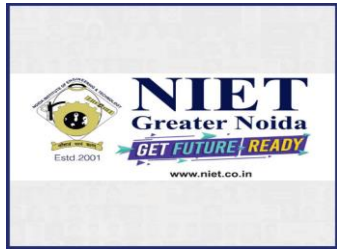


NEWSLETTER

(2019-2020)

Issue on- July 2020



NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY DEPARTMENT OF BIOTECHNOLOGY

Message From HOD desk



It is always a pleasure to be a part of a team which strives to bring out the talents of students and staff. Noida Institute of Engineering & Technology has always been striving to keep itself ahead of the competition and the results are now for everyone to see. The essential purpose of a college newsletter is to inform, engage and inspire a diverse readership - including alumni, parents, students, faculty, staff, and other friends of the college - by telling powerful stories that present a compelling, timely and honest portrait of the college and its extended family. This newsletter has made an earnest attempt in this direction and brought out certain aspects of the college to the eyes of the public so that they may understand and know the college even better. I am sure the college will scale even greater heights in the years to come and serve many more millions in the society.

Dr. Rashmi Mishra

VISION

To become a prime influencer in the field of Biotechnology and provide a vibrant learning environment to the students that will have a transformative impact on the society in terms of academics, research, and entrepreneurship.

MISSION

M1: - To create educational experience targeted on a deep understanding of interdisciplinary sciences & engineering with the focus on development of industry aligned skills.

M2: - To expertise in research, innovation and entrepreneurship supporting the overall growth of the biotechnology academia and industry.

M3: - To inculcate leadership qualities in students to handle competitive edge, social & ethical challenges for a better world.

PEO's

PEO 1: Students will acquire knowledge and skills in the frontier areas of biotechnology and will be able to solve societal problems individually and in teams.

PEO 2: Students will be able to think creatively and ethically about the use of biotechnology to address local and global problems.

PEO 3: Students will be able to implement the engineering principles to biological systems for development of industrial applications, as well as entrepreneurship skills to start biotech industry.

PSO's

PSO1: To apply knowledge of basic sciences and biotechnological techniques to modify living organisms.

PSO2: To design, optimize, analyse & scale up bioprocesses to develop useful products with societal consideration.

PSO3: To generate, analyse & interpret biological data using Insilco & other relevant approaches.

DEPARTMENTAL HIGHLIGHTS

- Students of B.Tech second and third year from department of biotechnology has shown active participation in Prime Sustainability Carnival conducted on 14th – 15th February 2020 at IILM college, Greater Noida.



- Students of B.Tech second and third year attended the National Seminar and research fest'20 on “Antimicrobial Therapy: Challenges and Future Trends” conducted by Shaheed Rajguru College of Applied Sciences for Women, Delhi University on 25th February 2020.
- Students of second and third year Presented poster in national conference on food safety, nutritional security, and sustainability Shyama prasad Mukherji college for women (University of Delhi) on 6th – 7th March 2020.
- Students of third year attended five days’ workshop on "essential skills for research writing and publishing" conducted by Bennett University from 15th to 19th June 2020.
- Department of biotechnology hosted a workshop for students on Saturday, 18th April 2020. The topic of session was “Covid-19: Operational planning Guidelines and COVID- 19 Partners Platform to support Preparedness and response”.



