

DEPARTMENT OF BOTANY // MAITREYI COLLEGE // DELHI UNIVERSITY



Vitti

(वित्ति)



VOL 1 ISSUE 1

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MESSAGE FROM THE PRINCIPAL'S DESK



It gives me immense satisfaction and joy to witness the release of the first issue of the Botany Department annual newsletter '*Vitti*' which is a manifestation of the inner light, that has illuminated the intellect and creativity of departmental students.

'*Vitti*' is an endless and incessant search for truth, beauty, creativity, and goodness.

As our eyes are intently focused on building the career of our pupils, this newsletter is highly dedicated to the higher skills of creativity which will prove instrumental in modulating their destiny.

I take this opportunity to congratulate all the students of our Botany Department and teachers who have been working for the successful completion of this literary project '*Vitti*'. All the members deserve compliments for accomplishing this task so nicely and smoothly.

Dr. Haritma Chopra

MESSAGE FROM THE TEACHER IN CHARGE (2020-21)



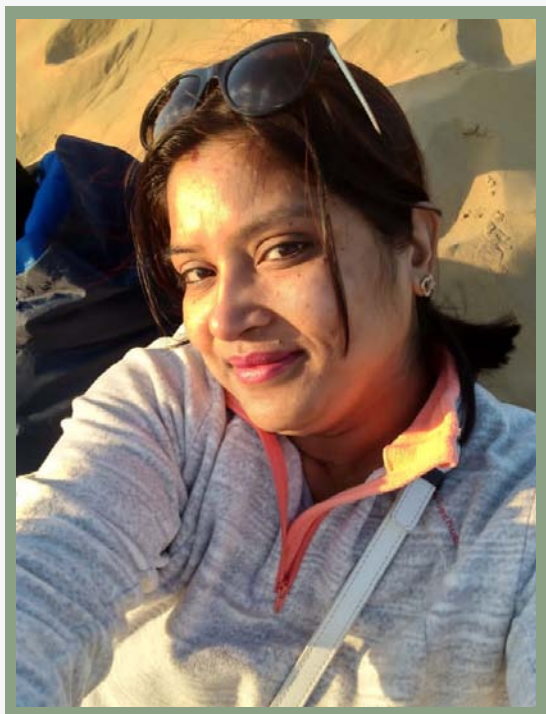
Our Newsletter is a small drop in the ocean but our way of showing that we care and wish to share with all our readers, not just events but the learning and the multitude facets of Botany – as a subject, a discipline for life. We wish to unite all who believe in plants and the world of plants and hope "Vitti" brings thought, joy and inspiration to the creators and readers.

The first issue, the first blossom always fills us with joy. Congratulations to the team for this magnificent endeavor! Especially in these challenging times of the pandemic it is a breath of fresh air. It reminds me of the lotus flower - *Nelumbo nucifera*. Our national flower is not just a taxa belonging to a plant family, it is a symbol of "enlightenment" giving us a purpose and perspective. Although we have a rich floral diversity of more than 47,000 species it was chosen because it is sacred and occupies a unique place in the art, culture and mythology of India. It is a remarkable flower that blooms and sets seed at the same time, sharing the wise lesson of creating the correct causes and receiving the benefits. It is not averse to the muddy water, but thrives deriving its sustenance from it. It never blooms under the water, always above it, not getting sullied by the mud. It embeds the lessons of purity and peace for the individual and the society. Thought "Vitti", is the starting point for words and deeds, let us think of the plants and make them the starting point of all actions in our lives.



Dr. Atika Chandra

EDITORIAL



EDITOR-IN-CHIEF

It gives me immense pleasure to present before you all “*Vitti*” the annual newsletter for the Department of Botany, Maitreyi college. It is a culmination of contribution and efforts of the students, and showcases the events, extra-curricular activities and expressions of the students and faculty members of the department. This year’s “*Vitti*” edition brings out the summer internship of our students around the thematic area of

scientific phenomenon and mitigation strategy associated with COVID-19. Subsequently it delves on the key webinars organized by the department over the course of past year. The student activities for the year including elections, farewell and freshers bring out the vibrant nature of the department. Finally in the last section the literary contributions encapsulate the various moods and thoughts of the students as they celebrate the life and times in the department. In summation, heartiest thanks to all contributors and the editorial team and wishing the best to all, may new beginnings enrich our lives.

Dr. P. Kavita

OUR TEAM

EDITORIAL HEAD

"If literature is the world then all the earthly things existing in it is science".

"*Vitti*" is the epitome of both these remarkable aspects. It includes all the extreme pen down emotions and talents of the young minds mingled with the illation of the Department's attainments. Being a literature fanatic mortal, I relish amending all the particulars. Thanks to the participants for their active participation, in addition, I am also thankful to the entire team of "*Vitti*" and Dr. Kavita ma'am for her continuous support and guidance.



Aayushi Gupta

B.Sc. (H) Botany IIIrd year



CREATIVE HEAD

As this newsletter has come together, I've realized that this issue has been all about the active cooperation of the team members. I would like to express my deep and sincere gratitude to the team members and to Dr. P Kavita ma'am for providing invaluable guidance. As a creative head, I am struck by how much I have learned through the process. And my hope is that we bring a light of knowledge to the readers.

Jyoti Singh

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SUMMER INTERNSHIPS

In the year 2020, the Centre for Research (CFR), Maitreyi College initiated the online summer internship project. Department of Botany, Maitreyi College submitted four projects that got approved by the Centre for Research. Following are the title of the projects, mentors and mentees of the respective projects:

ASSESSMENT OF CHANGES IN AIR QUALITY INDEX AFTER LOCKDOWN AMID COVID-19 IN INDIA

Mentor - Dr. Pooja Baweja
Mentee - Nisha Poddar and Sakshi Suman

PROBABLE STRATEGIES TO COMBAT CORONA PANDEMIC BY TRACING ITS RE-EMERGENCE FROM SARS VIRUS

Mentor - Dr. Sarita Kumari
Mentee - Nikita Goel and Ritika

TRANSFORMATION OF LIFE WITH COVID 19: STRATEGIES FOR EDUCATION AND PROGRESS IN VACCINE DEVELOPMENT

Mentor - Dr. Sandeepa Singh
Mentee - Avantika Pathak and Bandana Yadav

STUDY OF PLANTS CAPABLE OF SUPPRESSING VIRAL DISEASES CAUSED TO HUMANS IN PAST AND PRESENT (Covid-19) USING COMPUTATIONAL TOOLS

Mentor - Dr. P. Kavita and Dr. Anamika Singh
Mentee - Aayushi Gupta, Shallu Sharma, Jaismeen and Vishakha

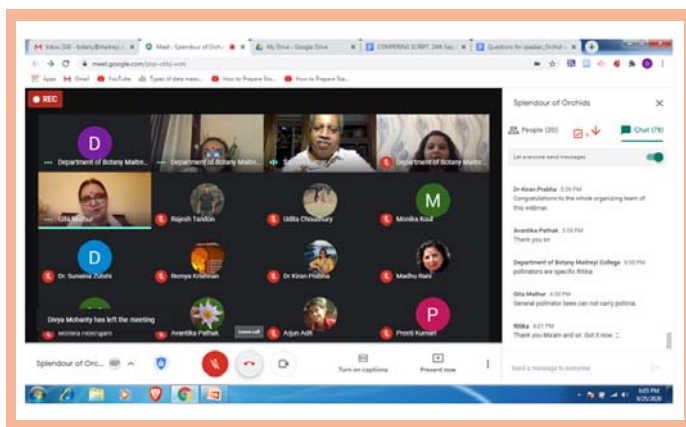
For further detailed information, contact the following teachers:

1. Dr. Pooja Baweja
2. Dr. Sarita Kumari
3. Dr. Sandeepa Singh
4. Dr. P. Kavita
5. Dr. Anamika Singh

WEBINARS

THE SPLENDOUR OF ORCHIDS

25th September 2020



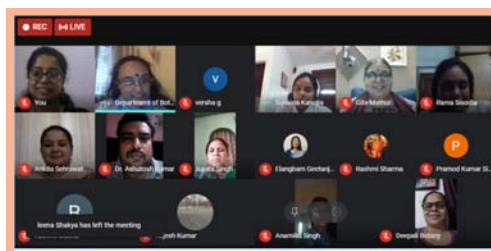
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The department of Botany organized a webinar on 'The Splendour of Orchids' on 25th September 2020. It was hosted by Dr. C. Sathish Kumar, an Orchidologist. Fellow, Indian Association for Angiosperm Taxonomy (IAAT). The Parton was our respected Principal madam Dr. Harmita Chopra and Dr. Atika Chandra was the Convenor.

The webinar was conducted via google meet. During the webinar, they taught the participants about the wide range varieties of orchids found in India and all over the world. Also, how every year thousands of new varieties were developed by orchid researchers. It was interesting to know about the vanilla plants (also belongs the orchid family) and how it is grown in the southern parts of the India. Due to its beauty and wide range of varieties, there are many species of orchid that are named after the great personalities of all over the world like *Dendrobium Narendra Modi* named after the honorable prime minister of India. At the end of the webinar, there was a discussion session on how one can grow orchids on their own and what are future aspects relating to this magnificent beauty of orchids.

CYBER HYGIENE FOR ONLINE TEACHING

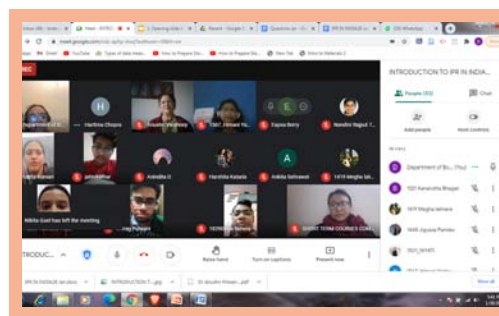
3rd October 2020



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INTRODUCTION TO INTELLECTUAL PROPERTY RIGHTS IN INDIA AND ITS CAREER PROSPECTS

28th January 2021



<https://www.facebook.com/mcn1967du/posts/478454106860193>

The Department of Botany under the aegis of Internal Quality Assurance Cell organized a National Webinar on "Cyber hygiene for online teaching platforms" on 3rd October 2020. Dr. Sunaina Kanojia, OSD Institute of Cyber Security and Law, University of Delhi was the invited speaker. More than 300 participants attended the webinar. It was held via Google meet.

The Department of Botany, Maitreyi College, University of Delhi organized a Webinar on the topic "Introduction to Intellectual property rights in India and its career prospects" on January 28, 2021. Intellectual Property Rights (IPR) is a set of legal rights conferred on the creation of the intellect. This field is having immense potential for a wide range of sectors as well as stakeholders. Considering its immense significance in fostering innovation and creativity, the webinar was organized to fortify their knowledge and its applicability. It also aimed to motivate and inspire the potential undergraduate innovators to pursue IPR as a career opportunity as well as to undertake entrepreneurial activities (start-ups). The virtual talk was delivered by Dr. Anushri Gupta, Founder member, Anushri Gupta & Associates, Intellectual Property Attorneys. The webinar saw an overwhelming response of more than 150 participants including faculty members and students from various colleges.

Departmental Elections

The botany department takes pride in announcing the conduction of an online student election of Botanical society "BLOSSOM" on 22nd August 2020 for the post of President, Vice president, and Treasurer.

Final and second year students enthusiastically came forward for this event and it was a huge success in the pandemic time.

