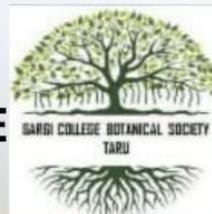




ANTHESIS

FROM AWE TO ACTION: THE
VISION OF FUTURE



VOLUME 15 : 2019-20
Annual Publication of Gargi College Botanical Society

Department of Botany
Gargi College, Siri Fort Road
New Delhi- 110099

-By Shefali Verma

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FROM PRINCIPAL'S DESK



FROM THE TEACHER IN CHARGE'S DESK



Anthesis magazine not only reflects the achievement of the department but its aspiration and dreams which it has to realize in the coming years. This magazine provides an excellent window for the budding writers to tone their communication skills through articles etc. All this has been possible with the dedicated and strenuous effort of experienced faculty and also with the whole hearted cooperation of the students. Heartiest congratulations to the ANTHESIS team members and wishing you success in your educational endeavors.

DR. GEETA PRABHAKAR

TEACHER IN CHARGE

DEPARTMENT OF BOTANY, GARGI COLLEGE

FROM THE EDITOR'S DESK



This year marks the 15th year of successful publishing of the e-magazine “Anthesis” of Department of Botany, Gargi college.

Anthesis provides the magnificent opportunity to both students and teachers to showcase their thoughts and knowledge on the current researches and incidents around the globe. Anthesis seeds were sown by Dr. Gita Mathur who started it as a paper based magazine and later switching it to electronic format. This year focus upon some of the major concerns around the globe and the methods to rectify the damages already done with the theme **FROM AWE TO ACTION-THE VISION OF FUTURE**. I would like to thank all the teachers for their contribution to the magazine and the faculty advisors Dr. Priyanka Pandey, Ms. Ruchitra Gupta, Dr. Gladys Muivah for their constant advice and motivation to improve and make our way through. I am grateful to the amazing editorial team members of Anthesis for their immense cooperation and ideas making this edition what it is. I would also extend my gratitude towards Principal Dr.Promila Kumar for giving us the opportunity to publish the yearly magazine.

TANVI SAXENA

STUDENT EDITOR

ANTHESIS VOLUME 15



COLLEGE EVENTS 2019-2020

ZISTATVA – The Annual NSS Diwali Mela



Himani Rai

B.Sc(H) Botany

3rd year

Just like every year, ZISTATVA 2019 was a grand success, organized on 18th October 2019

The theme this year was ZISTATVA – Parwaaz E Khwaish.

The lipsmacking food stalls, merchandise stalls, Antakshari sessions, game stalls, groovy music and exciting competitions added to the glitz and made everyone tune into the festivities in full swing.

NSS volunteers put up stalls selling jewellery, bags, Diwali decoration items, keychains, paintings, food counters, handmade goods and so on sent by the NGOs themselves.

Celebrations began with great zest on the morning of ZISTATVA, with the inaugural ceremony, where we hosted Mr. Sunit Random, director of Indian Habitat Centre as our Chief guest, various performances were given by students of Gargi as well as students from NGO JAAV.

Exciting performances by DJ Anirudh and Taalsutra, amazing decorations, colourful atmosphere and specially the Prism : a collaboration between Hues, Iris and Glasseye made ZISTATVA 2019 a sight to behold.



REVERIE 2020:

LA EXPRESSION: HUES OF EUPHORIA



Arzoo Tanwar

BSc.(H) Botany

2nd year

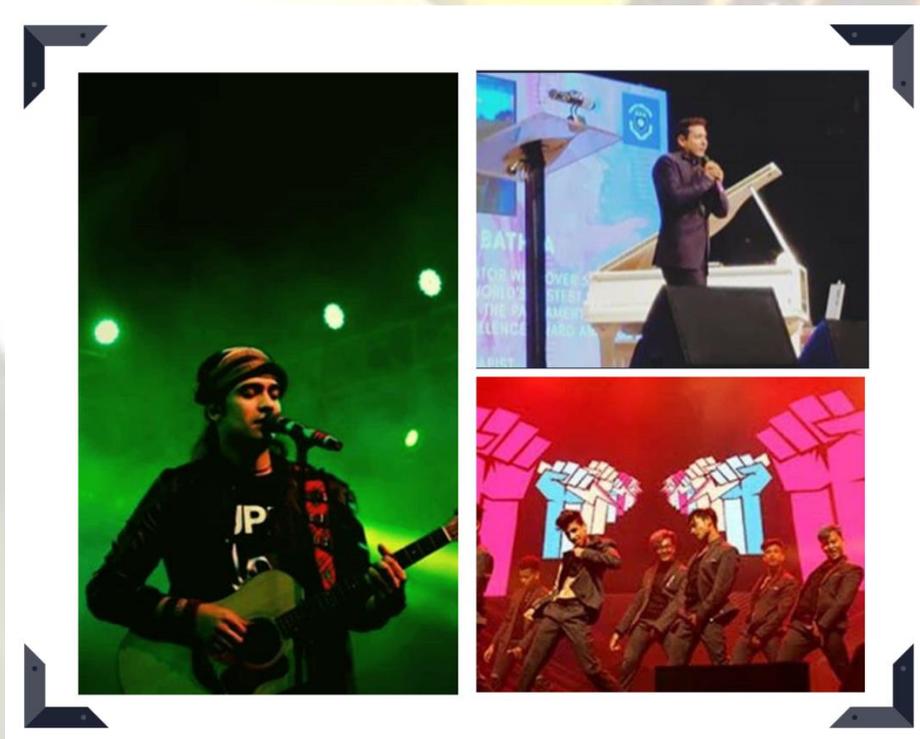
Expression is the bridge that connects a person's inner world with the outer one. This year's theme for Gragi College Annual Fest Reverie gave an ode to this simple yet unique power that each individual possesses the power of expressing.

The three days long fest loaded with fun and frolic took place from 4th February 2020 till 6th February 2020. It was inaugurated by the esteemed chief guest Mr. Jyotiraditya Scindia. On the first day of the festival the college campus bustled with various exuberant events and competitions like shutter up, coco chanel, vaadvivaad, jugalbandi, rhyme and treson and

a lot more. But the essence of the day was captured by the lively piano performance by pianist Aman Bathla. Since talent is the unique expression of each individual, the day also witnessed a talent hunt competition “Reverie’s got talent” which was packed with mind blowing performances. The day culminated on a note of high energy with enthralling dance performances by K-pop group and societies from several other colleges.

The second day was marked by Rap battle, a very interesting treasure hunt, turn coat, general quiz and a dozen of other informal events. The star attraction of the evening was the battle of the bands which left the audience tapping their feet and swaying along. The theme of La Expression was very beautifully displayed in the creative work of Iris and Hues.

Having started with such enthusiasm and zeal, the fest demanded an even more energetic grand ending and that’s exactly how it culminated. The day witnessed dazzling line up of beautifully designed costumes in the fashion walk which depicted the theme of La expression. The star night was graced with a soulful performance by the infamous bollywood singer Jubin Nautiyal. The union extended a vote of thanks to everyone and with that Reverie 2020 came to an end.





SPORT'S DAY



Joanna Ningneipar

B.Sc (H) Botany

2nd year

Run when you can, walk if you have to, crawl if you must; just never give up. – Dean Karnazes.

The auspicious Annual Sports Day of Gargi College “SPIN’20” organized by the Department of Physical Education was celebrated on the 28th of February, 2020. The programme was filled with exciting events like Marchpast, Self Defense Demonstration, etc. It was very clear that the participants and volunteers who participated gave their best as the performance was more than satisfactory. The grand event started from 9:30 am as the respected guests took an oath of sportsmanship. The guests who attended the event were – **Dr. SashiTyagi**(Former Principal Gargi College, Retd. Associate Professor, Department of Botany) as Chief Guest, **ShallyManral**(International Judo Player, ASI Uttarakhand police & Alumna 2011 Batch) as the Guest of Honour. Dr. Promila Kumar, Principal of Gargi College warmly welcomed the guests with bouquets of flowers. The Flag was hoisted by the guests which marked the commencement of the Sports Day celebration. Following the program, the Marchpast competition was held. Unfortunately for this year, not all streams were able to participate due to the ongoing strike and protest in the college. But the teams that participated gave an astonishing performance. After the marchpast, the achievements of 2019-20 which the Gargi team had brought to college was rounded up. It was followed by a speech from the Chief

Guest where she motivated students to indulge themselves in sports activities and mentioned how they will benefit from it in the future. Gargi's previous achievements in National and International levels were also announced and words on how the students can contribute for the college were also mentioned. Following the program, a self-defense demonstration was performed which was considered the best part of the Sports Day celebration as it was very much appreciated by the audiences. The Chief Guest was also impressed by the performance and she later applauded them in her speech. She encouraged young girls to take part in Self-defense demonstrations. Sequentially, Prize Distribution was held for all the sports events held throughout the year. The Cricket and Volleyball team of Gargi College was awarded with cash prizes. The inter-stream competitions of the college like rugby, kho-kho, vigoro, tug-of-war, etc was played between the Science, Arts and Commerce streams of the college. After rounding up the scores, Science bagged the first place, followed by Arts at second place and Commerce in third. Devanshi, a 3rd year student from science stream held the trophy representing the Science students. The Annual Sports Day was concluded with an entertaining DJ performance.





NORTH- EAST SOCIETY ANNUAL FEST



Kangkana Khakhlari

B.Sc (H) Botany

3rd Year

On February 26th, the Northeast Society of Gargi college had organized its 2nd annual fest Mèlange, 2020

The North East Society was formed in March 2017 with the aim to promote the students of the eight states of North East India. The society strives to create a platform for conducting various talks and competitions revolving around the diversity and richness of the region. It also considers the task of debunking the myth and stereotypes as the need of the hour. This fest has been organised to try and change the perspective and sensitise people to this region of diverse cultures. People of mainland don't really get a first hand experience to such events and hence the fest organised by NES has led them to get to know more.

The program marked the presence of Mr. Hibu Tamang, IPS additional commissioner of police, spinner, and the principal of Gargi college, Dr. Promila Kumar. The event was inaugurated by an inaugural dance, Satriya, an Assamese classical dance performed by a gargite. To add to the festivity a special song was sung by Maker Kushang, that left audience mesmerized. Following which everyone got to witness naga fusion dance by JMC, DU. Words of encouragement from principal and

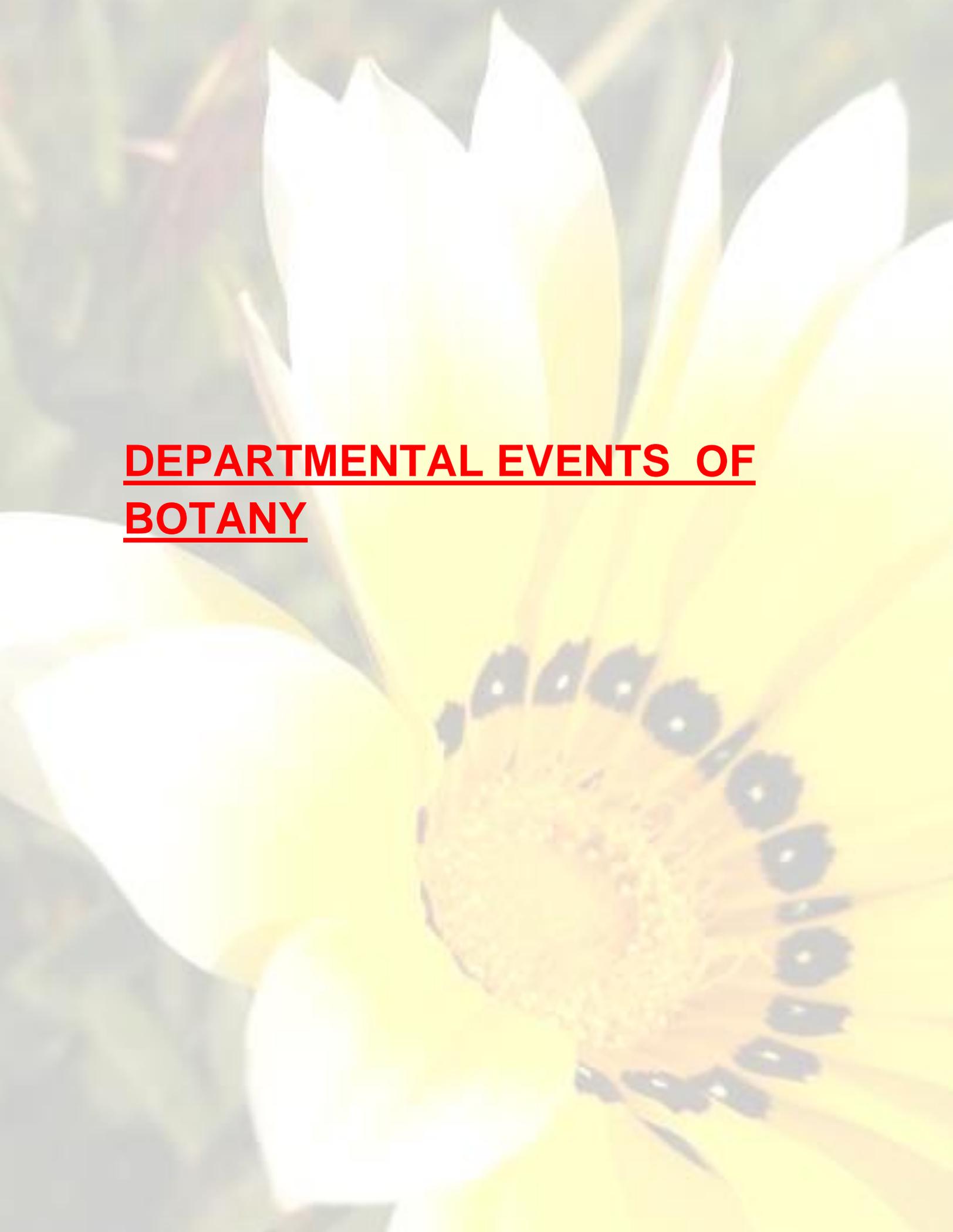
speech by Mr. Hibu Tamang gave all the students some words of wisdom.

The highlight of the event, a performance by kpop dance crew “Switch” made everyone cheer to the peppy beats. Following which the audience witnessed group dance performances by various colleges representing each state from North East India. It was indeed a splendid showcase of talent, culture and diversity. Lastly to mark the end of the cultural program, there was a traditional attire rampwalk by the beauties of NORTH EAST SOCIETY GARGI.

After the cultural program guests were asked to see the exhibit of the traditional handicrafts, dresses, foods etc. The highlight of the exhibition was the tea tasting counter. Various kinds of tea such as black tea, peach tea, red tea, white tea were up for tasting.

After a short lunch break the event resumed with inter college competitions- “Gobble up” and “Battle of voices”. Another highlight of the event, students cheering up and having a gala time. The melodies and enthusiasm of each participant were the highlights of the competitions. Special thanks to the stalls that had been set up representing the rich culture of North eastern India, be it food or traditional handicrafts or gift stalls. The most memorable one was from the stall distributing famous kpop group BTS photocards. The event was concluded with a vote of thanks and a group photo with the full team of Gargi NES teachers and GCNES. It was indeed a very good day of nothing but happiness and jolly faces.

The society aspires to create more awareness about North East India and thus bring more understanding and cohesiveness amongst students and faculties of the college and beyond. People attending such events in numbers will help us break the stereotypes and make them aware about the cultures of the north-eastern India.

A close-up photograph of a yellow flower, possibly a sunflower, with a brown center. The petals are bright yellow and the center is a textured brown. The text is overlaid in red, underlined, and bold.

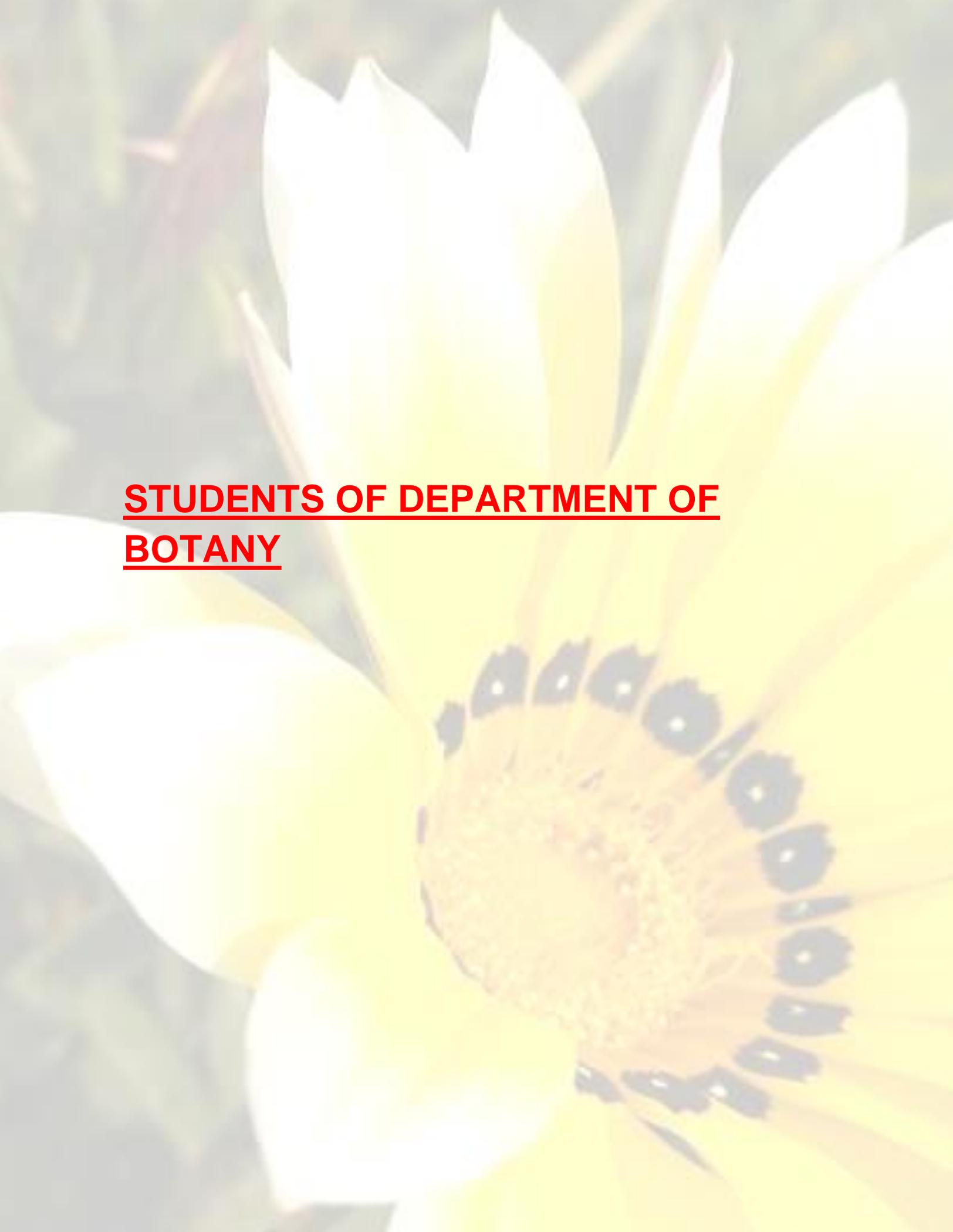
DEPARTMENTAL EVENTS OF
BOTANY

TEACHERS OF DEPARTMENT OF BOTANY



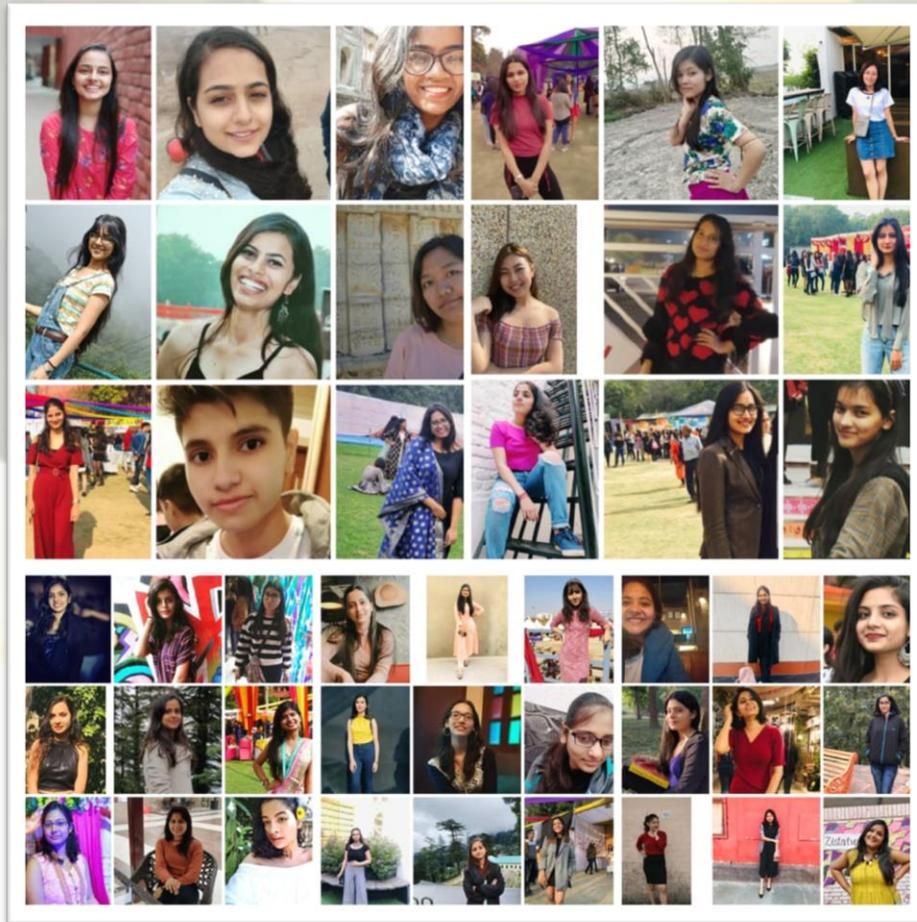
TEACHERS OF BOTANY DEPARMENT

Dr. Geeta Mehta	Dr. Anjana Rustogi
Dr. Aparajita Mohanty	Dr. Garvita Singh
Dr. Priyanka Pandey	Dr. Samira Chugh
Dr. Leisan Judith	Dr. Gladys Muivah
Dr. Geeta Prakash	Dr. Preeti Agarwal
Dr. Jasmeet Kaur Abat	Dr. Neha Singh
Dr. Renu Soni	Dr. Akanksha Madan
Dr. Reema Mishra	Dr. Pritam Kaur
Dr. Vera Yurngamla Kapai	Dr. Sumit Raj
Ms. Ruchitra Gupta	Ms. Urvashi Tomar