- Students of biotechnology department attended webinar conducted by WHO over the standard precautions to be taken in the time of pandemic on 15th May 2020.
- Department of biotechnology organized two days International webinar on 24th and 25th April 2020 through online portal on the topic “Impact of biotechnology on health care system”.
- Department of biotechnology organized a guest lecture on 19th February 2020 at NIET, Greater Noida on the topic “Industrial application of biotechnology & bioinformatics with approach to dry lab as well as wet lab” by Dr. Mithlesh Mishra & his team, IBRI, Noida.
- A group of students namely Soni Kumari, Shivansh Verma, Priya Maheshwari and Shikha Singh from B.Tech third year went to present their idea in Technovation Hackathon - 2 smart city conducted by Sharda University on 25th – 26th January 2020.
- Students of department attended webinar; on job skills to succeed in a post pandemic world conducted by ICT Academy on 25th April 2020.
- Students of Department of biotechnology participated in Covid-19 Awareness Program on 27th April 2020.
- Students of second and third year participated in International online conference on “Biotechnology: A Way Forward” conducted by Manipal University, Jaipur on 30th April 2020.
- Students of department participated in learnathon sponsored by seven partner companies comprising thirteen courses like automation, IOT, MATLAB, network virtualization etc by ICT academy from 1st may to 30 June 2020.
- Students of department attended Webinar on the topic "Covid19 Pandemic demonstrates the power of Biotechnology" conducted by Dr. B Lal institute of biotechnology on 2nd May 2020.
- Webinar attended by students of department on dimensions of plant tissue culture organized by Global University on 4th May 2020.

- Series of webinar conducted by MHRD, IIC on topics like contactless wrist band in the month of May.
- Students of second year participated in an online poetry competition namely kayanjali conducted by Amity University on 11th May 2020.
- Students from second and third year attended SPARC-INDO- US Immunology workshop for two days 13th -14th May 2020 by IIT, Ropar.
- Students of the department attended webinar on the topic "Emissioning the future" conducted by ICT academy on 15th May 2020.
- Department of biotechnology organized a technical event "COVID-19: Poster Making Contest" on 15th May 2020 coordinated by Dr. Ayushi Verma, faculty coordinator of event.
- Students attended webinar conducted by WHO over the standard precautions to be taken in the time of pandemic on 15th May 2020.
- Students of department showcased their talent in Tarana music battle online conducted by NIET on 16th May 2020.
- Shruti from biotechnology third year participated in inter institutional article writing competition held by IPEM Ghaziabad on 16th May 2020.
- Department of Biotechnology conducted online music event named "Conquer the mic" on 17th May 2020 coordinated by Mrs. Shweta Sharma faculty coordinator of the event.
- Students of second year attended an event named "Innovation Idea" conducted by JKK Nataraja College of pharmacy on 23rd May 2020.
- Students from second and third year participated in "Electrifier 2020" conducted by department of electronics and communication, NIET greater Noida and various students achieved position in events like poetry, quiz etc on 25th May 2020.
- Student of third year attended online workshop on "drug discovery and design" conducted by Bansal University on 28th May 2020.
- Students of second year attended five days' workshop on "Microbial Genomics" conducted by pathfinder from 1st - 5th June 2020.

- Few students from second year participated in Pro Yashwant Rao Kelekar Kavita Pratiyogita conducted by Akhil Bhartiya Parishad on 2nd June 2020.
- Students from third year attended workshop on "How to improve Article acceptance and publish quicker" conducted by Emerald publications on 2nd June 2020.
- Shruti third year student of department participated in inter institutional essay writing competition conducted by IPEM Ghaziabad on 6th June 2020.
- Students of second year attended conference on "Current Progress and future of Biotechnology" conducted by Chaitanya Bharti institute of biotechnology, Hyderabad from 8th to 13th June 2020.
- Third year students of the department attended webinar conducted by ICT academy on theme "key to success" on 8th June 2020.
- Students of third year attended one day webinar on "Academic publishing and enhancing Research effectiveness" conducted by Dr. Zakir Husain library, Jamia Milia Islamia on 9th June 2020.
- Students of third year attended five days' workshop on "essential skills for research writing and publishing" conducted by Bennett University from 15th to 19th June 2020.
- Anshika Srivastav, Ambuj, Rashika Rajput, Soni Kumari and Sachin Goel got selected for CSIR online Summer Training 2020 in the month of June.