For the post of President, third-year students Neerja Payal and Sakshi Suman fought. Similarly, final year students Deepa Yadau, Rajvee Sharma, Avantika, and Aayushi Gupta contested for the Vice president post. Finally, for the Treasurer post, Kannupriya and Akansha from the second year were the contestants.

The votes were registered throughout the department's second, third-year students and teachers via a google form. Also, out of the total ninety-plus students there in the department fifty-one voted in total (including the teachers).

KUDOS TO THE TEAM!



**Sakshi Suman, IIIrd year
PRESIDENT**



**Rajvee, IIIrd year
VICE PRESIDENT**

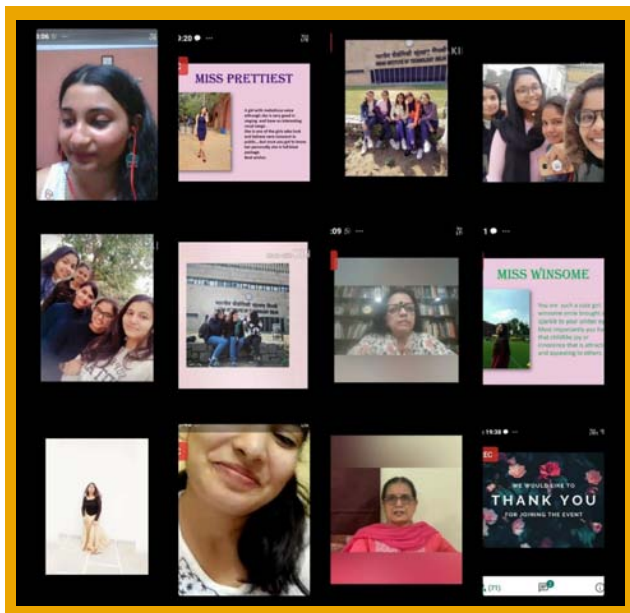


**Akansha Kaushik, IInd year
TREASURER**



BIDDING GOODBYES

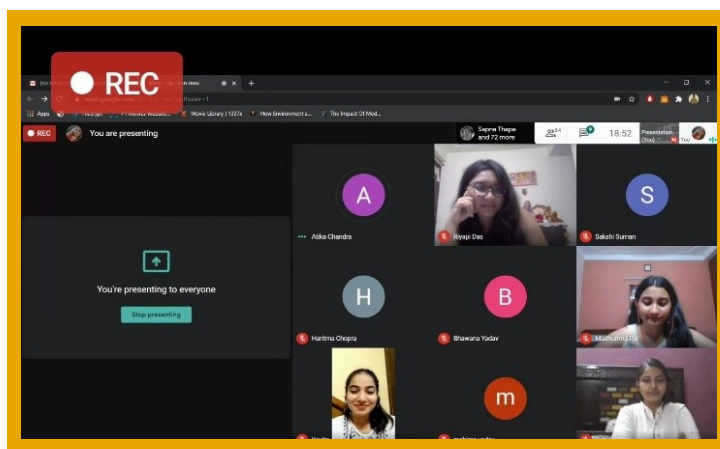
FAREWELL OF BATCH 2017



An online farewell ceremony was arranged for outgoing final-year students of the Botany Department on 29 August 2020 by first and second-year students of the department. It was attended by our respected principal madam Dr. Haritma Chopra and all the teachers of the botany department. Due to the covid pandemic, it was a virtual farewell held on google meet but the effort of the students and their enthusiasm for their seniors made it possible even

under the strict protocols of the pandemic. To make the event entertaining the students prepared the musical performance where they played guitar and sang the songs for their seniors. After which a heart-warming presentation of the journey of third-year students and their jolly time in the college was presented in an incredibly beautiful manner making them relive those memories with a smile. Then they interacted and shared their experiences and fun moments with their juniors, they also expressed their deep love and gratitude to the teachers of the botany department for their selfless teaching and guidance.

At the end of the event, Principal madam addressed the final year students of the botany department wishing them good luck and a great career ahead. Then all the teachers of the botany department wished the students welfare and a better and prosperous future.



FRESHER'S PARTY & MISS FRESHER'S CONTEST

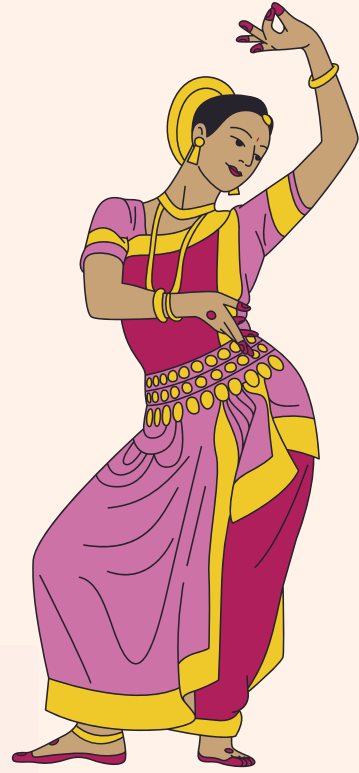
A wonderful virtual fresher's party and Miss Fresher's contest were held on February 5th, 2021 with great fervor and enthusiasm. It was arranged under the auspices of the Botany Department student union- 'Blossom' that did the best to make the event a great success. The party was inaugurated at 4:00 pm via google meet. The President of the Blossom delivered a welcome address, to begin with the function. For Miss Fresher's contest, there were 21 participants out of which 9 were selected as finalists based on quiz and talent show rounds. The finalists came up with their unique ramp walk in the final round of the contest. All of them were impressive in their way and then the final question-answer round was held and after this, all the 9 contestants were eagerly awaited to know the results. In the meantime, cultural activities including songs, dances, stories, poems, etc were performed by second and third-year students and judges got sufficient time for concluding the results. Finally, Miss Fresher's contest results were announced. Newcomer **Geetanshi** was crowned as Miss Freshers and **Gargi Singh** was the runner up. The fresher's day event was filled with excitement, joy, music, enthusiasm, and ha-



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-ppiness. Our respected principal madam Dr. Haritma Chopra delivered a motivational speech. Also, the Miss Fresher's contest judges Dr. P. Kavita, Dr. Anita Kumari, and Dr. Priyanka Nirupam conveyed their best wishes to the freshers. All the first-year students expressed their feelings and gratitude. All the students of the Botany Department enjoyed the function. At the end of the function, the Teacher in Charge of the Botany Department Dr. Atika Chandra thanked the principal, the judges, the teachers, and the students of the department union for their cooperation in making the event a huge success.





Creative Section



BLOGS

A SERENDIPITOUS DISCOVERY IN LAUGHING GAS PARTIES- HORACE WELLS

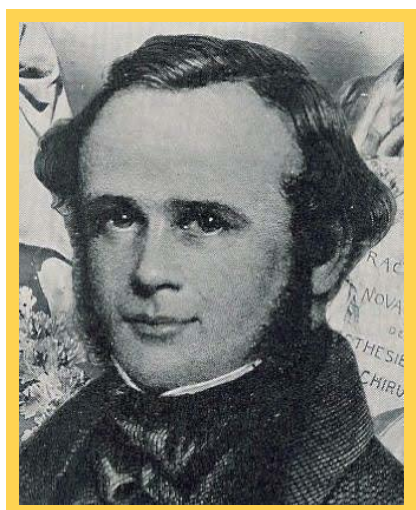
Jeena Thingujam
B.Sc. (Hons.) Botany
IInd year

The unintended discovery of anaesthesia, a state of carefully controlled unconsciousness during which you feel nothing enabling the painless performance of medical procedures has been a boon for humankind. Medicinal plants and herbs have been used since ancient times for relieving pain. Yet the unimaginable terror of surgeries was hard to overcome with the ancient methods, hence the search for better pain reliefs continued. The modern era of anaesthetic begins in the nineteenth century with the discovery of nitrous oxide as an analgesic by Horace Wells with an evening's entertainment.

Nitrous oxide, best known as the laughing gas is a colourless gas first discovered by Joseph Priestley in 1772. Inhaling causes a rapid rush of euphoria and excitement making people giggle for a short period. The euphoric properties of the gas were well known as early as 1800. In the early 19th century, laughing gas parties or hippy crack were in trend amongst the British and American elites. Groups of people would take turns sniff a canister of nitrous oxide and collapse into the floor in fits of uncontrollable laughter. One such legendary gathering was attended by Horace Wells, a local American dentist on 10 December 1844 hosted by fellow Gardner Quincy Colton at Hartford's Union hall.

During the party, a friend of Wells, named Samuel A. Cooley got befuddled with the gas and went berserk, banged his knee against a settee. Despite a bleeding knee, Cooley showed no signs of pain until the gas wore off. This episode made Wells think "why cannot a man have a tooth extracted and not feel it under the effects of the gas?".

The very next day, Wells displayed great courage and became the first guinea pig. He asked his colleague, Dr John Riggs, to remove a troubling wisdom tooth under the influence of the gas. As the intoxication wore off Wells swung his hands in the air and exclaimed "A new era in tooth pulling". The procedure was a success, he did not feel any pain.



<https://pin.it/bROAUyw> "Horace Wells"

After successfully testing on 12 of his patients he was ready to proclaim his discovery of painless tooth surgery at Harvard Medical School in Boston 1845. But the demonstration failed. Due to improper administration of the gas, the patient moaned out in pain. The public booed "humbug", "swindler". This incident hit Wells hard mentally and stopped his dentistry.

But this did not stop him from experimenting with nitrous oxide and other drugs including chloroform. He continued to contribute to mankind till the end of his life in 1848. Unbeknownst to him, in 1864 American Dental Association recognized Horace and honored him as the "discoverer of anesthesia". According to the world-renowned physician, Sir William Osler, Wells' discovery constituted "the greatest single gift ever made to suffering humanity".

The modern era of anaesthesiology has come a long way from when the first significant step was taken. Yet still today the practical applications of chemical drugs are inadequate. The growing incidence of diseases, the high toxicity of present drugs serves as a challenge to all the researchers to develop an alternative, eco-friendly, biocompatible anesthetic. Phytochemical (compounds from plants) drugs are serving as a promising and effective research area with a bright future.

The introduction of cocaine, an alkaloid obtained from Coca leaves as an injectable local anaesthetic by Dr Karl Koller in 1857 was one such step. The intensive studies of plant-based anaesthetics led to the improvement of drugs with better clinical properties. Plants like *Aconitum ferox*, *Ceropegia juncea*, *Datura*, etc are some of the few plant anaesthetics that are popularly used now.



Coca plant leaves

**"DISCOVERY CONSISTS OF SEEING WHAT EVERYBODY HAS SEEN AND
THINKING WHAT NO ONE HAS THOUGHT."**

THE WOMEN OF SCIENCE

Trisha Tewari

B.Sc. Life Sciences

IIIrd year



Women in Science" by VCU Libraries is licensed under CC BY-NC 2.0

The time when women were bound with shackles of perceived norms, when misogyny was served on the platter. The education for women was not considered imperative but a privilege. When male chauvinism dominated, and women were not allowed to cross the thresholds. Since then, women have never escaped rendering the world of facts and reasons in awe, with their incredible innovations. From the structure of DNA to the formulas of mathematics, they have touched all the fields and conquered all the challenges. Wriggling through the obstacles and unbound them from the fetters, their knack has always surfaced and outweighed. Their unshakable obduracy, unfaltering will, and unfathomable courage have imprinted their names in the leaves of history.