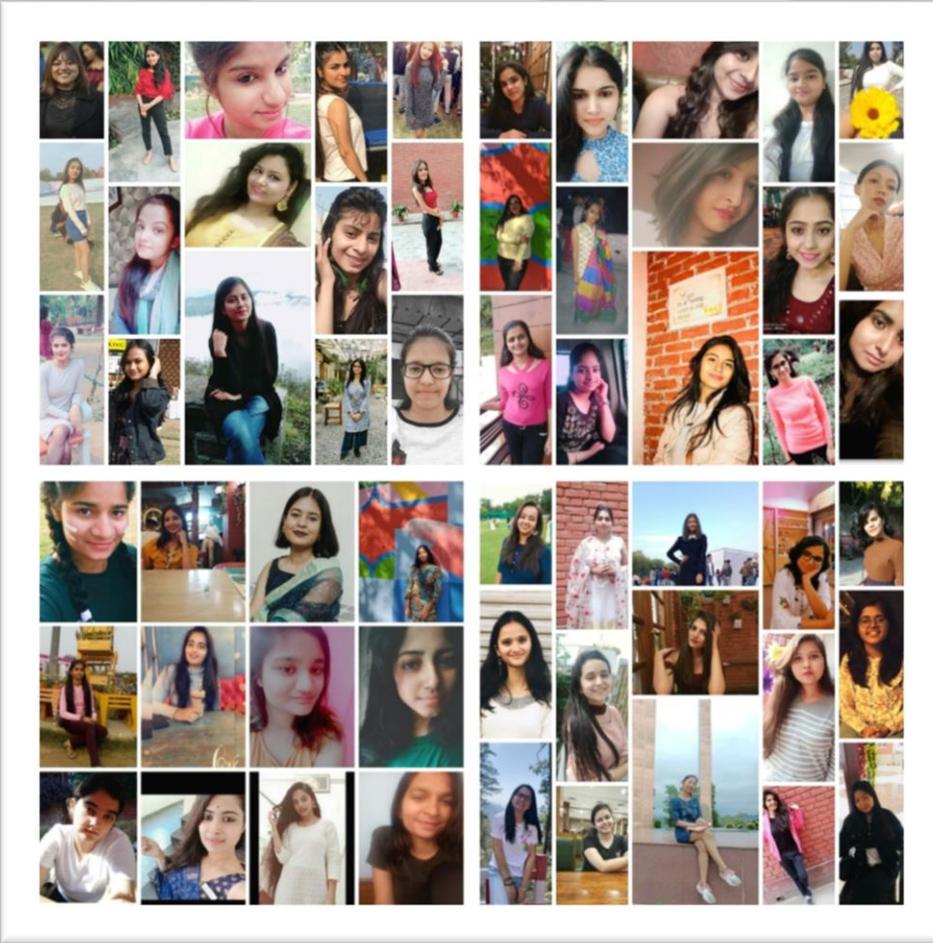


STUDENTS OF DEPARTMENT OF
BOTANY

BATCH OF 2017-2020



BATCH OF 2018-2021



BATCH OF 2019-2022





DEPARTMENTAL
EVENTS

ANNUAL REPORT



Aadrita Das

President GCBS

The Department Of Botany, Gargi College, where the elegance of nature and the craftsmanship of the faculty and students unite to democratise beauty, since 1967, has been a platform of growth for young women, to enhance themselves in all fields of academic as well as extracurricular excellence. In 1994, the Gargi College Botanical Society was formed and was christened as "Taru", on September 2012, which has over the years evolved to provide opportunities of learning and showcasing talents, by organising various guest lectures, seminars, institutional and industrial visits, competitions, and non academic activities of both literary and artistic creativity. Besides these, the annual E magazine Anthesis has always served to generate awareness with their unique themes, help improve scientific writing, and publish articles from students, giving them a voice on different themes every year.

For the academic year 2019-20, The inaugural guest lecture was presented by Dr. Rajesh S. Gokhale, on 13th September, 2019, where he provided an insight on the topic "The Promise and the Future of Genomic Sciences". Looking into the aspects of genomic sciences, it was a great learning opportunity for all science enthusiasts and was a great start to a new session with huge participation from students of various other departments too. Eminent Scientist, Dr, Rajesh S. Gokhale (NII, New Delhi) delivered to the students a plethora of knowledge and it was followed by the Investiture

ceremony, presided by Sir, to confer the badges to the newly elected members of GCBS.

On 24th January, 2020, another guest lecture was organised, which was presided by Prof. Sunil Kumar Khare (Prof of Biochemistry and Institute Chair Professor, IIT Delhi). It was a very informative and interactive session on the topic “Extremophiles: Life Under Extremes”, where he discussed about how organisms are capable of surviving extremities, and it was another success event, witnessing massive participation from teachers and students, who were overwhelmed with facts and answers to their doubts.

Known for holding various extracurricular activities along with academic events, TARU on 27th September, organised the Hand Painting Competition on the theme “What Freedom means to me” where students of various departments joined in to illustrate sketches symbolising freedom. On 17th January, a Slam Poetry Competition was held on the topic “If plants could speak” , which was indeed wonderful to listen to how a single topic can be presented through different thoughts and interpretations. In addition to these, students of 2nd and 3rd years were also taken on an educational trip to Shimla- Chail- Kufri, along with teachers and lab staff, from 28th September to 2nd October, where it was a lifetime experience of knowledge, Institute visits to Central Potato Research Institute, sample collection, fun and truckload of memories.

This academic session has truly experienced remarkable participation by the students of Botany Department, in various events and competitions, bringing laurels to the department, in all academic and extracurricular platforms. For all these years, Our department, by all means, stands for all those qualities that connect us to the same roots, welcomes the differences in our petals, and celebrates our bloom, unique to our own seasons. While we learn to hold together like the leaves in a rachis, it also teaches us to bend before we break, instilling in us everyday, the zeal to grow and strive towards excellence.

INAUGURAL LECTURE



Khushi Bhatt

B,Sc, (H) Botany

2nd Year

“Science, like any other work of literature, had discovered that genome is text in a need of consciousness with varied story behind each of it.”

With all the good will and enthusiasm, GCBS “TARU” had organised Inaugural lecture (2019-2020) on 13-9-19 by an eminent scientist, **Dr. Rajesh S. Gokhale (NII, New Delhi)** on topic **“The promise and future of genomic sciences”**

With the auspicious ritual of lamp lightning, the program was proceeded with the opening speech given by GCBS president (Aadrita). With the beginning, Dr. Gokhale, recited some of his hilarious experiences regarding public responses about DNA station at IITF and made the audience realise the vitality of delivering lectures in public. Proceeding towards his topic, he stated that the Genome is the book of life and how everyone has their own characteristic DNA. Audience were dumbfounded by some unknown facts and organism complexity.



He cleared everyone's head with the meaning of "Genomics" and how varied organism survive in extremities because of their super genes like, how Vulture feeding on rotten carcasses can still be fit and fine? How Python digests animals that are approx. 10 times bigger in size? He enlightens audience with a speck of ongoing lab or recent researches like, Vitiligo disease research model, dandruff causing fungi, *Malassezia*, Albinism being a case of genetic mutation, in general, explaining that disease population has different kind of genomics than normal population.

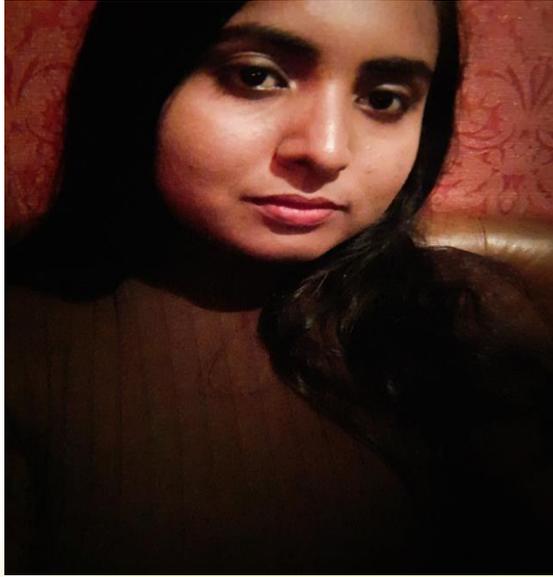
"Science is never sufficient to cure problem completely, however provides us with necessities."

With this important note he gave rest to his prestigious words.

Thereafter, thanking speech was delivered by vice president- Sakshi Dawar followed by Anthesis Editor - Tanvi Saxena who enlightened audience with the theme of 2019-2020 "From Awe To Action" as well as enumerated the key features of Department Magazine "Anthesis". Inaugural ceremony was declared closed with the event of batch ceremony.



TEACHER'S DAY CELEBRATION



Shreya

BSc. (H) Botany

2nd Year

“Teachers are the most responsible and important members of the society because their professional efforts affect the fate of the earth.”

-Helen Caldicott

On the pleasant day of 5th September, The Department of Botany of Gargi College celebrated Teacher's day for the laborious, resourceful and caring teachers and the supporting staff of the department.

All the students of department gathered together in the lab and greeted teachers with their love and respect. The students later presented teachers with some personally curated gifts.

A speech was delivered by the President of GCBS and was followed by the distribution of gifts to the teachers. The assisting lab staff was also complimented with the curated gifts for their constant availability, cooperation and support to students.

The program was a delightful gathering and gave an open chance to students for strengthening their bonds with teachers. The event in whole was a success by the combined efforts of the students of all the year's which also gave students an opportunity to interact among themselves and with their seniors or juniors and learn about some new things.



EXTREMOPHILES: lessons from life under Extreme



Jayati Pandey

B.Sc.(H) Botany

1st Year

On 24th January, 2020 a riveting lecture was delivered by the very renowned and proficiently versed Dr.S.KKahre- the Institute Chair Professor, Biochemistry at IIT- D. The lecture held in college premises was supported by the esteemed Professor of Botany Department, Gargi College, supporting a large turnout of attendees.

Following his Research and arena of study, professor talked about the lives in the extremes.He explains in explicit details about the various mechanisms and metabolism evolved and adapted by the class Archae to survive extreme conditions which seem almost incapable of inhabitation like PH on the extreme ends of the scale, exorbitant temperature, unusual radioactivity and concentrated salinity. These, on the basis of conditions they are found in, are placed under certain labels that include:

1. Acidophiles
2. Alkalophiles
3. Halophiles

4. Thermophiles
5. Hyperthermophiles
6. Metallophiles
7. Psychrophiles

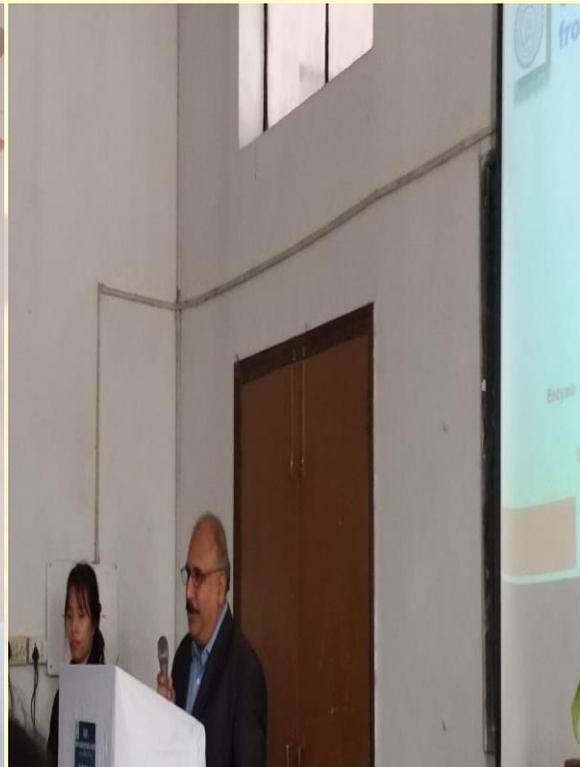
The adaptation of these microbes to such extremities is a sole function of their uniquely coded biomolecules that show certain fascinating characteristics like:

Presence of highly hydrophobic amino acids, positive supercoiling of the DNA, high levels of salt and ions like K^+ in the cytoplasm, a unique lipid mono layer instead of a bilayer and highly stabilised proteins strengthened by numerous disulfide bonds.

Next, he brought the economic importance of extremophiles into light. Various researchers lean upon these organisms for extraction of biomolecular materials which is to be done in extreme laboratory conditions for example the technique PCR requires a hyper thermophile *Thermus aquaticus* for separation of the two complementary DNA strands which could be done only at high temperature.

By the end of the lecture, it seemed as if, and I quote “these organisms seem to not exist only against gravity”.

Professor finishes on a very positive note, inspiring the students to reach beyond the boundaries of subjects and explore the various sciences as they overlay.



SLAM POETRY



Jayati Pandey

B.Sc.(H) Botany

1st Year

Poetry says more than a prose in fewer words- Voltaire

On 17th January, 2020 an Inter Departmental Slam Poetry competition was organized by Botany Department on the theme- '*If Plants Could Speak*'. Students enthusiastically recited their musings, reflecting what plants would say if they could speak.

Though inaudible and incomprehensible to animals, plants do actually speak! Communication between plants perhaps evolved as an adaption for survival-

“The evidence that plants release volatiles when damaged by herbivores is as sure as something in science can be,” said Martin Heil, an ecologist at the Mexican research institute Cinvestav Irapuato. “The evidence that plants can somehow perceive these volatiles and respond with a defense response is also very good.”

Scientists have revealed that plants communicate through the air, by releasing odorous chemicals called volatile organic compounds (VOCs), and through the soil, by secreting soluble chemicals into the rhizosphere and transporting them along thread-like networks formed by soil fungi. That sure is something to dig on!

The event was guided by Geeta Mehta Ma'am, Neha Ma'am and Ruchitra Ma'am and the participants were evaluated on parameters like Confidence,



Voice Modulation and content. Finally, the results were announced on 22nd January, 2020 in a Guest Lecture and the winners were presented with exciting prizes by Professor S.K Khare, IIT-D.

Winners:-

First Prize- Aadrita Das, Bsc. Botany hon., 3rd Year

Runner up - Jahnavi Saxena, Bsc. Life Sciences, 3rd Year

Second Runner up - DeepikaTete, B.com hon. 1st Year

Painting Canvases: Hand Painting Competition

Jayati Pandey

B.Sc (H) Botany

1st Year

Art is the canvas for ideas inexpressible in language, decorated in hues of imagination and philosophy. A palette of mystery, vagueness, and some fantasy intertwined with an artists' expression of her ideas and aspirations. To express is to bring forth a new vision and this opportunity was brought to the students of Botany Department via the Interdepartmental Hand painting Competition Organized on **27TH September, 2019** by **the Gargi College Botanical Society**.

Visualizing in multicolours, the participants painted their interpretations of Our theme for 2020- From Awe to Action, and henceforth were produced mesmerizing art pieces knowing no bounds to creativity.

The competition was guided enthusiastically by our teachers, Priyanka Ma'am, Geeta Prakash Ma'am and Reema Ma'am. Out of all the art pieces that made everyone to look into the painter's perspective and see a whole new set of ideals, the judges had to choose three best on the horns of the dilemma.

The winners were rewarded by Professor S.K Khare, IIT-D in his Guest lecture held on 24th January, 2020.

Winners

1st PRIZE :Ishita Siddhartha- Botany (Hons) 3rd Year

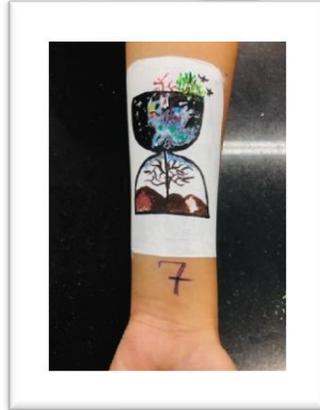
First runner up: Sakshi, Physics(Hons) 3rd Year

2nd runner up: Pinky, Botany(Hons) 3rd Year.

Student organizers, the participants and all of our audience extends our vote of thanks to the teachers for guiding the event so efficiently.



2nd Runner Up, Pinki



Runner Up, Sakshi



Winner, Ishita

EXCURSION - Land of the Gods



Umang Khatta

B.Sc.(H) Botany

2nd Year



Sakshi Dawer

B.Sc. (H) Botany

2nd Year

A five day botanical excursion to Sanjauli, Kufri, Chail, Naldhera was organized for the students of II year and III year honors of Botany Department from 28 September,2019 to 02 October,2019. The students were accompanied by Professors Dr. Geeta Mehta, Dr. Aprajita Mohanty, Dr. Judith Leisan, Dr. Renu Soni, Dr. Renu Puri , Neha Ma'am and lab staff Pancham Sir, Ashok Sir and Hansraj Sir.

The journey started on evening of 28th September. We departed from the college at around 8pm in the buses. The trail was filled with fun as the students played antakshari, listened and danced on various bollywood tunes and near about 11pm we reached Murthal for our dinner. Next morning was the initiation of the dreamy days for each one of us. As we entered Himachal Pradesh, the view outside the window stole our heart ; all that we saw was actually heaven. It was raining heavily due to which it was appearing as if the clouds have landed over the valley. We clicked pictures of this breathtaking view.

Image 1. - Taken during our way to hotel

On our way we could see the beautiful gymnospermous trees of our syllabus *Pinus*(Cheer) alongside the road. As we went over the higher altitudetrees of *Cedrus*(Deodar) and *Abiesspectabilis* (Silver Fir)



were observed. Finally, we reached our resting point - Hotel Royal Regency, Sanjauli where we were welcomed warmly. First day of the excursion didn't go the way as planned due to the bad weather and we had to stay up in our hotel rooms. One of the best part of our rooms was the view of the beautiful valley from our balconies where we also got the golden opportunity to see the double rainbow's next day, early morning. In the evening a DJ night was organized for us in the hotel and it was a fun night, where everyone of us got tuned to the beats and enjoyed a lot. Soon after we were served a lavish dinner and then we all took off to sleep.



Image 2. - Outside view of Hotel room

Image 3. - Double Rainbow's

Image 4- *Funaria* sample

The second day was the real beginning of our 'Botanical Excursion'. First we visited the Central Potato Research Institute (CPRI) Kufri, Shimla. Our buses were parked few metres away from the Institute, we walked the rest of the path exploring the flora near road where we observed various kinds of Mosses- *Funaria* (Cord moss), *Polytrichum* (Hairmoss) and *Funaria* samples were collected by the lab staff. CPRI is exclusively surrounded with a variety of trees including - *Picea abies* (Spruce), *Cedrus* (*Deodar*), 'Vidya' tree.

After we reached CPRI one of their member told us about its history of establishment from Patna to Shimla. We were also told about the its seven regional centres and the different varieties like Kufrichipkuri , Kufri chipkuri1, Kufri chipkuri2, alankaar and chamatkaar variety which they cultivated.



Image 5- At CPRI

After learning about this great agricultural construction, we headed our way to highest cricket ground of the world that is Chail Cricket Ground which was 2,444 meters above sea level. On our way our teachers instructed us to look at the vegetation outside the window. The bus stopped midway once and we with our teachers got down the bus to observe the flora. We observed different plants like *Deodar cedar*, lichen, *Pteris*, cobra plant, silver fern, wild tomatoes, wild strawberries, *Plagiochasma*, *Selaginella* etc



Image-6 Different plants observed, cobra plant, wild mushroom, lichen, *Plagiochasma*.

After we reached Chail we were served our delicious lunch and then we began the trek to the cricket ground. On way there we laughed, sang songs, saw breathtaking views and felt the cold breeze too. Once we



reached there we decided to take some rest and then start the trek downstairs again. Same evening we came back to our hotel. The day in all gave us amazements of which we dreamt and heard earlier in our lives

On 1st of October was the last day in the beautiful place. We packed our bags and left from our hotel for mall road, Shimla. There we visited the famous Christ Church and offered our prayers. We visited the local shops and purchased different items as a souvenier. We also visited the famous Gaiety Theatre where we came to know that many songs like 'Main niklagaddileke' and ' Hume tumsepyaarkitna' were shot here. We had our lunch and started moving towards our bus near 4pm in the evening.

