2 climbers.

Table 1: List of RET plants propagated during 2022-23.

SR. NO.	NAME OF THE PLANT	HABIT	IUCN STATUS	PROPAGATION TECHNIQUE
1.	<i>Amoora rohituka</i>	Tree	Least Concerned	Seed germination
2.	<i>Artabotrys hexapetalus</i>	Shrub	Least Concerned	Cutting
3.	<i>Barleria cristata</i>	Shrub	Least Concerned	Cutting
4.	<i>Barleria lawii</i>	Shrub	Threatened	Cutting
5.	<i>Bauhinia vahlii</i>	Climber	Endangered	Cutting
6.	<i>Beaumontia grandiflora</i>	Climber	Rare	Cutting
7.	<i>Calophyllum inophyllum</i>	Tree	Least Concerned	Seed germination
8.	<i>Cochlospermum religiosum</i>	Tree	Nearly Threatened	Seed germination
10.	<i>Commiphora stocksiana</i>	Shrub	Threatened	Cutting
9.	<i>Commiphora wightii</i>	Shrub	Threatened	Cutting
11.	<i>Garcinia indica</i>	Tree	Rare	Air layering
12.	<i>Hippomane mancinella</i>	Tree	Least Concerned	Seed germination
13.	<i>Magnolia champaca</i>	Tree	Least Concerned	Air layering
14.	<i>Michelia champaca</i>	Tree	Least Concerned	Air layering
15.	<i>Saraca indica</i>	Tree	Least Concerned	Seed germination
16.	<i>Vocanga africana</i>	Tree	Least Concerned	Seed germination, Air layering

OBJECTIVE 2: Collection, documentation, and maintenance of indigenous and exotic plant species.

I. A visit to Waghai Botanical Garden, Dang, for the collection of plant species. E.g.,

1. *Erinocarpus nimonii*,
2. *Uvaria littoralis*,
3. *Pancratium sp.*,
4. *Ficus benghalensis var. macrocarpa*,
5. *Anamirta cocculus*, etc.

II. Introduce native plant species at the eco-restoration site along Bhuki-kaans.

1. *Syzygium salicifolium*
2. *Sterculia guttata*
3. *Pongamia pinnata*
4. *Mallotus philippensis*
5. *Tamarix dioica*
6. *Barleria prionitis*
7. *Vitex negundo*

III. Propagation and plantation of native Indian plant species at different sites in the university campus. The plants which have been grown at various locations are:

1. *Saraca indica*
2. *Sterculia urens*
3. *Adhatoda vasica*
4. *Terminalia arjuna*
5. *Cassia fistula*
6. *Bixa Orellana*
7. *Aegle marmelos*

TARGETS ACHIEVED BY GARDENERS DURING 2022-23

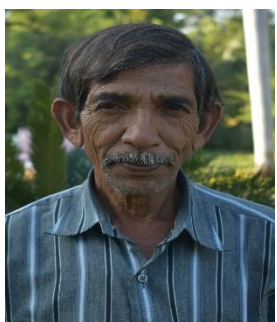
Mr. Vasantbhai R. Parmar – (1989-2026)



of the Garden.

Preparation and management of garden cleaning work on the day of Vivekananda Jayanti. Preparation and management for a day of diamond jubilee of Sayajirao. (In library garden and Swami Vivekananda Garden), Bring seasonal plants and Propagation, Propagation of Seasonal Plants, and transfer to different area of the Garden. Growing *Croton*, *Acalypha*, *Barleria* etc. in different location

Mr. Karansingh H. Rathwa – (1997-2024)



preparation and management of 11th March Sayaji Jayanti.

Preparation and management for a day of the diamond jubilee of Sayajirao. (In Science Garden and other Faculty gardens), cutting of different ornamental plants and growing in different areas of the science garden. Introduced *Aloe* and *Draecena* species in front of Population Research centre. Propagation of seasonal Plants and transfer to event areas in the Garden and Propagation of Plants like *Hibiscus*, *Barleria*,

Coleus, *Tabernaemontana*, *Stachytarpheta*, *Dracaena*, *Salvinia*, *Pistia*, *Crossandra* etc.

Mr. Bhailalbai K. Rathwa – (2001-2025)



Managed all the newly brought plant species from Waghai Botanical Garden and various locations. Prepare around 2000 saplings of different plant species in the monsoon season through various propagation techniques. Prepared 1500 saplings of *Vitex negundo*, *Buddleja*, *Pentas*, *Adhatoda* through cuttings. Prepared a bio-fence against bhukhi kaans to protect newly developed saplings.

Table 2: List of activities executed during 2022-23.

SR.NO.	SPECIFIC ACTIVITIES
1	Trimming of trees.
2	Weeding and Collection.
3	Pot management by changing its old soil and adding of manure mixture in addition to cleaning.
4	Upgradation of existing cycle into semi-electric vehicle.
5	Removal of dead dried trees.
6	Floral decoration and preparation for the Sayaji Jubilee day.
7	Permanent fixation of Braille language plates in Specially abled garden.
8	Plantation and management of Healing food Garden with cultivation of Bhindi, Tomato, Chili, and other seasonal vegetables.
9	Trimming and pruning of shrubs in and around Vivekananda Garden, Sir Sayajirao Statue Garden and Science Garden.
10	Plantation of <i>Pterygota alata</i> , <i>Sterculia foetida</i> , <i>Sterculia urens</i> and other plants near Environmental science department and Memorial library.
11	Pruning of <i>Polyalthia longifolia</i> in faculty of science.
12	Propagation of medicinal plants i.e., <i>Piper</i> , <i>Asparagus</i> , <i>Ocimum</i> , <i>Bryophyllum</i> , <i>Adhatoda</i> , <i>Coleus</i> , <i>Aloe</i> , <i>Cissus</i> , etc.
13	Plantation of different varieties of Cocos and Catechu brought from Veraval.
14	Plantation of <i>Vinca rosea</i> along the wall side of department of Microbiology and Biotechnology.
15	Plantation of <i>Syzigium salicifolium</i> , <i>Mallotus philippensis</i> , <i>Pongamia pinnata</i> , <i>Sterculia guttata</i> , <i>Vitex negundo</i> along Bhukhi kaans.

OBJECTIVE 3: To create an awareness about the conservation and importance of plants in society through innovative activities.

Celebration of World Environment Day (05-06-2022):

World Environment Day is celebrated globally on 5th June every year to promote environmental awareness and encourage actions to protect our planet. It is a day to reflect on the importance of a healthy environment and take measures to protect it.

The event called “Tree Plantation Drive” was organized on 5th June, 2022, aimed at planting 7500 trees on the occasion of Azadi ka Amrit Mahotsav. The starting point for the event was the Department of Environmental Studies, Faculty of Science, The Maharaja Sayajirao University of Baroda, and the event started at 8:30 am. The event was organized by the Institute of Climate Change Research in collaboration with the Department of Environmental Studies & Botanical Garden, Faculty of Science, The Maharaja Sayajirao University of Baroda, and Society for Clean Environment (Socleen), supported by KYB Conmat Pvt. Ltd.

The event was graced by the presence of distinguished guests, including Prof. Vijay Kumar Srivastava, Honourable Vice-Chancellor; Prof. Haribhai Kataria, Dean, Faculty of Science; Dr. Sanskriti Majumdar, Director, Institute of Climate Change Research; Prof. P. Padmaja Sudhakar, Head, Department of Environmental Studies, and Dr. Padamnabhi S. Nagar, Garden Superintendent, MSU Botanical Garden. Their presence added significance to the event and demonstrated the importance of environmental conservation.

The event was attended by a diverse group of participants, including students, faculty members, and community members. The participants were briefed about the significance of planting trees and how it contributes to environmental conservation. The eminent guests and participants then took part in planting saplings of various tree species, including indigenous species. The drive was an effort to create awareness about the importance of planting trees and their role in mitigating the effects of climate change. The event was a step towards promoting a sustainable future and a greener planet.

The plants were selected with a focus on promoting biodiversity. Biodiversity is crucial for maintaining a healthy ecosystem, and planting a variety of species helps to enhance the biodiversity of the area. To ensure the availability of a diverse range of tree species, the event

organizers collaborated with the Forest Department to source saplings from various forest nurseries. The saplings were then brought to the Botanical Garden of MSU, where they were freely distributed to the visitors.

Participants were given the liberty to choose whichever plant they wanted from the available varieties at the Botanical Garden. By providing free plants to the public, the organizers hoped to promote the culture of green living and encourage more people to take an active role in environmental conservation. The initiative was a significant step towards building a more sustainable and eco-friendly community.

During the event, an Environment Oath was taken by all the participants. The oath aimed to promote environmental awareness and encourage actions to protect the environment.

Environment Oath:

1. I realize that every mature tree by photosynthesis absorbs 20 kg of Carbon dioxide every year. By the same process, each tree lets out about 14 kg of Oxygen every year.
2. I will plant and nurture ten trees and will ensure my parents, my sisters and brothers plant trees and my neighbours also plant ten trees each. I will be an ambassador for tree mission in my locality.
3. I will keep my house and its surroundings clean and use products which are bio-degradable to the extent possible.
4. I will promote a culture of environment friendliness, through recycling and conservation of water and other recyclable materials both at home and school.
5. When I take a professional career, I will take decision with respect of organizational processes which protects the environment and preserves the biodiversity.
6. I will encourage the use of renewable energy to the maximum extent possible.
7. I will spread the awareness about the need to preserve the environment in my home, in my locality and among my student friends.
8. I will engage the water conservation, especially by rainwater harvesting and spread the message in my family and friends.

The Tree Plantation Drive was a significant effort toward environmental conservation. Such events play a crucial role in creating awareness about the importance of protecting the environment and encouraging people to take action to protect it, and this event was no exception.



आज़ादी का अमृत महोत्सव



MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
सर्व विषं मुन्दयम्
Est. 1948
Accredited Grade 'A' by NAAC



SOCIETY FOR CLEAN ENVIRONMENT



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Institute of Climate Change Research
in collaboration with
Department of Environmental Studies
& Botanical Garden
Faculty of Science
The Maharaja Sayajirao University of Baroda
and
Society for Clean Environment (Socleen)
supported by KYB Conmat Pvt. Ltd.

Tree Plantation Drive

Date: 5th June 2022 | Time : 8:30 AM Onwards
Venue: Department of Environmental Studies,
Faculty of Science, The Maharaja Sayajirao University of Baroda
Targeting 7500 trees 5th June onwards on occasion of
Azadi Ka Amrit Mahotsav




Prof. (Dr.) Vijay Kumar Srivastav
Honourable Vice Chancellor
The Maharaja Sayajirao University of Baroda



Prof. Haribhai Kataria
Dean, Faculty of Science,
The Maharaja Sayajirao
University of Baroda



Dr. Sanskriti Mujumdar
Director, Institute of Climate
Change Research,
The Maharaja Sayajirao
University of Baroda



Prof. P. Padmaaja Sathakar
Vice Head, Department of
Environmental Studies,
The Maharaja Sayajirao
University of Baroda



Dr. Padmanabhi S. Nagar
Garden Superintendent,
Botanical Garden, The Maharaja
Sayajirao University of Baroda

SOCIAL MEDIA HANDLED BY MSU COMMUNICATION CELL

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Fig.1: Environment Day celebration on 5th June,2022.

AYUSH AAPKE DWAR (Free Distribution of Medicinal Plants)

The Regional cum Facilitation Centre - Western Region (RCFC-WR), in collaboration with the National Medicinal Plants Board (NMPB), Ministry of AYUSH, Government of India, and the Department of Botany, Savitribai Phule Pune University Pune, Maharashtra, in Association with Department of Botany, Faculty of Science, The Maharaja Sayajirao University of Baroda, Vadodara organized an event called “AYUSH AAPKE DWAR (Free Distribution of Medicinal Plants)” on 24th June 2022 from 04:00 pm onwards. The event took place at Arboretum cum Medicinal Plants Garden, Behind University Head Office, Pratapgunj, Vadodara-390002. The event aimed to educate the community about the importance of medicinal plants and their role in promoting a healthy lifestyle. It was attended by the common public as well as students from the department who wanted to learn about medicinal plants.

The event was graced by several eminent guests, including Dr. Chetna Jani (Chief Executive Officer of the Gujarat State Medicinal Plants Board, Ahmedabad, Gujarat), Dr. Bharat Kalsariya (Principal and Garden Superintendent of Government Ayurved College and Hospital, Vadodara), Prof. Haribhai Kataria (Dean, Faculty of Science, The Maharaja Sayajirao University of Baroda, Vadodara), Dr. Deepa Gavali (Secretary, Gujarat Ecology Society, Vadodara), Shri. Jangaiah. M. (Deputy Director, NMPB-RCFC, Western Region, Ministry of Ayush) and Dr. Padamnabhi S. Nagar, Garden Superintendent of MSU Botanical Garden. Each guest contributed to the event's success by sharing their knowledge and expertise with the attendees. The speakers emphasized the importance of medicinal plants, their potential benefits, and their role in promoting a healthy lifestyle.