Some of the great inventions that have bestowed a different panorama to the world are the result of the endowed minds. There are innumerable exemplary examples to investigate from various fields, like the structure of DNA was deduced by Rosalind Franklin. She deduced the dimensions of the DNA helix.

The drug that is known to be a savior for diabetic patients was discovered by the British scientist Dorothy Hodgkin. She also led the invention of X-ray techniques of the structures of important biochemical substances. Attributable to these discoveries she received the Nobel Prize in 1964.

The Botanists who remarkably embellished the abode of plants and science beheld enigmatic strength. Janaki Ammal Edavalath Kakkat, an Indian botanist who pursued her research in cytogenetics and phytogeography. For her remarkable innovations, she was accoladed with Padma Shri in 1977. She has marked her name amongst the first women who have achieved a PH. D degree. She challenged the patriarchal setup and with unfathomable courage pursued her dream.

In this list of women botanists, the name that beautifully dazzles is the name of the German botanist Sibylla Merian, her pioneering work in illustrating the relation between the plants and the insects. The next mention is of the one who picked up nuances of biodiversity and showcased them gracefully. She is the first woman to circumnavigate the globe assembling many unknown specimens. Jeanne Baret disguised herself as a man and went to collect the specimens all around Europe.

The famed forest conservationist Carrie Dormon. She had an emphatic fascination with the virgin longleaf pine forests, and she wanted to protect the forests of longleaf pine forests from the lumberjacking industries. She created the draft of Kisatchie National Forest which was passed in 1929.

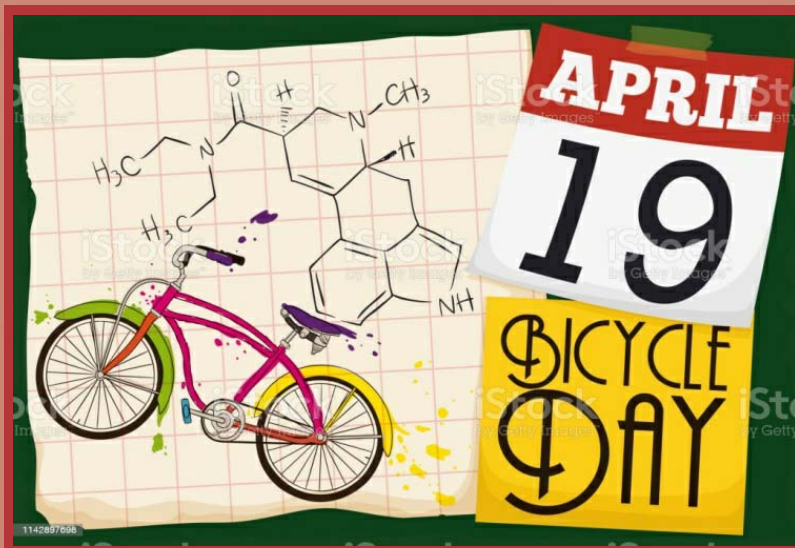
Stemmed from the realm of evolution a name embellishes the history with her remarkable discovery. Mary Anning, the lady deprived of education and professional training led to the discovery of the fossil of a dinosaur. To make her living and to earn for the family Mary Anning used to fossick and sell the fossils. In this endeavor, she got the complete fossil of Ichthyosaurus. She devoted her whole life to searching fossils and helped in digging out the answers to many evolutionary questions.

The nuclear scientist Lise Meitner catalyzed the discovery of nuclear fission, though the science of nuclear fission was first brought on by another gem of the abode of science Marie Curie. Meitner's contribution was never acknowledged due to many reasons. Albert Einstein gave her the sobriquet as Germany's own Marie Curie.

Dr. Elizabeth Garrett Anderson, conquering all hurdles put to her attributable to her gender, succeeded in receiving the medical degree and becoming the first female doctor of the United States. She was denied medical education despite her remarkable results. She learned French to get herself admitted to the University of Paris and got a medical degree. Her struggle did not end here, she could not register her name in the British Medical register. This led to the building of the New Hospital for Women by Dr. Anderson, which later became the London School of Medicine for Women.

There are innumerable names on the list and many more are waiting to get themselves registered. They indeed are a source of inspiration for all of us. They have been emanating inspiration. We can express profound gratitude to all of them and heartfelt thanks for not only the innovations that helped us to know this world in a better way but also for leading the way for many others who will follow their footsteps, for combating the challenges, defying the norms, and not succumbing to them. These women of science and women for science are continuously squirming through various challenges to adorn this abode of science. Denunciations encountered their way, but they never let the obduracy shrug off. Their remarkable contributions and the story of their struggle and accolades possess the ability to instill tenacity in all hearts. Their sagas will continue to inspire the generations.

THE ADVENTUROUS STORY BEHIND LSD DRUGS



<https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.istockphoto>

Every year the world celebrates April 19 as "bicycle day", ironically it has nothing to do with bikes but rather to recognize the day Albert Hoffman, a chemist from Sandoz, Switzerland accidentally discovered the psychedelic effect of LSD (lysergic acid diethylamide).

The story starts with a special type of fungi that grows on rye known as ergot. It was thought to be responsible for terrible illness ergotism.

Albert Hoffman was working under Stoll for research related to ergotamine. Around the same time, American scientists isolated the core structure of ergotamine, the lysergic acid but it was not in a stable form. Albert decided to make it stable. After a lot of studies, he used the Curtius synthesis to add stabilizing amine groups and succeeded in this quest of changing it into a much easier handle, ergobasine, a compound that is isolated from natural ergot. This success made Hoffman believe that he was on the right track. Later, he began mixing lysergic acid with different organic compounds in search of a new medicinal value. This experiment led him to prepare for the first time, LSD 25 but he failed. LSD did not show the appropriate behavior. When tested on rats, barely any restlessness was seen, and the drug was put aside.

One day he accidentally licked a small amount of LSD experiencing a remarkable restlessness combined with abrupt dizziness. He felt the presence of fantastic shapes, pictures and imagined a play of colors.

Inspired by this experience he decided to take up a close and personal look at this drug. On 19 April 1943, a day now referred to as "Bicycle Day" Hoffman ingested 250mcg of the compound, which he thought would not be able to do anything but now it is studied as an extremely high dose. He was the first person on this earth to take the LSD25. After 40 minutes, he experienced dizziness in beginning later anxiety, visual distorting, a strong desire to laugh, and symptoms of paralysis. Overcome by this experiment he asked his lab assistant to drop him home, but World War 2 restricted the use of cars leaving him with no choice but to ride on the bike. Hoffman had the most memorable cruise day of his life while bike riding on his way home.

In 1985 Thomas B. Roberts professor of educational psychology at Northern Illinois University, DeKalb decided to commemorate April 19th as the bicycle day.

As Plato said, "science is nothing but perception". I must say some accidents are incredibly lucky which allowed many people to find an unpredictable thing and sometimes leads to beneficial, lifesaving discoveries even winning Nobel Prize. But remember do not taste lab chemicals like Hoffman because we all are not as lucky as Hoffman.

WHY DO WE SLEEP?

Today I have read about a sleeping disorder called " Narcolepsy " from a book.

And There it goes with its three crispy symptoms: -

1. Daytime Sleepiness.
2. Sleep Paralysis.
3. Cataplexy

Well, this third symptom made me wonder and shocked altogether. This symptom could vary considerably beginning with the modest weakness where the skull and the mandible drop, and dialogues becomes snubbed to the most dangerous, an unexpected failure of all the muscle rhythm, arise in the complete downfall of the mortal without delay.

Now what is shocking is that Cataplectic attacks aren't unexpected, however are activated through mild or powerful feelings, either productive or destructive. State a humorous joke to a narcoleptic patient, and they as a result might fall ahead of you. Surprise a patient, perhaps while they are most unaware, and they will collapse seriously. Even standing in front of delightful spring trees credibly be an adequate enjoyable affair to bring about a patient's legs to clasp and have a plausibly hazardous drop bring about by cataplectic muscle loss.

Shocking isn't it?

I am feeling extremely venerable at least for now for having the ability to feel the emotions and to sleep normally obviously.

There is not only one single sleeping disease but many horrifying symptoms including diseases are there, could be listed as -

1. Insomnia.
2. Sleep Apnea.
3. Restless Legs Syndrome.
4. REM Sleep Behaviour Disorder



So, you see many sleeping diseases could occur just because of a few carelessness's in our daily life schedules example alcohol consumption, taking 6 hours or less sleep for many consecutive days, inadequate sleep turns out to be disastrous to all the major physiological systems of the human body including cardiovascular, immune, metabolic as well as reproductive.

Hence, we need to take the steps to improve our most precious sleep hygiene. Practices that could be considered regularly are summarized as:

Firstly, and foremost, we could follow the twelve principal suggestions given by the National Institute of Sleep. All twelve proposals are fantastic advice, yet if you could only stick to single one of them every day, then construct it: For example, waking up and going to bed at the same time no matter what next waiting for us then. Probably it is alone the most effective way of getting a good night sleep .

Also, we all should do some intensity of regular exercise to maintain not only the well being of our bodies but also the quantity as well as quality of our sleep. Sleep, in return, will strengthen our health and energy. Herbs also play an essential role in their turn to get better sleep and cure frighten diseases like insomnia.

Some of these magical herbs are:

Lavender

This violet miracle is great in essential oils that ease body strain and boost sleep. It's calming effects are supposed to be mainly due to the essential oils present in it.

Chamomile

These oils benefit steady our 'fight or flight', sympathetic nervous system, boosting sleep quality. Chamomile flower also encompasses an antioxidant called apigenin, asserted to help calm an anxious mind.

Ashwagandha

A stimulating root is utilized to calm the body under long-term anxiety. Ashwagandha boosts stamina by functioning on calming down neurotransmitter networks and safeguarding brain cells from trauma. As anxiety is an enormous component in raised cortisol levels, encouraging to keep stress under control will be a huge component in improving sleep quality



Ashwagandha plant

Valerian

Its incredible soothing impact is an enormous gratification to humanity battling with everything from sleep and insomnia to nervous unease. Interestingly, many felines also cherish the scent of this herb and its impacts are related to catnip.

Lastly, every adult needs to take at least seven hours of sleep (oops! Did I just say seven? Not six). Seven hours of sleep helps to rejuvenate the body efficiently, seven hours of sleep has both the NREM and REM phases of sleep in a sufficient amount, seven to eight hours of sleep helps to maintain the circadian rhythms of the body in control.

Sleep is not like money which we could collect in a bank and get recovered whenever we want, but it is the meal that is required to be taken in different courses.