Image 9 View of mountains from Mall road Shimla

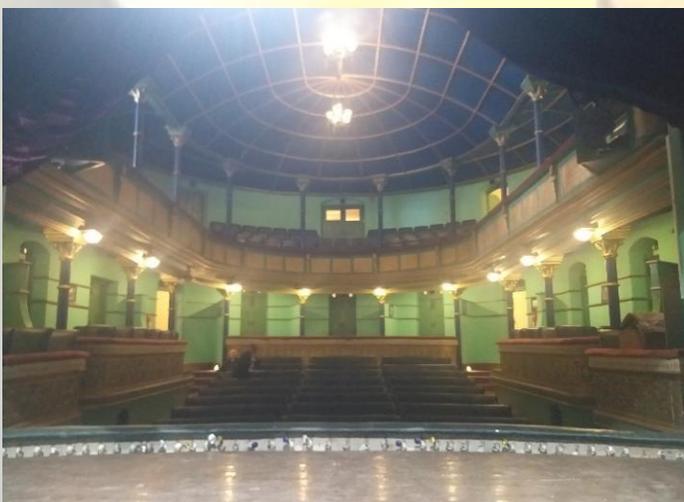




Image 10 Christ Church and Gaiety Theatre, Shimla

We had our dinner midway at Haveli and started the journey back Delhi with glorious memories in our heads to look back again for lifetime.



FLOWER SHOW: GARGI BLOOMS



Tanvi Saxena

B.Sc. (H) Botany

3rd Year

“With each blooming flower of spring rises a hope a hope that says it’s not dried up till it’s spring again!”

On 4th March 2020 Gargi college in association with Department of Botany organised it’s FLOWER SHOW called GARGI BLOOMS. The Flower show was inaugurated by ribbon cutting by the Principal Dr.Promila Kumar and was followed by felicitation by the garden committee members of the principal from a handmade bouquet from Gargi’s own garden blooms.

The flower show had a display of many beautiful flowers fascinating the viewers and butterflies too. Gargi College won 6 Prizes in Flower show conducted by UNIVERSITY OF DELHI.

The flower show had some beautiful display of flowers like Aster, Primrose, Persian buttercups, Dahlia, Carnations and so many more displaying all the colours of spring. The students and teachers had an interactive session with the experienced gardeners and Botany teachers on how to improve their Garden and make them as pretty as Gargi's garden. All the fascinated visitors took great pictures and knowledge with this flower show and were lighting with different colours of spring too.





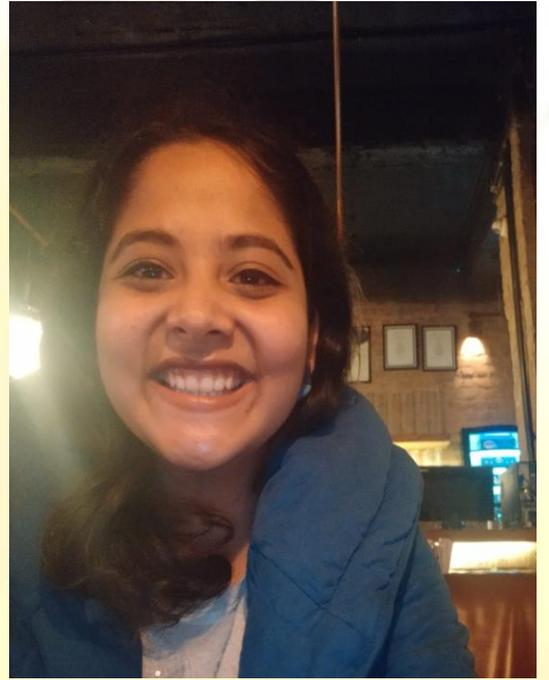


**Academic toppers year 2019-
2020**

Academic Toppers



Nishika Ravi - SGPA: 10
5th Semester (3rd year)



Apoorva Vardhan SGPA-9.57
4th Semester (3rd year)



SAKSHI DAWAR

SGPA: 9.57

3rd Semester (2nd year)



KIRTI SHARMA

SGPA: 9.36

2nd Semester (2nd year)



SAKSHI NAIN

SGPA: 9.18

1st Semester (1st year)

A close-up photograph of a yellow flower, possibly a sunflower, with a brown center. The petals are bright yellow and the center is a textured brown. The text is overlaid in the center of the image.

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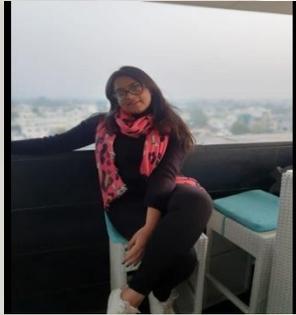


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Joanna
EDITORIAL TEAM



Jayati Pandey
EDITORIAL TEAM

A close-up photograph of a sunflower with a bee on its center, overlaid with a semi-transparent white box containing text. The sunflower's petals are bright yellow, and the center is a textured brown. A small black and white bee is positioned on the right side of the flower's head. The background is a soft-focus green, suggesting foliage.

ARTICLES ON THE THEME-FROM
AWE TO ACTION:THE VISION OF
FUTURE

ECO-FRIENDLY DIWALI/ A NIGHTMARE FOR DELHI



Ishita Chandra
BSc. (H) Botany
3rd Year

Diwali is one of the major festivals of the Hindu community celebrated every year in India. During Diwali, people decorate their homes with diyas, candles and lanterns. Hence, it is called *the festival of lights*.



Diyas illuminating the
www.theholidayspot.com

environment. (Photo Source:

But people nowadays often confuse it with Diwali, *the festival of crackers*. Fire crackers are made up of explosive items containing chemicals and heavy metals that release harmful gases (like Nitrous oxide) and noise upon burning. The release of these toxic gases into the atmosphere is hazardous for both living beings as well as the environment.

Every year in Diwali, the sky is full of lighters and fireworks which may look good in vision but in real, are very dangerous for the environment. This year, Diwali was celebrated on 27th October. According to reports, the air quality index (AQI) in Delhi deteriorated two weeks before Diwali and was the maximum on 27th October when the AQI reached 340. On the next day, it was 368 and the city turned into a 'gas chamber'. Day after day the air quality degraded further and became more toxic. On 3rd November, the AQI was 999 while the accepted level of AQI is below 200. Delhi was not the only polluted city, other cities which were polluted included Muzaffarnagar, Moradabad, Noida, Ghaziabad and Kurukshetra.



People wearing masks due to severe air pollution

(Photo Source: www.indiatoday.in)

Due to poor air quality, people faced serious health problems like difficulty in breathing and issues associated with hearing and visibility. People were seen wearing 'air filter masks' or 'antipollution masks' and were advised to stay indoors as the thick brown smog veiled the city.

What is the point of bursting crackers when they are harming us in long term? Why can't we have an eco-friendly Diwali? We can simply stop



bursting crackers considering its effect on the environment or use eco-friendly crackers which emit less smoke, produce less noise and are renewable. Earthenware lamps or diyas can be used for enlightening the environment. This will lead to less air and noise pollution. One has to know that Diwali is a festival which signifies the victory of good over evil, light over darkness and, *knowledge and action over ignorance*.

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CARBON FOOTPRINT



Khushi Bhatt

B.Sc. (H) Botany

2nd Year

Have you ever put a count on your day to day activities?

Carbon footprint is all about analysing your daily activities that will add on carbon in atmosphere, specifically carbon dioxide, like transport, electricity consumption, fuel usage for cooking, bathing, travelling and all of your bits and bobs here and there.

On broader means it can be applied on particular individual, organisation, family, event and even your college fest!

Calculating carbon footprint of every individual is a hideous job, so mostly footprints are measured as tons of CO₂- including equivalent gases like methane, nitrous oxide etc.- per year by different nations or globally.

WHY TO CALCULATE CARBON FOOTPRINT?



<https://encrypted-tbn0.gstatic.com/images?>

YOUR FOOTPRINTS MATTER!

As a global element, even the smallest of smallest efforts matter. Your single event is not alone it is related to a chain of event as similar as VAT!

Even if you are recycling a single thing you are giving a lot more than you think, you are cutting power of manufacturing, shipping, storage, advertisement and a lot more! So never feel like your efforts doesn't matter, cause they do!

MAJOR CULPRITS!

According to Global Carbon Project (2017), top five countries producing the most CO2 emission are:

1. China- 9.8 billion metric tons
2. U.S.- 5.3 billion metric tons
3. India- 2.5 billion metric tons
4. Russia- 1.7 billion metric tons
5. Japan- 1.2 billion metric tons

So, if we all are looking forward to live without oxygen masses in near future, there is need to show some mercy towards us and respect towards mother nature.

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BAREFOOT POWER



Shreya Shrivastava

B.Sc (H) BOTANY

3rd Year

Barefoot power is a global, for-profit Australian social enterprise that manufactures and distributes solar lighting and phone charging products along with accessory device to off grid rural communities in developing countries. This business was founded in 2005 by Stewart Crane and Harry Andrew. It provides affordable, safe and clean energy through independently solar power kits while reducing the carbon footprint.

Even today around 20% of world's population do not access electricity. Therefore, for them kerosene is the only affordable and accessible source of lighting and fuel. Kerosene lamps emit both carbon dioxide and black carbon. Each kerosene lamp creates about 200 pounds of carbon dioxide emission per year. To overcome this problem barefoot power has most extensive product lines in the micro-solar industry which include Go portable lamps and LED solar rechargeable home energy kits powered by

1.5W to 60W solar panel. These products have plug and play installation system which is easy to use. And so families can have their homes electrified almost instantly.

Barefoot Power has positively impacted the live of several million households in over 20 countries which include India too. The Barefoot power model has generated significant developmental impacts i.e.

- 1) Reducing health hazards associated with burning kerosene for light.
- 2) By switching from a kerosene lamp to a solar lamp such as Go250, the average consumer saves about \$5 per month or \$60 per year on kerosene.
- 3) Increases economic and learning opportunities.
- 4) It reduced the demand for fuels like firewood and fossil fuels which in turn reduced deforestation.

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CAN TREE GROW IN 1 LITRE OF WATER?



Sumi Kalita

BSc. (H) Botany

2nd Year

If you are asked if a tree can be grown using only one litre of water, you would assume I have gone crazy, or wonder if I will water the tree secretly. But growing a tree with only one liter of water is an unending surprise which is practiced in various regions of India.

Sundaram Verma, the man behind Dryland Agroforestry

Sundaram Verma from the Danta tehsil in Rajasthan's Sikar district has successfully grown 50,000 trees using only one litre of water per tree, which is a technique also applicable in arid region! And this technique is called 'Dryland Agroforestry' which was accidentally developed by Sundaram in 1985.



The man developing Dryland Agroforestry method – Sundaram Verma

Reference: thebetterindia.com

What are the steps to grow trees with just one litre of water?

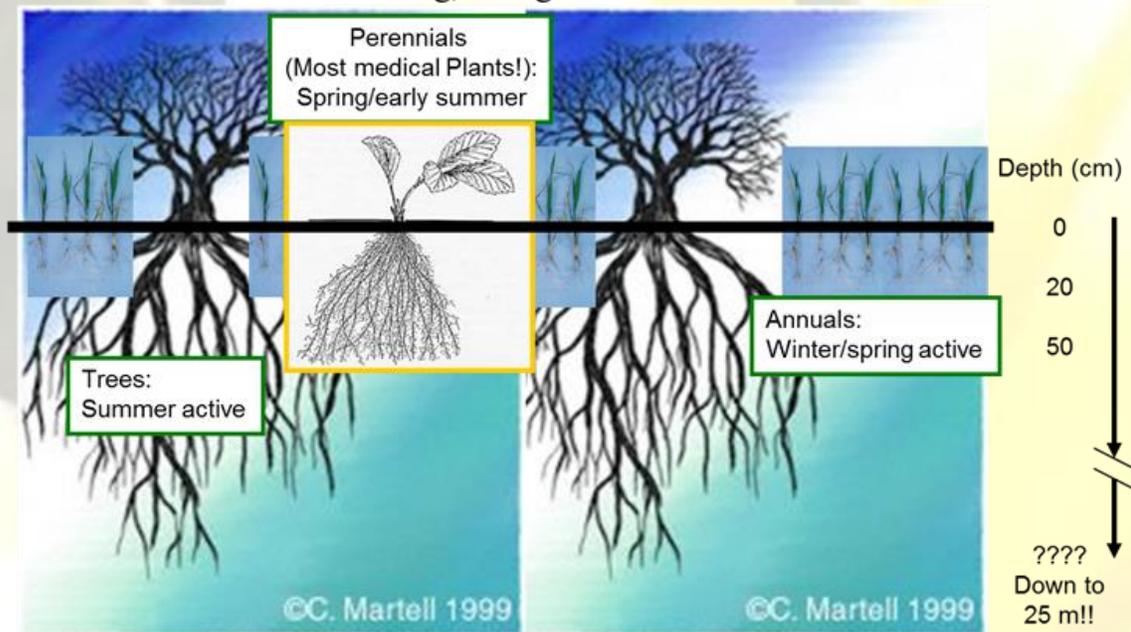
1. The farmland is levelled which prevents rainwater to drain away.
2. The fields are ploughed after the first rain for 5 to 6 days till one foot deep for the rainwater to seep into the soil by removing the weeds. This helps the water to not to rise to the surface.
3. The fields are ploughed for the second time immediately after the rain is over. This locks the water into the soil.
4. Pits of one foot deep and 4 to 5 inches wide are dug a few days after the second ploughing.
5. Saplings are planted in the pits, at least 20 cm below the soil surface and are covered with wet mud. This helps to keep the moisture for a long time.
6. And ultimately one litre of water is poured in the pit, allowing the plant to grow.

In winters, the roots penetrate the soil as deep as possible and in the summers the moisture content of the plants moves downwards pushing the roots further downwards to absorb water from deeper inside.

Principle of Dryland Agroforestry

Annuals, perennials and trees use different resource pools and are active during different seasons:

Optimal resource utilization under minimum competition and mutual benefits: shading, nitrogen fixation etc.



Principle of Dryland Agroforestry.

Reference : www.sustainabilitylabs.org

How does this method help?

This method helps to use water efficiently and increase production. It helps to grow plants without the use of extra water.



Trees grown using just one litre of water per tree.

Reference: thebetterindia.com

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A MULTISTOREY OF CROPS: VERTICAL FARMING



Shreya Srivastava

B.Sc,(H) Botany

3rd Year

A booming population raises the demand of land for agricultural, industrial and residential set ups tremendously which makes it immensely important to develop techniques of sustainable living. In short an increasing population means a need to grow more food on ever decreasing fertile land available for the purpose. Vertical farming is a sustainable method of farming developed to ensure a large produce from a comparatively less farm area.

This method, pioneered by professor Dickson Despommier of Columbia University, involves growing crops in vertically stacked layers such that minimal input produces a large amount of output. The highly sustainable method of Vertical farming takes its foundation on several other advanced mechanics.

Stepping Stones of Vertical Farming

1. **Hydroponics:** as the name suggests, the plants take root in soil-less aqueous nutrient media, ensuring a constant supply of nutrients and oxygen.

2. **Aeroponics**: In this technique plants are grown with their roots suspended in air and a mist of nutrient supply is sprayed over the roots and the foliar parts as well.
3. **Controlled environment agriculture**: in this technique plants are grown indoors and their requirements are monitored regularly and supplied. Greenhouses, artificial light, controlled temperature, controlled nutrients etc are the components of this practice.
4. **Aquaponics**: It is a combination of aquaculture and hydroponics. It incorporates fishes in the hydroponic system, such that the nutrient rich waste of fishes can be used as a fertilizer for the plant. This system mimics a biosystem that includes both plants and animals.

Vertical agriculture can be practiced both indoors as well as outdoors. Walls of multistoried buildings, pillars, unused campus etc are some of the many locations where vertical farming can be carried out. In Delhi itself, many metro pillars are now used to grow vertical garden.

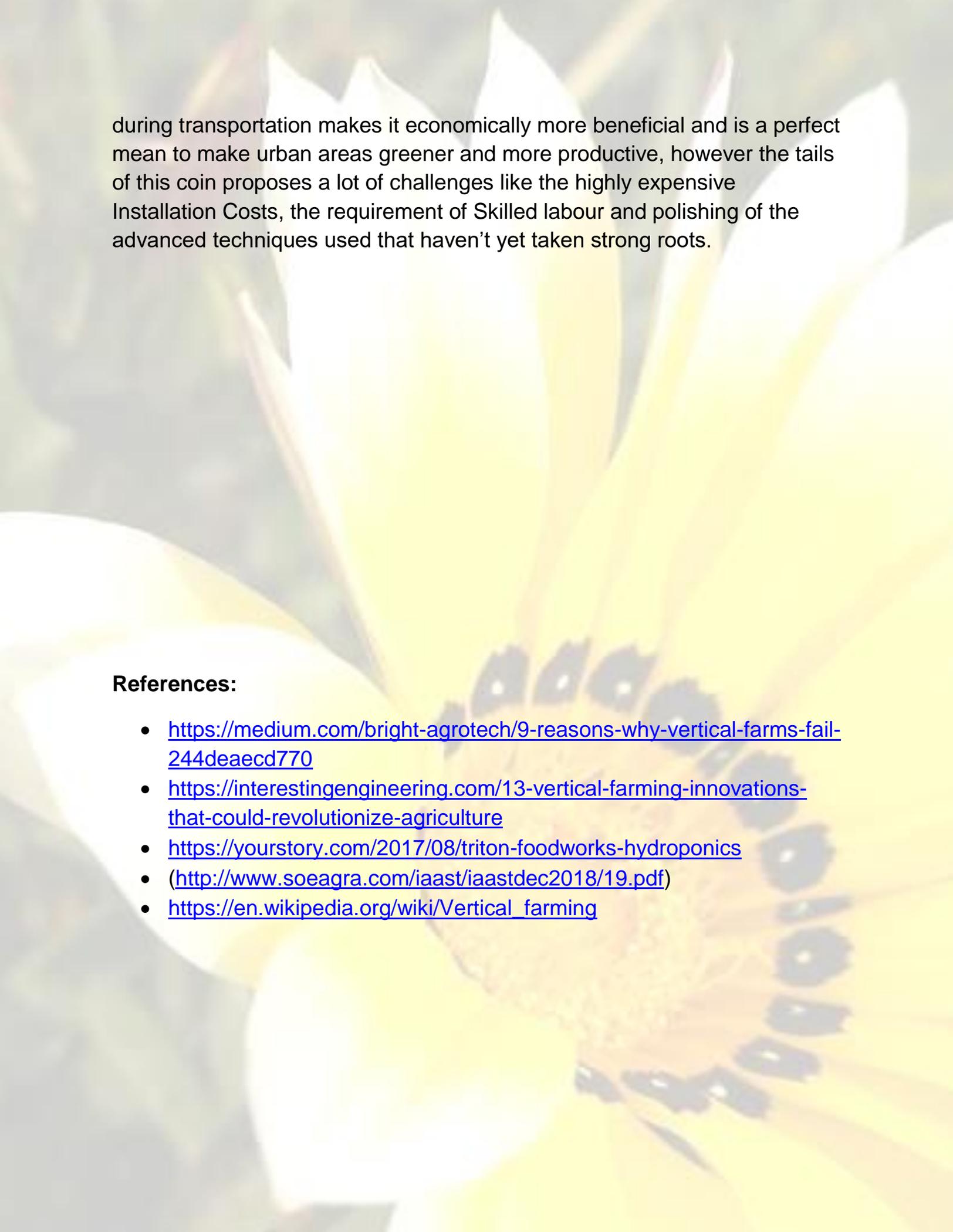
In India Triton foodworks, a company jointly started by four young minds in 2014 started vertical farming by growing strawberries in a place called Sainikfarms in Delhi.



Soilless cultivation of vegetables at Triton foodworks, Delhi. Reference: <http://www.tritonfoodworks.com/gallery-files/large/pg-4.jpg>

The heads and Tails of Vertical Farming

Vertical farming along with being highly Sustainable in prospect of resources like sand and soil, also prevents mechanical damage to crops by environmental factors. A reduced amount of transportation and spoilage



during transportation makes it economically more beneficial and is a perfect mean to make urban areas greener and more productive, however the tails of this coin proposes a lot of challenges like the highly expensive Installation Costs, the requirement of Skilled labour and polishing of the advanced techniques used that haven't yet taken strong roots.