One of the major highlights of the event was the distribution of medicinal plants such as Aloe vera, Satavari (*Asparagus*), Smilax, Ardusi (*Justicia adhatoda*), Giloy (*Tinospora cordifolia*), Paan (*Piper*), Nagod (*Vitex*) etc. to the visitors free of cost. The distribution of medicinal plants was done with the aim of promoting the use of natural remedies and to raise awareness about the importance of medicinal plants in our daily lives. The visitors were provided with the plants along with instructions on how to grow and care for them.

The distribution of these medicinal plants was a great initiative towards making people self-sufficient in terms of healthcare and reducing their dependence on synthetic medicines. The event was an excellent opportunity for visitors to take home a part of nature and start their own garden of medicinal plants.



Fig.2: Celebrating 75th Azaadi ka Amrut Mahotsav through AYUSH AAPKE DWAR campaign including free distribution of medicinal plants.

Free distribution of 7500 plant saplings to celebrate 75 years of Independence (Azadi ka Amrit Mahotsav):

To celebrate the 75 years of Independence (Azadi ka Amrit Mahotsav), Botanical Garden, Faculty of Science, The Maharaja Sayajirao University of Baroda, in collaboration with Forest Department organized a free distribution of 7500 plant saplings at the Botanical Garden.

The initiative aimed to promote environmental conservation and create awareness about the importance of tree plantation in mitigating climate change. The saplings were selected based on their suitability for the local environment and their contribution to enhancing the biodiversity of the area. The distribution of plant saplings was open to the public, and anyone could visit the Botanical Garden and collect the saplings for free. The event was a significant step towards building a more sustainable and eco-friendly community.

As part of this event, the organizers also distributed plants to some schools in the area. The distribution of plant saplings to schools was intended to promote environmental awareness among children and encourage them to become future ambassadors for the cause of environmental conservation. By distributing plant saplings to schools, the organizers aimed to instil a sense of responsibility and ownership among children towards the environment. They hoped that the children would nurture and care for the plants and, in turn, inspire their peers and families to do the same.

The initiative was part of the more significant celebration of Azadi ka Amrit Mahotsav, which marks the 75th anniversary of India's Independence. The organizers intended to promote the values of sustainability and environmental conservation, which were close to the heart of the Indian freedom fighters.



Fig.3: Free distribution of 7500 plant saplings to celebrate 75 years of Independence (Azadi ka Amrit Mahotsav)

OBJECTIVE 4: Sale and exchange of seeds, plants, and other planting materials to individuals and research institutions.

SR.NO.	FACULTY/ DEPARTMENT	SERVICES PROVIDED
1.	Department of Botany	Preparation of potted soil.
2.	Department of Chemistry	Provide 30 pots for decoration.
3.	Department of Botany	Provide soil for experiment.
4.	Parul University	Permission to collect leaves of <i>Oroxylum indicum</i> .
7.	Navrachna University	Provided Tree sapling of Arjun.
8.	Department of Botany	Provided pots for dissertation.
9.	Department of Environmental studies	Provided 8 flowering saplings.
10.	Faculty of Social work	Provided 20 plants for 25 th HR convention.
11.	Experimental School	Trimming of trees and provided pots.
12.	Department of Gujarati	Provided pots for decoration during NAAC visit.
13.	Department of Archeology	Provided pots for decoration during NAAC visit.
14.	Smt.Hansa Mehta Library	Removal of grass and trimming of shrubs.

OBJECTIVE 5: Provide recreation facilities to the public in general and expose them to different hands-on learning.

Introduction of Miyawaki Forest System in Botanical Garden

The Miyawaki method is named after its creator, Akira Miyawaki, a Japanese botanist and plant ecologist. The Miyawaki Forest System is a proven method of reforestation that has gained popularity worldwide in recent years. The method is based on the principles of planting a diverse range of species that are native to the area, in a multi-layered system that replicates the natural forest structure. The aim is to create a resilient and thriving forest ecosystem that is self-sustaining and able to resist the impacts of climate change. The Botanical Garden, being an important centre for biodiversity conservation and research, is an ideal place to introduce the Miyawaki Forest System.

The Green Army is an active group of students working for conservation purposes in the Botanical Garden and *Bhukhi Kans*. Green Army as the name suggest work for the nature. Green army is formed by students of Department of Botany and Department of Architecture. One appreciable work started by Green army was inaugurate on 11th March that was to create Bio-fence around the tributary of *Bukhi Nala*.

The Green Army played a vital role in the introduction of the Miyawaki Forest System in the Botanical Garden. The Green army identified the barren land behind the commerce building as the site for the Miyawaki forest. To prepare the site for the Miyawaki forest, the Green Army collected and removed debris, stones, and garbage from the site. They also made the site fertile by adding good soil and fertilizers to ensure the proper growth of the plants. Dr. Padamnabhi S. Nagar, Garden Superintendent, provided suggestions on which plants to grow in that area and which natural conditions support the better growth of the plant. The Green Army introduced Rare, Endangered and Threatened (RET) and Native plants, following the principles of the Miyawaki method. These plants include *Hyphaene dichotoma*, *Sterculia guttata*, *Stereospermum chelonoides*, *Pterocarpus santalinus*, *Pterocarpus marsupium*, *Bridelia retusa*, *Oroxylum indicum*, *Justicia wynaadensis*, *Dalbergia latifolia*, *Saraca asoca*, *Lagerstroemia macrocarpa*, *Heterophragma quadriloculare*, *Barleria grandiflora*, *B. lawii* and *B. gibsonii*. Now, this system is preserved by Botanical Garden staff under the supervision of Dr. Padamnabhi S. Nagar, Garden Superintendent and Ms. Snehal K. Chavda, Garden Supervisor.

The important principle of the Miyawaki method is using plant species that would occur naturally in that area and that work together to create a diverse, multi-layered forest community. This creates a resilient and thriving forest ecosystem with species that complement each other, restoring “Native forests by Native trees.” The Miyawaki method has been successfully implemented in various parts of the world and has shown promising results in terms of increasing biodiversity, restoring degraded lands, and combating climate change.

The introduction of the Miyawaki Forest System in the Botanical Garden, led by the Green Army, is a positive step towards conservation and restoration of degraded lands. The use of RET and Native species and the replication of the natural forest structure will create a self-sustaining forest ecosystem that is resistant to the impacts of climate change. The Botanical Garden, being an important centre for biodiversity conservation and research, can play a significant role in promoting the Miyawaki method and creating awareness about the importance of conservation and restoration of degraded lands.

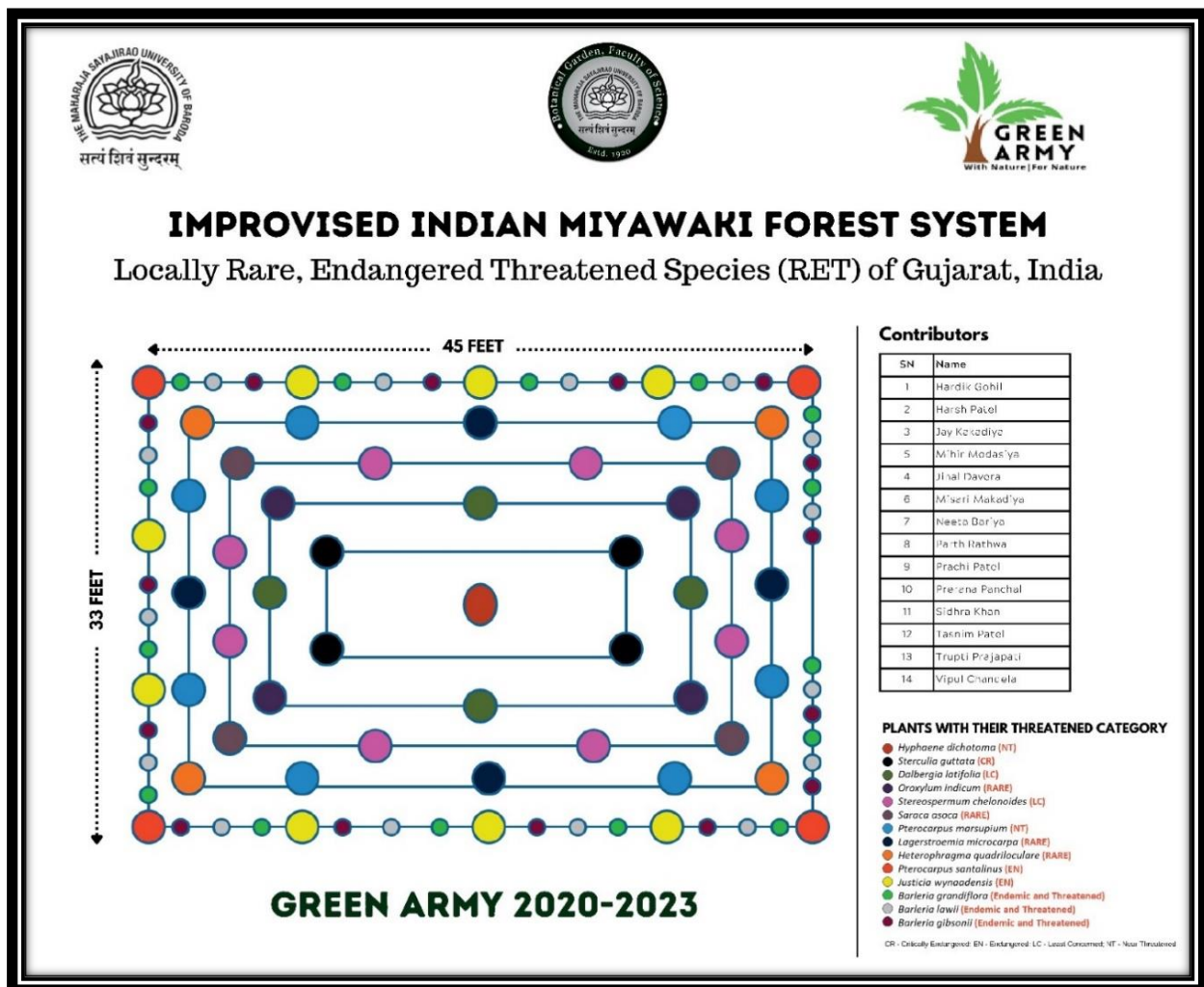


FIG.4: MIYAWAKI FOREST system outline diagram



Fig.5: Introduction of Miyawaki Forest System in Botanical Garden

VOLUNTEER ACTIVITIES



Green Army is a team of students of different departments of Faculty of Science and other faculties joined voluntarily to serve mother Earth. The Green Army was inaugurated officially on 11th March, 2022 on the occasion of birth anniversary of sir Sayajirao Gaekwad in the presence of Dean, Faculty of Science, Garden superintendent, and teachers from different departments.

This year a logo for Green army was designed by members of Green Army and research scholars and was launched by our hon'ble Chancellor H.H' Smt. Shubhangini Raje Gaekwad and Vice chancellor, Prof. Vijaykumar Srivastava in the presence of Dean, Faculty of science, Senate and Syndicate members, Deans from various faculties and teaching and non-teaching staff from different departments and faculties of The M.S. University of Baroda, Vadodara.

Work of Green Army:

1. Provide suggestions about which plant is to be grown in which area and which natural conditions supports to better growth of the plant.
2. Provide necessary suggestions about growth of fencing plants, ornamental plants, hedge plants, seasonal plants, economically important plants, etc.
3. Clean and conserve nature.
4. Restoring native vegetation, heritage restoration, protecting natural habitats.
5. Create awareness about native flora, and why should we conserve nature.
6. Maintaining a healthy, perennial plant cover that prevents soil erosion.

Oath:

1. We will not ever throw debris or inorganic waste in the ravines, streams, and ponds of our beautiful city.
2. Let's create an awareness movement to stop dumping solid waste, liquid waste, and construction debris in our precious water bodies.
3. Let's come together to create sound policies and practices so that construction debris and other solid waste are properly managed.