Aayushi Gupta

B.Sc. (Hons.) Botany

IIIrd year

Art Gallery



GOD IS THE GREATEST ARTIST

*Karnika Sahani
1st year*



LIME STILL ART

*Jyoti Singh
2nd year*



MOTHER NATURE

*Nisha Poddar
3rd year*



THE GIRL ON THE SWING

*Tanya Sharma
1st year*



BLOOMING POPPIES

*Sakshi Suman
3rd year*



DARK FOREST

*Nisha Parveen
2nd year*



LOVE IS LOVE

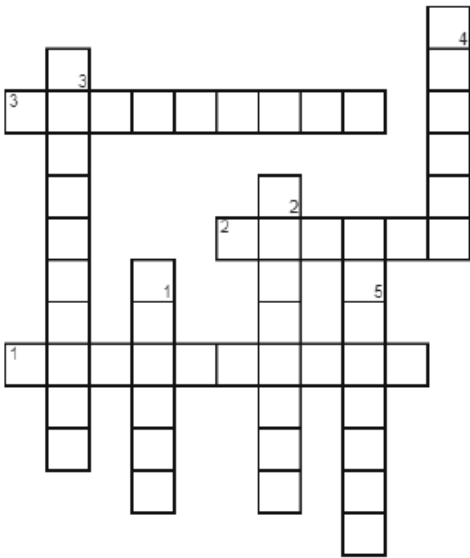
*Priyanka Barik
2nd year*



OCEAN EYE

*Jyoti Singh
2nd year*

CROSSWORDS

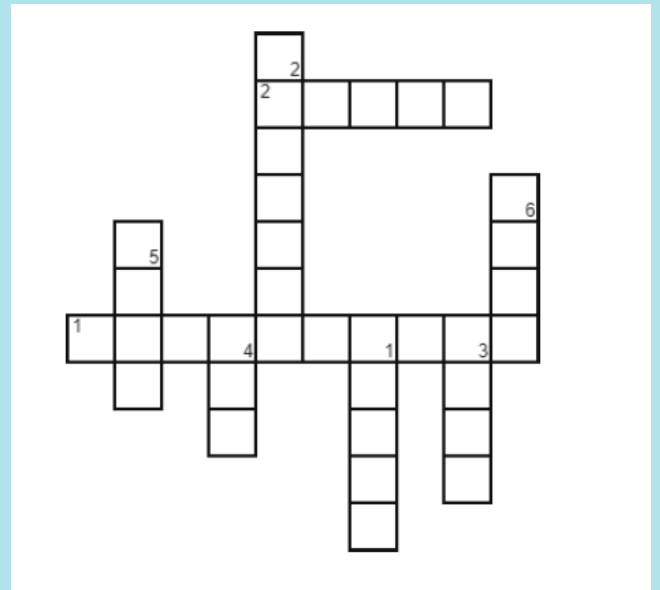


ACROSS

1. the only fruit that bears its seeds on the outside.
2. the fastest-growing woody plant in the world; it can grow 35 inches in a single day.
3. loves facing the sun; composed of hundreds of tiny flowers called florets.

DOWN

1. a country named after a tree.
2. serves the function of a pesticide in a coffee plant but also a reason for drinking it.
3. the tallest tree ever recorded.
4. the oldest living tree species.
5. a root vegetable which was originally purple in color now largely available in red or orange color.



ACROSS

1. the largest flower in the world; smell like decaying flesh and are also known as corpse flowers
2. the flower which names means star and the floral symbol of patience.

DOWN

1. the flower which is related to apples, raspberries, cherries, peaches, plums, nectarines, pears, and almonds.
2. very expensive spice comes from a type of crocus flower.
3. flowers bloom only at night, closing during the day.
4. known as botanical beard; the 'needle' part of needle grass
5. Indigo dye source, which makes blue jeans blue.
6. flower pale purple shade, named after rainbow goddess; colored part of the eye.

DID YOU KNOW...?



Bear's head tooth mushroom (*Hericium*)

Bear's head-tooth mushroom helps fight cancer, killing roundworms, and stimulation of nerve growth.



Cape sundew (*Drosera capensis*)

The cape sundew, a 'flypaper' plant native to South African carnivorous plant, catches insects slowly by wrapping its "arms" around them with a mucilaginous trap.



Elephant foot yam (*Amorphophallus paeoniifolius*)

The Elephant foot yam plant smells like a corpse, thus, relating to a corpse plant but it is edible and has many health benefits.



The Great Barrier Reef is the largest living structure on the Earth and is about 2000 kilometres long.



Strawberry (*Fragaria ananassa*)

Strawberry is the only fruit that externally bears its seeds. A strawberry normally has 200 seeds.



Fireweed (*Chamaenerion angustifolium*)

A single Fireweed plant can generate up to 80,000 seeds. You might even say that the plant spreads like a wildfire.



Dragon's blood tree (*Dracaena cinnabari*)

Dragon's blood tree is umbrella-shaped and works like an umbrella!



Banana (*Musa acuminata*)

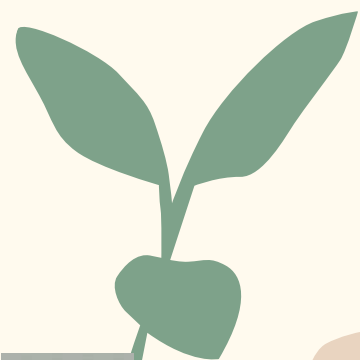
Bananas contain a natural chemical tryptophan, which makes people feel happy.



ACTIVITIES AND COMPETITIONS



Do you think science is all about just being a studious worm? Ah! The Botany Department students have defined the boundaries of science in a modern direction. During the session of 2020-21, our departmental stars have participated in several Inter-college, National as well as in International online competitions and training programs. The occurrence of the pandemic instead of stopping has only strengthened the wings of the glorious souls. Here's a little glimpse of the champions of the department sparkling their glitters in diverse fields.



ACADEMIC PRIZES FOR UNIVERSITY RESULTS



APOORVA DAYAL

III year/ VI semester
stood first in the
class 84.21% (8.865)



SAKSHI SUMAN

II year/ IV semester stood
first in the class 91.53%
(9.635)



NEHA

I year/ II semester stood
first in the class 90.25%
(9.50)



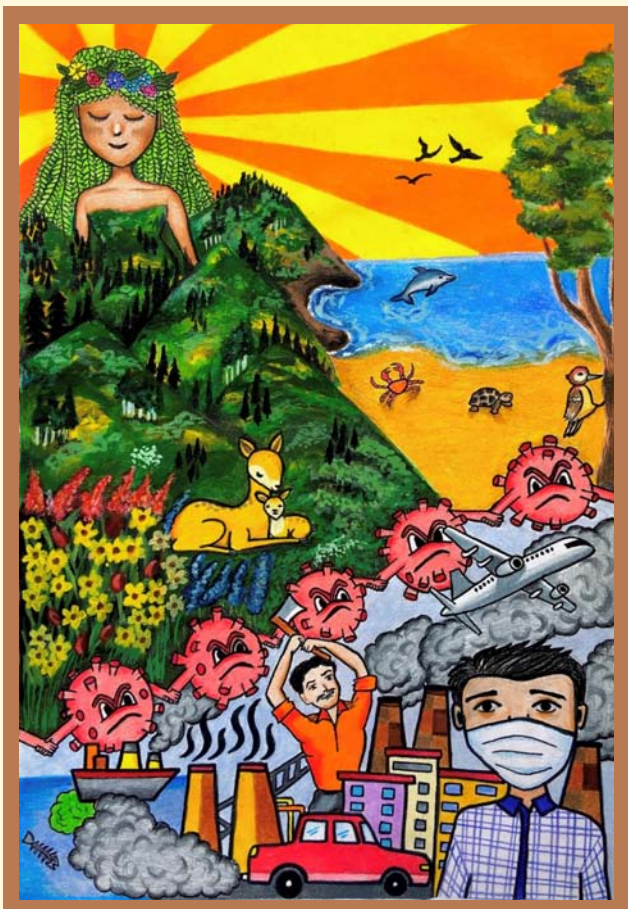
ARTWORKS



BY: NISHA PODDAR, 3rd yr
ANTIRAGGING COMMITTEE POSTER COMPETITION
THEME: "STOP SHAMING EMBRACE DIVERSITY"

POSITION: 1st

EMAIL ID: nishapoddar0777@gmail.com



BY: JYOTI SINGH, 2nd yr
POSTER MAKING COMPETITION BY BLOSSOM
THEME: REJUVINATING NATURE AMID CORONA CRISIS
POSITION: 1st
EMAIL ID: 1540jyotib@gmail.com





BY: NISHA PODDAR, 3rd yr
 AVGAHAAN POSTER MAKING COMPETITION UNDER DRISHTI
 THEME: NATURE- INSPIRATION THROUGH PLANTS
 POSITION: 1st
 EMAIL ID: nishapoddar0777@gmail.com

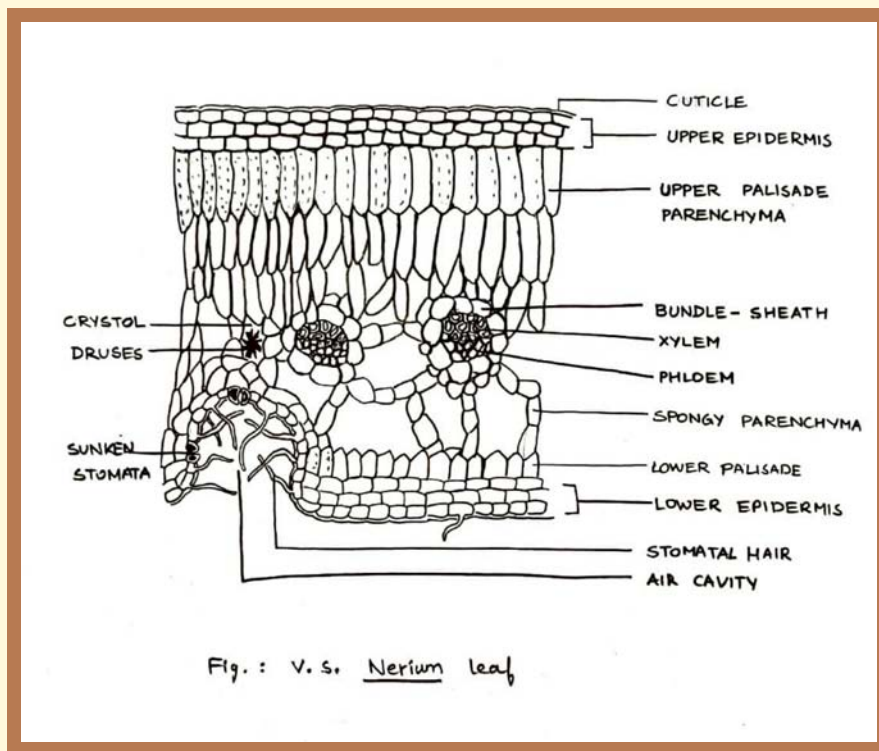


Fig. : V. s. Nerium leaf

BY: NISHA PODDAR, 3rd yr
 ANATOMICAL SKETCHING UNDER LA BOTANIQUE'21 ORGANIZED BY PRAKRITI- BOTANICAL SOCIETY OD DAYAL SINGH COLLEGE
 POSITION: 2nd
 EMAIL ID: nishapoddar0777@gmail.com

ISSRF 2021

COVID-19 AND SOCIO-ECONOMIC ASPECTS: EFFECTS ON ECONOMY AND CRIME RATES

Dr. P Kavita*, Nikita Goel and Aayushi Gupta
Maitreyi College, Department of Botany, University of Delhi, New Delhi- 110021
*pkverma@maitreyi.du.ac.in Mobile No: 9999744556

Abstract
The novel Corona Virus also called COVID-19 marked its epoch on the land of China in December 2019. It came to India in March 2020 and has rapidly spread to other countries as well. Various precautionary measures like lockdown policy impacted the world economy in the most destructive ways possible. We aim to highlight the effect of COVID-19 on our socio-economic environment through discussing effect of lockdown on economy and crime rates. Based on various case studies in New Delhi and New York as resource and studying the gross domestic product of India and relating it to unemployment and crime rates of the two cities. In India, Gross Domestic Product (GDP) is predicted to drop along unemployment, especially among the lower-class people who worked on daily wages. The spread of the virus required social distancing leading to the shutdown of financial markets, corporate offices, businesses, and events. All of which can be linked with the crime rates in the country. Crime rates of domestic violence and cyber-crimes have increased during the lockdown period. The crimes of burglary and theft have decreased because individuals are staying in their homes. It is predicted that robberies like shoplifting, vehicle theft, etc. will increase because of the face mask once everything returns to normal. India has to focus on boosting its economy, and increase cyber security as well as methods to control thefts and crimes.