ACHIEVEMENTS & PLACEMENTS

- Anshika Srivastav, Ambuj, Rashika Rajput, Soni Kumari and Sachin Goel of B.Tech third year got selected for CSIR online Summer Training 2020 in the month of June.
- Aditi and Siddhi of B.Tech fourth year got placed in tata-consultancy services.
- Anjali, Darpan, Faheem, Shivangi, Sonal, Anushka, Aditi, Abhishek, Prerna, Alisha got placed in Vedantu innovations Pvt. Ltd.
- Astha, Amla and Sakshi got placed in mCURA Mobile Health Pvt.Ltd.
- Aritri got placed in Nestle Pvt. Ltd.
- Pulkita got placed in Infosys Ltd.
- Pooja Chand got placed in Chimera Biotech Pvt. Ltd.



STUDENT ARTICLES

RECENT ADVANCEMENT IN EBOLA OUTBREAK: An Overview

Ebola which is also known as Ebola haemorrhagic fever. This first appeared in 1976 in 2 simultaneous outbreaks, one in Narza, south Sudan and the other in yambuku, DRC. The later took place in a village near the Ebola River from where the disease got the name. It is a very rare but fatal illness in humans as per the world health organization. It gets transmitted to people from wild animals and spreads in the human Population through human-to-human interaction. According to the WHO the average EVD case fatality rate is around 50%. The 2014-16 outbreaks in West Africa were the largest Ebola outbreak. It causes severe bleeding, organ failure and can even lead to death in severe conditions. It is thought that the virus is introduced into human population through close contact to the blood, secretions, organs or other bodily fluids of infected animals such as chimpanzees, porcupines or forest antelope's .And then it spreads through human to human interaction via direct contact with blood or body fluids of a person who is sick with or died from this or through the objects that are Contaminated with the body fluids from the sick person with Ebola or died because of the virus.

By: Priya Maheshwari (3rd year)

Depression – An open letter to someone struggling

Depression is different from usual the mood fluctuations and short-lived emotional responses to our everyday life challenges. In some respects, depression in adolescents can be as an early-onset sub form of the equivalent adult disorder because of their strong links with recurrence later in life. Anyone with depression knows, it is much more than any one word can describe. Depression is a common illness worldwide, with more than 264 million people affected. Depression is somehow different from a usual mood fluctuations and short-lived emotional responses to challenges in everyday life. It's a normal reaction to loss or life's struggles. It is a type of intense sadness including feeling helpless, hopeless, and worthless lasts for many days to weeks and keeps you from living your life; it may be something more than sadness. The clinical and diagnostic features of the disorder are broadly to that in adults, and its occurrence is also associated with a family history of the disorder. The chances of depression in children is low (<1% in most studies) with no sex differences, and then rises substantially throughout adolescence. Many factors could explain the recorded post-pubertal rise in prevalence because adolescence is a developmental period characterized by pronounced biological and social changes. The most postulated contributors are puberty and brain and cognitive maturation. They include enhanced social understanding and self-awareness, changes in brain circuits involved in responses to reward and danger, and increased reported stress levels, especially in girls adolescence to as high as 20% by the end of that time. However, population prevalence estimates vary widely across studies (table) and in different countries, possibly because of methodological differences.

By: Sahil Rustagi (3rd year)