VOLUNTEERS OF GREEN ARMY (2022-2023)

SR.NO.	NAME	SR.NO.	NAME
BOTANICAL GARDEN SUPERVISORS		25.	Princee Upadhyay (S.Y)
1.	Snehal Chavda	26.	Sandhya Yadav (S.Y)
2.	Tanmay Rohit	27.	Shruti Padsala (S.Y)
RESEARCH SCHOLARS		28.	Ishitasinh Gohil (S.Y)
3.	Roshan Parmar	29.	Ananya Mishra (S.Y)
4.	Mannu Dwivedi	30.	Tisa Thakkar (S.Y)
5.	Jaydeep Sharma	31.	Ankita Maurya (S.Y)
6.	Ankur Rajwadi	32.	Khushi Prasad (S.Y)
7.	Gulzar Malek	33.	Dhwani Panchal (S.Y)
8.	Kalpana Pal	34.	Hirva Patel (S.Y)
9.	Krishna Singh Rajput	35.	Hetvi Shah (S.Y)
10.	Arpita Gupta	36.	Priyank Vasava (S.Y)
GREEN ARMY MEMBERS			
11.	Mihir Modasiya (T.Y)		
12.	Prachi Patel (T.Y)		
13.	Hardik Gohil (T.Y)		
14.	Parth Rathva (T.Y)		
15.	Vipul Chandela (T.Y)		
16.	Harsh Patel (T.Y)		
17.	Jinal Davera (T.Y)		
18.	Tasnim Patel (T.Y)		
19.	Jay Kakadiya (T.Y)		
20.	Misari Makadiya (T.Y)		
21.	Trupti Prajapati (T.Y)		
22.	Prerana Panchal (T.Y)		
23.	Manasswee Tripathi (S.Y)		
24.	Harsh Vasava (S.Y)		

Celebration of Sir Sayajirao Diamond Jubilee Day, an Annual Event to commemorate Sir Sayajirao Gaekwad III (3rd January 2023)

The Sir Sayajirao Diamond Jubilee Day is an annual event that has been observed since 1936. The celebration marks the diamond jubilee of Sir Sayajirao Gaekwad III's accession to the throne. Sir Sayajirao had completed 60 years of the golden rule and had set apart significant funds for setting up a university in Baroda, which is now known as The Maharaja Sayajirao University of Baroda. The university was set up for the benefit of students. The celebration aims to pay tribute to Sir Sayajirao's contributions and legacy.

This year, the event was an initiative to promote environmental conservation and restoration. The event brought together volunteers and local authorities to work towards the common goal of improving the environmental conditions of the locality. The event was attended by the Honourable Vice-chancellor of The Maharaja Sayajirao University of Baroda, Registrar, Dean of Science Faculty, various academic as well as administrative staff and Botanical Garden staff viz., Garden Superintendent, Garden Supervisor and many Garden workers (*Maalis*). The event comprised various activities.

Bhukhi Kans is a natural water resource in the locality of Vadodara city that has suffered from pollution and neglect over the years, leading to a decline in water quality and biodiversity. The cleaning and revival of Bhukhi Kans was one of the primary activities of the event. The volunteers of the Green army worked tirelessly to remove pollutants around the water resource. The Green Army is comprised of volunteers from the local community, who pledged to work towards making their locality clean and green. The garbage and debris were segregated into different categories and disposed of appropriately. The activity made the locality cleaner and raised awareness about the importance of waste management and segregation. The activity also emphasized the need for responsible behaviour and the role of individuals in keeping their surroundings clean and healthy.

The plantation was a key activity of the event, with volunteers planting saplings of native plants along the bank of Bhukhi Kans. The plantation drive aimed at Eco-restoration of the locality and mitigating the erosion. The activity was successful, and the saplings were expected to grow into full-fledged trees, providing a lasting impact on the locality. The activity also fostered a sense of community participation, with individuals taking ownership of the planted trees and pledging to take care of them.

Vankedi was inaugurated during the event, which is a narrow path passing through a highly vegetated area alongside Bhukhi Kans. The inauguration was attended by the local authorities and the volunteers took charge of its management and maintenance. The Vankedi was expected to play a significant role in promoting environmental conservation in the locality. The inauguration of Vankedi was a symbolic gesture, signifying the community's commitment to promoting sustainable living practices and environmental conservation.

The event concluded with the distribution of certificates to the volunteers. The certificates recognized the efforts of the volunteers towards environmental conservation and restoration and encouraged them to continue their efforts in the future. The certificate distribution ceremony was attended by MSU authorities, environmental experts, and staff members, who appreciated the efforts of the volunteers and pledged their support for future initiatives. The certificate distribution ceremony was an acknowledgment of the community's role in promoting environmental conservation and restoration. Overall, the event not only made the locality cleaner and greener but also raised awareness.





FIG.6: Visit of Vankedi by Faculty members and Green Army students with the presence of our Dean, Prof. H.R. Kataria sir.

Birth anniversary of Sir Sayajirao Gaekwad III (11-03-2023)

Every year, March 11th is observed as the Birth anniversary of Sir Sayajirao Gaekwad III (11 March 1863 – 6 February 1939), who was the ruler of the princely state of Baroda (now Vadodara) in India. He was the Maharaja of Baroda from 1875 to 1939 and played a significant role in the development of Baroda. He is known for his contributions to education, infrastructure, and social welfare. After completing 60 years of golden rule, he had set apart large funds for setting up a university in Baroda (present day The Maharaja Sayajirao University of Baroda) for the benefit of students. He is remembered as one of the greatest visionaries of the Indian princely states who implemented several social, economic, and educational reforms during his rule.

Every year, on the occasion of his birth anniversary, The Maharaja Sayajirao University of Baroda (MSUB) organizes an event to commemorate his contributions and legacy. The event was attended by various dignitaries, including the Rajmata Shubhangini Raje Gaekwad (Hon. Chancellor), Prof. Vijay K. Srivastava (Hon. Vice-Chancellor), Registrar, Deans of various faculties, and administration staff as well as Botanical Garden staff viz., Garden Superintendent, Garden Supervisor and many Garden workers (*Maalis*).

The event began with garlanding the statue of Maharaja Sayajirao Gaekwad III, who was the visionary ruler of the princely state of Baroda. The garlanding of the statue is a symbolic gesture of reverence and respect towards the great ruler who made immense contributions to the development and progress of Baroda.

The next event that followed was the inauguration of the finalised and official logo of the Green Army, which marked an important milestone in the M.S. University. The logo will be kept in all dean offices of M.S. University, for symbolism of conservation done by the Green Army. The Green Army is an active group of botany students working for conservation purposes in the Botanical Garden and *Bhukhi Kans*. Green Army as the name suggest work for the nature. Green army is formed by students of Department of Botany and Department of Architecture. One appreciable work started by Green army was inaugurate on 11th March that was to create Bio-fence around the tributary of *Bukhi Nala*.

Another significant event was the inauguration of the QR code scanner board for tree identification in the Science Garden. This board was inaugurated by the Rajmata and Vice-Chancellor, and it will help visitors identify the various trees present in the Science Garden.

This initiative promotes knowledge about various tree species and their significance in the ecosystem.

Two years ago, in 2021, the Rajmata had planted saplings of *Bombax insignne* and *Polyalthia cerasoides*, which have been taken care of successfully and have grown healthy. These saplings are important species that contribute to the biodiversity of the region. About 6-7 saplings of these plants were planted in the Faculty of Science and MS University campus. *Bombax insignne* is on the edge of extinction in Gujarat state, and planting these saplings helps in its conservation. The attendees were informed about the importance of this species and the need to preserve it.

In addition to this, the attendees were also introduced to *Putranjiva roxburghii*, a tree species whose seeds were served for tasting. In Ayurvedic medicine, *Putranjiva roxburghii* is believed to have astringent, anti-inflammatory, and antiseptic properties that make it useful in the treatment of various gynaecological problems. It is often used to treat menstrual disorders such as heavy bleeding, irregular periods, and painful periods. The seeds of the plant are often used in the form of a decoction or powder to treat these conditions. It is also believed to have a positive effect on female fertility. The plant is often used to increase the chances of conception and to support a healthy pregnancy. It is believed to help balance female hormones, regulate the menstrual cycle, and support the health of the reproductive organs. The information was shared for general awareness, which will promote the importance of traditional knowledge and its relevance in modern times.





FIG.7: Celebrating Sir Sayajirao Gaekwad's birth anniversary followed by launching of Green Army official logo by our Chancellor Smt. Shubhangini Rajee Gaekwad and Vice chancellor, Prof. V.K. Srivastava with the presence of Dean, Faculty of Science, Senate, and Syndicate members.

OBJECTIVE 6: Research: to pursue Botanical Garden, horticultural, and other appropriate research programs of quality, as judged by nationally accepted standards.

DISSERTATION/ RESEARCH WORK AT BOTANICAL GARDEN AND ARBORETUM DURING 2022-23:

Students and research scholars from various departments of the Faculty of Science as well as other universities are also doing their research and dissertation work in the Botanical Garden and Arboretum on various topics.

Department of Botany

- I. Name of student: Ritu Jhavar
Guide: Prof. Punita Parikh
Topic: Agricultural sustainability through reverse osmosis wastewater.

- II. Name of students: Krina Gediya
Guide: Prof. Punita Parikh
Topic: Impact of industrial wastewater on *Trigonella foenum-graecum* L.

Department of Zoology

- I. Name of student: Vivek Vasa
Guide: Dr. Prakash Pillai
Topic: Correlation of ant assemblages and surrounding habitat composition and its diversity.

- II. Name of students: Isha Lade
Guide: Dr. Ankita Salunke
Topic: Ant diversity of Arboretum and Botanical garden.

- III. Name of students: Harsha Solanki
Guide: Dr. Archana Yadav
Topic: Diversity of moth in Arboretum and Botanical Garden.

OBJECTIVE 7: Interpretation, education, and information: to promote community awareness and knowledge of plants and the importance of their conservation.

Visit to Vice-Chancellor for representation of Botanical Garden (BG) Products

On 23rd February 2022, Prof. Haribhai Kataria, Dean of Faculty of Science; Dr. Padamnabhi S. Nagar, Garden Superintendent; Ms. Snehal K. Chavda, Garden Supervisor and Mr. Krishnasingh Rajput visited the office of the Vice-Chancellor at The Maharaja Sayajirao University of Baroda, Vadodara to represent the Botanical Garden Start-up Products. The Botanical Garden is a valuable asset of this university, which is housing a diverse collection of plants, including several Rare, Endangered and Threatened (RET) species. The Botanical Garden has been working towards promoting biodiversity conservation and providing education and research opportunities to students and researchers.

Dr. Padamnabhi S. Nagar, Garden Superintendent, highlighted the importance of the Botanical Garden in promoting research and education on plant diversity and conservation. He also explained the efforts made by the garden staff in maintaining and cleaning the garden, ensuring that it remains a safe haven for the plants that reside there.

Ms. Snehal K. Chavda, Garden Supervisor and Mr. Krishnasingh Rajput shared insightful details on the various products made from the plants grown in the BG. The innovative ideas now get converted to nature-based herbal and eco-friendly products by the volunteer activities of interested students in the botanical garden itself. With the consistent mentoring of Dean, Garden Superintendent, Garden Supervisor and the support of every person related to the garden, the botanical garden has started creating self-sustainability.

The BG team has unlocked the true potential of its underutilized biomass and is now converting it into a plethora of valuable and sustainable products. From organic manure to Natural Holi colours derived from the enchanting hues of Rose, Arduisi, Tecoma, Clitoria, and Bixa, the BG has genuinely tapped into the magical properties of these botanical wonders. The garden has also created refreshing herbal juices from the flowers of Hibiscus and Clitoria. In addition to these, the BG has also produced an array of essential oils derived from Rose, Mogra, Nilgiri, Chandan, Champa, Lemon, and Orange, as well as Natural hair oils from Brahmi, Hibiscus,

and Ixora, that promise to enhance the health and vitality of the user's hairs. The stunning Resin artwork also showcases the inherent beauty of these botanical specimens. The BG's Research and Development team continuously explores new avenues for innovation and development of such products, ensuring that the garden remains at the forefront of sustainable entrepreneurship and research.

The Vice-Chancellor showed a keen interest in the diverse range of products and innovations presented by the Botanical Garden team and praised the exceptional efforts of the team in this regard. His appreciation of the garden's achievements is a testament to the tireless efforts of the team in exploring new avenues for sustainable development and entrepreneurship.

The Vice-Chancellor assured us of his full support towards the Botanical Garden, which acknowledged our remarkable work and demonstrated the university's commitment to advancing sustainable research and entrepreneurship. This expression of support from such a high-ranking official serves as a tremendous source of encouragement for us, motivating us to continue our pursuit of excellence in sustainable research and entrepreneurship.



FIG.8: A visit to Vice chancellor's office to promote value added products developed by Botanical Garden team.

Visit by RBI representatives

On March 10, 2023, the Reserve Bank of India representatives conducted a workshop titled “E-BAAT” under the Digital Awareness Week at the Faculty of Science, The Maharaja Sayajirao University of Baroda, Vadodara. The workshop aimed to educate and create awareness among the attendees about the various benefits of digital banking. After the completion of the workshop, the representatives took a tour of the Botanical Garden (BG), which was nearby. The garden is spread across a vast area and harbours a wide variety of plants. The representatives spent several hours in the garden, taking in the beauty and tranquillity of the surroundings.