Economy
India's quarterly GDP was estimated to a decline of over seven percent in the second financial year 2021.

Unemployment Rate
Small traders and laborers were most impacted by the coronavirus (COVID-19) lockdown in India with over 91 million people losing their employment in April 2020. Over 119 million Indians lost their jobs, including entrepreneurs and salaried workers.

Routine Activity Theory
Developed by Cohen and Felson in 1979. A likely offender (motivated). A suitable target. The absence of a guardian.

Change in GDP, India
Bar chart showing quarterly GDP change from Q1 2019 to Q2 2020. Values range from 1.0 to -7.0.

Unemployment in India in two different sectors, 2020
Pie chart showing 122 million total unemployed, with 85 million in non-agriculture and 37 million in agriculture.

Employment in Agriculture sectors, 2020
Pie chart showing 100% employment in Agriculture.

CRIME RATE
Venn diagram showing Crime as the intersection of a likely offender, a suitable target, and the absence of a guardian.

ROBBERY AND BURGLARY
Comparison of crime statistics of New Delhi in the year 2019 - 2020. Bar charts for Robbery and Burglary show a decrease in 2020.

DOMESTIC VIOLENCE
Domestic Violence cases has been increased during lockdown because:
1. Experience of collective trauma regarding employment, health concerns and false information surfacing around social media.
2. Depression and anxiety due to isolation and quarantine that result in substance abuse.
3. Economic reasons force the victim to remain in the close proximity abuser partner.

CYBER CRIME
Bar chart showing an increase in cyber crimes from January to July.

Conclusion
It is predicted that when everything will become normal again there will be more cases of robbery related to shop lifting because of the face mask as police will not be able to identify the victim properly.

References
*Khan, P.M., Rao, R. & Aggarwal, S. (2020). Closure in the Time of COVID-19. *Journal of Theoretical Analysis*, 1(2) 161-172.
*Chen, Y. & Chen, S. (2020). Influence of COVID-19 on the Global Economy. *Journal of Economic Surveys*, 1(2) 19-34.
*Gupta, A. (2020). COVID-19 and Employment: The worst of all worlds. *Journal of Economic Surveys*, 1(2) 19-34.
*Gupta, A., Singh, S., & Singh, S. (2020). The Effect of COVID-19 on the Indian Economy. *Journal of Economic Surveys*, 1(2) 19-34.
*Gupta, A., Singh, S., & Singh, S. (2020). The Effect of COVID-19 on the Indian Economy. *Journal of Economic Surveys*, 1(2) 19-34.

Covid-19: Beneficial and Harmful Effects on Environment

Dr. P. Kavita, Monalin Panda, Thingujam Jeena
DEPARTMENT OF BOTANY, MAITREYI COLLEGE, UNIVERSITY OF DELHI, NEW DELHI, INDIA

INTRODUCTION
Coronavirus disease 2019 (Covid-19) started from Wuhan city of China on December 2019 and was declared as a pandemic by World Health Organization (WHO) on March 11, 2020. Due to the rapid human transmission, it has spread to 216 countries and till now (as of December 2020) 69 million people has been affected worldwide. Global lockdowns have been implemented to prevent the spread of virus. And like two sides of a coin it has its positive and negative effect on environment.

HARMFUL EFFECTS ON ENVIRONMENT

- The use of single use plastic has increased more than ever since things are being bought online.
- The medical waste generated from Covid-19 care centers, hospitals and homes has increased.
- The materials used for making masks are highly dangerous for the environment as they are made of non-woven fabrics. In India Covid-19 related biomedical waste generation has increased from 3025.41 tonnes in June to 5490 tonnes in September 2020.
- Due to lack of proper knowledge these harmful biomedical wastes are being dumped untreated almost everywhere.

BENEFICIAL EFFECTS ON ENVIRONMENT

- The global ban on traffic mobility and lockdown greatly limited transportation emissions and declined industrial and residential heating.
- As reported by NASA and ESA the level of NO₂ was reduced by 12.9 and 22.8 µg/ in China and Wuhan city in Hubei Province, respectively.

CONCLUSION

- The lockdown has contributed positively towards the environment, but the negative effects needs to be accounted as well.
- Controlling the spread of the pandemic is the necessity of the moment but the government and every individuals should also take measures to regulate wastes management.

REFERENCE

- <https://www.india.information.com/2020/09/29/india-information-biomedical-waste-generation-in-india/>
- <https://www.india.information.com/2020/09/29/india-information-biomedical-waste-generation-in-india/>
- <https://www.india.information.com/2020/09/29/india-information-biomedical-waste-generation-in-india/>

The Indian Society for the Study of Reproduction and Fertility (ISSRF) organized an international conference on 'Challenges and strategies in reproductive and environmental health during and after the covid 19 pandemics' on 20-21st Feb via zoom meeting. Students were liberated to choose the theme according to their wish from the list of themes provided and was supposed to make a poster along with a video of presenting and briefing their poster. Two students from the second year that are **Monalin Panda** and **Jeena** presented their poster on the theme: **COVID 19-BENEFICIAL AND HARMFUL EFFECTS ON ENVIRONMENT** and two third-year students that are: **Nikita Goel** and **Aayushi Gupta** have presented their poster on **COVID 19 AND SOCIO-ECONOMY ASPECTS: EFFECTS ON ECONOMY AND CRIME RATES**, both the posters were guided by Dr. P. Kavita.

THSTI



Two students attended a 10-day (Dec-Jan) training program at THSTI, Faridabad under the Science Setu program Shadow a scientist that is a collaboration between Maitreyi College, Delhi University, and THSTI Faridabad. Dr. Anamika Singh convenor of this program guided and helped the students throughout.

Ms. Nikita Goel and Ms. Shallu Gaur of Botany (H) IIIrd year both were given the opportunity to work under research scientists for two weeks.

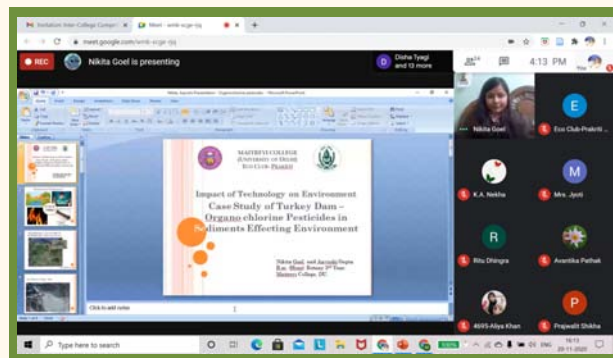
I, Nikita Goel worked in a computational lab whose research area is a post-translational modification of proteins under Research Scientist Doctor Amit Yadav. There I got to learn how proteins are sequenced with high throughput techniques from results obtained after the Mass Spectroscopy.

I also learned to carry out protein digestion and how protein identification is done using the softwares. Currently, they are working on ways to identify modifications of the peptides. It was a hands-on experience to work in the lab and learn how to research and scientific work is carried out. Along with subject knowledge, I also gained experience about the environment, work ethics, and the way we proceed for research work. I found the training to be helpful and it inspired me to pursue my career forward with zeal and passion.

I, Shallu Gaur worked in the Tuberculosis lab of Professor Doctor Ramandeep Singh. It was a wet lab working on the characterization of MazF toxins of Mycobacterium tuberculosis, Identification, and characterization of biochemical pathways involved in regeneration, and Identification of novel drug targets for M. tuberculosis. I have gained insight into the biochemistry laboratory and I get to learn many Analytical techniques and lab rules. I have gained many lab skills like record-keeping, measurement, time management, lab safety, molecular cloning, sterilizing equipment. It was a great experience, and this training has increased my desire in pursuing my career in research work."

ECO CLUB PRAKRITI

The Eco Club Prakriti of Maitreyi college has organized a National oral presentation competition on the title: "Impact of Technology on Environmental" on 20th November 2020 via google meet. In which very graciously two students of our department from the third year named as **Aayushi Gupta** and **Nikita Goel** presented an oral presentation on the topic: **Impact of Technology on Environment with the Case Study of Turkey Dam - Organochlorine Pesticides in Sediments Effecting Environment** and secured the **first position** also won the cash prize along with the certificate of their achievements.



<https://www.facebook.com/mcn1967du/posts/447037066668564>



CROSSWORDS KEY

Left Crossword

ACROSS

- 1.strawberry
- 2.bamboo
- 3.sunflower

DOWN

- 1.brazil
- 2.caffeine
- 3.eucalyptus
- 4.ginkgo
- 5.carrots

Right Crossword

ACROSS

- 1.titanarums
- 2.aster

DOWN

- 1.roses
- 2.saffron
- 3.moon
- 4.awn
- 5.anil
- 6.iris

Other Competitions

AVANTIKA PATHAK

Competition Name - Ramayan Trivia Quiz Competition (Kirori Mal College)

Position secured - 1st

Class - B.Sc. (Hons.) Botany, IIIrd year

Date of competition- 10 Nov 2020

Mode of competition - Google meet



BHARTI CHAUHAN

Competition name - On the spot photography Competition (Maitreyi college)

Position secured - 1st

Class - B.Sc. (Hons.) Botany, IIIrd year

Date of competition- 2 March 2020

Mode of competition - Offline



KANNUPRIYA

Competition Name - Essay Writing Competition (Maitreyi College)

Position Secured - 1st

Class - B.Sc. (Hons.) Botany, IIInd year

Mode of Competition - Online



PREETI KUMARI

Competition Name - Online collage making competition (Daulat Ram College)