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RE-FREEZING THE MELT: ICEBERG MAKING SUBMARINE



Raidhani Shome

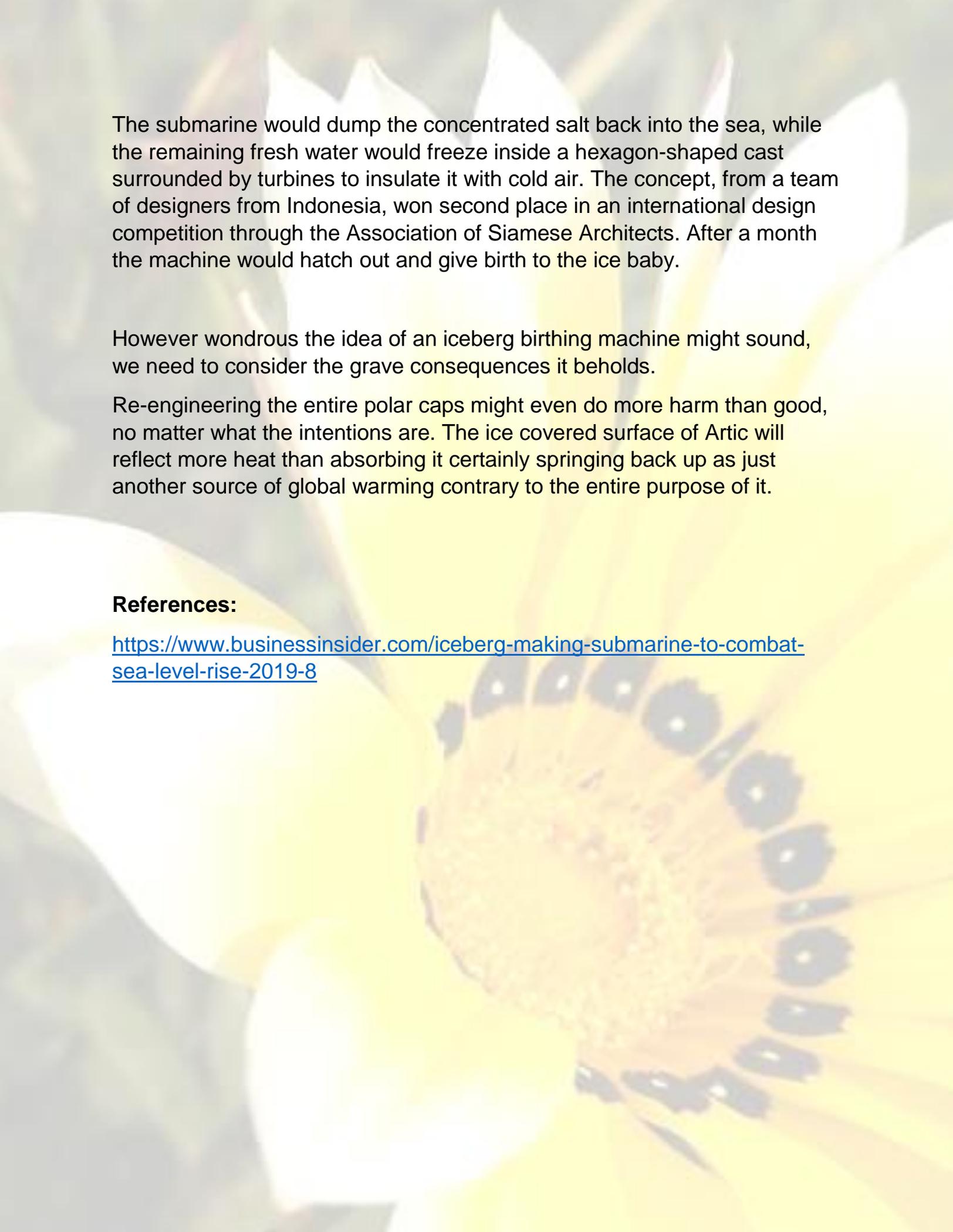
B.Sc.(H) Botany

1ST YEAR

A massive consequence of Climate Change is seen as Global Warming, which is quite literally an unnatural increase in Global temperature, unlike the most of us however, the polar caps don't seem to enjoy the prolonged summers and hotter winters. The situations that will necessarily follow anymore deterioration of Nature's Boundaries have apparently dawned upon the human race leading to desperate attempts to restore the melted poles of Earth.

A concept to re-freeze both the Arctic and Antarctic is surfacing as an Iceberg birthing Submarine. You heard it right, artificial glaciers are what we're looking at to save the poles. According to Forbes, there have been many articles and theoretical projects going on under this idea that are all represented beautifully, but we need to know the science behind it, and what pros and cons this idea holds.

The ice-making submarine would dip below the ocean surface to fill with seawater, then rise back to the surface and close the hatch of its hexagon-shaped well. Reverse osmosis would then filter salt out of the water so that it could freeze faster.



The submarine would dump the concentrated salt back into the sea, while the remaining fresh water would freeze inside a hexagon-shaped cast surrounded by turbines to insulate it with cold air. The concept, from a team of designers from Indonesia, won second place in an international design competition through the Association of Siamese Architects. After a month the machine would hatch out and give birth to the ice baby.

However wondrous the idea of an iceberg birthing machine might sound, we need to consider the grave consequences it beholds.

Re-engineering the entire polar caps might even do more harm than good, no matter what the intentions are. The ice covered surface of Arctic will reflect more heat than absorbing it certainly springing back up as just another source of global warming contrary to the entire purpose of it.

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GREEN CORRIDORS



Sakshi Dawer

B.Sc. (H) Botany

2nd Year

Green corridors are roads, lanes or areas full of vegetation with an aim to avoid and reduce the negative effects of land fragmentation and human intervention which can be very harmful for the wildlife on the earth.

Excessive inbreeding and reduced genetic drift that generally occurs in case of isolated populations can be avoided using green corridors because these basically act as connectivities between the isolated patches and hence allow free movement of individuals of one population to other. These corridors intend to achieve an increase in the biodiversity by reconnecting the land fragments which would lead to an increase in the colonization of animals into No areas either when resources in their natural habitat becomes depleted or in order to reduce the competition for resources. This also provides a positive genetic effect in the society by providing more chances to the individuals from various populations to mate amongst each other and subsequently leads to an increased diversity.



Figure 1:

<https://i.pinimg.com/originals/42/6c/d1/426cd18d62511898a32f7e79c0295be2.jpg>

There are various factors that lead to an increased inbreeding and decrease in the overall genetic drift and diversity. Some of which include habitat fragmentation via construction of roads, bridges and buildings or various natural disasters like floods which leads to evacuation.

Green corridors can be used by the wildlife for a short period of time like for migration and dispersal or can be exploited for longer periods of time which may stretch to years or spending their entire life time there itself. Based upon the stretch, the green corridors can be regional, to sub regional and local. There are various wildlife corridors including the Eastern Himalayan corridor, Tandai tiger corridor etc.

Green corridors are involved in sustainability of the urban environment and decreasing inbreeding and increase in genetic diversity.



Figure 2: <https://www.alamy.com/the-green-corridor-of-alcazar-de-seville-spain-image185232545.html>

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FROM WASTELAND TO FOREST: LIFE OF ANASUYAMA



Aadrita Das

B.Sc.(H) Botany

3RD Year

“The Earth is a fine place and worth fighting for.”
—Ernest Hemingway

We all by this time realize the importance of the environment that sustains us, and the responsibility we hold to maintain the environment’s good health. And as today’s generation, we have all it takes to make a change in the society, the willingness, the support, the energy, the zeal; but how many of us really channelize our words of bringing a change into actions of committed, thoughtful citizens?

As we take our time to ask ourselves this question, let us cite an example of one such environment hero, the example of Chikapalli Anasuyamma, of Telangana, who has not only broken gender norms, but also the idea of

impossible, to plant over 2 million trees in 22 villages, Sangareddy district, Telangana.

Fondly known as **Gubbadi Anasuyamma.** , while coping with her life struggles, searching for jobs to support her and her adopted son, she became a member of DDS (Deccan Development Society), and gradually made afforestation her mission. While being a volunteer of DDS, she started by planting 32 plants varieties after realising the wrath of villagers who had to walk long distances to fetch water, due to lack of water reserves. It was then suggested by DDS that the trees would help and recharge groundwater tables and retain the rainwater, and since then the drive to afforestation was started. They soon started mobilising their motives and recruiting locals with a daily pay. With funds from the DDS, scientific methodologies, seeds and equipments, she has been successful in converting many wastelands into green forests, and she proudly quoted, “it was a surreal experience for me” (in a telephonic conversation with **The Better India**).

Anasuyamma is now one of the oldest members of the DDS, a senior supervisor, and works with other Dalit women for the preservation of Mother Earth, while training them to develop nurseries. And while today she is a proud recipient of UNESCO Award on behalf of DDS for her outstanding contributions and conservation efforts, she has a lesson for all of us to learn from, that where there is a will, there indeed is a way, and if we have the will for safeguarding our environment, we all can, Indeed!



Source: <https://www.thebetterindia.com/200574/telangana-woman-inspiring-chilkapalli-anasuyamma-trees-planting-india/>

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GREEN BUILDINGS: FOR AN ECO-FRIENDLY NEIGHBOURHOOD



Neha Rawat

B.Sc,(H) Botany

3rd year

“Humanity is now standing at a crossroads. We must now decide which path we want to take. How do we want the future living conditions for all living species to be like?”

-Greta Thunberg

Delhi has become an epicentre of pollution in India. Grey mornings and people waiting for metro with their masks on are common sights now. It's not that Delhiites are ignorant or have submitted themselves to this smoggy fate; we are just a little lazy. Lots of campaigns and drives have been going on to help Delhi be green again. What we need is a sustainable solution that will help us in the long run. Delhi never ceases to grow and we need a plan to direct it towards eco-friendly growth. It's a herculean task and will need strong determination from both the government and the denizens. The capital city needs a total architectural make-over if it wants to curb the alarming pollution rates. The buildings need to go green along with its

occupants. Yes, you heard it right. Green Building is a contemporary concept.

CONCERN FOR ENVIRONMENT | Currently there are 2,204 green buildings, including hospitals, hotels, colleges and IT parks in the country

India will have one lakh green buildings by 2025

Priyanka Golikeri @priya3014

Bangalore: At a time when climate change and environment have become crucial topics of discussion, the number of green buildings is expected to increase manifold. Built with an intention to protect the environment by using non-toxic materials like solar panels, wind turbines, rainwater harvesting systems, composting systems etc, green buildings are said to help in energy conservation.

And their number is anticipated to grow from 2,204 at present across India, to about one lakh by 2025, say estimates by the Indian Green Building Council. A far cry from 2001, when there was only one green building in India. This increase will include hospitals, hotels, offices, institutions, colleges,



convention centres and IT parks.

"We are seeing a lot of interest from clients who include IT and ITeS firms for green buildings. They have understood the concept and are appreciating the benefits," says Satish BN, executive director

at property consultancy Knight Frank. Experts say green buildings are beneficial not just in energy conservation, but also in cost reduction. "Green buildings can help save a lot of energy. The energy savings can be as high as 15,000

What are Green bldgs

Green building refers to a structure that is environmentally responsible and resource efficient. Green buildings are designed to reduce the overall impact of the built environment on human health by efficiently using energy and water, protecting the occupant's health and improving productivity, reducing pollution etc. Green buildings use sustainable materials in their construction like recycled material, that are made from renewable resources.

and IT parks.

According to Adarsh Vansay from Aeon Green Power Solutions, a 600 watt solar panel and a 650 watt wind turbine are enough to provide 4-5 hours of daily energy supply for a two to three member household living in a 2 BHK.

"So installing a solar panel and wind turbine on the roof are useful. A minimum 300 days of sunshine is guaranteed in India so solar energy can be tapped more extensively. Wind turbine provides versatility," says Vansay, whose firm designs, supplies and installs solar panels and wind turbines to households in Bangalore. While installation of grey water treatment systems, for treating water from sinks and washing machines, proves helpful in reducing water bills.

MWh, while water savings can be 45,000 kl," says Syed Mohamed Beary, chairman, IGBC, Bangalore.

Experts say such buildings help save about 15-20% of the total running and maintenance cost of a building, specially office premises

<https://www.dnaindia.com/bangalore/report-india-will-have-one-lakh-green-buildings-by-2025-1900195>

What is a Green Building?

A building that, in its design, construction and operation, reduces or eliminates negative impacts and promotes a positive impact on our environment is termed as a green building. It works on the concept of using minimum energy and resources. Harvesting solar energy, using natural daylight, rainwater harvesting, installing vertical gardens are some essential components of a green building. Existing structures can also be converted with some minor changes such as renovating with water-based paints, fly ash bricks, and bamboo flooring.

How Green Buildings sustain our environment?

- They are made from materials that are obtained from natural resources.
- Its construction and maintenance require less water, energy and resources.
- Lower carbon footprint.



Green Banao

Benefits Of Green Buildings

Environmental Benefits	Economic Benefits	Social Benefits
 <p>Green Buildings are inherently designed to make the best use of natural resources. A Green Building is much more friendly to the environment than a normal building.</p>	 <p>The overall cost of a Green Building is less as compared to a normal building because it uses less resources like energy & water. It also increases the value of the property.</p>	 <p>Green Buildings are very good for the health of entire eco-system that occupies it. They also decrease the load on local infrastructure.</p>

<https://www.ierek.com/news/index.php/2017/10/26/green-buildings/>

- Less overall expenditure during their life cycle.
- Positive social impacts: well-being and increased efficiency of people residing in them.



<https://www.ecoideaz.com/expert-corner/pending-top-indian-green-buildings-that-stand-for-innovativeness>

Green buildings around us

1. Suzlon One Earth , Pune
2. Olympia Tech Park, Chennai
3. Infinity Benchmark, Kolkata
4. Indira ParyavaranBhawan, Delhi
5. Infosys, Hyderabad



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SCIENTIFIC FORESTRY



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3rd Year

Scientific forestry refers to the scientific conservation and management of forest. The term given by **Dutch Scientist Dietrich Brandt** now refers to the practice of cutting down trees of different varieties and replacing them with one type of tree species, planted in rows

This means replacing a native indigenous forest by other trees for the purpose of harvesting timber etc, it is nothing more than forest based agriculture and is in fact, quite harmful to the ecosystem and biodiversity of any place where it is carried out.

In today's world the term scientific forestry may refer to the use of scientific knowledge and techniques in conservation of forest and restoration of our indigenous forests. The need of the hour is to utilize scientific methods for the restoration of the indigenous flora fauna in a relatively short time period.

The technique which can be very beneficial for the quick restoration of forests and related flora fauna is the **Miyawaki Method** which was introduced by **Dr. Akira Miyawaki**, a Japanese botanist. The Miyawaki method of recreation of native forests utilizes native species of trees to produce a rich, dense and efficient protective pioneer forest in 20 to 30

years whereas natural succession would need about 500 years for the same development of forest at its natural pace.

Kerala tourism sanctioned the first miyawaki forest in the government sector by granting special permission to build this at **Kanakakunnu Palace, Thiruvananthapuram**. This was done for the fight against the climate change. The project was accomplished by following certain measures.

- Around 800 saplings of indigenous trees, sub-trees, shrubs, creepers, emergent trees were collected and planted in pots with organic potting mixture nursed carefully for three months.
- Top soil of the selected plot was removed up to 1 metre
- Cavity was filled with tender coconut husks. Lime-shell added for speedy conversion of husk into manure. Mixture of soil, rice hull, dried cow dung and coir pith was also added.
- Plot was divided into one square metre columns.
- Trees planted in the centre of the columns. Sub-trees, shrubs and creepers were planted around the trees.
- Mulching of the land with coir pith and hay stack was done
- Micro irrigation system was implemented for better water management

Pioneering Mini Forests.

Eco-entrepreneur **Shubhendu Sharma** is working on growing an ultra-dense, biodiverse mini forests of indigenous species in cities by engineering soil, microbes and biomass to start natural growth process.



Conversion of backyard into a forest area
Source: thebetterindia.com

Scientific Forestry has provided us with several methods to do our parts in preventing any further damage that has been done to the environment by the human race. Collapsing ecosystems can be prevented by planting backyard forests and adopting Miyawaki Method.

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VEGAN BOTTLE



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3RD Year



vegan bottle <https://www.veganbottle.com/home>

Plastic bottle usage is impacting our environment and health very badly. Plastic bottles contain Bisphenol A (BPA), the chemical used to make the plastic hard and clear. BPA is an endocrine disruptor which has been proven to be hazardous to human health and is strongly linked to a host of health problems including certain types of cancer, neurological difficulties, early puberty in girls, reduced fertility in women etc. It also often ends up at the bottom of sea and in stomach of a variety of animal species. Plastic bottles are not recyclable so a new alternative to environment unfriendly one-use plastic bottles is vegan bottle.

Vegan bottles are made from a plant based fully biodegradable and recyclable bioplastic which have properties similar to those of traditional plastics. It is the result of patented technologies in the field of processing sugarcane and plant combination. sugarcane (*Saccharum officinarum*)

is used as plant material for making vegan bottle because it does not require tons of water also intrude the farmland. Vegan bottle is a new formulation with mechanical properties and barriers superior to all plant-based formulation. It is produced by LYSPACKAGING to provide solutions to serious environmental problems related to pollution of petrochemical plastics.

Thus, vegan bottles use should be widely practiced and encouraged as it is easy to carry without any toxicity at the end of life. It does not contain any endocrine disruptors and is unbreakable and reusable.

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ENVIRONMENT PERFORMANCE INDEX (EPI)



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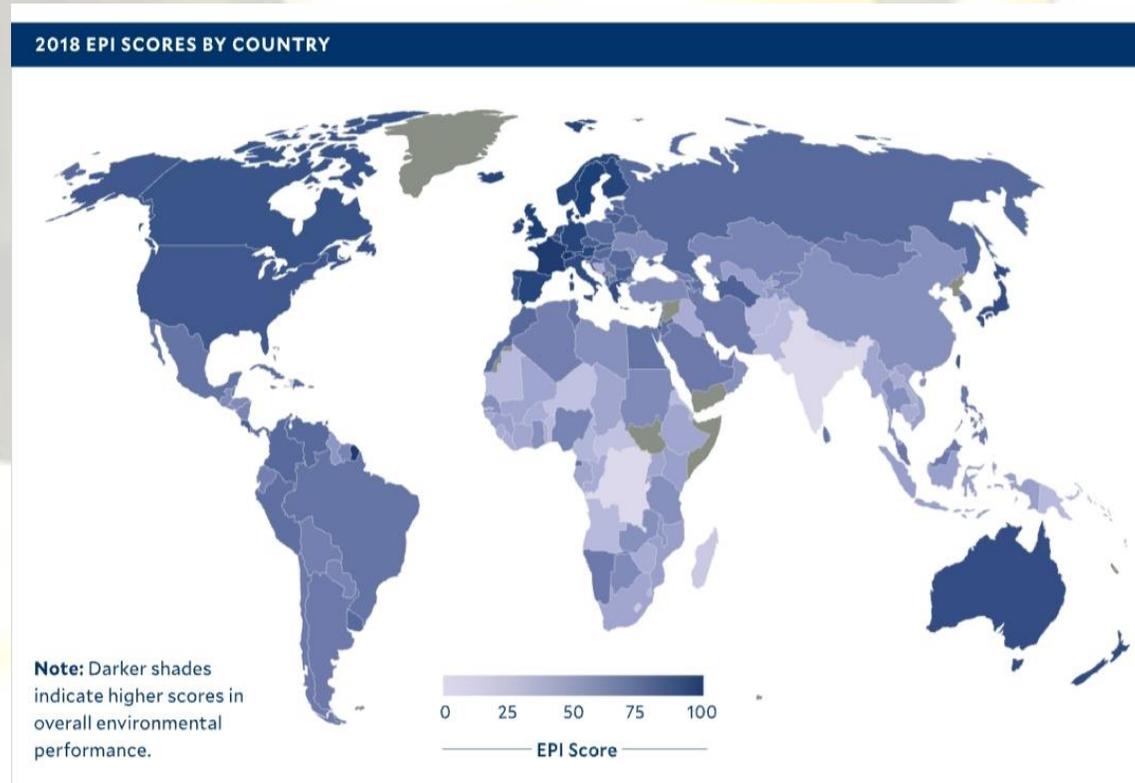
3rd Year

The world has entered a new era of data-driven environmental policymaking. With the UN's 2015 Sustainable Development Goals, governments are increasingly being asked to explain their performance on a range of pollution control and natural resource management challenges with reference to quantitative metrics.

The Environmental Performance Index (EPI) ranks almost 180 countries on 24 performance indicators across 10 issue categories covering environmental health and ecosystem vitality : (1) Environmental health, which rises with economic growth and prosperity, and (2) Ecosystem vitality, which comes under strain from industrialization and urbanization.

The EPI thus offers a scorecard that highlights leaders and laggards in environmental performance, gives insight on best practices, and provides guidance for countries that aspire to be leaders in sustainability. The EPI offers not only a snapshot of where countries stand today but also reflects important trends in environmental performance at both the national and

global levels. High scorers exhibit long-standing commitments to protecting public health, preserving natural resources, and decoupling greenhouse gas emissions from economic activity.



Counties and their EPI rankings

PHOTO SOURCE : <https://epi.envirocenter.yale.edu>

Countries are ranked based on how well they protect both human health and natural ecosystems across these categories.

Top 5 ranked countries are:

1. Switzerland
2. France
3. Denmark
4. Malta
5. Sweden

- Switzerland leads the ranking because of strong performance across most issues, mainly air quality and climate protection.

Bottom 5 countries are :

1. Nepal
2. India
3. Dem. Rep. Of Congo
4. Bangladesh
5. Burundi

- The low rankings are indicative of the need for national sustainability efforts like cleaning up air quality, protecting biodiversity, and reducing GHG emissions.

- Of the emerging economies, China and India rank 120th and 177th respectively, reflecting the strain population pressures and rapid economic growth impose on the environment.

- Some of the lowest-ranking nations face broader challenges, such as civil unrest, but the low scores for others can be attributed to weak governance.

With the increase in carbon emissions alongside population growth, it has never been more critical for countries to become more sustainable.

Fortunately, more and more nations are starting to take environmental issues seriously, with the environmental performance index (or EPI) a useful tool to measure the green credentials of various countries around the world.

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INDIA AS A CONVENTIONAL ON BIODIVERSITY MEMBER



Nishika Ravi

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3rd YEAR

“We must convince and empower people to adopt the conservation and sustainable use of biodiversity as their guiding principle”

- Klaus Toepfer

WHAT IS CONVENTIONAL ON BIODIVERSITY (CBD)?