During their visit, the representatives actively participated in the plantation of important species such as Arjuna, Baheda, and Putranjiva. Dr. Padamnabhi S. Nagar, Garden Superintendent and Ms. Snehal K. Chavda, Garden Supervisor also explained to them the significance and importance of these species in the ecosystem. Arjuna is used to treat heart diseases and inflammatory conditions due to its cardioprotective and anti-inflammatory properties. Baheda is used to treat respiratory and digestive disorders because of its antimicrobial, antioxidant, and anti-inflammatory properties. Putranjiva is used for wound healing and pain relief due to its antimicrobial, anti-inflammatory, and analgesic properties as well as gynaecological problems. All these medicinal trees have been used in traditional medicine for centuries. The RBI representatives were impressed with the level of knowledge and expertise of the garden team and were delighted to be part of the plantation activity.

In addition to the plantation, the representatives were also shown various products that are under Research & Development at BG. These products include Natural hair oil, Natural colours, Natural refreshing juices, Perfumes, Resin artwork, etc. The natural hair oil is made from a blend of essential oils extracted from various plants in the garden. The oil is designed to promote hair growth, strengthen hair follicles, and improve hair texture. The natural colours are extracted from various flowers and plants in the garden and are used to create natural dyes. The natural refreshing juices are made from flowers grown in the garden, such as Hibiscus, Clitoria, Rose, etc. These juices are rich in nutrients and antioxidants and are a healthy alternative to commercially available drinks. The perfumes are made from an essential oil extracted from various flowers in the garden. These perfumes are free from synthetic fragrances and are designed to provide a natural and long-lasting scent. The resin artwork is created by using resin and natural materials such as dried flowers, leaves, and seeds found in the garden.

The art pieces are unique and showcase the beauty of the garden's flora. The representatives were amazed by the variety of products on display and the amount of effort put into the research and development of these products.

After the visit, the representatives left their comments in the Visitor book. They appreciated the efforts of the organisers in maintaining the garden and preserving its natural heritage. They had a unique experience and expressed their gratitude for being a part of it.



FIG.9: Plantation by RBI representatives followed by discussion on various plants and its benefits.

Vankedi visit by different teachers in Faculty of Science

On 20th September, 2022, teachers from various departments of the Faculty of Science visited Vankedi to explore the region's native flora and fauna. The visit aimed to educate the teachers on the importance of conserving native species and promoting biodiversity.

During the visit, the teachers were introduced to native species, which are plants that have been growing in a particular habitat and region for thousands of years or longer. The visit showcased examples such as *Syzygium salicifolium*, *Pongamia pinnata*, *Streblus asper*, *Holoptelea integrifolia*, *Alangium salvifolium*, *Acacia paniculata*, *Combretum ovalifolium*, *Mallotus philippensis*, *Sterculia guttata*, and others in Bhukhi Kans region. Dr. P. S. Nagar, Garden superintendent, explained the benefits of native species, highlighting their ability to form symbiotic relationships with native wildlife over thousands of years, and their contribution to regulating ecosystem functions such as flood control and climate regulation. Native species are often an excellent evolutionary fit within their niche, making them a sustainable habitat for wildlife.

The visit also included a discussion on invasive species, which are non-native plant species that can cause economic or environmental harm or adversely affect human health. The garden superintendent explained the adverse effects of invasive species, such as their ability to harm natural resources in an ecosystem, threaten human use of these resources, and cause the extinctions of native plants and animals. Invasive species are also capable of reducing biodiversity, competing with native organisms for limited resources, and altering habitats. Examples of invasive species in Bhukhi Kans region were *Antigonon leptopus*, *Alternanthera bettzickiana*, and *Parthenium hysterophorus*.

The visit also involved planting important native species such as *Sterculia guttata*, *Mallotus philippensis*, *Bixa orellana*, Jal jamun (*Syzygium salicifolium*), and *Pongamia pinnata* to help protect and conserve the region's native flora and fauna.

Sterculia guttata is a threatened species found in Vankedi region. This plant has both medicinal and ecological uses. The leaves and bark have been used in traditional medicine to treat various ailments such as wounds, fever, diarrhoea, and stomach-ache. The bark is also used as a tonic to treat fatigue and weakness. In addition to its medicinal uses, it is an important component of the forest ecosystem. Its fruits and leaves provide food for wildlife, and it helps to maintain soil health and prevent soil erosion. *Mallotus philippensis*, also known as Kamala or monkey-

face tree, is another native species found in the Vankedi region. The dried fruit is used in traditional medicine as a laxative, anthelmintic, and a remedy for skin diseases. The plant is also used in Ayurvedic medicine to treat various ailments, such as diarrhoea, dysentery, and skin diseases. Ecologically, it provides food for birds and other wildlife, and its wood is used for making small household items. *Bixa orellana*, commonly known as Annatto or Lipstick tree, is a native species that is widely distributed throughout the tropics. This plant has many medicinal and ecological uses. The seeds are used as a natural food colouring agent, and they are also used to treat various ailments, such as fever, dysentery, and urinary tract infections. The leaves and bark of the plant have also been used in traditional medicine to treat skin diseases, diarrhoea, and asthma. It is used as an ornamental plant. Jal jamun (*Syzygium salicifolium*) has many medicinal and ecological uses. The leaves and bark are used in traditional medicine to treat various ailments, such as fever, diarrhoea, and dysentery. The plant also has anti-inflammatory and anti-diabetic properties. Its wood is used for making small household items. *Pongamia pinnata* is a native species that is widely distributed throughout the tropics. The oil extracted from its seeds is used in traditional medicine to treat various ailments, such as skin diseases, rheumatism, and scabies. The plant also has insecticidal and fungicidal properties. Its wood is used for making furniture and fuel.

The teachers were encouraged to continue this effort by promoting native species within their own research and teaching, as well as in their personal lives. The visit concluded with a discussion on how the faculty could help protect and conserve native species, with the dean also participating. The teachers were offered Botanical Garden special Ayurvedic green tea as a farewell gesture.





FIG.10: Visit to Vankedi by faculty members followed by plantation drive.

Visit of Botanical Garden (BG) by teachers of Amity School, Bharuch

On 18th March 2023, a group of four teachers from Amity School, Bharuch, visited the Botanical Garden (BG) for about four hours. Dr. Padamnabhi S. Nagar, Garden Superintendent and Ms. Snehal K. Chavda, Garden Supervisor provided information on various plants present in the garden. Such as...

- **Brahmi (*Centella asiatica*):** It is a perennial herb that grows in wetlands and marshy areas. This is a memory increase plant. It has been used in traditional medicine for centuries, especially in Ayurveda. It is believed to improve memory and concentration, reduce anxiety, and improve blood circulation.
- **Jangli Badam (*Sterculia foetida*):** It is also known as Indian almond or wild almond. This plant is used in traditional medicine to treat various ailments, including diarrhoea, constipation, cough, and cold. The seeds of the plant are rich in oil, which is used in cosmetics and soaps. The bark of the plant is used to make paper.
- **Nymphaea and Nelumbo:** These are both aquatic plants that are often confused with each other. Nymphaea is commonly known as Water lily, while Nelumbo is known as Lotus. Water lily and lotus are aquatic flowering plants. At first glance, you may get confused between the two, but these beautiful flowers have notable differences. First, they belong to different families of flowering plants and have different growth patterns. Water lilies belong to the Nymphaeaceae family. In contrast, lotuses belong to the Nelumbonaceae family. Water lily flowers and leaves are thick and waxy while the lotus leaves are thin and papery. A water lily also has a recognizable notch in each leaf. Nymphaea flowers float on the water surface, while Nelumbo flowers rise above the water on long stalks. The water lily petal is pointed and creates a star-like bloom; the lotus petal is more rounded, sometimes ruffled. Both plants are used in traditional medicine to treat various ailments.
- **Saag (*Tectona grandis*) and Sinduri (*Bixa orellana*):** These are both plants that are used to create natural dyes. Saag is commonly known as teak and is a large deciduous tree. The new leaves of the tree are used to create red dye. Sinduri is commonly known as Annatto or Lipstick tree and is a shrub that produces reddish-orange seeds, which are used to create reddish-orange dye.
- ***Putranjiva roxburghii*:** This is a tree that is used in traditional medicine, especially in gynaecological treatments. The bark of the tree is used to treat menstrual disorders, while the fruit is used to treat infertility. The tree is found in India, Bangladesh, and Myanmar.

- Nagod (*Vitex*) and Buddleja plant: Nagod is commonly known as Chaste tree or Vitex. It is used in traditional medicine to treat gynaecological disorders, such as menstrual cramps and premenstrual syndrome. The Buddleja plant is commonly known as Butterfly bush and is used to attract butterflies. The plant is also used in traditional medicine to treat various ailments. Vitex and Buddleja both have terminal clusters of fragrant, small tubular flowers that attract butterflies. Suitable for butterfly gardens. The plants are not closely related. Chaste tree is in the mint family (Lamiaceae) and Butterfly bush belongs in the figwort family (Scrophulariaceae). Flowers of Vitex are purple, while Buddleja is having yellowish flowers.
- Ice-cream creeper (*Antigonon leptopus*) plant: This is an invasive species that is native to South America. It is also called as Chain-of-love. The plant is considered a nuisance because it spreads quickly and can choke other plants. It is used in traditional medicine to treat various ailments, and the tea made from its leaves is used in Europe to relieve cold and cough.
- Insecticide and pesticide plants: These are plants that naturally repel insects or pests. For example, Citronella is a plant that repels mosquitoes, while Neem is a plant that repels various pests. These plants are often used in organic farming as a natural way to control pests.

The teachers were amazed by the variety of plants in the garden and appreciated the knowledge gained from the garden supervisor. They learned about the different properties and uses of plants, which will help them teach their students in a better way. The garden supervisor also talked about Eco-restoration and Bio-fence, which helps prevent soil erosion and promotes soil health. She provided examples of bio-fences made of various plants and how they are used in different regions. The teachers were impressed by the eco-friendly aspects of the BG.

We also showed the products developed by the BG. We have developed natural dyes, hair oil, perfumes, organic fertilizers, etc. from the plants in the garden. The teachers appreciated the effort of the BG in promoting eco-friendly products and practices. They realized the importance of using eco-friendly products and methods and how it benefits the environment and human health.

Natural painting done by them from flowers and leaves of BG without pen-pencil. The teachers were amazed by the beauty of the paintings and appreciated the eco-friendly aspect of this activity.

At the end of the tour, the teachers expressed their appreciation for the knowledge gained during the visit. They also mentioned that they would bring their children to visit the BG and Arboretum in the future. We saw off the teachers by giving them medicinal and air-purifying plants, which the teachers were delighted to receive.



Fig.11: Visit of Botanical Garden (BG) by teachers of Amity School, Bharuch

SPECIAL VISIT ACROSS THE YEAR

Visit to Botanical Garden by Dr. A. A. Mao Sir

On the 25th of September 2022, Dr. Ashiho Asosii Mao, the Director of Botanical Survey of India (BSI), had a visit to Botanical Garden (BG) of The Maharaja Sayajirao University of Baroda, Vadodara. It harbours a wide range of plant species, including rare and endangered ones. The garden is dedicated to the conservation and preservation of plant diversity. The purpose of the visit was to view BG's plant collections and understand their conservation efforts.

Dr. Mao was welcomed by Dr. Padamnabhi S. Nagar, Garden Superintendent and Prof. Vinay M. Raole, Professor at Department of Botany, Faculty of Science, The Maharaja Sayajirao University of Baroda, Vadodara. He was taken on a tour of the Botanical Garden. During the tour, Dr. Mao was briefed about the conservation efforts undertaken by BG to protect rare and endangered plant species. He was impressed by the various initiatives taken by BG to promote awareness about plant conservation and educate visitors about the importance of plant diversity. He was also impressed by the vast collection of plant species that BG has in its collection.

Dr. Mao had the opportunity to view the products produced by BG. He was amazed by the quality and variety of products produced by the garden. Ms. Snehal K. Chavda, Garden Supervisor and Dr. Padamnabhi S. Nagar, Garden Superintendent explained various products that are under R & D in Botanical Garden. The hair oil was made using natural ingredients such as Hibiscus and Brahmi extracts. The perfumes were made using essential oils extracted from various plants, giving them a unique and refreshing fragrance. The natural juices were made using fresh flowers such as Hibiscus, Rose and Clitoria, and they were free from any preservatives and additives. The organic Holi colours were made using natural ingredients such as corn flour and various flower extracts, and they were safe for use by all age groups.