Position secured - A consolation prize

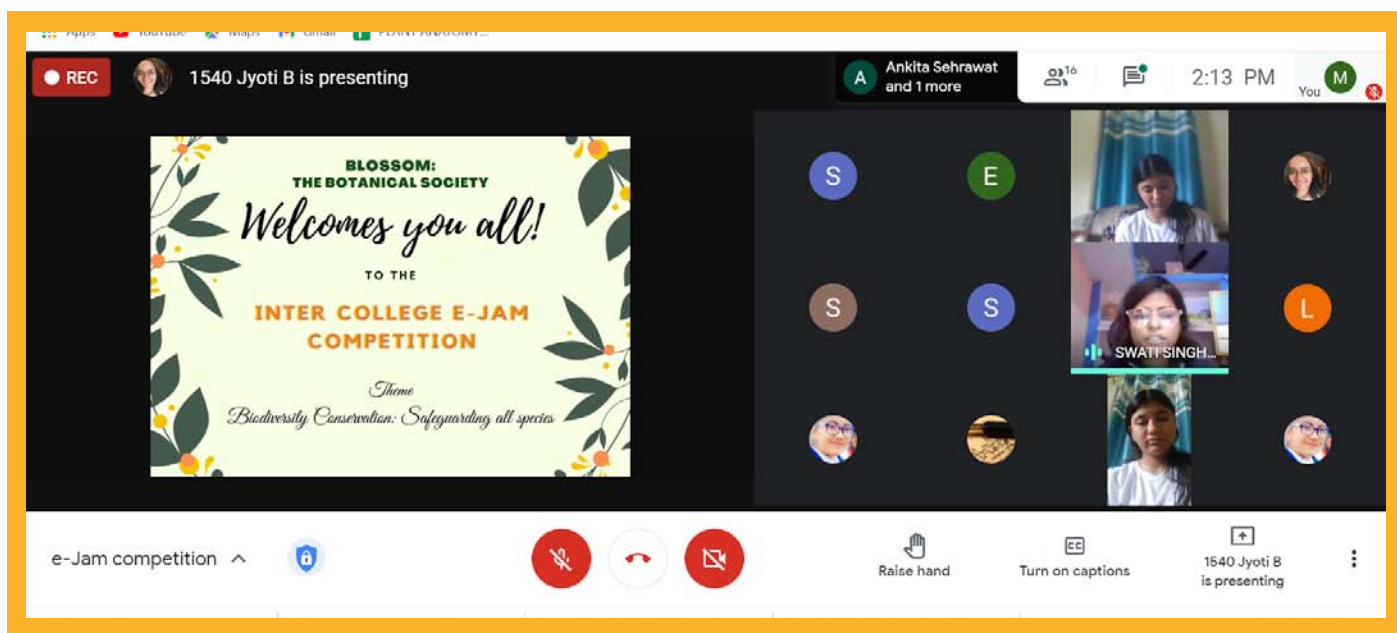
Class - B.Sc. (Hons.) Botany, IIIrd year

Date of competition - 5th June 2020

Mode of competition - Online



Activities & Competitions Under Blossom



Inter College E-Jam Competition

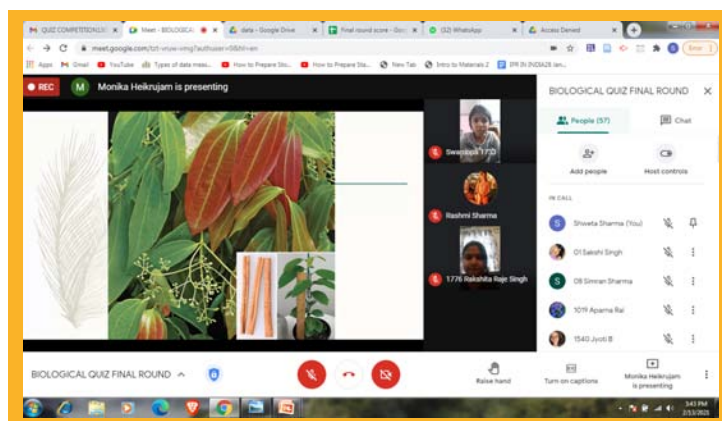
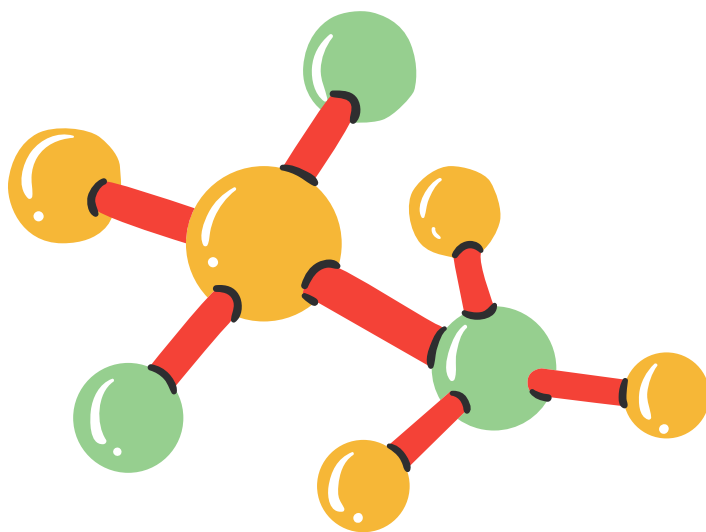
BLOSSOM, The Botanical Society of Maitreyi College organized an Inter College e-Jam Competition on the theme “Biodiversity Conservation: Safeguarding all species”. Undergraduate students from different colleges participated individually in the competition. In the first round, participants submitted an abstract of 100 to 150 words along with a PowerPoint Presentation on the theme. Shortlisted participants showcased their talent by virtually presenting their slides in the meet organized on Google Meet on 23rd January 2021. Dr. Atika Chandra and Dr. Eapsa Berry from the Botany Department, Maitreyi College were present as the judges for the fierce competition. The results were announced as 1st Swati Singh from Kirori Mal College, 2nd Isha Malguri from Maitreyi College, and 3rd Gayathri P R from Maitreyi College. Winners and participants were awarded e- certificates.

World Environment Day to World Oceans Day

BLOSSOM, The Botanical Society of Maitreyi College organized an inter-college competition on “Celebrate Life. World Environment Day to World Oceans Day” from 5th-8th June 2020 on the theme “REJUVENATING NATURE AMID COVID CRISIS”. The event comprised of many competitions like Poster making competition, e-newspaper/ clipping competition, essay writing competition and animated videos making competition, etc. Undergraduate students from different colleges participated individually in the competition. Along with that school students also participated enthusiastically. Around 110+ students participated with great zeal and enthusiasm during the lockdown phase. Students submitted their entries via Google Forms. The result was declared on the official website of Maitreyi College. Winners were awarded e-certificates of appreciation and e-Books. Other participants were awarded e-certificates of participation.

Inter College Biological Science Quiz

An Inter College Biological Science Quiz was organized by BLOSSOM, the Botanical Society of Maitreyi College on 13th February 2021. The competition was organized on google meet. Only team entries, comprising maximum of three participants were eligible for the competition. The judging panel consisted of two judges- Dr. Rashmi Sharma of Department of Botany, Acharya Narendra Dev College, and Dr. Rama Sisodia of Department of Botany, Maitreyi College. It was held in three rounds – 1 Screening round, 2 Visual round, and 3 Rapid-fire round. 29 teams from different colleges registered for the screening round out of which 16 were shortlisted for the second round. The visual intellect of participants was tested in the Visual round which was held in four sub rounds- Identification of Phenomenon, Scientists, Plant products, and Instruments through pictures. Out of the 16 teams, 5 teams were shortlisted for the final round. In the Rapid-fire round, five rapid questions were asked which had to be answered by the teams. The winning team was from Gargi College, University of Delhi (Shazia Shifa, Alfa Aafreen, Parul Mendiratta) which bagged 46 points out of 50 followed by the team of Daulat Ram College, University of Delhi (Mansi Vatwani, Yukti Dhingra, Aabha Tripathi) at the second position with 44 points followed by the team of Hansraj College, University of Delhi (Purna Sharma, Shivani Sharma, Aditya Prakash Gupta) at the third position with 42 points. The winners and participants were awarded e-certificates of appreciation and participation.



Photography Competition

Amidst the chilly winter season BLOSSOM, The Botanical Society of Maitreyi College organized a photography competition on the theme “Winter Diaries” for undergraduate students on January 3rd, 2021. Students participated with great passion and captured the exquisite shots. While some pictures reflected the essential warmth of the sun during winters, some captured the beauty of nature like the drops of dew on the green leaves during morning hours, sunsets, and snowfall. Students submitted their entries via Google Forms. Winners were shortlisted and awarded with e-certificates.

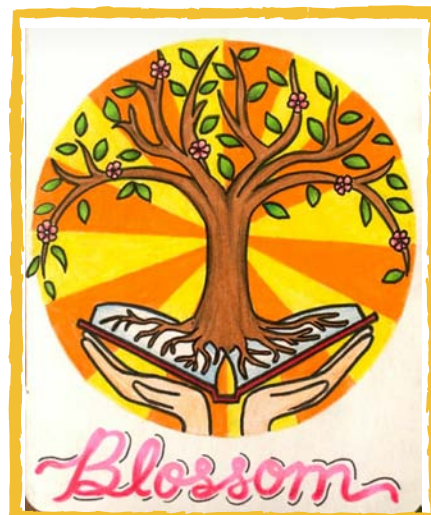
Slogan & Logo Designing Competition

BLOSSOM, The Botanical Society of Maitreyi College organized a slogan writing and logo designing competition on a botany- related theme for undergraduate students of 2nd and 3rd year of Botany and Life Science on 30th October 2020. Students got to unleash their inner artists and bring together their creative ideas on the pieces of canvas. Participants submitted their entries via Google Forms. Winners were shortlisted and awarded e-certificates.

The results for logo designing competitions were; 1st position is secured by Jyoti from Botany (Hons.) II year.

2nd position is secured by Nisha from Botany (Hons.) III year.

3rd position is secured by Jeena from Botany (Hons.) II year.



BY: JYOTI SINGH, 2nd yr
LOGO DESIGNING COMPETITION BY BLOSSOM
POSITION: 1st



BY: NISHA PODDAR, 3rd yr
LOGO DESIGNING COMPETITION BY BLOSSOM
POSITION: 2nd



BY: JEENA THINGUJAM, 2nd yr
LOGO DESIGNING COMPETITION BY BLOSSOM
POSITION: 3rd



INTELLECTUAL PROPERTY RIGHTS: CREATING VALUE FROM INTELLECT, INNOVATION AND INVENTION

Webinar Series

Intellect or "**Buddhi/Dhi**" has been defined and understood differently. Although the brain is the physical seat of all thoughts, the mind is the source of all creativity. "**Boudhik Sampada**" or Intellectual Property (IP) is the collective term that includes a diverse type of creations of the mind - "inventions, literary and artistic works, designs, symbols, names and images" and others. The public disclosure and commercial use of these creations enables others to build on the knowledge embodied in the intellectual property of another. The creator of the inventions is motivated to grant exclusive rights, for economic advantage. Over the years of human innovation, a well-functioning legal system - 'Intellectual Property Rights' has emerged that is enforceable through and regulated by the governments. It is a watershed domain pooling knowledge from various disciplines to create value.

INAUGURAL SESSION

APRIL 20, 2021



CHAIR & COORDINATOR
DR HARITMA CHOPRA
Principal, Maitreyi College
University of Delhi



CHIEF GUEST
PROFESSOR A K PRASAD
Director, Cluster Innovation Centre,
Head, IPR Cell



INAUGURAL SPEAKER
DR KS KARDAM
Former Senior Joint Controller,
Patents & Designs,
Intellectual Property Office, GOI

The first day began with the 'Lamp Lighting' ceremony along with invoking **Maa Saraswati**, the Goddess of knowledge. **Principal, Dr Haritma Chopra**, welcomed the illustrious dignitaries and participants. The Chief Guest **Prof AK Prasad, Professor of Chemistry and Head, The IPR Cell** at University of Delhi inaugurated the virtual event and stressed on the importance of teaching students about this fundamental issue that links research, products and market. He emphasised that one should move beyond "replicating" and follow the maxim of "protect first then share freely". The Inaugural lecture was delivered by the **Keynote Speaker, Dr KS Kardam, Former Senior Joint Controller, Patents and Designs**. In a two hour talk Dr Kardam highlighted the various categories of Patents and discussed interesting case studies to highlight the legal framework.