The CONVENTIONAL ON BIODIVERSITY (CBD), is informally “The Biological Diversity Convention”. It’s a multi-lateral treaty. CBD is an international legally binding treaty with 3 main goals:

1. Conservation of biodiversity.
2. Sustainable use of biodiversity.
3. Fair and equitable sharing of the benefits arising from the use of genetic resources.

Its Objectives promote one of the 3 objectives of the convention. There are 196 parties and 168 signatories to the CBD, including India.



Logo of Conventional on Biological Diversity(Source: wikipedia.org)

ENVIRONMENT AND FORESTS INDIA

CBD came into force in December 1993. The world is now alive to biodiversity issues as never before. The ratification of the CBD in February 1994 by India was a formal recognition of the principles offered by the convention for closer international cooperation in the conservation and sustainable use of biodiversity.

INDIA REPORTS TO THE CBD

- India submitted its 6th national report to the convention on biological diversity(CBD) in December 2019, which reveals that it is well on track to achieve majority of its 12 national biodiversity targets by 2020.
- The report also highlights numerous success stories wherein public awareness played a significant role in biodiversity conservation.
- India's submission to CBD acknowledges that balancing development and biodiversity remains a key challenge.

BALANCING DEVELOPMENT AND BIODIVERSITY



A picture from India's sixth national report to the Convention on Biological Diversity (Source: india.mongabay.com)

India's report said that balancing needs of the growing population and enhancing conservation of biodiversity is a tough challenge. Main threats to biodiversity include habit fragmentation, degradation and loss, over-exploitation of resources, shrinking genetic diversity, invasive alien species, declining forest, climate change and desertification, impact of development projects and impact of pollution.

INTERNATIONAL DAY FOR BIOLOGICAL DIVERSITY IS 22nd of MAY.

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DEVELOPED NATIONS / TRASHED NATIONS



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2nd Year

A nation economically rich in terms of GDP (Gross Domestic Product), GNP (Gross National Product), per capita income alongside a well established industrial as well as service sector builds up a developed nation . These developed nations are considered an ideal model by all the developing countries. But here a question comes in mind, **Are these so called 'Developed nations' developed in all aspects?** On exploring this topic, a completely different picture came into light.



@creativecommons: <https://www.flickr.com/photos/7389799@N08/6947109495>

"Industries - Potential Or Threat"

As the industrial sector develops, the consumption of plastic increases, hence making these developed nations the major producer's of plastics. Plastic is a non biodegradable substance which is made up of synthetic or non-synthetic organic compounds. These have potential of causing harm to both, biotic and abiotic components of the country. But this problem is not limited to these nations only, rather these toxins are being sent to be dumped off either in the oceans or on the grounds of the developing nations.

These developing nations don't have a proper waste disposal management system, as a result between 400,000 and one million people die every year in these nations due to diseases caused by mismanaged waste, as estimated by poverty charity Tear fund

Not only this, but the plastic being dumped off in water bodies causes death of aquatic animals in huge numbers which can turn up to millions. These substances clog the digestive channels of these animals proving fatal to them.

Will these developed nations be a growing one's in terms of waste disposal management?

Initiatives have been started by these countries.



By Randy Olson <https://www.nationalgeographic.com/environment/2018/07/ocean-plastic-pollution-solutions/>

"Water bodies or Plastic bodies"

Measures that could be taken in context to this includes banning the use of plastics commercially, only in the places where plastic is a necessity as in



some industrial purposes can be excused. A proper waste disposal management system must be introduced to people and followed strictly. Various nations have initiated their aim of abolishing plastics - Canada aims to ban single use plastics by 2021, D.C. Plastic straw ban begins and many other nations are joining their hands to get rid of this situation

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SUPERMARKET HERB GARDENING



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3rd Year

The idea of urban gardening has been in trend for long now. It includes everything from backyard gardening to kitchen gardening. Long story short, all that is sustainable for both environment and economy. Supermarket herb gardening takes in the concept of kitchen gardening, only at a larger scale.



Image

showing

herb

garden

Photo

source: [https://echochamber.com/article/albert-heijn-purmurend-](https://echochamber.com/article/albert-heijn-purmurend-netherlands/)

[netherlands/](https://echochamber.com/article/albert-heijn-purmurend-netherlands/)

Herb gardening within the sale-premises have a wide range of benefits to offer and supermarket herb gardening takes advantage of that. It involves growing a range or variety of herbs in soil media or in special cases, other suitable nutrient medium. This can be coupled with vertical gardening to make best use of space and increase the yield. These herbs grow in real time enabling the consumers or buyers to choose their desired herbs based on its age and size. They can pull or cut out the amount they need. This methodology ensures that the plant product remains fresh for a long time unlike the conventional marketing tradition that involves sale of cut herbs that otherwise comes with issues like these herbs going bad thus causing food wastage as well as loss, both to the buyer and the seller. Herbs tend to have a short shelf life so, this method provides the best alternative over the conventional methods.

Apart from adding to the food security and longevity, it provides a fresher environment as herbs are one of the best air purifiers. *Albert Heijn was the first Netherlands based supermarket to introduce the concept*, catering demands for fresh herbs. Soon many other supermarkets followed the same. It can also be introduced in India seeing its remarkable success and even better role in creating a better planet by taking small steps with bigger effects.

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SEVEN POINT ACTION PLAN



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3rd YEAR

Earlier this year around September, the air pollution of the city saw a reduction in air pollution by 25%

Delhi chief minister Arvind Kejriwal came up with a seven-point action plan to further improve the air quality of the city. The plan was launched with an aim to combat the hazardous influx of air pollution during winters which is caused due to various reasons like stubble burning, construction activities, winter season, pollution due to crackers etc. The seven point action plan included:

**1.Odd Even scheme 2.pollution masks 3. community Diwali laser show
4.Environment Marshall 5.hotspot control 6. dust control 7.tree challenge**

This was announced with an aim to reduce the effects of stubble burning which is carried out in the neighbouring states of Punjab and Haryana, stubble burning is the practice of intentional burning of the straw (stubble) which remains after the harvesting of the grains like wheat paddy etc. Though the practice is completely restricted by the government, it is still being done every year and increases the particulate matter of the air. This polluted matter along with the winds is drawn towards the national capital and converts it into a 'gas

chamber' which happened this year around November also and the air quality was worsened and had even increased to a hazardous level of 850+. to reduce the levels of air pollution The odd- even rationing came into effect from November 4th to 15th in New Delhi which complied car plate numbers ending with odd numbers to ply on odd dates and even ones on even dates. This reduced the number of daily cars by half and to a great extent helped in combating the air pollution by lowering it but however inconvenience was caused to people who were not well connected with public transport or metro. All the cabs and autos were exempted from the scheme for the peoples convenience but the days saw a surge in fare rates which made it convenient but expensive. The increased pollution also lead to distribution of pollution masks to all school students and their parents which up-to some extent filter the air we breathe.

Another action taken to control pollution was dust control by putting a complete stoppage on all construction activities and sprinkling of water on the roads which helped cutting of the dust particles rising up in the air also a tree challenge was taken up and thousands of trees were planted which also helped in cutting the dust since the roots of trees bind to the soil and do not let it disperse along the air. Along with this 12 major pollution hotspots of Delhi were kept under check.

Diwali is the time of the year when crackers are burnt as a celebration which adds up to the pollution in spite of a ban on them. A community Diwali laser show was organized at central Delhi on the eve of Diwali and the people were urged to follow the ban put on bursting of crackers and enjoy the show instead. This was successful up to a great extent since people did attend the show and the bursting of crackers this year had reduced significantly in comparison to last year.

Overall the seven point action plan turned out to be very successful in tackling the pollution problem and helped significantly in lowering the particulate matter in air. For the future aspect this shouldn't be just a plan which has to be implemented every year it is the duty of each and every citizen to contribute his/her part in keeping the pollution levels low by giving up the malpractices and making such activities a part of their lives.



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PLASTIC EATING ENZYME: MYSTERY OR MYTH



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2nd year

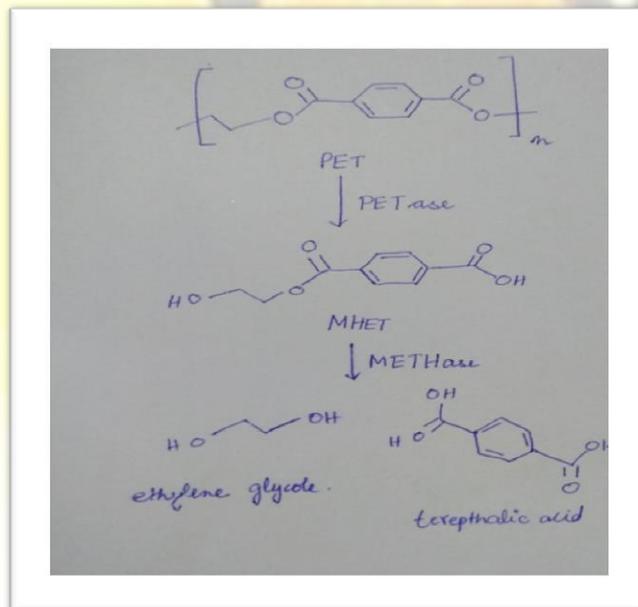
INTRODUCTION:

Plastic pollution is the accumulation of materials and objects made from plastic in the environment which may have adverse effects on the surrounding environment. It is a problem faced by the modern world as plastic products are becoming an essential part of our lives. They are cheap, durable and has many other valuable uses. All these reasons have led us to depend on single use plastics day by day not realizing the consequences they bring to the environment. In the world, more than half of the total plastic produced is to be used just once and to be disposed after that. More than 60% of these single use plastics either end up in landfills or just scattered in the environmental surrounding.



THE BREAKTHROUGH OF THE PLASTIC EATING ENZYME

Scientists have always been working on how to decompose plastics properly since they are non-biodegradable for years.



In 2016 at a waste dump in Japan, scientist found a bacterium that evolved to eat plastic. This discovery encouraged scientists to accidentally create a mutant enzyme that was able to eat plastic bottles. This breakthrough could help the world's plastic problem faced everywhere. The international team mutated the enzyme to observe how it had evolved but instead they found out that they had accidentally made the enzyme even better at breaking down the PET (polyethylene terephthalate) which was the plastic of soft drink bottles. The enzyme secreted by the bacteria is PETase.

IS IT FULLY RELIABLE?

Though the mutant enzyme is quite slow i.e. takes a few days to begin the breaking down of the plastic, it is much more faster than those at oceans which takes centuries. The scientists are hopeful that they can accelerate this further so that it is applicable in a large scale process.

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PANGONG LAKE – NATURE’S BOON OR NIGHTMARE



Himani Rai

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3rd Year

Pangong Tso , also known as “ The Nature’s Magical Mirror ” is situated in the leh ladakh region of Himalayas at the height of 4,350 m.

FACTS AND FEATURES

- The mystical and aesthetic beauty of this 134 km long magic mirror extending from India to China has its own breathtaking aura to the senses of it’s visitors.
- **Tourists are allowed to visit the lake till Spangmik village because of the lake’s proximity to Sino-Indi border.**

- **Pangong Tso, at its broadest point, is around 5 km wide.**
- **At an altitude of 4350 m above the sea level , Pangong Tso is one of the highest altitude lakes in the world.**
- **A saline water lake, it freezes completely during the winters ,the brackish water of the lake is very low in terms of micro vegetation, except Crustaceans ,no signs of aquatic life could be seen on the Indian side of the lake however , in the stream coming from South-eastern side, three fish species have been spotted.**
- During summer, the Bar-headed goose and ducks are commonly seen here. The region around the lake supports a number of species of wildlife including the kiang and the marmot.
- However, ducks & gulls could be seen over and on the lake surface, also some species of scrub and perennial herbs that grow in the marshes around the lake are spotted by the visitors
- **60 per cent of the lake, lies in China and the eastern end of Pangong Tso lies in Tibet.**
- **Being an endorheic basin, it retains its water and does not allow outflow of its water to other external water bodies, oceans and rivers.**
- **The magical lake is widely known for its ability to change colours, the colour changes from shades of blue to green to red.**
- The first sighting of the lake is unforgettable,Our driver stopped the vehicle while the lake is an image of a breathtaking triangular, turquoise slate wedged between the shoulders of brown hills in the horizon.
- Most tourists do not come here to see a high altitude lake, or a protected wildlife territory, for that matter even the occasional avifauna exclusive to the region, they come here to see where 3 Idiots was filmed.



[Image source - India.com](#)



[Pangong Tso of Himalayas](#)
[Image source- thelandofsnows.com](#)

INSIDE STORY - Not so Pretty picture



Trash lying near Pangong lake
Image source - Indianexpress.com

From 527 tourists in 1974 when Ladakh was opened to tourism to over 300,000 annually today, the numbers are growing exponentially.

Along with it, the toll taken on the habitat goes up.

Fishing and boating are prohibited in the Pangong waters as it is a protected wildlife area and also due to an unresolved border feud with China.

A morning stroll along the lake throws up garbage of every conceivable shape and size. As the day progresses and the lake launches into its famous colour shifting, changing surface palette every passing minute, the beatitude is broken by mounds of trash people stumble upon, be it heaps are tucked under piles of alluvium and granite stones or the trash that is carelessly strewn across,

The ecologically fragile area is getting swamped, be it the heaps of the waste generated by restaurants, hotels, camping sites or the disposable water bottles and food packets dumped right at the

periphery of the lake and even inside by the tourists. Hence, posing a big threat to this glacial lake.

ACTIONS

In an ecologically fragile zone , one way of ensuring that places like the Pangong Tso remains being the continuum of unfettered beauty is that locals, authorities and other stakeholders come together, the paucity of Trash cans along the Pangong lake can only be rectified through the combined measures.

One of the measures taken is the Tsangdra drive initiated by Lavasa. While 'Tsangdra' means 'cleanliness', under its broad purviews are concepts of local ownership-driven home through development of eco-sensitive zones. Cabbies are given portable trash containers into which they collect plastic bottles and other garbage discarded by tourists and other motorists.

Awareness can also be spread through the power of social media for the same through competitions as well. With the cooperation of the locals and the administration and the understanding and support of those who pass by, people like us, It's not too late to set things right.

GREEN PEACE: VOICE OF NATURE



Jayati Pandey

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1st year

*Listen to the weeping Willows;
Hear them sing-
the Grim Irony of Humanity,
While their younglings die
growing upon smoke pedestals.*

Our environment has long been a silent causality of Wars, of human conflicts and of greed. The unbridled pursuit for power charged by the modern technology has constantly been creating a fearful and hopeless Voracity. Ecological systems are collapsing owing to the territorial conflicts, flora and fauna are being poisoned by increased number of nuclear tests and wars and chemical warfare is ripping entire areas off of any biological existence. All this leading to rapid extinction, mutations and loss of bio diversity.

Nature is being subjected to the dangers of Human hatred, Militarism and brutal industrialism. Past has given enough lesson to be learnt from nuclear and chemical impacts during the World wars when the entire state of Hiroshima went up in a huge Radioactive burst. The massive choking of the cities due to incineration of Tonnes of Oil during the Gulf war and the Civil War around the edges Virunga National Park of Modern day Democratic Republic of the Congo, are all incidents of war against nature in the past. The Virunga National Parks used to host a rich gene pool of fauna which as a consequence to repeated wars and distress is constantly losing it's endangered species of Mountain Gorillas, Elephants and other mega fauna owing to massive deforestation for food supplies extracted by refugees. Virunga National Park was declared the first UNESCO World Heritage site in 1994 to be enlisted as endangered.

U.S. Vs Afghan Environment

The U.S, for instance, has been at war with Afghanistan on account of the 9/11 attacks for nearly two decades, raging war on it's environment. The United Nations Environment program (UNEP) released its evaluation on Afghanistan's environmental issues titled:- **"Post conflict Environmental Assesment"** stating that- ***"the decades of war have caused Resource and land degradation, desertification causing lowering of water tables, dessication of wet lands, widespread loss of vegetative cover and flora and fauna"*** Ammunition dumps have been causing radioactive poisoning leading to ever increasing cases of Cancer and crippling defects in new borns due to widespread genetic mutation. B-52 bombers and cluster bombs entirely wipe out the biodiversity it cradles.

The very convincing justifications of wars might be Agendas like National Security and Eradication of terrorism but does the end always justify the means? Especially when the end is mass extinct by Climate Change.

The idea of Greenpeace is for Humans to come to terms with each other for the sake of our planet and to put an end to the exponentially increasing consumerism, warfare, resource exploitation and environment degradation.

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BAMBOOS OF KENYA :HOLDING THE SOIL



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2nd Year

Bamboo is among the fastest growing woody plant in the world. Bamboo has proven potential for soil erosion control , climate change mitigation and Adaptation. It is a perennial species belonging to grass family *Poaceae* subfamily *Bambusoideae*. Bamboo has been an integral part of indigenous forests in Kenya. The *Oldeania alpina* (*Syn Yushania alpina*) commonly known as highland bamboo is the only indigenous bamboo species that grows naturally between the altitudes of 2,200m and 3400m AMSL. Kenya has a total bamboo growing area of 133,273 hectares concentrated in mountain ranges and forest areas managed by national government.

Bamboo has continued to gain importance in Kenya as a multipurpose as it has many uses like a good timber substitute, bioenergy source , a sustainable raw material source for micro,small and medium scale

enterprises and ecosystem services protecting water towers of Kenya. In Kenya floods and landslides killed around 100 people and displaced nearly 300,000 between march and may 2018. Many of the Kenyan communities affected by floods and landslides this year were already struggling to recover from the 2017 drought a result of failed rainy season in 2016 and unusually high temperatures. The rainfall patterns were completely shifted . Kenya received more torrential rains of high intensity which was accompanied by flooding . This was all stated by Catherine Muthuri a research scientist at the world agro forestry centre ,Nairobi.

Degraded soils prone to erosion reduce soil fertility in farmlands and decrease yields thus intensifying and leading to prolonged hunger and poverty. Additionally floods wash away massive amounts of sediment into rivers. Farmers along the upper Tana river basin in central Kenya have turned to bamboo trees cultivation in a bid to reduce sediments flowing into rivers and stabilize land that is prone to landslides.

<https://www.dw.com/en/investing-in-bamboo-to-curb-floods-in-kenya/a-44833210>





Bamboo canopy provides cover within 4 years unlike other trees which take 15 to 30 years

Bamboo roots are able to prevent landslide and soil erosion. The bamboo roots form a network of roots in soil thus binding it and preventing the runoff of soil especially near riverbanks and the abundant foliage is dry and falls off forming a humus layer and thus enriching the soil nutrients. Bamboo has served as a boon for various Kenyan communities as it helps them by preventing soil erosion, landslides and also helps in the development of cottage industries in small Kenyan communities .

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MICROPRARIES



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2nd Year

Interaction of biotic and abiotic components makes life possible. Living organisms can't survive without interacting with abiotic components and this interacting biological community and their physical environment constitutes ECOSYSTEM. Ecosystem is of various types and PRARIES is one of them. Praries are grassland ecosystem harbouring herbaceous plants especially grasses, trees may or may not be included. Prairies stand for French word MEADOW, which simply means GRASSLAND. Generally people use the word "praries" to describe grasslands of North America.

Chicago praries, <https://creativecommons.org>



How fascinating it would be if we can create these praries at our own yards, admiring its beauty and observing small wildlife associated with it. Little praries can be created at our own and these are MICROPRARIES. We can easily convert our boring yards into micropraries.

For creating micropraries choose a particular area that can easily accommodate 15-20 plants and is able to get enough sunlight. Remove the grass from selected area using mechanical, chemical or smothering method. Tilling should be avoided as it does not remove the grass completely and may promote old weed seed growth. For selection, choose native plants as they have specific adaptations. Plants should be chosen according to soil conditions. Plants should be a proper balance mix of grasses, sledges and forbs. Plant in such a way that a taller plant doesn't shade smaller ones. If right conditions would be given praries would develop in time depending upon the pant.

Maintenance of praries includes checking for weeds. Micropraries should be fenced to protect from animals.

Micropraries are easy to maintain and does not require fertilizers and much pesticides. They provide shelter to various kinds of insects, reptiles, birds and others small wildlife. They are adapted to our climate and these praries plants hold the soil in space and their roots are drought resistant.

Praries consist of plants that are rarely found in other habitats. Praries absorb lot of rain and prevent erosion and run-off. But praries are damaged by excessive grazing. So overgrazing should be avoided and proper care should be taken to get beautiful micropraries. Thus, micropraries are fun way of planting and reaping benefits.

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The fury of Australian Bush fire and aftermath



Umang Khatta

BSc.(H) Botany

2nd Year

Fire! Fire! everywhere. Life! Life! nowhere. Such a condition struck the land of Marsupials. Sudden changes in temperature and severe drought led to fuelling up of the bushfires in Australia. The bushfires claimed lives of 27 people and destroyed hundreds of millions of animals and livestock, thousands of homes, more than 10.3 million hectares of land was destroyed by bushfires across the continent.

Source : <https://images.app.goo.gl/KzVQxYT6x1sYsWvj7>



Now, whom to blame for this huge havoc? Is it the climate change? The bushfire season? The drought? Or indirectly US? From my point of view all these things are actually interlinked to each other. We "humans" from last several years have initiated this – by the emission of the greenhouse gases (methane, chlorofluorocarbons, carbon dioxide)so rapidly that it had eventually given rise to Global warming which further leads to various environmental issues - one such being climate change.