Dr. Mao was highly impressed by the vast collection of plant species at BG and the conservation efforts undertaken by the Botanical Garden. This visit is expected to open doors for future collaborations between BG and BSI, which would benefit both organisations.



Fig.12: Dr. A. A. Mao Sir Visit

Visit by Dr. Snehal sir

On December 20th, 2022, Dr. Snehal Bagtharia, Joint Director at Gujarat State Biotechnology Mission, Department of Science & Technology, Government of Gujarat visited the Botanical Garden (BG). During the visit, Dr. Bagtharia was given a tour of the botanical garden by Dr. Padamnabhi S. Nagar, Garden Superintendent, who provided detailed information on the various plant species and their uses. He provided information on the various initiatives taken by BG to promote awareness about the importance of plants and their conservation. These initiatives include educational programs for school children and awareness campaigns for the general public. Dr. Bagtharia was particularly impressed by the variety of plants and the meticulous attention to detail in their maintenance.

Ms. Snehal K. Chavda, Garden Supervisor shared insightful details on the various products made from the plants grown in the BG. The Natural Holi colours are derived from a variety of botanical specimens, such as Rose, Arduisi, Tecoma, Clitoria, and Bixa, all of which have been harnessed for their mesmerizing hues. In addition, the Herbal juices, made from Hibiscus and Clitoria flowers, provide a refreshing and healthy alternative to other beverages. The Essential oils are derived from a variety of botanical sources, including Rose, Mogra, Nilgiri, Chandan, Champa, Lemon, and Orange. These oils have a wide range of uses, from aromatherapy to cosmetic and medicinal applications. The Natural Hair oils produced by the BG team, which include Brahmi, Hibiscus, and Ixora, promise to enhance the health and vitality of the user's hair. The garden's stunning resin artwork showcases the inherent beauty of botanical specimens in a unique and visually striking way. By harnessing the magical properties of these botanical specimens, we have created an array of valuable and sustainable products. It is evident that the team's dedication to innovation and environmental stewardship will continue to yield remarkable results.

Dr. Bagtharia appreciated these efforts and suggested that the garden could be a valuable resource for promoting Science education in schools and colleges. He also appreciated the endeavours of BG in maintaining and promoting awareness about the importance of plants and their conservation.



Fig.13: Visit by Dr. Snehal Bagtharia to Botanical Garden and Arboretum cum medicinal plant garden.

VMC Commissioner's Visit to BG

On the 28th of February 2023, Shri Banchhanidhi N. Pani, Municipal Commissioner of Vadodara Municipal Corporation (VMC) and team, visited the Botanical Garden at The Maharaja Sayajirao University of Baroda, Vadodara (MSUB).

During his visit, he toured various sites, including Eco-restoration competitions and Bio-fences. Eco-restoration is the process of rehabilitating or improving a degraded or damaged ecosystem to its original or desired condition. This process aims to restore the ecosystem's ecological integrity, functionality, and biodiversity. On the other hand, Bio-fencing is the process of planting certain species of plants to create a living barrier or fence that protects against soil erosion and serves as a habitat for wildlife. Both Eco-restoration and Bio-fence are critical for conserving and restoring the natural environment and preserving the ecosystem's biodiversity.

The Commissioner noted that such measures are critical for preserving native flora and fauna and maintaining ecological balance in the region. In particular, he remarked that he was impressed with the work done by the Botanical Garden team in the Bhukhi Kans region and expressed his desire to replicate similar initiatives in other parts of Vadodara. He stated that the VMC would attempt to replicate the successful eco-restoration and bio-fencing efforts of the Botanical Garden to safeguard the local ecosystem and protect the native flora and fauna of the area.

During the visit, the team also visited Vankedi, which is a narrow path passing through a highly vegetated area alongside Bhukhi Kans. They were acquainted with indigenous flora, which refers to plants that have been growing in a particular region and environment for several thousands of years. The excursion featured several specimens from the Bhukhi Kans area, including *Syzygium salicifolium*, *Pongamia pinnata*, *Streblus asper*, *Holoptelea integrifolia*, *Alangium salvifolium*, *Acacia paniculata*, *Combretum ovalifolium*, *Mallotus philippensis*, *Sterculia guttata*, and others. Dr. Padamnabhi S. Nagar, Garden Superintendent, elaborated on the advantages of indigenous flora, emphasizing their ability to form symbiotic associations with the local fauna over thousands of years, as well as their contribution to regulating ecosystem functions such as flood control and climate regulation.

The team also engaged in a conversation regarding invasive species, which refers to plant species that are not native to a particular region and have the potential to cause environmental or economic harm or negatively impact human health. The superintendent of the garden expounded upon the unfavourable effects of invasive species, including their ability to damage

the natural resources of an ecosystem, jeopardize human use of these resources, and lead to the extinction of indigenous plants and animals. Invasive species are also capable of reducing biodiversity, competing with native organisms for limited resources, and modifying habitats. Examples of invasive species identified in the Bhukhi Kans area included *Antigonon leptopus*, *Alternanthera bettzickiana*, and *Parthenium hysterophorus*.

The Commissioner also viewed products produced by the Botanical Garden. Dr. Padamnabhi S. Nagar, Garden Superintendent and Ms. Snehal K. Chavda, Garden Supervisor, provided valuable insights regarding the various products derived from the plants preserved in the Botanical Garden. The Natural Holi colours, which offer a diverse range of captivating hues, are extracted from a variety of botanical specimens, including Rose, Arduisi, Tecoma, Clitoria, and Bixa. Additionally, the Herbal juices, made from Hibiscus and Clitoria flowers, offer a refreshing and wholesome alternative to other beverages. Essential oils, sourced from several botanical sources, such as Rose, Mogra, Nilgiri, Chandan, Champa, Lemon, and Orange, have a wide range of applications, from aromatherapy to cosmetic and medicinal use. The Natural Hair oils, consisting of Brahmi, Hibiscus, and Ixora, are formulated to enhance the user's hair's health and vitality. Furthermore, the garden's striking resin artwork beautifully showcases the innate charm of botanical specimens in a unique and visually appealing manner. This demonstrates the Botanical Garden's focus on sustainable and environmentally friendly practices that promote the conservation and restoration of the natural environment.

The Commissioner highly appreciated the Botanical Garden's work and its efforts towards eco-restoration, bio-fencing, and conservation. He expressed his satisfaction with the Botanical Garden's work, particularly its efforts towards conservation through the Rare, Endangered and Threatened (RET) plant conservation program. He mentioned in the visitor's book that he was impressed with the pilot project done by the Botanical Garden and wished the team members the best of luck in spreading the fragrance of nature. This appreciation highlights the importance of conserving and restoring the natural environment, and the Botanical Garden's efforts towards this goal.

The Botanical Garden's work towards these goals and its efforts towards sustainable and environmentally friendly practices are highly appreciated and essential in promoting a greener and healthier planet.



FIG.14: VMC commissioner and team visiting Eco-restoration site



Fig.15: VMC Commissioner's Visit to BG

VISITORS ACROSS THE YEAR



FIG. 16: Visitors from Government Ayurved University, Junagadh, Department of Zoology, MSU



FIG. 17: Visitors from a workshop “Sustainable lifestyle practices under Environment Education Programme 2022-23” jointly organised by The M.S. University of Baroda and GEER Foundation.

List of institutions visited during 2022-23.

Sr. No.	NAME OF INSTITUTION	DATE OF ARRIVING	NUMBER OF STUDENTS
1.	Creation Foundation	04,05/08/2022	71
2.	Creation Foundation	30/08/2022	42
3.	Department of Zoology, MSU	06/09/2022	15
4.	Creation Foundation	10/09/2022	37
5.	Creation Foundation	13,14,16/09/2022	42
6.	Creation Foundation	29/09/2022	21
7.	Creation Foundation	06/10/2022	25
8.	Ambe Vidhyalaya, Vadodara	07/10/2022	265
9.	Zenith School	17/10/2022	110
10.	Fatima Zahara Eng. Medium School	30/10/2022	147
11.	Department of Zoology, MSU	17/11/2022	20
12.	Government Ayurved University, Junagadh	06/12/2022	52
13.	Swami Dayanand Sarasvati Primary School	21/12/2022	55
14.	Kavi Premanand Primary School	10/01/2023	50
15.	Department of Bioanalytical Sciences	17/02/2023	53
16.	Dr. Sarvopalli Radhakrishna School, Vadodara	21/02/2023	70
17.	Creation Foundation	23/02/2023	36
18.	Creation Foundation	16/03/2023	40
19.	Navrachana University	17/03/2023	08
20.	M.K. Amin college, Padra	18/03/2023	40
21.	Government Ayurved College, Vadodara	05/04/2023	10
TOTAL			1209

1150 visitors have visited Botanical Garden and Arboretum cum medicinal plant garden between April 2022-April 2023.

MEDIA COVERAGE

વડોદરા

સાયન્સ ફેકલ્ટીના વિદ્યાર્થીઓની મહેનત રંગ લાવી યુનિ.કેમ્પસમાં ભૂખી કાંસને અડીને ૭૫૦ મીટરની બાયો ફેન્સિંગ તૈયાર

વડોદરા સોમવાર

એમ.એસ.યુનિવર્સિટીની સાયન્સ ફેકલ્ટીના વિદ્યાર્થીઓએ એક વર્ષ પહેલા કરેલી મહેનત હવે રંગ લાવી છે.યુનિવર્સિટીની વચ્ચેથી પસાર થતા ભૂખી કાંસને અડીને બાયો ફેન્સિંગ તૈયાર કરવામાં વિદ્યાર્થીઓને સંસ્ખતા મળી છે.

ગયા વર્ષે ભૂખી કાંસના ઢોળાવના બ્યુટિકેશન માટે વિદ્યાર્થીઓએ ૨૦૦૦ જેટલા પ્લાન્ટ્સ લગાવ્યા હતા: એક વર્ષ બાદ હરિયાળા દેખાવા માંડી

સાયન્સ ફેકલ્ટીના વિદ્યાર્થીઓની ટીમે યુનિવર્સિટી કેમ્પસની વિવિધ ફેકલ્ટીઓને અડીને પસાર થતા ભૂખી કાંસના વિનાશના કેટલાક સિસ્ટમોનું બ્યુટિકેશન કરવાનું બિડુ ગત વર્ષે પ્રક્રમ હતું.

જેના ભાગરૂપે સાયન્સ ફેકલ્ટીના બોર્ડિંગને બિલિંગના પાછળના ભાગથી લઈને કોમર્સ ફેકલ્ટીની કેન્ટીનના પાછળના સિસ્ટમ તુષીના ભૂખી કાંસને સમાતર આયો ફેન્સિંગ બનાવવા માટે વિદ્યાર્થીઓએ એક કિલોમીટરના વિસ્તારમાં અર્જુન, બહેરી અને પુત્રછવ નામના વૃક્ષોના પ્લાન્ટ્સ લગાવ્યા હતા. સાયન્સ ફેકલ્ટીના બોર્ડિંગના અધ્યાપક પ્રો.નાગર કહે છે કે, ચોમાસા બાદ હવે આ પ્લાન્ટ ઉગવા માંડ્યા છે અને લગભગ ૭૫૦ મીટરના વિસ્તારમાં એક ફૂટની બાયો ફેન્સિંગ નજરે પડી રહી છે.જે વૃક્ષો બાયો ફેન્સિંગ માટે ઉપયોગમાં લેવાયા છે તેની ઉંચાઈ દસેક વર્ષ બાદ ૧૦ થી ૧૨ મીટર સુધી પહોંચશે.આમ બાયો ફેન્સિંગથી ભૂખી કાંસને અડીને માટીનું પીવાત અટકશે અને સાથે સાથે ભૂખી કાંસનો આ વિસ્તાર હરિયાળો લાગશે.

તેમનું કહેવું છે કે, સાયન્સ ફેકલ્ટીની આસપાસ ભૂખી કાંસના ઢોળાવ પર બ્યુટિકેશન એ ઈકો રિસ્કેશનના ભાગરૂપે ૧૫૦ જેટલી પ્રજાતિના પ્લાન્ટ્સ લગાવવામાં આવ્યા છે.આગામી વર્ષમાં આ સિસ્ટમ પણ સુંદર અને હરિયાળો લાગતો થઈ જશે.

આ અને પ્રોજેક્ટમાં વિદ્યાર્થીઓએ કુલ મળીને ૨૦૦૦ જેટલા પ્લાન્ટ્સ લગાવ્યા છે.

Printed from
THE TIMES OF INDIA

102-yr-old botanical garden narrates Vadodara's history

TNN | Jan 5, 2022, 04:45 AM IST

Vadodara: The 102-year-old botanical garden at M S University's Faculty of Science now not only houses a garden for the visually challenged but also provides a glimpse of Vadodara's history. And it will provide a hint of the Jurassic era while you enjoy a sip of fresh flower juice! The botanical garden that was inaugurated to celebrate Sir Sayajirao diamond jubilee day on Monday now has a 'Why Vadodara?' plot - specially established to depict the etymology behind name - Vadodara.