Dr Vandana Tyagi, Officer-in-charge, Germplasm Exchange and Policy Unit, at the National Bureau of Plant Genetic Resources (NBPGR) shared the importance of the different IPR frameworks operating in the domain of use of natural Biological Diversity –plant, animal and microbial resources, conservation of natural germplasm and the various International and National Legislations in place for the same. She emphasised on the various ways that infringements were taking place and the importance of the IPR for agricultural research particularly in protecting the Rights of Farmers under the Plant Variety Protection, the role of the NBPGR, National Biodiversity Authority and other agencies in implementing the various Conventions.



DR VANDANA TYAGI
Officer-in-Charge
Germplasm Exchange and Policy Unit ICAR-
National Bureau of Plant Genetic Resources



MR RAJAN AILAVADI
Patent/Trademarks, CIP LEGIT (Company)

Mr Rajan Ailavadi, CIP LEGIT, shared the wealth of his knowledge and expertise in Trademarks and the various types of categories under the Trademark Laws. He presented a very insightful presentation, covering numerous cases and statutes. As an entrepreneur he shed light on the various possibilities and prospects for building skills and practicing as a Patent Attorney.

Mr Sameer Swarup, Deputy Controller of Patents and Designs, Intellectual Property India (Patent Office) Delhi, Government of India. He spoke in detail on the “eFiling Procedure for Patent Applications” and the “Overview of Design Registration in India”. He distilled his decades of knowledge and shared the details of the organisational set-up, the requisite forms and formats needed to apply for patenting. He also gave insightful case studies of innovative designs.



MR SAMEER SWARUP
Deputy Controller, Patents and Designs, IP Office,
GOI



DR. KSHITIJ KUMAR SINGH
Assistant Professor, Campus Law
Centre, University of Delhi

Dr Kshitij Singh, gave an in depth presentation and analyses on “ Patenting of Biotechnology Inventions”. He discussed in depth the various perspectives of different legal provisions and the implications of biotechnology inventions including genes, genetically modified organisms and other upcoming inventions based on gene editing. He discussed several sections and their provisions with reference to certain case studies.

STUDENT ACTIVITY:

PRESENTATIONS ON CASE STUDIES



FIRST POSITION:

Nikita Goel, B.Sc. (H) Botany IIIrd Year, Maitreyi College “Case Study On Rejected Patents In India”



SECOND POSITION :

Niyati, B.Sc. Life Science IIIrd Year, Maitreyi College “Biopiracy Of Traditional Knowledge”

STUDENT ACTIVITY :

IPR QUIZ



FIRST POSITION:

Niyati, B.Sc Life Science, IIIrd Year, Maitreyi College



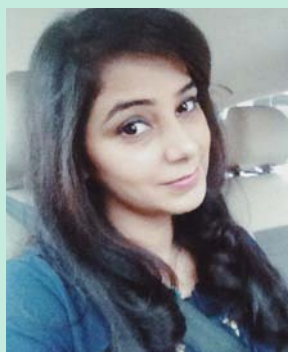
SECOND POSITION:

Kanika Bhardwaj & Garima Dubey, B.Sc (H) Botany IInd Year, Miranda House

VALEDICTORY SESSION

APRIL 24, 2021

The Valedictory session was Chaired by Principal, Dr Haritma Chopra, a short report of the four day webinar series was presented followed by an engaging conversation by Ms. Mansi Sehdev Gupta, an Innovator, Entrepreneur and a Research scholar in Mass Communications who heads the company Emazing Ideas, Pvt. Ltd. She showcased several innovative designs like the “Handy Wash” station for sanitiser dispensers for multiple users, “Spray Clean” a sanitiser spray walkway. The most creative was the “Corona Chakra” a simple innovative solution to keep the physical distance using a spiked belt made of old used cloth. She shared that this innovation has been implemented in Chinese schools where it is a mandatory head-gear for the children and helps to maintain the distancing.



Ms. Mansi Sehdev Gupta,
Innovator, Entrepreneur
Emazing Ideas, Pvt. Ltd.

“Shravan, Manan and Nidhidhyasan” are the key ways in which we learn. At first by hearing, then reflecting and contemplating and finally acting or living the learning. We are sure that listening to the experts has enriched our lives. The seed planted today will germinate and grow into a tall tree with profuse branches, flower and fruit for the benefit of humanity. IPR is a confluence of Science, art, philosophy and ethics and can be summed up in the following lines by **Dr Daisaku Ikeda**, Buddhist philosopher and founder of the Soka School and University,

“Science, philosophy, art, religion, all undertakings must be directed toward the people. Science without you is cold hearted, philosophy without you is barren, art without you is empty and religion without you is merciless” .

The proceedings came to an end with a vote of thanks by Dr Sandeepa Singh. She expressed her gratitude to Principal, Dr Haritma Chopra for her constant support and encouragement and conceiving the idea of hosting talks and lectures to encourage students in this new area of employment.

ORGANISING COMMITTEE

- Dr Alka Vadakan
- Dr Adesh Rani
- Ms Divya Singh
- Dr Rama Sisodia
- Dr Pooja Baweja
- Dr P. Kavita
- Dr Anamika Singh
- Dr Sarita Kumari
- Dr Monika Heikrujam
- Dr Shweta Sharma
- Dr Ankita Sehrawat
- Dr Eapsa Berry
- Dr Dipti Tonk



After all peaks and valleys, we ended the session of 2020-21 heftily along with grateful hearts and smiles by saying a formal goodbye to the third year batch students

Farewell Party

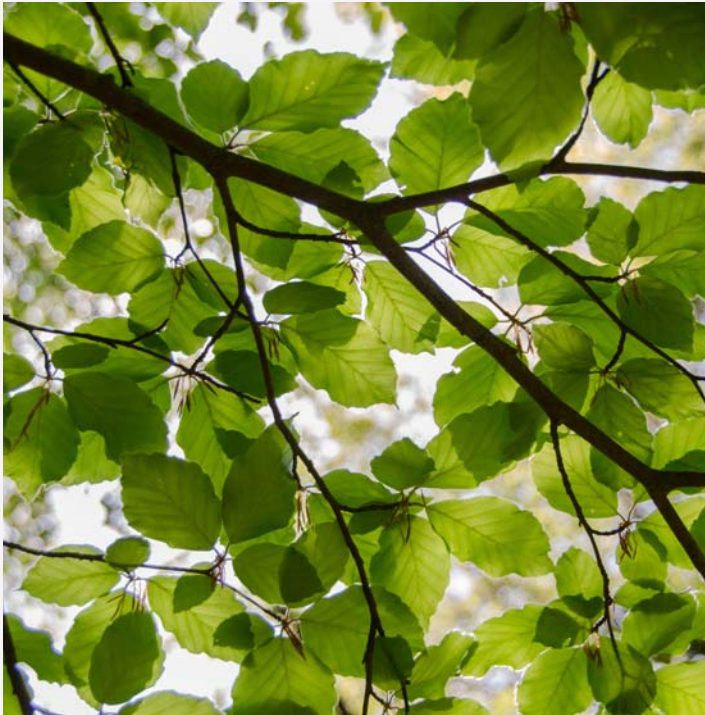
OF BATCH 2018-2021

The Department of Botany organized a virtual farewell for the outgoing batch on April 30, 2021. The event commenced with a welcome speech by the first years and second-year students. After which a memorably recorded video clip was played which brought a nostalgic atmosphere among the students. First-year and second-year students enthusiastically performed mesmerizing live songs, danced, and recited emotional poems for seniors. Faculty members fondly remembered the outgoing batch as a sincere batch, gave encouraging words of wisdom, and wished them luck and wellbeing for their future. Principal Madam, Dr. Haritma Chopra addressing the third-year students, wished them success in their future endeavors. She also advised the students to take care of family members and relatives in these unprecedented times. Third-year students also expressed their gratitude and shared experiences of their college journey. They were moved by this alluring event. To add fun elements to the event, the juniors played games such as Emojivood, Treasure hunt, and Tambola with the seniors and awarded the winners with titles. Further, all the students were given farewell titles which overwhelmed them. Towards the end, they sang a goodbye song creating an environment of enjoyment and emotion in their last memories in the college. The event ended with Dr. Atika Chandra, the Teacher in charge's inspirational words of wisdom.



CAREERS AFTER BOTANY

Greening the planet



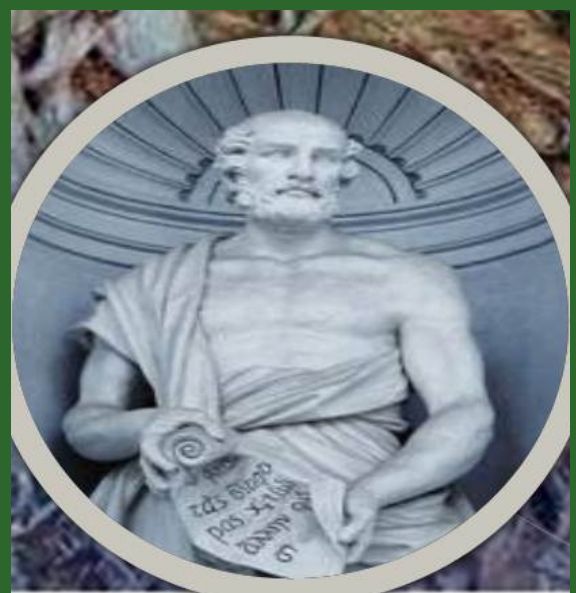
In India, the study of Taxonomic rank, classification, and naming of plants in the Sanskrit language is much older than that of Latin and Greek languages and the study dates back to the Vedic period from 2500 BC to 600 BC.

In **Rigveda**, three groups of plants have been recognized, viz. trees (Briksha), herbs (Osadhi), and creepers (Virudh). These are further classified into flowering, non-flowering, fruit bearing, and fruitless plants. **Atharva Veda** also contains descriptions of many medicinal plants. In the ancient Indian texts, the nomenclature of the plants was generally based on the plant & botanical characters and their therapeutic properties.

Current pandemic has emphasized the importance of plant based daily healthy diets as well as the significance of the "kitchen pharmacy" besides the Phyto pharmaceuticals available commercially.

ROOTS OF CONTEMPORARY BOTANY

Theophrastus (4th Century BC) has been called as "**Father of Botany**". The roots of Botany as the contemporary discipline have can be traced back to the ancient Greco-Roman times. It is believed that Aristotle and his student Theophrastus worked out descriptions and principles of plant types and functions that have remained the prototype for botanical observation even today.



Theophrastus the author of two major ancient books in Botany : De Historiaplantarum (A History of Plants) and De Causisplantarum (About the Reasons of Vegetable Growth).

Botany, the scientific study of plants and the multitude facets of plant life is an excellent choice for pursuing an undergraduate degree course and building a sound career.