Source :
<https://images.app.goo.gl/hEASkJwW1mucquZt6>

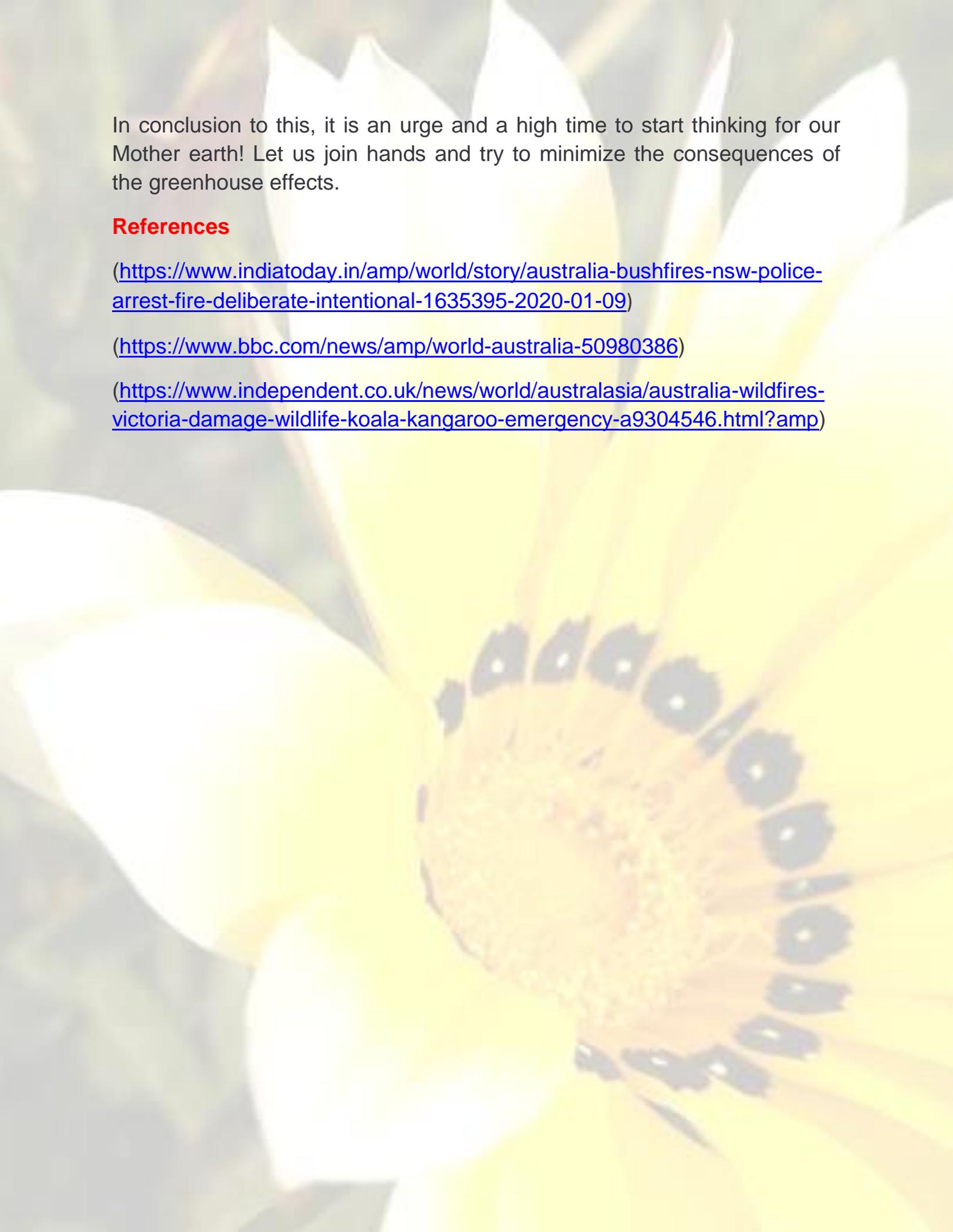
Hence, this year, Australia twice set a new temperature record: an average maximum of 41.9C was recorded on 18 December. Scientists have long warned that this hotter, drier climate will contribute to fires becoming more

frequent and more intense. Therefore, actually the world is also responsible in some way for the huge loss and destruction of wildlife of Australia.

The aftermath of these are quiet scary to know - only the charred remains of trees are now dominating the formerly lush valleys in East Gippsland, a region once home to koalas, kangaroos and wombats. The national bushfires have estimated to the killing of a billion animals, incineration of thousands of homes and death of atleast 32 people.



<https://images.app.goo.gl/fwQ6p8BJw3H9CRfC>



In conclusion to this, it is an urge and a high time to start thinking for our Mother earth! Let us join hands and try to minimize the consequences of the greenhouse effects.

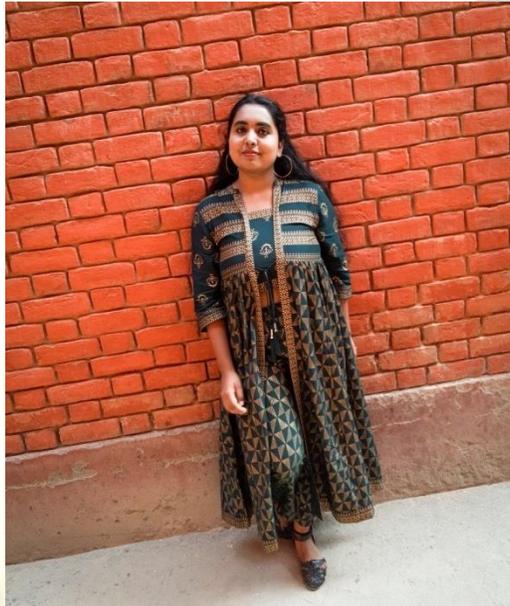
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AMAZON FORESTS ON FIRE: BRIEF ACCOUNT



Shreya Shambhavi

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2nd Year

Amazon Rainforest, the “lungs of the earth” burned at such a rate last year which was not witnessed in years. According to CNN’s report, the number of fires in Brazil 2019 is the highest on record and is up by about 85% from the previous year alone. The fire was on such a huge scale that the smoke raised was visible from space. The forest fires destroyed the home of indigenous tribes, threatened millions of animals and darkened the skies of major cities.

Amazon is the world’s largest carbon dioxide sink and has a huge role in regulation of climate. It is estimated to capture about 25% of the global CO₂ generation into plants and other biomass. Without it, atmospheric carbon dioxide concentrations



A forest fire in Altamira, in Brazil’s Pará state.
https://miro.medium.com/max/2860/1*REEFV8cxofjHLQFS4ZZzjw.png

would increase contributing towards the rise in the global temperatures. Also, when forests are burnt, additional CO₂ is added to the atmosphere significantly increasing the total carbon dioxide content. Flora of Amazon also generates significant quantities of water vapour through transpiration



https://upload.wikimedia.org/wikipedia/commons/thumb/6/63/Amazon_fire_satellite_image.png/1073px-Amazon_fire_satellite_image.png

which contributes to the process of precipitation in surrounding areas. Highest Biodiversity of

the world resides in these tropical rainforests. It is the home of about 30% of the world's known species as well as to about 390 billion trees belonging to over 16,000 different species, which is more than about 50 times the number of humans on Earth.

The biome spans about 6.7 million sq. Kilometres (twice the size of India). Amazon basin is shared by eight countries among which approximately 60% is located in Brazil. Hence, Brazilian rainforest destruction is considered a major threat to environment. Increase in the no. of fires lead to increased emission of greenhouse gases which generally leads to an overall increase in planet's temperature. The increased temperature causes a rise in the number of extreme weather events like droughts. Deforestation directly contributes to the change in



Figure 3: https://media.pri.org/s3fs-public/styles/story_main/public/images/2019/08/20190829fire.jpg?itok=8Hlkc4fF

rainfall patterns, extending the length of dry season. This further has serious consequences on forests, biodiversity, agriculture and humans.

Tropical rainforests has a warm and humid climate with a sequential occurrence of a long wet season followed by a relatively shorter dry season. However, this dry season has a lot of water, just

markedly less than the wet season having monsoons. Hence, most of the fires within Amazon tropical rainforest are considered anthropogenic rather than being natural (like lightning strike in dry season). Fire is not uncommon to occur during dry season. These fires are often deliberately set as a part of “**Slash and Burn agriculture**”, a method of farming in which people deliberately cut down and burn forestlands for agriculture, livestock, logging and mining. Slash and Burn agriculture is a common practice in the tropics during the dry season, which in the western Brazilian rainforest, runs from June to August. But in the year 2019, the increased number of fires is generally considered as a result of the policies of Brazilian president Jair Bolsonaro, who since coming to power in January, 2019 has weakened the environmental protection policies of the country. The budget of Brazil’s environmental protection agency was slashed by 95%. The clearing of land for agribusiness like soybean farming was hugely encouraged and illegal logging practices were not monitored properly. The call for the eradication of about 1 million Indigenous people living within the forests, also called the “Guardians of Amazon” had severe results.

The world responded with rage towards this environmental issue. Protests were held in various cities,



Climate activists take part in a demonstration demanding protection for the Amazon rainforest outside the embassy of Brazil in Brussels.
<https://media.pri.org/s3fs-public/styles/w2304/public/images/2019/08/20190629protest.jpg?itok=UuRTM5z8>



https://cdn.downtoearth.org.in/library/large/2019-09-17/0.30191900_1568715017_p44dlpix-rts2nm7c.jpg

threats made to financial penalties and broad condemnation of Brazilian president's policies on social media. Lastly Brazil ordered a 60 day ban on setting fire watched over by army deployed in the Amazon. It lead to a drop in no. of fires by a third between August and September, which later further lowered with the onset of annual rains. People all over globe aided for the protection of forest. Many countries and ENGOs stood ahead for protection.

The situation is actually much severe and is broader and beyond Amazon. Many forests of the world are under the danger of being lost due to human steps, which has severe effect on ecosystem and hence needs to be checked and controlled.

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COP India– 2019



Poornima Maitrey
B.Sc.(H) Botany
2nd Year

Meeting COP India 2019

It is the highest ranking decision-making body of UNCCD(United Nations Convention to Combat Desertification) and 197 country parties are constituent members of COP.Prime Minister of India Mr Narendra Modi got hold of the meeting. of Parties (COP14) United Nations Convention to Combat Desertification (UNCCD) was held in Greater Noida, Uttar Pradesh. He said that climate change was leading to desertification land and degradationthe Indian Space Research Organisation (ISRO) in 2016 discovered that approximate 29% of India's land was degraded by 0.57% increase from year 2003-2005.It was reviewed during the mutual meeting between India and China that mutual cooperation in the area of cope desertification within the plan of UNCCD will be fortified.



Logo of COP India 2019

Source <http://ddnews.gov.in/national/india-host-14th-cop-unccd-starting-tomorrow>



Meeting COP India 2019

Source: <http://abclive.in/conference-of-parties-presidency/>

UNCCD 2018-2030 Key works and India's duty in COP

- The members take up a novel method for implementing the Convention. It was taken up during COP13 that was organised in

- Parties decided to do all the possible measure to prevent land degradation and desertification.
- All the parties were decided to put their all efforts in restoring the degraded land prior or up to2030.
- To restore 5 million hectares of downgraded land in A time period of 10 years.

Conclusion

The whole of the conference roam around the policies for preventing desertification and land degradation by various measures and policies. It is beneficial in achieving the Sustainable Development Goals (SDGs) that is to utilise natural resources in a precise manner.It is a major step in recovering the damage done by humans. Hopefully, these measures will help in restoration of the degraded land.

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HOLY WASTE: GARLAND OF TEMPLE REUSED



MUSKAN VERMA

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3rd year

India is the birth place of many religion like Hinduism, Buddhism etc., Temples, Mosque, church etc. are the integral part of its architecture. Worshipping and faith in god is unique in our tradition. Offerings in forms of sweets and flowers are part of our tradition.



Source: Author

Due to improper waste management system these offerings are proving to be hazardous to the environment. These waste along with the plastic wrappers are usually dumped or discarded in water bodies. For example-At some religious sites like Haridwar where people incessantly put flowers and other offerings with it into the Ganga River basin, without even considering the negative impacts it may have on the environment.

Cause of holy waste

Generally offering of temple are considered to be sacred and people don't like to throw it as a garbage. Generally they are thrown in the water bodies without segregating them into degradable and non-biodegradable the decomposition of these flower consumes a lots of dissolved oxygen thus are proved to be threat for marine life. Also these are treated as green waste which accounts for major river pollution in India.

Reusing the garland.

1. For compost making- with advancement of technology making compost out of the temple waste is really very easy and quick. Also economical in nature this way have help a lots of farmer in cutting

their cost of expensive fertilisers.



Source:<https://static.toiimg.com/photo/imgsize-153989,msid-65762176/65762176.jpg>

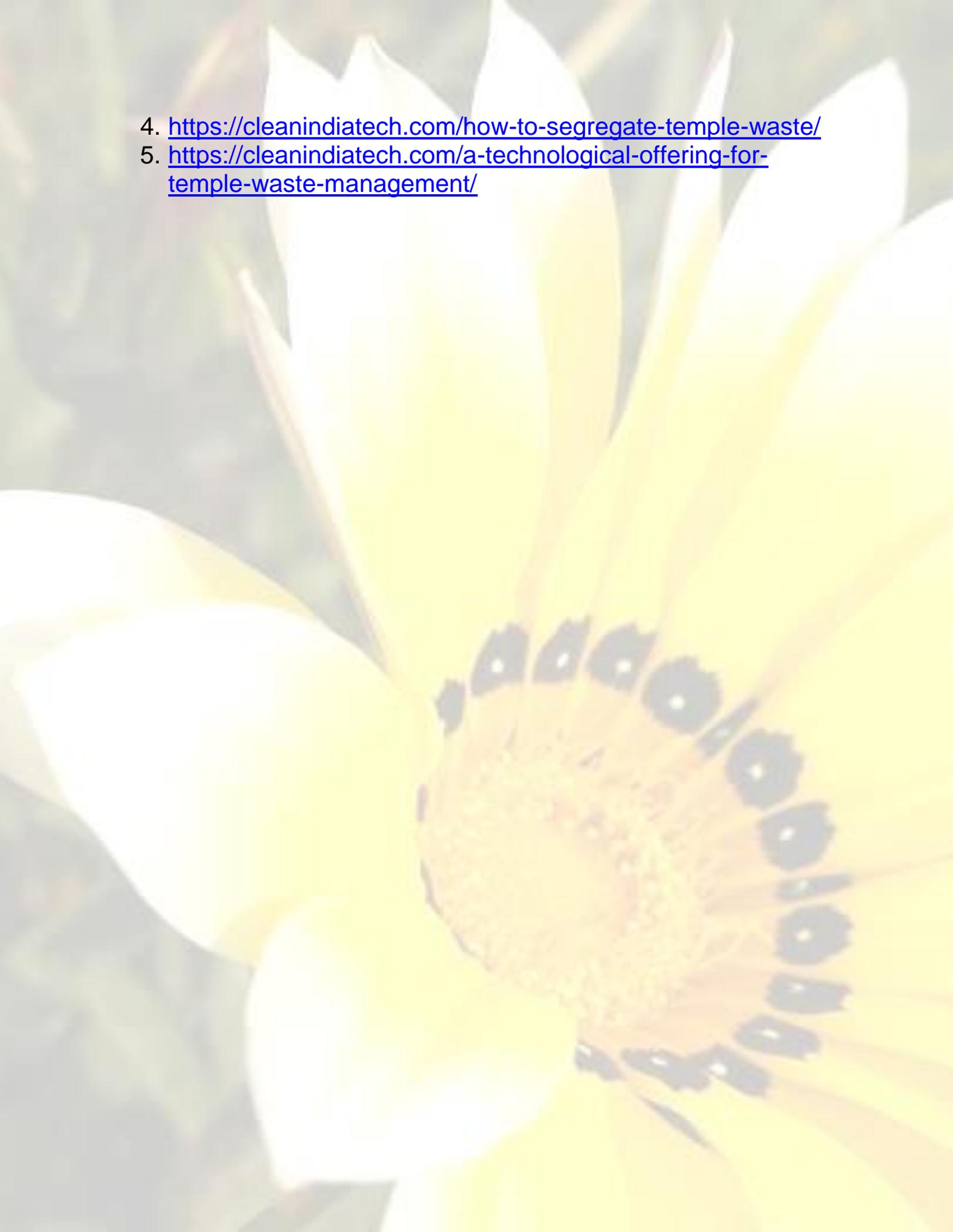
2. Making incense sticks out of flowers- drying the flowers and rolling the dry mass with sandalwood forms an excellent way of making natural incense sticks
3. Making floral candles- making of candles out of the dried flower gives natural fragrance to it and also is eco-friendly in nature

These waste are increasing day by day, and accounts for major pollution Proper methods and plan for waste management can be implemented in order to curb it down.

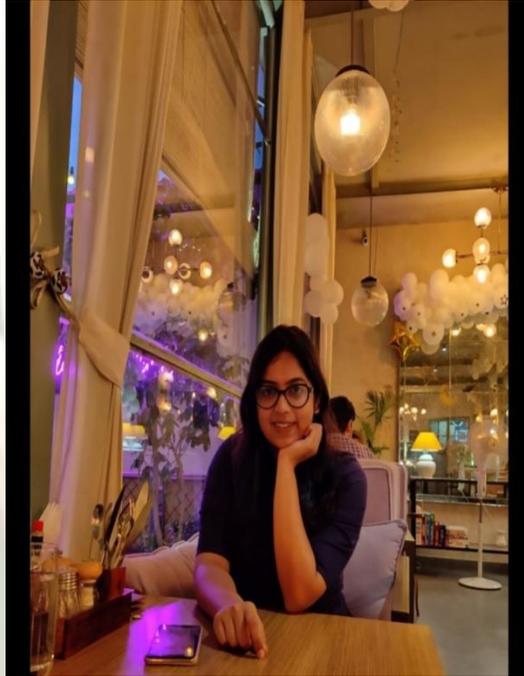
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BOTANIST OF THE YEAR-ARCHANA SHARMA



Tanvi Saxena

B.Sc. (H) Botany

3rd Year

Born on 16th February 1932 in the serene environment of Pune to a family of inspiring lecturers and professors Archana Sharma did her elementary and higher education in Bikaner, Rajasthan. Sharma did her under graduation from Bikaner College and Masters in Botany from University of Calcutta in 1951 and Ph.D. and D.Sc. in 1955 and 1960 respectively specialising in CYTOGENETICS, HUMAN GENETICS AND ENVIRONMENTAL MUTAGENESIS.

In 1967, she joined the **University of Calcutta** as faculty, later becoming a Professor of Genetics in 1972 in the Centre of Advanced Studies in Cell and Chromosome Research at University of Calcutta.



Dr. ARCHANA SHARMA

Her areas of research were extensive in diverse forms such as botanical sciences. Some of the notable findings are topics related to speciation in a) vegetative reproducing plants b) induction of cell division in adult nuclei c) the cause of polyteny in differentiated tissues in plants, d) cytotaxonomy of flowering plants and the effect of arsenic in water.

The research was also done on chromosomal study of flowering plant leading to a new set of perceptions on their classification.

Not only excelling in the field of botany Mrs Sharma worked enthusiastically on human genetics, specifically genetic polymorphism in normal human populations. Some of her works and discovery are still being used worldwide making the technical work easier and faster. Dr. Archana Sharma is one of most felicitated persona of the world of science she has been awarded by one of the most prestigious awards making the list quite endless of which few include G.P. Chatterjee Award, 1995, S.G. Sinha Award, 1995, PADMA BHUSHAN (third-highest civilian award by the President of the India), 1984, Birbal Sahni Medal, 1984, FICCI Award, 1983, Fellowship at Indian Academy of Sciences, 1977, Shanti Swarup Bhatnagar Prize, 1975, J.C. Bose Award, 1972.

She was one of the few leading ladies who worked till her last breath on 14th January 2008.

PLANT OF THE YEAR: *Sansevieria trifasciata*



Shreya Shambhavi

B.Sc. (H) Botany

2nd year

Sansevieria, a flowering plant native to Africa, Madagascar and Southern Asia is probably among the most tolerant plants in nature as it requires very little water for its growth and development. Additionally, it does not often need fertilizer and is generally a pest free plant. Among 70 or so species of *Sansevieria*, ***Sansevieria trifasciata*** is the most commonly known and available plant. It is known by various names in different parts of the world, among which some common ones are **Snake**



plant, **Mother-in-law's tongue**, **Saint George's sword**, **Viper's bowstring hemp**, **Snake's tongue**, **Devil's tongue** and **Jinn's tongue**. On the basis of Molecular Phylogenetic studies, it is now included in the genus ***Dracaena*** and hence from the year 2017, it is also known under the synonym ***Dracaena trifasciata***.

It is an evergreen perennial plant which forms dense stands and spread with the help of its creeping rhizomes, which can be either above the ground or under the ground. It has stiff leaves which grow vertically from a basal rosette. Mature leaves are dark green in colour with light gray to green cross-bandings on them and usually range from 70–90 cm in length and 5–6 cm in width.

However, it is observed that plant can reach heights above 2 m (6 ft) in optimal conditions. Predominantly, it is used as an ornamental plant which can be outdoors in warmer climates and indoors as a houseplant in cooler climates. *Sansevieria* tops the list as being the most tolerant of all decorative plants to survive the most unsuitable growing conditions.



Conditions for plant growth:

Light: Plant is extremely tolerant and hence can grow easily in low lighting conditions. It is even observed to dwell in artificial lighting.

Water: It needs little water. This plant has been observed to die by excess watering due to rotting. Half glass of water once in every 2 months is sufficient.

Temperature: Plant survives at room temperature around 18-25C.

Soil: A well-draining universal potting soil is sufficient.