"The name of the cultural city Vadodara is due to the numerous number of heritage Banyan trees prospering in the city. Earlier, the city was called 'Vadnagari' and even 'Vatprad'. We have kept all the species of Banyan trees at this plot to showcase this," said Dr Padamnabhi Nagar, associate professor and garden superintendent of Department of Botany.

"We could modify the botanical garden because of the support that we received from dean professor Haribhai Kataria and university engineer Rudresh Sharma," he said. The new attractions include plants of the Jurassic era - in a plot that has beautifully grown pteridophytes (like ferns) as well as gymnosperm members.

"These plants belong to the era of Jurassic period. Here the oldest trees like Cycas revoluta as well as Cycas circinalis are more than hundred years old," said garden supervisor Tanmay Rohit.

The garden also has a 'nakshatra udhyan' - built on the principles of astrology with sacred plants like 'bilva', 'ashoka', 'pipal' that have been grown keeping the positions of 9 'grahas', 12 'rashis' and 27 'nakshatras' in mind. There is a plot 'arogyam' with numerous medicinal plant species labelled with the names of diseases it cures, formulations and specific directions of its use!

5/10/23, 1:54 PM MSU કેમ્પસના ૯૨૬ વૃક્ષોની મહત્વની ઓળખ જાણી શકાશે. વૃક્ષોને QR કોડથી સજ્જ કરવાનું અભિયાન | Campaign to equip trees with QR...

કેમ્પસમાં આવેલા બોટનિકલ ગાર્ડન, સાયન્સ ફેકલ્ટીની સામે આવેલા ગાર્ડન અને હોટેલ કેમ્પસમાં આવેલા બોટનિકલ ગાર્ડનમાં વૃક્ષોને ક્યુઆર કોડ ઉત્કલ્પનામાં આવશે. ક્યુ આર કોડને મોબાઇલ થકી સ્કેન કરવાની સાથે જ વૃક્ષનું નામ, તેનું બોટનિકલ નામ, તેનું વલન, તેની વિશેષતાઓ અને તેની ઉપયોગીતા સુ છે.વગેરે જાણકારી મોબાઇલ પર આવી જશે.



બોટની વિભાગના ગાર્ડન સુપરવાઈઝર એન્ટોનિયો યાવરા તેમજ બોટની વિભાગના વિદ્યાર્થીઓની મદદથી ક્યુ આર કોડ ઉત્કલ્પના માટેની કામગીરી શરૂ કરી દેવાઈ છે. બોટની વિભાગના સિનિયર અધ્યાપક ડૉ.પી.એસ.નાગર કહે છે કે, અમરા મટે દરેક વૃક્ષ પર તો ક્યુ આર કોડ ઉત્કલ્પના શરૂ કરવાની પણ દરેક પ્રજાતિના એકાદા એક વૃક્ષને ક્યુ આર કોડ ઉત્કલ્પનામાં ટાઈટ છે. એ પછી જો યુનિવર્સિટી સત્તાધીશો કંઈ ખરૂર કરશે તો કેમ્પસના બોજા સિસ્ટમમાં વૃક્ષોને પણ ક્યુઆર કોડ ઉત્કલ્પનામાં આવશે. હાલમાં જે પ્રક્રિયા ચાલી રહી છે તેમાં ક્યુઆર કોડ ઉત્કલ્પના માટે ખોલીની જગ્યાએ સિસ્ટમનો ઉપયોગ કરવામાં આવી રહ્યો છે. અભ્યાર સુધીમાં ૬૦ જેટલા વૃક્ષો પર ક્યુઆર કોડ ઉત્કલ્પના શરૂ કરવામાં આવી છે. ગુજરાતના કલ્યા પહેલી વખત એમ.એસ.યુનિવર્સિટીમાં આટલા મોટા પાયે વૃક્ષો પર ક્યુઆર કોડ ઉત્કલ્પના માટેની કામગીરી હાથ ધરવામાં આવી છે.

- ગુજરાતમાં વિદ્યુત થતા વૃક્ષો કેમ્પસમાં ઉગાડાઈ રહ્યા છે

એમ.એસ.યુનિવર્સિટીના બોટની વિભાગ દ્વારા હેટલા કેટલાક વર્ષોથી ગુજરાતમાં ખડતલાં હોય તેવી પ્રજાતિના વૃક્ષો ઉગાડવાનું અભિયાન શરૂ કરવાનું છે. મોનગર કહે છે કે, ગુજરાતમાં સૌંદર્ય દુર અભાવ હોય તેવા સિવાયના વૃક્ષોની સંભાળ આપવાની વેદે મહાવ્ય તેટલી રહી છે. આ જ હોઈ જંગલી વનરાજી તરીકે ઓળખાતાં યાવર છે જ વૃક્ષો રક્ષા હોવાનું અમારા ધ્યાનમાં આવ્યું છે. આ હોઈ પ્રજાતિના વૃક્ષોને અને કેમ્પસમાં ઉછેર્યાં છે. જંગલી અસોવ્યવસ્થી પ્રજાતિને અને મહારાષ્ટ્રથી લાવેલી કેમ્પસમાં ઉગાડી છે. અભ્યા ૧૬ વૃક્ષો ઉગાડીને મોટા થઈ રહ્યા છે. આટલા વૃક્ષોની સંભાળ પણ ગુજરાતના જંગલોમાં આવી શકે રહી છે. આ વાત અમારા ધ્યાનમાં આવ્યા બાદ અને કેમ્પસમાં આટલા વૃક્ષ ઉછેરવાનું શરૂ કરવું હતું. કેમ્પસમાં હવે ૨૬૦ જેટલા અસોક વૃક્ષ ઉગી વૃક્ષ છે.

MSU કેમ્પસના દરેક વૃક્ષની આગવી ઓળખ જાણી શકાશે, વૃક્ષોને QR કોડથી સજ્જ કરવાનું અભિયાન

Updated: Mar 30th, 2023

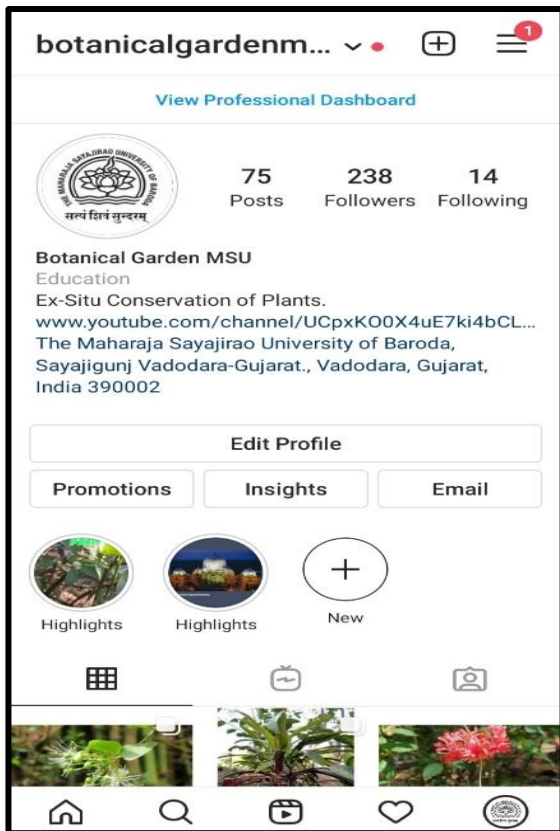


વડોદરા, તા.૩૦ માર્ચ ૨૦૨૩, ગુરુવાર

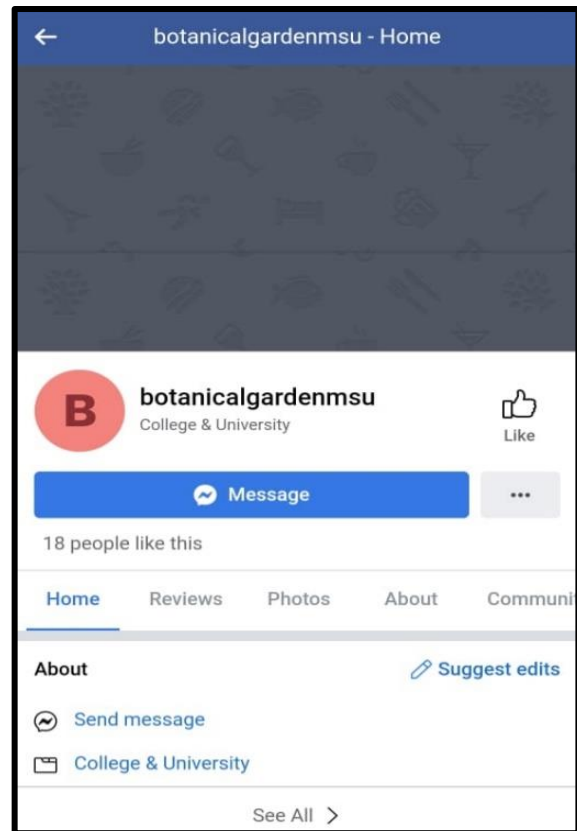
ક્રમઠીભાગ અને એમ.એસ.યુનિવર્સિટી કેમ્પસને દિવસને દિવસે પ્રદુષિત થઈ રહેલા વડોદરા શહેરના બે હરિયાળા ફેસ ગણવામાં આવી છે. એમ.એસ.યુનિવર્સિટી કેમ્પસમાં તો વૃક્ષોની ક્રમઠીભાગ કરતા પણ વધારે પ્રજાતિઓ છે. યુનિવર્સિટીના બોટની વિભાગ હવે આ તમામ પ્રજાતિઓની જાણકારી સામાન્ય લોકોને અને જેઓ બોટની સિવાય અન્ય વિભાગમાં અભ્યાસ કરે છે તેમને પણ મળી શકે તે માટે વૃક્ષો પર ક્યુઆર કોડ ઉત્કલ્પનામાં પ્રોજેક્ટ શરૂ કર્યાં છે.

એમ.એસ.યુનિવર્સિટી કેમ્પસમાં વૃક્ષોની ૩૬૬ જેટલી પ્રજાતિઓ છે.૨૬૬ એકરમાં ફેલાયેલા કેમ્પસમાં ૨૦૦૦૦ જેટલા કુલ વૃક્ષો છે.આ સિવાય પ્લાન્ટ્સની બોજા ૮૦૦ જેટલી પ્રજાતિઓ છે.ગુજરાતમાં વૃક્ષોની જેટલી પણ પ્રજાતિઓ છે તે પૈકીની મોટાભાગની એમ.એસ.યુનિવર્સિટી કેમ્પસમાં

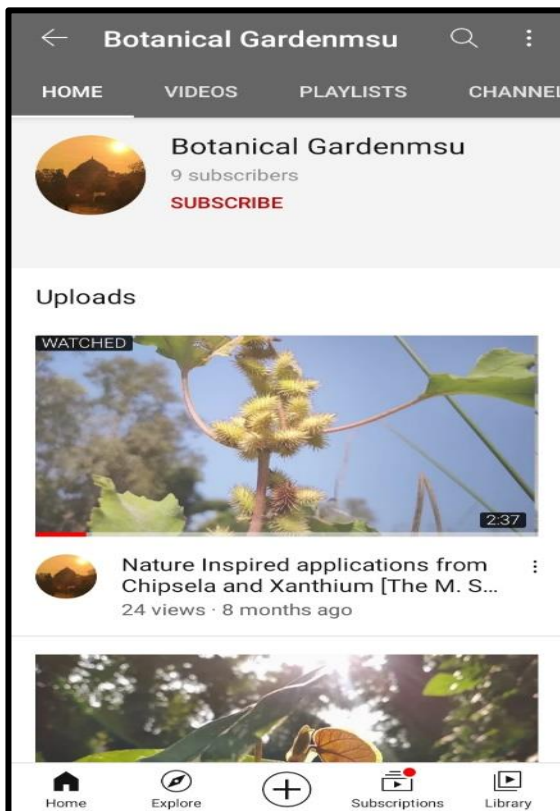
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FUTURISTIC PLANS AND OBJECTIVES

Objectives and Mandate

- To make a comprehensive survey of the economic plant wealth of Gujarat.
- To conserve, preserve and sustainably utilise the plant wealth of Gujarat.
- To introduce, cultivate and culture plants of India/other countries with comparable climatic condition for the economic benefit of Gujarat and India.
- To carry out botanical, horticultural and chemical research for plant improvement and utilization.
- To offer facilities for the improvements of ornamental plants and to propagate them in the larger context of establishment of nursery and flower trade.
- To organize germplasm collections of economic plants of interest to the state in the case of those species for which separate centers are not already in existence.
- To establish a model production center for translating the fruits of research to public advantage leading to plant-based industrial ventures.
- To engage in activities, conducive to help botanical teaching and to create public understanding of the value of plant research in general, and the need for preserving our plant wealth.
- To establish an arboretum in approximately half the area of the Garden, with representative specimens of trees of Gujarat and India, and trees of economic value from other tropical areas of the world.
- To establish a garden consisting of medicinal plants, ornamental plants and various introduced plants of economic or aesthetic value.
- To establish laboratories for botanical, horticultural and chemical research, with the aim of improvement and utilization of plants of medicinal and ornamental value.
- To prepare a flora of Gujarat.
- To establish tissue culture facility with special reference to the improvement of seeds/fruits/flowers and quick and easy propagation.
- To organize breeding for plant improvement and production of hybrid seeds, in the case of species for which such facilities are currently lacking or inadequate.
- To be engaged in garden planning and research.
- To serve as a source of supply of improved plants not readily available from other agencies.
- To do chemical screening of plants of potential medicinal importance.
- To work in collaboration with similar institutes in India and outside
- To promote and establish modern scientific research and development studies relating to plants of importance to India and to Gujarat in particular.