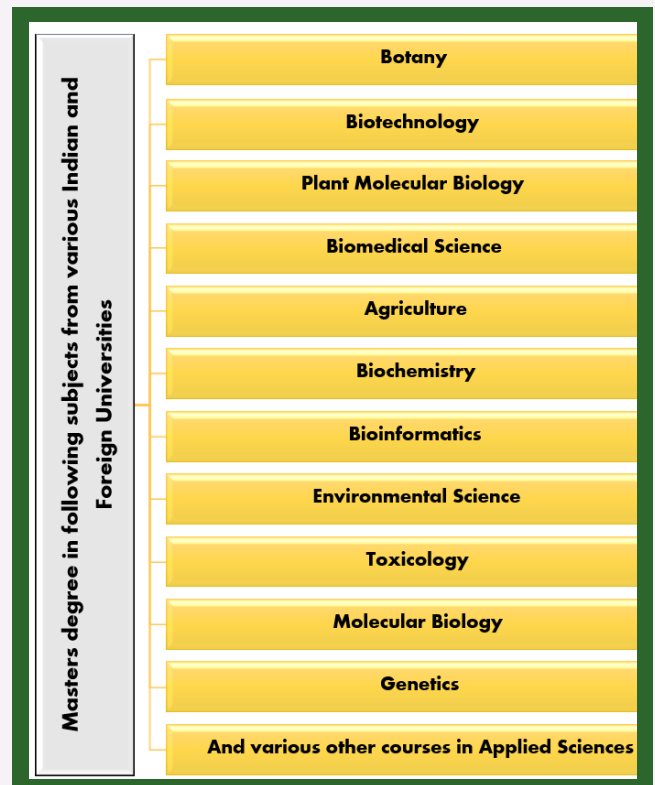
BACHELOR OF SCIENCE - B.SC.

B.Sc. (Hons.) Botany, is a three year undergraduate degree course (slated to be four years under NEP). It is a comprehensive program which builds knowledge and skills in multiple dimensions for the learner and exposes them to the basic and applied aspects of plants. The three year program has a bouquet of several types of courses:

- 14 Core courses
- 4 Discipline Specific Electives (DSE)
- 2 Skill Enhancement Courses (SEC)
- 2 compulsory Ability Enhancement Courses in English & Environmental Science (AECC)

MASTER OF SCIENCE - M.SC.

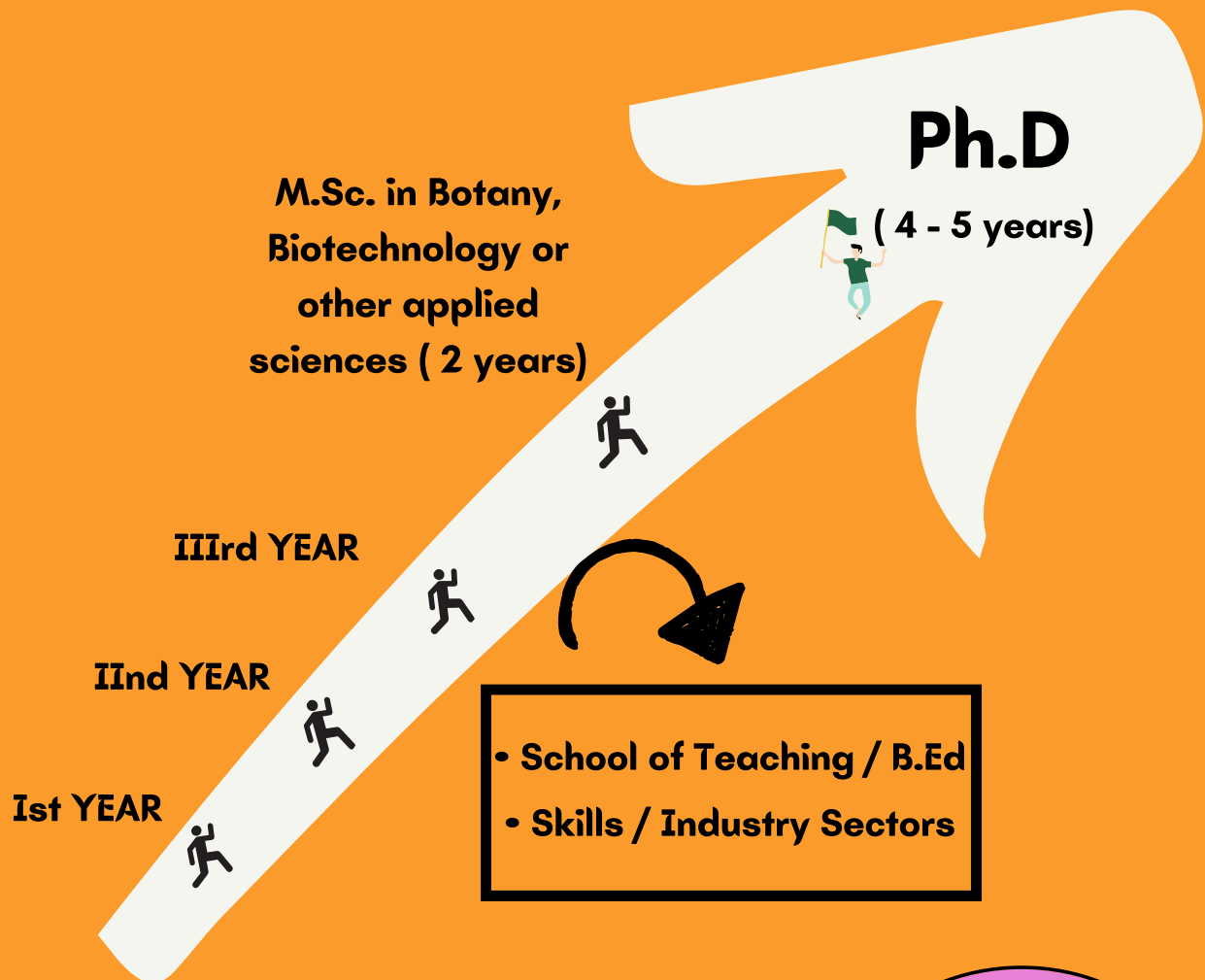
After the undergraduate program one can opt for pursuing Master's in India or abroad. It is usually a two year or one year course (abroad). Most Universities have a written entrance exam, few consider and give weightage to marks earned in the undergraduate course (merit) along with entrance. M.Sc. can be pursued in several fields - Botany, Genetics, Plant Molecular Biology, Plant Breeding, Bioinformatics, Microbiology, Biotechnology or other applied sciences.



PH.D - DOCTORATE

After a Master's degree learners can pursue Ph.D - Doctor of Philosophy in Botany or any other allied field of biological sciences. Universities and Institutes (national and international). All offer this program based on the National Eligibility Test, entrance tests and interviews. This is a period of five years of intensive study where you can research on a particular theme.

JOURNEY OF BOTANISTS



- BACHELORS OF SCIENCE - B.Sc.
- MASTERS OF SCIENCE - M.Sc.
- Ph.D - Doctorate



BOTANY GRADUATE:

A SPECTRUM OF ROLES

FOR THE LOVE OF PLANTS

BOTANIST

PLANT MOLECULAR BIOLOGIST

PLANT BIOCHEMIST

**ENVIRONMENTAL CONSULTANT/
CONSERVATIONIST**

ETHNOBOTANIST

PLANT GENETICIST

HORTICULTURALIST

MYCOLOGIST

PALEOBOTANIST

**PLANT BREEDER/
AGRICULTURAL SCIENCE**

PLANT TAXONOMIST

PLANT PATHOLOGIST

DENDROCHRONOLOGIST

FOREST RANGER

FLORIST

**BSI – BOTANICAL SURVEY OF
INDIA**

OR BRANCH OUT

**ADMINISTRATOR –
INDIAN FOREST SERVICES**

**MINISTRIES – MOEFPI, MOEFCC,
S&T, EARTH SCIENCES**

R&D– BIOTECH COMPANIES

GRANTS MANAGER

BIO-ENTREPRENEURSHIP

**SALES, MARKETING AND
PRODUCT MANAGEMENT**

**SCIENTIFIC/TECHNICAL
COMMUNICATOR**

**INTELLECTUAL PROPERTY
RIGHTS (IPR) PROFESSIONAL**

CORE FACILITY PERSONNEL

EDUCATOR

FORENSICS

What you study & how it builds you?

Paper 1: Microbiology and Phycology

Has application in Biosafety, Bioplastics, Biofuel, Food, Pharmaceutical, Food Microbiology and Biofertilizers.

Paper 2: Biomolecules and Cell Biology

This deals with essentials of the chemical structure & functions of the building blocks of the life. Structure of biomolecules is the basis of bioinformatics, drug designing, pharmaceutical, chemical industry.

Paper 3: Mycology and Phytopathology

Plant Pathology and applications of fungi in fermentation technology as well as Mushroom cultivation.

Paper 4: Archegoniatae

Has application in horticulture, floriculture, food, pharmaceutical & in monitoring the status of environment.

Paper 5: Anatomy of Angiosperms

Has application in systematics, pharmacognosy, forensic science.

Paper 6: Economic Botany

An in depth study of all agricultural, medicinal and cash crops, including feed, fuel, fibre & wood. Finds application in all plant based industries.

Paper 7: Genetics

This deals with the study of inheritance & is central to understanding all aspects of biology basic and applied.

Paper 8: Molecular Biology

This deals with knowing the basic life processes at the cellular and molecular level. This is the base for Biotechnology.

Paper 9: Ecology

Understanding the environment at all the levels. Finds application in environmental management, climatology, agriculture forestry, horticulture.

Paper 10: Plant Systematics

The science of nomenclature and classification of plants, integrates knowledge of morphology and molecules.

Paper 11: Reproductive Biology of Angiosperms

This deals with aspects of embryology and has extensive applications in seed biology, biotechnology, conservation and research & development.

Paper 12: Plant Physiology

This deals with understanding processes unique to plant cells and their unique roles.

Paper 13: Plant Metabolism

This paper deals with understanding the complex network of biochemical pathways that operate in the plant cells. Application in all fields of plant sciences.

Paper 14: Plant Biotechnology

A bird's eye view into the many ways that plants and plant cells can be used at an industrial levels: agriculture (GM crops), medicine, food industry, pharmaceuticals, cosmetics etc.

Besides these core papers you can choose any four of the **Discipline specific electives** - Analytical Techniques in Plant Sciences, Biostatistics, Natural Resource Management, Plant Breeding, Industrial & Environmental Microbiology, Bioinformatics during the fifth and sixth semesters.

Skill enhancement courses are offered to provide a window to the industrial sectors and build an orientation for employment after graduation. Students can choose any two in the third and fourth semester - Intellectual Property Rights, Biofertilizers, Ethnobotany, Floriculture, Plant Diversity & Human welfare, Mushroom Culture & Technology, Medicinal Botany and Nursery & Gardening.

These papers give a wide perspective and prepares the foundation to appear in several competitive examinations as well as entrances for Master/Integrated Ph.D degree programs.

In closing, the world is yours provided you plan and train to create your own special niche.

A very insightful and exhaustive guide to more planning and career opportunities in academia as well as industry is provided in the resource book - DISHA, authored by Dr Suman Govil, a Botanist, former Sr. Advisor (Retd.), Department of Biotechnology, Ministry of Science & Technology, Government of India.

References:

- Mishra, Rajesh & Balkrishna, Acharya & Srivastava, Anupam & Joshi, Bhasker & Marde, Ramakant & Prajapati, Uday Bhan. (2019). Ancient Indian rishi's (Sages) knowledge of botany and medicinal plants since Vedic period was much older than the period of Theophrastus, A case study- who was the actual father of botany?.
- <https://www.infoplease.com/encyclopedia/ecology/botany/general/botany>
- Disha <https://indiabioscience.org/>

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In the loving memory of

JAGAT SINGH

A quiet and dedicated person, who served the Maitreyi college for over 30 years. He was adept at identifying plants and readily shared his knowledge with faculty and students alike.

His demise is an immense loss to the college.

Our prayers for his repose.