Green Revolution

India holds the second-largest agricultural land in the world, with 20 agro-climatic regions and 157.35 million hectares of land under cultivation. Thus, agriculture plays a vital role with 58% of rural households depending on it even though India is no longer an agrarian economy. A report by the Department of Agriculture, Cooperation and Farmers Welfare estimates that the food grain production in India will be 279.51 million tonnes during the 2017–2018 crop year. Although India is self-sufficient in food production, its food production between 1947 and 1960 was so bad that there were risks for the occurrence of famine. Therefore, the Green Revolution was initiated in the 1960s to increase food production, alleviate extreme poverty and malnourishment in the country, and to feed millions. The major crops cultivated in the era preceding the Green Revolution were rice, millets, sorghum, wheat, maize, and barley, and the production of rice and millets were higher than the production of wheat, barley, and maize combined all together. But the production of millets has gone down, and the crops that were once consumed in every household became a fodder crop in just a few decades after the Green Revolution. Meanwhile, several traditional rice varieties consumed prior to the Green Revolution have become non-existent, and the availability of local rice varieties have decreased to 7000 and not all these varieties are under cultivation. Thus, India has lost more than 1 lakh varieties of indigenous rice after the 1970s that took several thousand years to evolve. This loss of species is mainly due to the focus given to the production of subsidized high-yielding hybrid crops and the emphasis of monoculture by the government. The measures initiated by the government increased the production of rice, wheat, pulses, and other crops leading to the self-sufficiency of food in the country. But it also destroyed the diversified gene pool available.

By: Tannu Singh (2nd Year)

Aquaculture: Global status and trends

Aquaculture contributed 43 per cent of aquatic animal food for human consumption in 2007 (e.g

fish, crustaceans, and molluscs, but excluding mammals, reptiles and aquatic plants) and is expected to grow further to meet the future demand. It is very diverse and contrary to many perceptions, dominated by shellfish and herbivorous and omnivorous pond fish either entirely or partly utilizing natural productivity. The rapid growth in the production of carnivorous species such as salmon, shrimp and catfish has been driven by globalizing trade and favourable economics of larger scale intensive farming. Most aquaculture systems rely on low/uncosted environmental goods and services, so a critical issue for the future is whether these are brought into company accounts and the consequent effects this would have on production economics. Failing that, increased competition for natural resources will force governments to allocate strategically or leave the market to determine their use depending on activities that can extract the highest value. Further uncertainties include the impact of climate change, future fisheries supplies (for competition and feed supply), practical limits in terms of scale and in the economics of integration and the development and acceptability of new bio-engineering technologies.

By: Sweety Singh (2nd Year)

Happy Fruit Banana

Banana is a stimulating organic product as it contains three normal sugars - sucrose, fructose, and glucose— and is high in fibre as well. So, it is most loved by competitors. One medium banana conveys only 100 calories and is stacked with a specific sort of fibre called Resistant Starch (RS), which tops you off, yet in addition wards those harming desires off, supports your digestion, and keeps stoppage under control as well. Bananas are stacked with potassium, a mineral that helps keep the circulatory strain down and the bones solid and sound. "Bananas are an upbeat natural product as they have tryptophan, which gets changed into serotonin in the body, known to cause you to unwind, improve your state of mind and make you feel more joyful," includes Pratima Mishra, clinical, Columbia Asia Hospital, Ahmedabad. Thus, you

can avoid your terrible dispositions, Seasonal Affective Disorders and decrease PMS side effects by eating a banana. They even mitigate morning ailment during pregnancy. This joined with fibre, nutrient C and B6 content in bananas are generally perfect for sound heart wellbeing. Eating a banana can even lower the body's internal heat level on a hot day and cools during fever. Regardless of whether you have diabetes, or your glucose is somewhat high, you can devour bananas with some restraint. "This is on the grounds that the sugar in banana is regular and gets discharged gradually because of the nearness of fibre and gelatine in it. What's more, to reduce the sugar spike further, pair it with protein and solid fats, for example, nuts or seed spread or yogurt," says Mishra. Is there anything that banana can't do? Unquestionably, this is an organic product which is certainly not only for monkeys.