Fertilizer: It does not require much addition of fertilizers.

Repotting: Sansevieria can do well in the same pot for years. Repot is advised only when necessary. Repot should be done in a container which is not more than one size larger.

Plant can propagate by cuttings or by dividing the rhizome. The first method has a disadvantage as by this method the variegation is lost. Although widely used as an ornamental plant, *D. trifasciata* is considered as a potential weed in Australia. In Africa, the leaves of *Sansevieria* species are used for producing fibers. In some species, e.g. *Dracaena hanningtonii*, the plant's sap is found to have antiseptic qualities and hence the leaves are used for bandages in traditional first aid. The durability of *Sansevieria* makes it an excellent choice for apartment dwellers as they have limited success with houseplants due to lighting issues. Snake plant, with sword like foliage design, is classic yet a versatile houseplant.

Sansevieria is a perfect plant for indoor spaces because it acts as a superb air purifier. Studies have consistently shown that the plant helps remove toxins such as formaldehyde, xylene, toluene, and nitrogen oxides from air. This shows that industries and workspaces where such chemicals abound in the products are produced or used, Snake plants in the premises would be quite beneficial. According to **NASA Clean Air Study**, along with other plants such as *Epipremnum aureum* and *Dracaena fragrans*, *Dracaena trifasciata* is capable of purifying air. Study by NASA to determine how to clean the air in space stations, recommends at least 15 to 18 medium-to-large size plants for a 1,800 square-foot



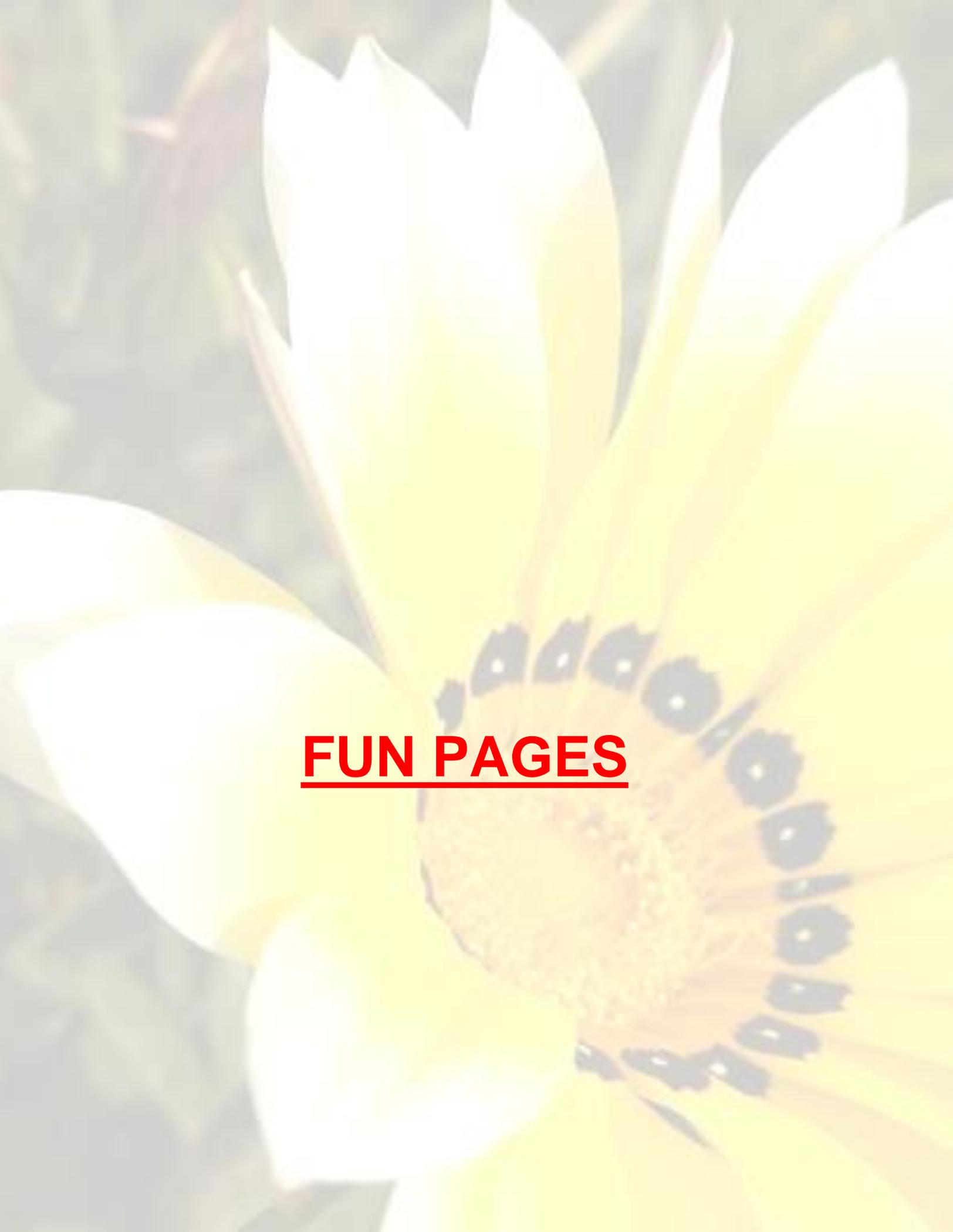
home. Snake Plant among all different oxygen producing plants, is unique because of its ability to convert a lot of CO₂ to O₂ at night although oxygen is released during daylight. This property of nighttime absorption of CO₂ makes it ideal to be placed indoors and especially suitable for bedrooms. These plants can uptake CO₂ during the night because of their mechanism of photosynthesis called Crassulacean Acid Metabolism (CAM). In CAM photosynthesis, the plant opens the stomata at night to minimize water loss. During this time CO₂ is acquired and stored in vacuoles in the form of Malate. However, the leaves are potentially poisonous if ingested, hence not recommended for children's bedrooms. Plant contains **saponins** which have been found to be mildly toxic to dogs and cats and if consumed, leads to gastrointestinal upset.

These plants also help reduce airborne allergens. Hence, people should keep such plants as these are a natural and cheap way to stay healthy. Especially, public spaces and workplaces should be aware of the value of air-purifying plants and must have them. **Sick building syndrome (SBS)** describes the way the health of certain individuals of a certain residence or building acquires moderate to acute symptoms which are linked to the building while no specific illness can be identified. Symptoms involved with SBS, generally appears to be related to poor indoor air quality. It includes ear, nose, and throat irritation; coughing; itching; dizziness and nausea; lack of concentration; fatigue; even chest tightness and muscle aches. *Sansevieria* is considered a ready remedy for SBS.

Hence, *Sansevieria* is a hugely beneficial plant and is worth to be kept near you.

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A close-up photograph of a bright yellow flower, possibly a sunflower, with a brown center. The petals are large and vibrant yellow, radiating from the center. The center is a textured brown disk. The text "FUN PAGES" is overlaid in the middle of the flower in a bold, red, sans-serif font, underlined.

FUN PAGES

UNSCRAMBLE

Unscramble the following letters to obtain scientific names in the space provided.
(Bold letters mark the beginning of the name)

1. A cerubumthiob	
2. W lfaio	
3. P dosuemoans	
4. A ertbactooz	
5. A murriinhnt	
6. A arlect	
7. L iilmu	
8. R suuunslca	
9. P aluirn	
10. C lorpytuhohm	

ANSWER KEY: 1. *Arceuthobium*, 2. *Wolfia*, 3. *Pseudomonas*, 4. *Azotobacter*, 5. *Antirrhinum*, 6. *Alectra*, 7. *Lilium*, 8. *Ranunculus*, 9. *Primula*, 10. *Chlorophytum*

SPICE SEARCH

Tick the source of given spices.

1. Cardamom
 - a. Fruit
 - b. Flower
 - c. Bark
 - d. Seed

2. Saffron
 - a. Flower
 - b. Fruit
 - c. Root
 - d. Seed

3. Caper
 - a. Flower
 - b. Fruit
 - c. Root
 - d. Seed

4. Fenugreek
 - a. Flower
 - b. Fruit
 - c. Root
 - d. Seed

5. Licorice
 - a. Flower
 - b. Fruit
 - c. Root
 - d. Seed

- 
6. Caraway
a. Flower
b. Fruit
c. Root
d. Seed

7. Allspice
a. Flower
b. Fruit
c. Root
d. Seed

8. Cumin
a. Flower
b. Fruit
c. Seed
d. Root

9. Clove
a. Flower
b. Bud
c. Root
d. Stem

10. Ginger
a. Flower
b. Fruit
c. Root;
d. Seed

11. Wasabi
a. Flower
b. Root;
c. Seed
d. Fruit

12. Cinnamon
a. Flower
b. Root

- c. Bark
- d. Fruit

Answer Key- 1(d), 2(a), 3(a), 4(d), 5(c), 6(b), 7(b), 8(c), 9(),10(c), 11(b),12(c)

Unscramble scientific names

Spice by picture

Guess the spice by looking at pictures.

1.



2.





3.



4.



5.



6.



7.



8.



9.



10.

ANSWER KEY: 1. Cardamom, 2. Allspice Wasabi, 3. Ginger, 4. Cloves, 5.Cumin, 6. , 7.
Licorice, 8. Fenugreek, 9. Saffron, 10. Caper



SURVEY:

To know a tiny bit more about people's opinion/awareness about environmental issues, we conducted a small survey in which different people from the following age groups –

1. **School/College going** (13 – 25 years) – Group 1
2. **Working** (> 26 years)– Group 2
3. **Older generation** (> 55 years) – Group 3

were asked 5 simple questions.

Variety of answers were there, some obvious ones and some least expected so let's dive into those one by one, starting with-

1. What changes did you observed in your immediate surroundings from the last five years?

GROUP 1 -

Number of versatile answers came from this versatile age group. Regarding changes (Q1) Pallavi Sharma (18 years) says **“Changes can be seen everywhere in every nick and bit from decreasing number of sparrows to increasing number of massive flyovers and buildings we can clearly see where we are going by snatching the habitat of harmless animals.”**

GROUP 2 –

Regarding our Q1 one person stated **“Increasing dependency of people on gadgets and vehicles had done no good, in fact it just created greater risk of lifestyle related diseases”** well truly said, there is a need to understand the fine line between use and over-use.

GROUP 3 –

When asked Q1, they all agreed over the drastic changes in the surrounding environment which they believed was due to the ongoing constructions of buildings. They also mentioned that the temperature has also increased increased dramatically past some years.

2. According to you what is global warming?

GROUP 1 –

As per observation, most of the students knew some or other thing about global warming, ranging from relating it to green house gases to ozone depletion to unsustainable human activities but everyone was very well aware of the term and claimed to be using it in their day to day life!

GROUP 2 –

Coming to our Q2 some knew something and some were totally unaware of the term Global warming. In Layman's language, for them it is environmental imbalance and we can't deny with them.

GROUP 3 –

Their knowledge on Global warming(Q2) were quite vague but they were all certain it had to do with the in global increase in temperature which can lead to various consequences.

3. What do you think about individual contribution towards environment?

GROUP 1 –

Regarding individual contribution almost everyone stood with the same answer that, it matters! And we all know for sure that it does!

GROUP 2 –

Individual contribution (Q3) holds differently for everyone as per the answers, most of them believed nowadays we are just depleting rather than contributing anything to the environment.

GROUP 3 –

Regarding Q3, most seems to be quite concerned about the ruthless attitude of younger generation towards environment. They openly said that **“we can't wait for someone to come and turn the table suddenly, the change that we want to see have to begin with our self only.”**

4.What is the role of government regarding environmental issues?

GROUP 1 –

With such rational minded youth among us our Q3 turned into some kind of political argument! Group of students seem more interested about winning the argument for their party of choice. In between all this a student stayed “**making laws without 100% execution is of no use!**” as a counteract one said “**making laws is the duty of government but change always begins with you!**”. This endless argument have to be paused, so all the dear readers, did you came to any conclusion?

GROUP 2 –

When asked about their opinion on the role of the Govt in tackling these problems(Q4), one person was quite satisfied with how the Govt. is taking steps on creating awareness regarding environmental issues. The fact that the Govt. is contributing it's part on educating the college and school students by the introduction of environmental studies in their syllabus is a great step.

GROUP 3 –

When asked about the role of Govt. one person said that the Govt must give importance to the forestry services and also impose strict laws on exploitation and deforestation.

5.With current rate of exploitation where do you see the population going in near future?

GROUP 1 –

We observed the growing insecurity amongst our youth with our Q5. Many raised the consequences of ozone depletion and increase in green house gases but some of our “**techy youth**” believes firmly that humans will find their way. Well only some time machine can help us to find the right answer!

GROUP 2 –

In Q5, they mostly mentioned on how insecure it will be for living beings to strive for livelihood given the current rate of increase in pollution. More natural disasters, calamities along with fatal diseases are expected.

GROUP 3 –

According to their experiences and their knowledge, with the current rate of exploitation, Global warming will increase the Earth's temperature, population explosion will eventually lead to the decrease in agricultural land which will ultimately decrease crop production.

CONCLUSION –

From the variety of answers we can see that most of the people from group 1 are aware of the fact that rate of exploitation seems to be irreversible and there seems to be a wave of concern amidst our young mind.

Most of the people from group 2 & group 3 are not on board with the modern lifestyle that means over use of technology. They simply believe **“simpler the lifestyle, healthier the environment.”**

Elderly generation seems to be really upset with the for granted nature of younger generation towards nature and their appeal is to **“nurture nature with care.”** And surely we should keep this elderly advice in our minds.

Some or the other way round we all are witnessing environmental problems and now it's high time to take some serious actions for the benefit of mankind. Let's start our journey for the best!

By –

KHUSHI BHATT AND

JOANNA

BSc. BOTANY HONOURS

2nd YEAR.



COMPETITIONS ORGANISED BY
GCBS-ANTHESIS

1. SLAM POETRY

I am remembered !

I am plucked,
Detached.
Detached from my roots, away from my soul,
And I can't undo it anymore.

But this time,
I'm being cosseted,
Commended.
Preserved in those hands which reflect love;
And I don't want to undo it anymore,
Because this is where my heart lies now.

My life will be drenched out of me soon.
But till then,
Let me watch her smile, as she peeps into me every morning.
The wonder, the praise, the embrace.

I'm dying.
Another creation happily plucked,
Happy to be plucked.

Love comes in many forms,
And what is love without the pain.
But through those fingers sweeping across my petals,
And the pages swaying to turn over to me,
I've found my love.

A little story as it may sound;
This was the love story,
Of how I was fallen in love with,
Admired with all the might,
Remembered till the pages turn brown,
And preserved in a little girl's diary.

I'm the reason she's writing today,
She'll continue to write tomorrow,
And what more of love could I ever ask for?

The love will remain,
The lovers will remain the same.
Mere pages turned into a garden,
This is to all the species alike,
Who are to make way into her pages,
Till the time she could possibly stop loving.

गुमसुम सी है वो गुमशुदा है कहीं
ज़मीन पर खड़ी मैं तारों के पार उसे ढूँढ रही
अंधेरों से घिरी मैं, क्या उसे मेरी फ़िकर नहीं है
मेरी सहर की आज कोई खबर नहीं है

दुनिया से दूर, मैं तेरे साथ रहूंगी
घुलती रहूँ तुझमें मैं वो खामोश फ़िज़ा बन बहूँगी
क्या मेरी बातों का उस पर कोई असर नहीं है
मेरी सहर की आज कोई खबर नहीं है

हज़ारों रंग मेरे तेरा वो एक रंग मरहमी है
जो देखूँ तुझे तो मेरी हर सुबह-शाम शबनमी है
तेरे नूर बिन मेरी ज़िन्दगी बिखर रही है
मेरी सहर की आज कोई खबर नहीं है

बिना तेरे बेसुघ हूँ ये मौसमी घटा भी अब देखती है
ढलती हुई रातों से वो चांदनी भी अब पूछती है
क्या वो नाराज़ है तुझसे या फिर उसे तेरी कदर नहीं है
मेरी सहर की आज कोई खबर नहीं है

Just hold your breath for a second and close your eyes and feel the first drop of rain coming down to earth.
It seems like they are returning to their homely earth after a long time but not a single drop knows where they have going to land.

Some will land on the soil and fill your nostril with earthly smell. Some are going to land into the vast ocean or inside the mouth of a big oyster and will give rise to the "kingdom of pearl". Some will become the reason for living for someone and some are going to drain along with the drainage water.

But it doesn't matter to them but it bothers me-
So let me express my feeling ,
Have you ever thought who invites rain?
It's We, We plants invite them.
But you all have become so greedy to build your so called "ship of fortune "that has made you blind to see our cuts and pain.

You will be proud enough about your work done, but let me remind you that you have become a slayer.
You have made the spacecraft to visit the red planet but forget to built a machine to detect our pain when your sharp blade kills us.

It is so painful to say that you "BITE THE HAND THAT FEEDS YOU."

COMPETITIONS ORGANIZED BY GCBS

Winners:

- 1.Aadrita Das (Bsc honors Botany 3rd year)
2. Jahnvi Saxena (Bsc honors Life Science 3rd year)
3. Deepika Tete (Bcom honors 1st year)

2. HANDPAINTING

Winners:

1. Ishita(Bsc honors Botany 3rd year)
2. Sakshi(Bsc honors Physics 3rd year)
3. Pinki (Bsc honors Botany 2nd year)



A close-up photograph of a yellow flower, possibly a sunflower, with a brown center. The petals are bright yellow and the center is a textured brown. The text is overlaid on the left side of the flower.

ALUMINI OF BOTANY
DEPARTMENT

THE CURE



DR.AHALYA CHINTAMANI

ALUMINI TEACHER

DEPARTMENT OF BOTANY, GARGI COLLEGE

A roughish young tobacco (well you know what youngsters are)
picked up a rusty virus from a dirty old cigar.

It got into his Phloem, and it spread from node to node: and multiplied its
genome by the old mosaic code.

His buds began to shrivel and his leaves began to wilt.

Till wiced by irritation and perhaps a sense of guilt

He sought a plant pathologist in hopes to get a cure,

For virulent chlorosis he no longer could endure.

He found a large commercial plant where leaves are cured and dried

They greeted him with open arms and welcomed him inside.

They doctored up his Nicotine cut down on his tar and finally released him
as another FAT CIGAR.

Flower Show 2020 at
Lalbagh Botanical Garden, Bangalore



Dr. Gita Mathur
Associate Professor

Botanical Gardens are exciting places to visit for all Botanists and plant enthusiasts; so are flower shows. Right in the heart of Bangalore city is the famous Lalbagh Botanical Garden which hosts two flower shows every year. For a week associated with Republic Day and Independence Day every year this garden hosts unique flower shows with flowers from many countries. Every flower show here is very special, there are no competitions from growers but theme-based displays for the public.

Republic Day 2020 flower show was based on Swami Vivekananda and all displays were related to his life and teachings. It also depicted Vivekananda Rock at Kanyakumari. Fortunately, my visit to Bangalore coincided with this event. Here I would like to share my thrilling experience.

The event was jointly organized by the Department of Horticulture and Mysore Horticulture Society, this flower show has been one of the most awaited events in the Garden City. The 211th edition of the Republic Day Lalbagh flower show began on 17 January 2020 and ended on 26 January

2020. The 2020 Republic Day show was organized to commemorate 157th birth anniversary of Swami Vivekananda. Around 6 lakh flowers were used to create a floral representation of Vivekananda Rock Memorial in Kanyakumari.

Major Attractions of the 2020 Republic Day Flower Show

- Floral replica of the iconic Vivekananda Rock
- His famous speech in Chicago and statue of the monk
- Display of his sayings
- Screening of documentaries
- 3.2 lakh flowers were used on the Rock
- 1.5 lakh flowers were used to create the floral representation of Vivekananda's Chicago speech
- More than 40,000 saffron flowers were used for the statue

Floral replica of The Rock memorial with a temple, measured 17 feet in height, 21 feet in length, and 8 feet wide. It was made in the unique glass house of the Botanical Garden. A misty spray was released at regular intervals to keep the atmosphere moist. The flowers were changed twice during the 10-days of the flower show.



Various floral displays depicting the life of Swami Vivekananda.

Important features of 2020 Lalbagh Flower show

- Imported flowers from 10 different countries
- 37 different species of flowers in 235 shades and patterns were on display
- Varieties of temperate flowers from Ooty and Sikkim were displayed.
- 100 boards with information about the monk's life were around the venue.
- Two large outdoor screens for screening documentaries were installed.
- Vivekananda Sudhe programme was held between 4 p.m. and 6 p.m. everyday.

- Poems by Kannada poets Kuvempu and G.S. Shivarudrappa were recited.



This edition of the Lalbagh Flower Show was opened to the public from the 17th to the 26th of January 2020. Over 6 lakh visitors enjoyed this show. The colourful flower arrangements and intricate models on display made the exhibition attractive to adults and children. Plants and saplings were also available for sale.

About Lalbagh Botanical Garden

Lalbagh is a popular botanical garden situated in Bangalore (Bengaluru). This garden is a home to a variety of flora and fauna. Lalbagh Botanical Garden also has a glass house, an aquarium and a lake that adds to the



already existing beauty of the garden. The largest collection of tropical plants in India is at Lalbagh. This garden has also promoted and cultivated the concept of horticulture and is under the protection of Directorate of Horticulture. It is spread over 240 acres. It is one of the major tourist attractions in Bangalore.

The garden has a nursery for sale of seeds, seedlings, saplings, ornamental plants, gardening equipment, fertilizers and books on horticulture.