Visitors

The MSU Botanical Garden (MSUBG) Garden is open to the public and the same is regulated by Visitor's Management Centre.

Visitor's Management Centre

The Visitor's Management Centre of MSU Botanical Garden (MSUBG) aims at making comfortable visit of the public to the Garden and caters to Conservation, Education, Eco-Tourism and Outreach Programmes, conducts film shows, training classes, exhibitions, eco-education classes, garden demonstrations etc.

Public entry

The Garden is open to the public and entry pass will be issued from 9.00 am to 5.00 pm on all working days including Saturdays and Sundays except on other public holidays.

Entry Fee

Adults: Rs. 50/-

Students: Rs. 20/-

Foreigners: Rs. 300/-

Guide Fee (for more than 25 number group): Rs.500/-

Vehicle parking Fee

Bus: Rs. 100/-

Car: Rs. 50/-

Photography*

Still camera: Rs. 200/-

Movie camera: Rs. 500/-

Film Shooting: Rs. 1,00,000/-

Contacts

BOTANICAL GARDEN

Ms. Snehal Chavda (Botanical Garden Supervisor) Mobile: +91- 9879641009

ARBORETUM

Mr. Tanmay Rohit (Botanical Garden Supervisor) Mobile: +91-7486942690

ANNEXURE 1

LIST OF HERITAGE TREES OF BOTANICAL GARDEN (2022-23)

Sr. No.	Name of the Plant	Girth (meters)	Height (meters)	Age (years)
1	<i>Anogeissus sericea</i>	2.5	24	Age: >90
2	<i>Artocarpus lacucha</i>	1.7	16	Age: >50
3	<i>Bombax ceiba</i>	2.8	14	Age: >80
4	<i>Cassine glauca</i>	1	13	Age: >50
5	<i>Cycas circinalis</i>	1	5	Age: >100
6	<i>Diospyrus malabarica</i>	1.3	17	Age: >80
7	<i>Ficus maclellandii</i>	1	12	Age: >70
8	<i>Ficus religiosa</i>	4.4	14	Age: >90
9	<i>Haplophragma adenophyllum</i>	2.3	20	Age: >50
10	<i>Holoptelea integrifolia</i>	4	21	Age: >95
11	<i>Kigellia pinnata</i>	2.35	16	Age: >70
12	<i>Manilkara hexandra</i>	1.8	13	Age: >70
13	<i>Mimosops elengi</i>	1.3	15	Age: >70
14	<i>Mitragyna parvifolia</i>	2.8	18	Age: >80
15	<i>Phoenix dactylifera</i>	1	14	Age: >100
16	<i>Phoenix sylvestris</i>	1.03	10	Age: >100
17	<i>Putranjiva roxburghi</i>	2.2	21	Age: >100
18	<i>Spathodea campanulata</i>	2.5	15	Age: >80
19	<i>Sterculia foetida</i>	3.2	22	Age: >80
20	<i>Strobilurus asper</i>	1.4	18	Age: >80
21	<i>Strychnos nux-vomica</i>	4.2	19	Age: >90
22	<i>Swietenia mahagoni</i>	1.7	18	Age: >75
23	<i>Tectona grandis</i>	2.3	21	Age: >80
24	<i>Elaeis guineensis</i>	1.02	6.7	Age: >100

ANNEXURE 3

List of tree species and their geographical coordinates in the Arboretum cum medicinal plant garden.

SR. No	BOTANICAL NAME	FAMILY	LATITUDE (X)	LONGITUDE (Y)
1	Anacardium occidentale	Anacardiaceae	73.17955	22.320925
2	Buchanania lanzan	Anacardiaceae	73.17999167	22.32078833
3	Lannea coromandelica	Anacardiaceae	73.17955667	22.32157333
4	Mangifera indica	Anacardiaceae	73.17960333	22.320965
5	Semecarpus anacardium	Anacardiaceae	73.17879833	22.321685
6	Spondias pinnata	Anacardiaceae	73.17932	22.32083
7	Spondias mangifera	Anacardiaceae		
8	Annona reticulata	Annonaceae	73.17981833	22.321245
9	Annona squamosa	Annonaceae	73.17919667	22.32005167
10	Artabotrys hexapetalus	Annonaceae	73.17953333	22.32160833
11	Milium tomentosa	Annonaceae	73.17854667	22.32195333
12	Polyalthaea longifolia	Annonaceae	73.179445	22.321035
13	Polyalthia cerasoides	Annonaceae	73.17880333	22.32225667
14	Polyalthia suberosa	Annonaceae		
15	Alstonia scholaris	Apocynaceae	73.17915833	22.31985167
16	Holarrhena pubescens	Apocynaceae	73.17952333	22.32056833
17	Plumeria rubra	Apocynaceae		
18	Voacanga africana	Apocynaceae	73.17965	22.320345
19	Wrightia tinctoria	Apocynaceae	73.17951333	22.32064167
20	Wrightia tomentosa	Apocynaceae		
21	Plumeria alba	Apocynaceae	73.17937667	22.321605
22	Plumeria obtusa	Apocynaceae		
23	Thevetia peruviana	Apocynaceae	73.17903667	22.32064833
24	Carissa carandas	Apocynaceae	73.17990833	22.32180167
25	Agathis robusta	Araucariaceae		
26	Caryota urens	Arecaceae	73.179955	22.32053333
27	Lantania loddigesii	Arecaceae		
28	Latania lontaroides	Arecaceae		
29	Phoenix sylestrs	Arecaceae		
30	Roystonea regia	Arecaceae		
31	Washingtonia filifera	Arecaceae		
32	Areca catechu	Arecaceae		
33	Bismarckia nobilis	Arecaceae		
34	Cocos nucifera	Arecaceae		
35	Elaeis guineensis	Arecaceae		
36	Hyphaene dichotoma	Arecaceae		
37	Spathodea campanulata	Bignoniaceae		

38	<i>Parmentiera cereifera</i>	Bignoniaceae		
39	<i>Markhamia lutea</i>	Bignoniaceae		
40	<i>Crescentia cujete</i>	Bignoniaceae	73.17906833	22.32083833
41	<i>Crescentia alata</i>	Bignoniaceae		
42	<i>Dolichandrone falcata</i>	Bignoniaceae	73.17859167	22.32194
43	<i>Jacaranda mimosifolia</i>	Bignoniaceae	73.179805	22.32040833
44	<i>Kigelia africana</i>	Bignoniaceae	73.17905833	22.32242833
45	<i>Millingtonia hortensis</i>	Bignoniaceae	73.17889167	22.32241167
46	<i>Oroxylum indicum</i>	Bignoniaceae	73.17857167	22.32225667
47	<i>Radermachera xylocarpa</i>	Bignoniaceae		
48	<i>Stereospermum tetragonum</i>	Bignoniaceae		
49	<i>Tabebuia argentea</i>	Bignoniaceae	73.179015	22.32163667
50	<i>Tabebuia rosea</i>	Bignoniaceae	73.17921833	22.32131
51	<i>Tecoma stans</i>	Bignoniaceae	73.17929167	22.32163833
52	<i>Tecomella undulata</i>	Bignoniaceae	73.17950833	22.32050833
53	<i>Fernandoa adenophylla</i>	Bignoniaceae	73.17877167	22.32242667
54	<i>Bixa orellana</i>	Bixaceae	73.17997333	22.32089833
55	<i>Bombax ceiba</i>	Bombacaceae	73.17921167	22.32135167
56	<i>Bombax insigne</i>	Bombacaceae	73.17975167	22.32053333
57	<i>Cieba pentandra</i>	Bombacaceae	73.179145	22.32137833
58	<i>Cordia domestica</i>	Boraginaceae	73.17834167	22.32197667
59	<i>Cordia gharaf</i>	Boraginaceae		
60	<i>Cordia rothii</i>	Boraginaceae	73.17844167	22.322175
61	<i>Cordia sebestina</i>	Boraginaceae	73.17862833	22.32217833
62	<i>Boswellia serrata</i>	Burseraceae	73.17933	22.32050833
63	<i>Garuga pinnata</i>	Burseraceae	73.179305	22.32052333
64	<i>Commiphora myrrha</i>	Burseraceae		
65	<i>Commiphora stocksiana</i>	Burseraceae	73.17909333	22.32021333
66	<i>Commiphora wightii</i>	Burseraceae	73.17916833	22.32024833
67	<i>Calophyllum inophyllum</i>	Calophyllaceae	73.17891	22.320455
68	<i>Trema orientalis</i>	Cannabaceae	73.17951167	22.3209
69	<i>Carica papaya</i>	Caricaceae		
70	<i>Casuarina equisetifolia</i>	Casurinaceae	73.17937	22.32148167
71	<i>Cassine glauca</i>	Celastraceae	73.17922333	22.32076167
72	<i>Maytenus emarginata</i>	Celastraceae	73.17951667	22.32066667
73	<i>Garcinia indica</i>	Clusiaceae	73.17906167	22.32066
74	<i>Garcinia talboti</i>	Clusiaceae		
75	<i>Cochlospermum religiosa</i>	Cochlospermaceae	73.17950167	22.32086333
76	<i>Anogeissus latifolia</i>	Combretaceae	73.17870167	22.32192
77	<i>Anogeissus sericea</i>	Combretaceae		
78	<i>Terminalia arjuna</i>	Combretaceae	73.17925167	22.32067333
79	<i>Terminalia bellirica</i>	Combretaceae	73.17898333	22.32189667
80	<i>Terminalia cattapa</i>	Combretaceae	73.17931	22.32088333
81	<i>Terminalia chebula</i>	Combretaceae	73.17928833	22.32066333
82	<i>Terminalia crenulata</i>	Combretaceae	73.17961333	22.32223667
83	<i>Alangium salviifolium</i>	Cornaceae	73.17914333	22.32042
84	<i>Cycas circinalis</i>	Cycadaceae		
85	<i>Cycas revoluta</i>	Cycadaceae		
86	<i>Dillenia pentagyna</i>	Dilleniaceae		