By Prerna 2nd Year

Venom-A Solution To Cancer

As we all know venom is a poisonous substance secreted by animals that can kill humans too. But most wonder how come this poisonous substance saves us from a chronic disease like cancer as it is a disease involving abnormal growth of cells inside our human body destroying human tissues. The World Health Organisation (WHO) also stated that Cancer is the second leading cause of Death disease globally and is responsible for an estimated 9.6 million deaths in 2018. Even though there are some treatments like Radiotherapy, Chemotherapy and Surgery for cancer treatment, all these therapies remain palliative rather than curative for most cancer indications. The development of cancer involves 4 hallmarks which include, 1) Dysregulated cell proliferation 2) Sustained angiogenesis 3) Evasion of programmed cell death and 4) Tissue invasion and metastasis. But some biologists believe that Venom of certain Species can be a cure for cancer and carried out experiments to sustain that. Before looking into the species, let's understand how venom reacts in our bodies. Animal venoms comprise of bioactive molecules that have a high affinity to multiple targets in the human body or any other organism. By eliminat-

-ing the toxic substance in the venom biologists believe that it can be effectively used in the treatment of cancer.

By: Shreshth 2nd Year

Thresholds Of Genotoxic Carcinogens

"The dose makes the poison" is a basic principle of toxicology. Coined by Paracelsus, who was a 15th century Swiss scientist, physician, alchemist, and mysterious thinker, he is known as "the father of toxicology" because of this famous phrase. The adage means that any chemical can be poison if the dose is beyond a certain threshold and that any poison can be non-toxic if the dose is below a certain threshold. Moreover, potential risks of various substances have been assessed using a dose-response model that determines a safety threshold; acceptable daily intakes (ADI) are calculated from the threshold below which no adverse effects are observed. These procedures are, however, problematic for assessments of genotoxicity. Therefore, ADI cannot be determined, and health risks cannot be ruled out for the intake of any genotoxic substances. The term "genotoxicity" is broad and ambiguous. Genotoxic agents damage DNA or the cellular component that regulates genome integrity. In contrast, mutagenic substances induce permanent transmissible changes comprising numerical or structural alterations of DNA or chromosomes. In the United States National Toxicology Program, chemicals were evaluated for their DNA reactivity, mutagenicity in Salmonella (Ames test), and carcinogenicity in rodents. The report indicated that genotoxic carcinogens, such as benzo and aflatoxin B1, induce tumours via DNA damage and mutations whereas non-genotoxic carcinogens, such as phenobarbital, carbon tetrachloride, induce tumours by chemically targeting the gene of the material cells.

By: Megha Misra (2nd Year)

The "Miracle Berry" That Could Replace Sugar

Miracle fruit is a red berry that comes from the *synsepalumdulcificum* or *Richadelladulcifica*. This is a shrub that is native to West Africa. When eaten, it can make bitter and sour foods taste sweet. This effect is caused by a protein contained within berry is called MIRACULIN. The berries themselves are not sweet but the miraculin binds with sweet receptors on the tongue and makes acidic food taste sweet such as lemons, limes, vinegar and more. Once you eat a berry, the effect can last between half an hour to 2 hours. The berries themselves, however, are very nutrient dense and therefore have some great health benefits too. They are great for diabetics to use as a natural sweetener, as it will make your food taste better without the need for sugar. They are also loaded with antioxidants and contain vitamins C, A and E. Leucine. This is an amino acid which helps to trigger muscle growth. This is great for bodybuilders. Those who are undergoing chemotherapy can use miracle fruit to get rid of the metal taste that often occurs in the mouth. The berries were traditionally used in Africa to enhance the flavour of food. Their staple diet consisted of sour foods such as staple bread gruel, beer, and fermented palm wine. In foods, miracle fruit is used as a low-calorie sugar-free sweetener.

By: Ambuj (3rd Year)

Sonoporation

Gene therapy is an experimental technique used to introduce genetic material into cells to compensate for abnormal genes or absent genes to treat or to prevent diseases. Gene therapy involves germline therapy, somatic gene therapy and non-viral gene delivery techniques such as electroporation, lipofection and more. Sonoporation, also known as cellular sonication, is a gene delivery technique that uses sound for modifying the permeability of the cell plasma membrane. So, this is a process that involves the formation of small pores in cell membranes by using ultrasound for the transfer of nucleic acid molecules. Sonoporation can introduce plasmids to cells and is less toxic compared to retro and adenoviral vectors because plasmids do not have the ability to give rise to benign or malignant tumours showing viable cells in immunologically non-responsive animals (tumorigenicity) and they hardly cause an immune response.