During the reign of Hyder Ali in 1760, the construction of this garden started but was later completed on the orders of his son, Tipu Sultan. During that time Mughal gardens were capturing great popularity due to which Hyder Ali wanted to cultivate this exquisite botanical garden.

The garden gained more importance when his son Tipu Sultan added the concept of horticulture in the garden. Many different species of plants were imported from different countries making this garden the apple of

everyone's eye. The garden is built on design like that used in Mughal gardens.



Lalbagh is spread over 240 acres and houses many interesting things. There are many places inside this garden. Some interesting features of this garden are:

The glass house that is the major hub for horticulture. It was developed in 1890 and was modelled like the

Crystal Palace of London that accidentally caught fire and was ruined in 1936.



The annual flower show was organised in the glass house.

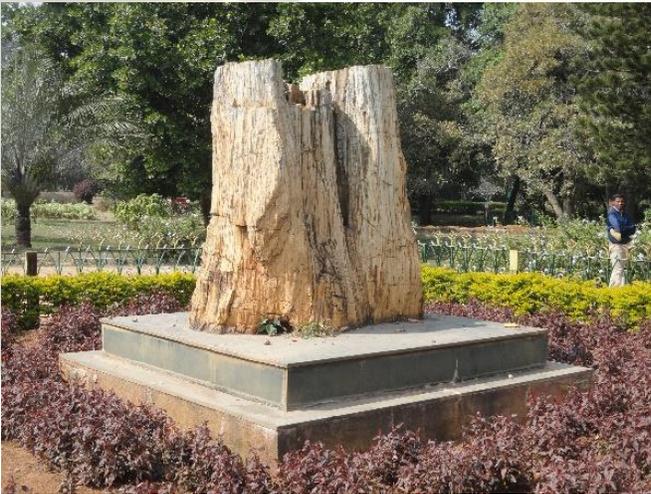
There is a **flower clock** inside the garden that works on the electronic quartz mechanism. The clock dial is about 7 meters in diameter and is beautifully decorated with multi-coloured flowers.

There is a **Lotus lake** inside the garden apart from the huge Lalbagh Lake.

Peninsular Gneiss Rock: The rock is one of the oldest existing rocks in the world. There is a small monument constructed on this rock that has won the recognition of National Geological Monument.

Bonsai Garden with more than 700 bonsai plants, some more than 35 years old.

Cacti and Succulents house with 700 species of live plants as a massive germplasm collection.



Tree Fossil of a Coniferous tree is totally carbonized and is 20 million years old.



A **200 years old White Silk Cotton Tree** is a major for tourist attraction. Heavily spreading buttressed trunk is very prominent. This *Ceiba pentandra* tree is a member of family Bombacaceae.

Interesting facts that not many people know about Lalbagh

- The flower show started 102 years back by the members of Mysore Horticulture Society.
- It was declared a botanical garden in 1856 during British Empire.
- British rulers did help in maintaining and expanding the garden.
- The garden was first built as a private garden of 40 acres but was later expanded by Tipu Sultan.
- The two annual flower shows were earlier known as the summer and the winter shows.
- The flower shows are not competition based but are exhibitions open for all.

The Gargi Link: Gargi College Botanical Educational Trip

Interestingly, a Botanical educational trip was organised from 26th February to 3rd March 2019 to Trivandrum. I was a part of the group of teachers and students. We visited JNTBGRI, Jawaharlal Nehru Tropical Botanical Garden and Research Institute, Trivandrum and then went to the Vivekananda Rock Memorial at Kanyakumari. Seeing the same structure in flowers at Lalbagh Botanical Garden, Bangalore was very exciting for me.

I have tried comparing the Rock Memorial and its floral replica through photos clicked by me. See the images below and enjoy comparing the Rock and floral replica.





Dr. Geeta Mehta and Dr. Gita Mathur sitting at the entrance of the Rock Memorial



Lalbagh Botanical Garden also has rare and endangered as well as endemic species of plants. It is a paradise for plant enthusiasts and trained Botanists.

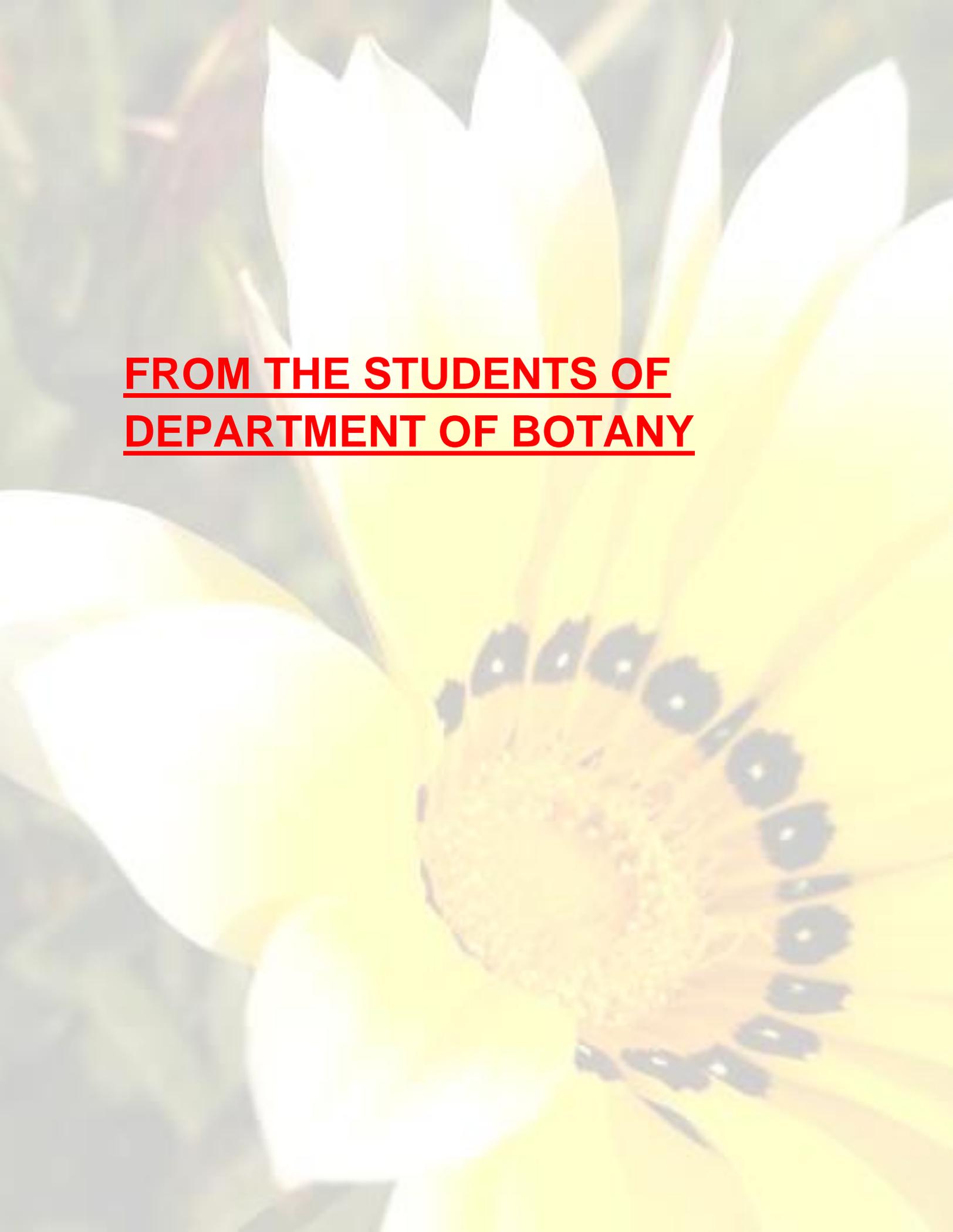
Mango and Jackfruit show is also organised here in summer every year.

With shows to attract general public and tourists this is a complete garden to visit and enjoy. This garden is a full package of entertainment and knowledge.

STUDENDTS FROM BATCH 2016-2019

1. Asmita Saini	M.Sc. botany	Delhi University
2. Manisha Yadav	MSc botany	Delhi university
3. Samiksha Sharma	MSc botany	Delhi University
4. Aditi kumari	M.Sc. botany	Delhi University
5. Bhiolina Bharadwaj	MS Biology	California State University
6. Karishma Sahu	M.Sc. plant mol bio And biotech	Delhi University
7. Shalini Sharma	MSc Botany	Jamia Hamdard
8. Mehak Kaur	Zebra fish Lab Facility Manager	Zebra fish Research Lab (Delhi University)
9. Nickshubha university	Medicine	Danylo halytsky lviv national medical
10. Pratima Sagar.	MSc botany	Delhi University
11. Supriya Sen	MBA in healthcare and Hospital management	IIHMR UNIVERSITY -JAIPUR)
12. Pallvi Sharma.	MSc Hons Botany	Punjabi University Patiala
13. Snehlata	MSc botany	Indra Gandhi university-Meerpur
14- Ratna	M.Sc. Botany	Kanpur University

15- Dakshita	M.Sc. biotech	Central University of Rajasthan
16-Sonal singh	M.Sc. botany	IIS university Jaipur
17- Shivani Dalai	M. A. Public Administration	Banaras Hindu University
18.Priyanka gupta science and technology, Hisar	M.Sc. biotechnology	Guru jambheshwar university of
19.Reya Parihar	M.Sc. botany	Khalsa college Amritsar
20. Anamika Saini	M.Sc Botany	Delhi University
21. Apoorva Verma	MSc Botany.	Delhi University
22.Kanika Bhatia	Msc Botany	Delhi University
23.Richa jain	Msc botany	Delhi University
24.Tamanna bohar- Rohtak	Msc botany	Baba masthnath university Asthal
25. Anshita Sharma	M.Sc Biochemistry	Central University of Haryana
26.Sushila Rohtak	Msc. Environment science	Maharshi dyanand university
26. Upma Garg	Msc Environment Studies	Delhi University
27.Rupal Singh Barielly	MSc botany	MJP Rohilkhand University
28.Meenal Mittal	MSc botany	CCS University Meerut
29.Harshita	MSc botany	CCS university Meerut
30.Vandana	MSc Horticulture	Amity University
31.Marisha.	MSc Horticulture	Amity University
32.Amisha	MSc Horticulture	Amity university
33.Anju	MSc EVS.	Indra Gandhi University
34. Manisha	M.Sc Botany	Kanpur University
35.Surbhi	MBA	Jaipuria College, Noida+
36. Osheen	Msc Genetics	Delhi University



FROM THE STUDENTS OF
DEPARTMENT OF BOTANY

FLORA OF GARGI



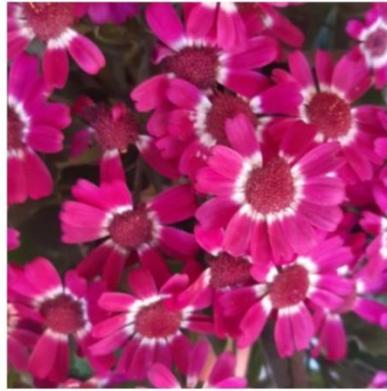
Muskan Veer, Bot (H) 2nd yr



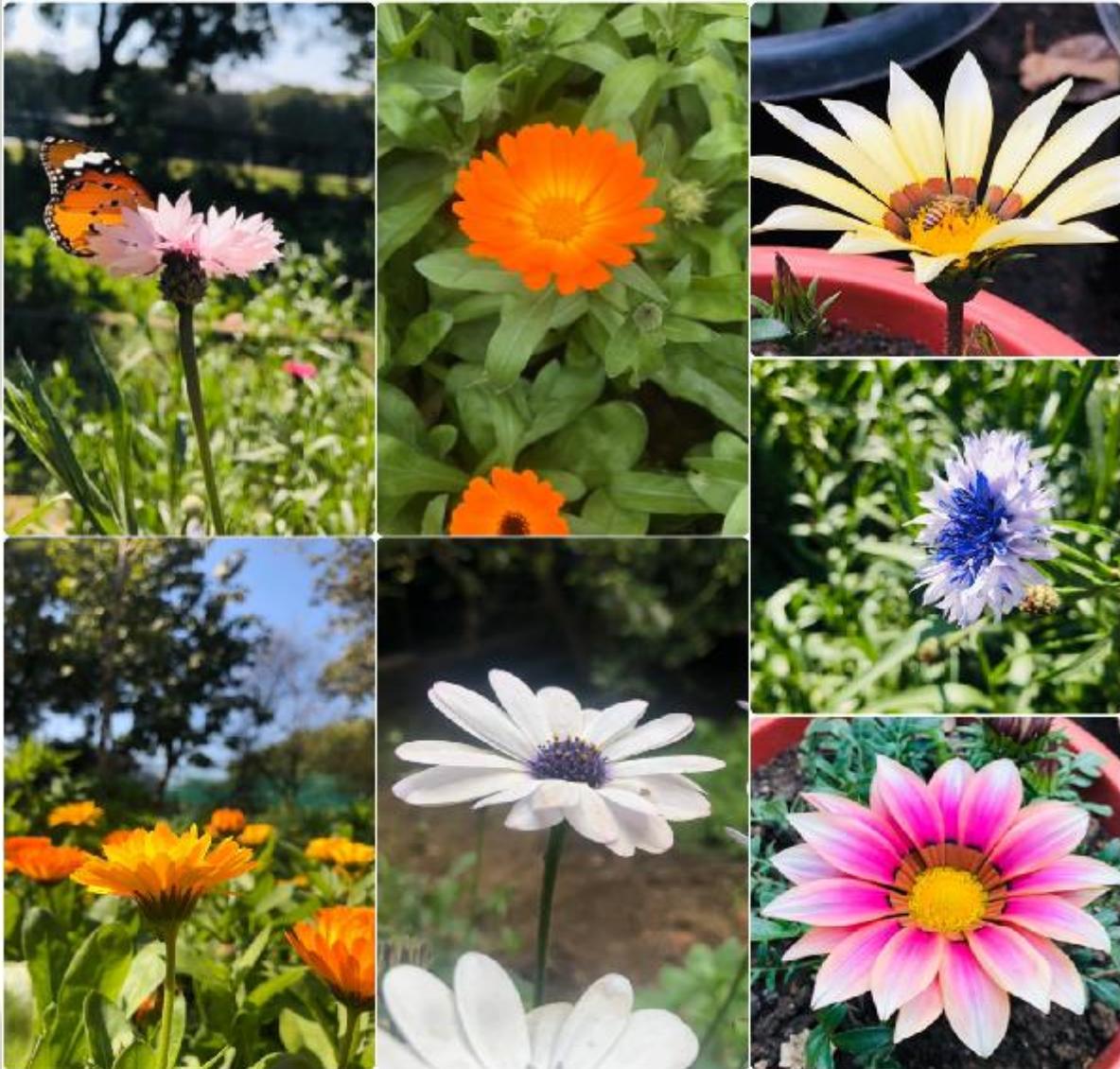
By Nishika Ravi
Bsc (hons) Botany
III Year



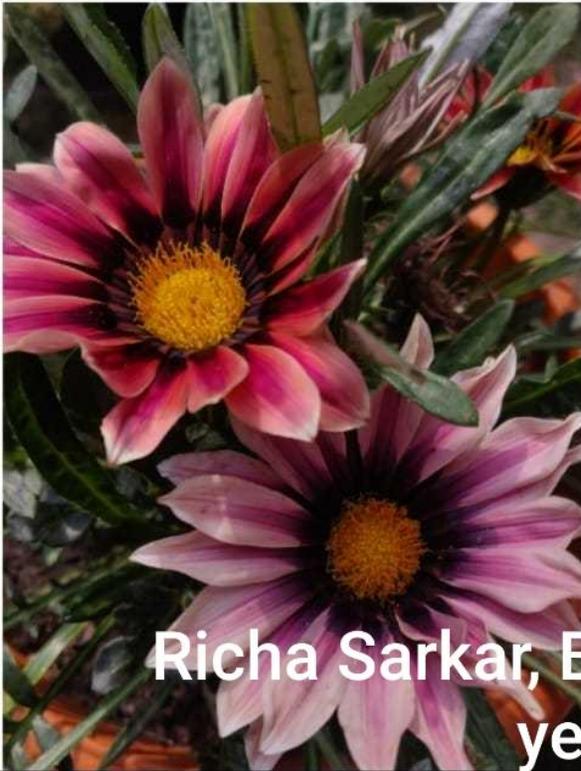
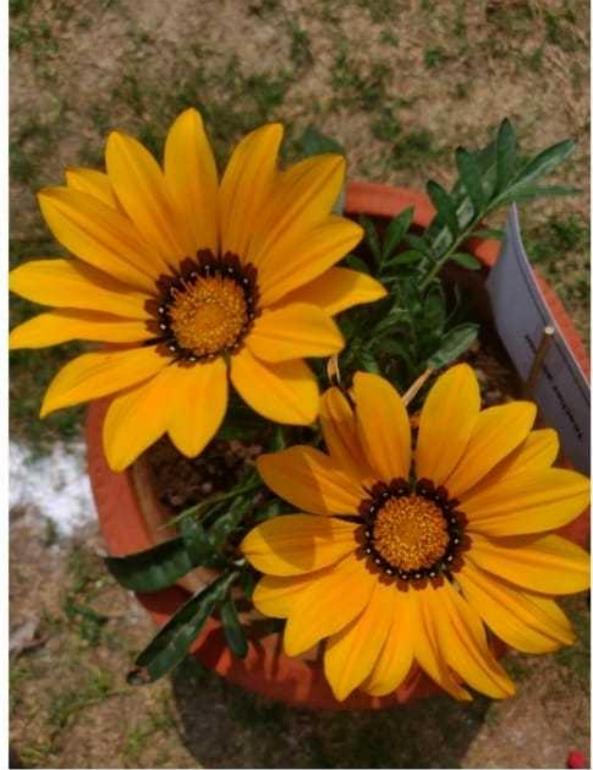
S. Khorelembi chanu, Bot (H)
2nd yr



Picture Courtesy: Monika Mishra, Botany Hons.1st year



Gayatri Devi
B.Sc.(H) Botany-III year



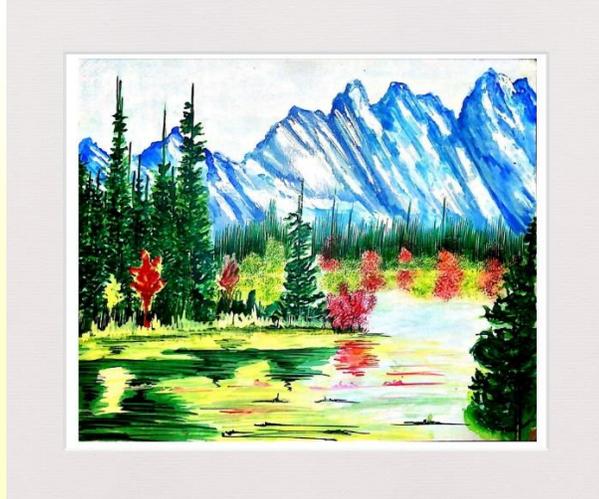
Richa Sarkar, Botany (H) 2nd year



K. Shivani, Bot(H) 2nd yr

Art Comes to Life...

"Art is born out of observation and investigation of nature"



Annu Jain

Botany Hons. 3rd Year

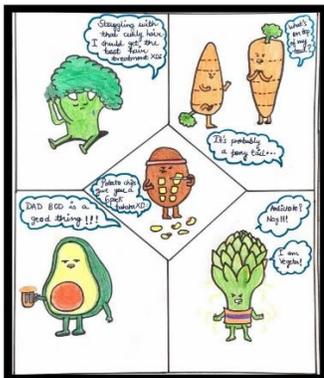


Kangkana Khakhlari

Botany hons, 3rd year

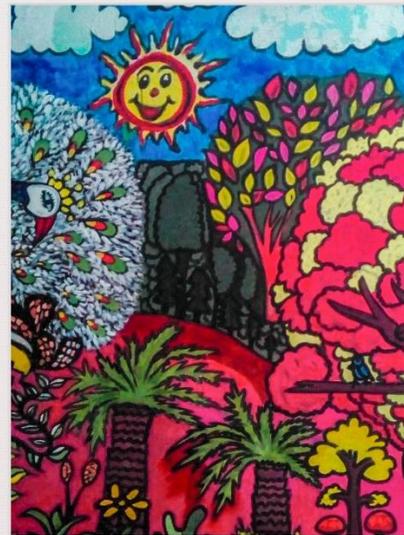


WHAT WOULD THEY SAY IF
THEY WERE ALIVE?



NISHIKA RAVI
B Sc (H) Botany III Year

Nishika Ravi, Botany Hons. 3rd Year



Bhoomika Goel, Botany Hons., 1st year

A close-up photograph of a yellow flower with a brown center, overlaid with red text. The flower's petals are bright yellow and radiate from a central brown disk. The text is in a bold, red, sans-serif font and is underlined. The background is a soft, out-of-focus green and brown, suggesting a natural setting.

END NOTES FROM TEAM
ANTHESIS

Curating the annual magazine Anthesis, representing the department and every individual's ideas, opinions and creativity in one juncture sure was a challenging task for us members, but no opportunity like this can ever be received without challenges.

Editing through the department members' articles was in itself like wanderlust, a voyage where every stop was a new lesson. We learned so much and for that, our hearts remain laden with gratitude to all teachers who guided us throughout, a special thanks to Dr. Priyanka Pandey ma'am, Dr. Gladys Muivah, Ms. Ruchitra Gupta and the Botany department who put their faith in us for the task.



Team Anthesis 2019-2020