87	<i>Dillenia indica</i>	Dilleniaceae	73.17946167	22.32153167
88	<i>Diospyros melanoxylon</i>	Ebenaceae	73.17892667	22.32222667
89	<i>Diospyros montana</i> var. <i>Cordifolia</i>	Ebenaceae		
90	<i>Diospyros malabarica</i>	Ebenaceae		
91	<i>Ehretia laevis</i>	Eheratiaceae		
92	<i>Givotia rottleriformis</i>	Euphorbiaceae	73.17965833	22.32099
93	<i>Macaranga peltata</i>	Euphorbiaceae	73.17911833	22.32172333
94	<i>Mallotus philippensis</i>	Euphorbiaceae	73.17995333	22.32067
95	<i>Putranjiva roxburghii</i>	Euphorbiaceae	73.17951833	22.32082167
96	<i>Suregada multiflora</i>	Euphorbiaceae	73.179815	22.32253167
97	<i>Adenanthera pavonina</i>	Fabaceae	73.17873	22.32221833
98	<i>Bauhinia acuminata</i>	Fabaceae	73.17944	22.32153333
99	<i>Bauhinia foveolata</i>	Fabaceae		
100	<i>Bauhinia malabarica</i>	Fabaceae		
101	<i>Bauhinia purpurea</i>	Fabaceae	73.17891833	22.3217
102	<i>Bauhinia racemosa</i>	Fabaceae		
103	<i>Bauhinia variegata</i>	Fabaceae		
104	<i>Butea monosperma</i>	Fabaceae	73.17868667	22.32174833
105	<i>Cassia fistula</i>	Fabaceae	73.179555	22.32079333
106	<i>Cassia javanica</i> var. <i>indochinense</i>	Fabaceae		
107	<i>Cassia javanica</i>	Fabaceae	73.17857833	22.32240833
108	<i>Cassia simea</i>	Fabaceae	73.17923833	22.322425
109	<i>Dalbergia latifolia</i>	Fabaceae	73.178495	22.32166833
110	<i>Dalbergia sissoo</i>	Fabaceae	73.17838167	22.32179
111	<i>Delonix regia</i>	Fabaceae	73.17858833	22.322415
112	<i>Desmodium oojeinense</i>	Fabaceae	73.17905833	22.32117667
113	<i>Erythrina variegata</i>	Fabaceae	73.17969167	22.320205
114	<i>Gliricidia sepium</i>	Fabaceae	73.17863	22.32165167
115	<i>Haematoxylum campechianum</i>	Fabaceae	73.17892167	22.321735
116	<i>Hardwickia binata</i>	Fabaceae		
117	<i>Leucaena leucophloa</i>	Fabaceae	73.17862167	22.32155833
118	<i>Millettia peguensis</i>	Fabaceae	73.17858	22.32167167
119	<i>Peltoporum pterocarpum</i>	Fabaceae	73.17967	22.32127333
120	<i>Pongamia pinnata</i>	Fabaceae		
121	<i>Pterocarpus marsupium</i>	Fabaceae	73.17858833	22.32178167
122	<i>Pterocarpus santalinus</i>	Fabaceae	73.17854167	22.32172667
123	<i>Saraca indica</i>	Fabaceae	73.179515	22.32052833
124	<i>Tamarindus indica</i>	Fabaceae	73.17925167	22.32139833
125	<i>Caesalpinia sappan</i>	Fabaceae	73.17934333	22.32155167
126	<i>Sesbania grandiflora</i>	Fabaceae		
127	<i>Parkinsonia aculeata</i>	Fabaceae		
128	<i>Casearia elliptica</i>	Flacourtiaceae	73.17895333	22.32222667
129	<i>Flacourtia indica</i>	Flacourtiaceae	73.179515	22.32057
130	<i>Scaevola taccada</i>	Goodeniaceae		
131	<i>Strychnos potatorum</i>	Lagoniaceae	73.17916667	22.32057667
132	<i>Gmelina arborea</i>	Lamiaceae	73.17964167	22.32095667
133	<i>Premna serratifolia</i>	Lamiaceae		
134	<i>Tectona grandis</i>	Lamiaceae	73.17941667	22.32221
135	<i>Careya arborea</i>	Lecythidaceae	73.17870333	22.32178667

136	<i>Couroupita guinensis</i>	Lecythidaceae	73.17921	22.32105
137	<i>Lagerstroemia parviflora</i>	Lythraceae		
138	<i>Lagerstroemia speciosa</i>	Lythraceae	73.17893333	22.32140833
139	<i>Lagerstroemia indica</i>	Lythraceae		
140	<i>Lawsonia inermis</i>	Lythraceae		
141	<i>Woodfordia fruticosa</i>	Lythraceae		
142	<i>Magnolia grandiflora</i>	Magnoliaceae	73.17955	22.32034333
143	<i>Michelia champaca</i>	Magnoliaceae	73.179585	22.32034833
144	<i>Malpighia glabra</i>	Malpighiaceae	73.17921833	22.32077833
145	<i>Adansonia digitata</i>	Malvaceae	73.17849667	22.32167167
146	<i>Elaeocarpus sphaericus</i>	Malvaceae	73.17910833	22.321475
147	<i>Guazuma ulmifolia</i>	Malvaceae	73.17899667	22.32146167
148	<i>Hibiscus tiliaceus</i>	Malvaceae		
149	<i>Kydia calycina</i>	Malvaceae		
150	<i>Thespesia populnea</i>	Malvaceae	73.17895667	22.32218333
151	<i>Hibiscus schizopetalus</i>	Malvaceae		
152	<i>Hibiscus mutabilis</i>	Malvaceae		
153	<i>Memecylon umbellatum</i>	Melastomataceae		
154	<i>Amoora rohituka</i>	Meliaceae	73.17865333	22.322065
155	<i>Azardirachta indica</i>	Meliaceae	73.17938833	22.32091333
156	<i>Chukrasia tabularis</i>	Meliaceae	73.17939167	22.32152667
157	<i>Soymida febrifuga</i>	Meliaceae	73.17951333	22.320815
158	<i>Swietenia mahagoni</i>	Meliaceae		
159	<i>Toona ciliata</i>	Meliaceae		
160	<i>Acacia catechu</i>	Mimosaceae		
161	<i>Acacia nilotica</i>	Mimosaceae	73.17968333	22.32208333
162	<i>Acacia senegal</i>	Mimosaceae		
163	<i>Pithecellobium dulce</i>	Mimosaceae	73.18211	22.32279
164	<i>Prosopis cineraria</i>	Mimosaceae	73.17986167	22.32112333
165	<i>Prosopis juliflora</i>	Mimosaceae	73.17840833	22.32237333
166	<i>Artocarpus heterophyllus</i>	Moraceae	73.17908333	22.32061833
167	<i>Artocarpus lacucha</i>	Moraceae		
168	<i>Ficus amplissima</i>	Moraceae	73.17916	22.32249333
169	<i>Ficus benghalensis</i>	Moraceae	73.178765	22.32240667
170	<i>Ficus hispida</i>	Moraceae	73.17845333	22.32237167
171	<i>Ficus maclellandii</i>	Moraceae	73.17883667	22.32244333
172	<i>Ficus religiosa</i>	Moraceae	73.17959667	22.32081167
173	<i>Morus alba</i>	Moraceae	73.17907667	22.32121333
174	<i>Streblus asper</i>	Moraceae	73.17997667	22.32153
175	<i>Ficus virens</i>	Moraceae		
176	<i>Moringa oleifera</i>	Moringaceae	73.18163833	22.32122833
177	<i>Muntingia calabura</i>	Muntingiaceae		
178	<i>Eucalyptus globulus</i>	Myrtaceae	73.18000167	22.32080833
179	<i>Pimenta dioica</i>	Myrtaceae		
180	<i>Psidium guajava</i>	Myrtaceae	73.17996167	22.32106833
181	<i>Syzygium cumini</i>	Myrtaceae	73.17917167	22.32000333
182	<i>Ochna obtusa</i>	Ochanaceae	73.17910167	22.32157333
183	<i>Nyctanthes arbor-tristis</i>	Oleaceae	73.17952167	22.320705
184	<i>Schrebera swietenoides</i>	Oleaceae		

185	<i>Averrhoa bilimbi</i>	Oxalidaceae	73.179345	22.320775
186	<i>Pandanus odoratissimus</i>	Pandanaceae		
187	<i>Bridelia retusa</i>	Phyllanthaceae	73.17936667	22.32243
188	<i>Emblica officinalis</i>	Phyllanthaceae	73.17852167	22.32223
189	<i>Phyllanthus acidus</i>	Phyllanthaceae		
190	<i>Flueggea leucopyrus</i>	Phyllanthaceae	73.179285	22.32158833
191	<i>Pinus roxburghii</i>	Pinaceae	73.179015	22.320705
192	<i>Dendrocalmus strictus</i>	Poaceae		
193	<i>Bambusa arundinacea</i>	Poaceae		
194	<i>Bambusa vulgaris</i>	Poaceae		
195	<i>Podocarpus neriifolius</i>	Podocarpaceae	73.178985	22.320705
196	<i>Coccoloba uvifera</i>	Polygonaceae		
197	<i>Jacquinia ruscifolia</i>	Primulaceae		
198	<i>Grevillea robusta</i>	Proteaceae	73.17920167	22.32159833
199	<i>Punica granatum</i>	Punicaceae		
200	<i>Zizyphus mauritiana</i>	Rhamnaceae	73.18211333	22.322805
201	<i>Gardenia jasminoides</i>	Rubiaceae	73.17881167	22.32216
202	<i>Haldina cordifolia</i>	Rubiaceae	73.179885	22.32231833
203	<i>Hymenodictyon orixense</i>	Rubiaceae	73.179535	22.32085833
204	<i>Meyna laxiflora</i>	Rubiaceae		
205	<i>Mitragyna parvifolia</i>	Rubiaceae	73.17950833	22.32106167
206	<i>Morinda citrifolia</i>	Rubiaceae	73.17978167	22.32176
207	<i>Morinda pubescence</i>	Rubiaceae	73.17939	22.32191
208	<i>Neolamarckia cadamba</i>	Rubiaceae	73.17897833	22.32060167
209	<i>Randia dumetorum</i>	Rubiaceae		
210	<i>Randia spinosa</i>	Rubiaceae		
211	<i>Aegle marmelos</i>	Rutaceae	73.17932667	22.32245
212	<i>Atalantia racemosa</i>	Rutaceae		
213	<i>Chloroxylon swietenia</i>	Rutaceae		
214	<i>Citrus limon</i>	Rutaceae	73.17956167	22.32091667
215	<i>Citrus maxima</i>	Rutaceae		
216	<i>Citrus medica</i>	Rutaceae		
217	<i>Clausena indica</i>	Rutaceae		
218	<i>Feronia elephantum</i>	Rutaceae	73.17892167	22.32150667
219	<i>Murraya koenigii</i>	Rutaceae		
220	<i>Murraya paniculata</i>	Rutaceae	73.17892167	22.32150667
221	<i>Flacourtia montana</i>	Salicaceae		
222	<i>Salvadora persica</i>	Salvadoraceae		
223	<i>Santalum album</i>	Santalaceae	73.179665	22.32065333
224	<i>Filicium decipiens</i>	Sapindaceae	73.17942833	22.32094
225	<i>Sapindus emarginatus</i>	Sapindaceae	73.17906333	22.32158667
226	<i>Sapindus trifoliatus</i>	Sapindaceae	73.17921333	22.320675
227	<i>Schleichera oleosa</i>	Sapindaceae	73.17857167	22.32191167
228	<i>Madhuca longifolia</i>	Sapotaceae	73.17955667	22.32087333
229	<i>Manilkara elengi</i>	Sapotaceae	73.17996833	22.321215
230	<i>Manilkara hexendra</i>	Sapotaceae	73.17845167	22.32200667
231	<i>Manilkara zapota</i>	Sapotaceae	73.17987333	22.32106833
232	<i>Buddleja asiatica</i>	Scrophulariaceae		
233	<i>Buddleja madagascariensis</i>	Scrophulariaceae		

234	<i>Ailanthus excelsa</i>	Simaroubaceae	73.17986167	22.32035333
235	<i>Simarouba glauca</i>	Simaroubaceae	73.17935667	22.32149167
236	<i>Brugmansia arborea</i>	Solanaceae		
237	<i>Dombeya natalensis</i>	Sterculiaceae	73.17949167	22.32074333
238	<i>Dombeya wallichii</i>	Sterculiaceae		
239	<i>Firmiana colorata</i>	Sterculiaceae		
240	<i>Kleinhovia hospita</i>	Sterculiaceae	73.17886167	22.32142167
241	<i>Pterospermum acerifolium</i>	Sterculiaceae	73.17892833	22.32122
242	<i>Sterculia foetida</i>	Sterculiaceae	73.17948167	22.32082
243	<i>Sterculia guttata</i>	Sterculiaceae		
244	<i>Sterculia urens</i>	Sterculiaceae	73.17919167	22.32157667
245	<i>Sterculia villosa</i>	Sterculiaceae	73.17874833	22.32157
246	<i>Pterygota alata</i>	Sterculiaceae		
247	<i>Helicteris isora</i>	Sterculiaceae		
248	<i>Ravenala madagascariensis</i>	Strelitziaceae		
249	<i>Grewia tenax</i>	Tiliaceae	73.17911333	22.32086167
250	<i>Grewia subinaequalis</i>	Tiliaceae		
251	<i>Grewia damine</i>	Tiliaceae		
252	<i>Grewia hirsuta</i>	Tiliaceae		
253	<i>Grewia tiliaefolia</i>	Tiliaceae		
254	<i>Grewia villosa</i>	Tiliaceae		
255	<i>Holoptelia integrifolia</i>	Ulmaceae	73.17927833	22.32152167
256	<i>Vitex negundo</i>	Verbenaceae	73.17905833	22.32067167
257	<i>Vitex trifolia</i>	Verbenaceae		
258	<i>Gmelina philippensis</i>	Verbenaceae		
259	<i>Balanites aegyptiaca</i>	Zygophyllaceae	73.17999	22.32093667
260	<i>Guaiacum officinale</i>	Zygophyllaceae		

TEAM MEMBERS



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3) Bhailalbai K. Rathwa _____

Garden Assistant
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THANK YOU