By: Muskan Yadav 2nd Year

Liver Of An Alcoholic

Excessive alcohol intake may cause liver damage and it is called alcohol related liver disease (ARLD). It may also cause liver cirrhosis which is the scarring of the liver. Cirrhosis is the final stage of liver disease. Signs of alcoholic liver disease also include jaundice which is the yellowing of the skin and white sclera of the eye. Alcoholic hepatitis also includes fatigue, low-grade fever, loss of appetite, nausea, vomiting, tenderness in the right abdomen and weight loss. Some alcohol-related liver damage can be cured by stopping the drinking of alcohol for a while. Healing can begin a few weeks after stopping alcohol. First, the alcohol in the blood starts affecting the heart and brain, so that the people become intoxicated. It destroys the liver cells then it causes liver cirrhosis, alcoholic hepatitis, cellular mutation which may lead to liver cancer. STEATOSIS (fatty liver) is also developed in an individual consuming a large quantity of alcohol over a large period of time and this process is reversible. Among heavy drinkers, 90% develop fatty liver in which about 25% develop the more severe alcoholic hepatitis and 15% cirrhosis according to a survey. Women are mostly affected by alcohol related liver disease than men in shorter durations and doses of chronic consumption. It is common in people of age group 40-50 years. To overcome this, they should not take foods high in fat, sugar and salt and avoid alcohol. They should take grains, fruits, vegetables, meat, millets and beans. COFFEE promotes liver health which was identified by scientists recently. Tea, grapes, blueberries, cranberries, beetroot also promote liver health.

By: Vaishnavi (3rd Year)

**BEYOND
CLASSROOM**

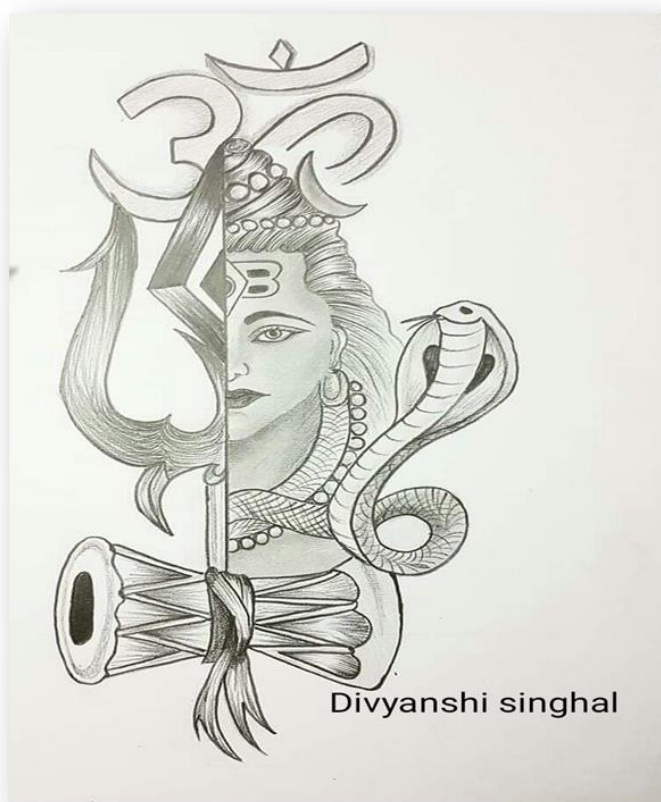
The students of Biotechnology department showcase their talent in the departmental art gallery.



By Ravneet Kaur (2nd year)



By Khushi Shivach (2nd year)



Divyanshi singhal

By Divyanshi Singhal (2nd year)

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