

**DECEMBER
2024**

AMBROSIA

**3RD
EDITION**



**EXPLORE BIOLOGY
THE MAYO COLLEGE
BIOLOGY & GENERAL
SCIENCE SOCIETY**

AMBROSIA IS BACK

**THE 3RD EDITION OF
THE BIOLOGY SOCIETY
NEWSLETTER**

PG'24

**REFLECT
RESET
RISE**





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Editor's Note



We are delighted to present the third edition of *Ambrosia*, a publication that continues to encapsulate the spirit of curiosity, discovery, and passion for biology within our school community.

In this edition, we delve into the theme for this academic year, 'Reflect, Reset and Rise', the projects initiated by the society over the course of this year, as well as an introduction to our Prize Giving exhibition this year.

This year's compilation offers a mix of insightful articles on cutting-edge biological research and captivating reports on the society's events and accomplishments.

We hope to ignite your curiosity about the fascinating and ever-evolving world of biology while also demonstrating our commitment to fostering a rich and enlightening exploration of the world of life sciences through a broader lens.

Dhruvank Ashwin Solanki
President
Biology Society
MAYO COLLEGE

PG EXHIBITON '24

The theme for the 'Prize Giving' this year is 'Reflect Reset And Rise' . Correlating this theme with the Biology Society, we felt it was the perfect moment to take up three essential topics-

- **Reflect on your lifestyle**
- **Reset your diet**
- **Rise to better health**

THE THEME

It is crucial that the growing concern over unhealthy lifestyles needs to be validated and implemented. In today's fast-paced world, convenience often leads to poor diet choices, contributing to issues like obesity and diabetes. A key solution is adopting a diet rich in fruits, vegetables, whole grains, and lean proteins while replacing processed snacks with healthier alternatives like millets, nuts, and seeds.

Equally important is maintaining an active lifestyle, regular exercise, quality sleep, and stress management. Activities such as yoga and walking improve both physical and mental well-being, while mindfulness and social connections support emotional health.

This holistic approach by our Society advocates for small, consistent lifestyle changes—starting with diet and activity—can lead to significant improvements in overall health.



THE BIOLOGY SOCIETY



ESTABLISHMENT OF LABORATORY

At Mayo College students develop a strong sense of social responsibility, fostering a commitment of giving back to society and supporting those in need. Building on this spirit of social responsibility, the boys of the Biology Society took the initiative to establish a laboratory at a nearby rural government school. They visited the 'GOVERNMENT HIGHER SECONDARY SCHOOL', NADI-1 village, Panchayat Saaradhana, Ajmer, where they donated and set up a functional laboratory for the senior students.



'JAL SE JEEVAN'

An inspiring student-led initiative by the Biology Society of Mayo College, Ajmer, dedicated to the installation of electric water pumps in tube wells for rural villages near Ajmer. This project not only combats water scarcity and waterborne diseases but also uplifts these communities by providing them with access to clean water. Moreover, it is a shining example of youth-led efforts in effecting positive change, all while promoting sustainability and raising awareness.



BEFORE AND AFTER



DISEASE AWARENESS

A workshop conducted in the rural areas near Ajmer by the Mayo College Biology Society, members aim to create awareness about various diseases that the residents of villages are prone to due to their limited access to financial and sanitary resources. The students familiarised the residents with preventative measures, immediate responses, basic hygienic practices, and more. This is a part of the series of workshops conducted every year by the department to instill humanitarian duties in the members toward society.



WORK IN PROGRESS



RECENT BREAKTHROUGHS



TRIVIA

Indian scientists at CSIR-IGIB and L.V. Prasad Eye Institute have developed a breakthrough gene-editing system that enhances the precision of CRISPR technology. By engineering new versions of an enzyme, their innovation allows for more efficient and accurate DNA modification compared to existing CRISPR methods. This advancement builds on the natural CRISPR mechanism found in bacteria, which was repurposed for genome editing in higher organisms.



- If you unraveled all the DNA from all the cells of your body end to end, it would reach the sun and back!
- Your nose has the incredible ability to identify and detect trillions of odors!!
- Your liver is the only organ in the human body that can regenerate itself!!!
- You are related to all the living things on Earth through a single-celled common ancestor named LUCA(Last Universal Common Ancestor)



Nobel Prize in Physiology or Medicine 2024-

The Nobel Prize in Medicine this year was awarded jointly to Katalin Kariko and Drew Weissman for their discoveries concerning nucleoside base modifications that enabled the development of effective mRNA vaccines against COVID-19. It was their discovery that enabled the quick development of the COVID-19 vaccines.

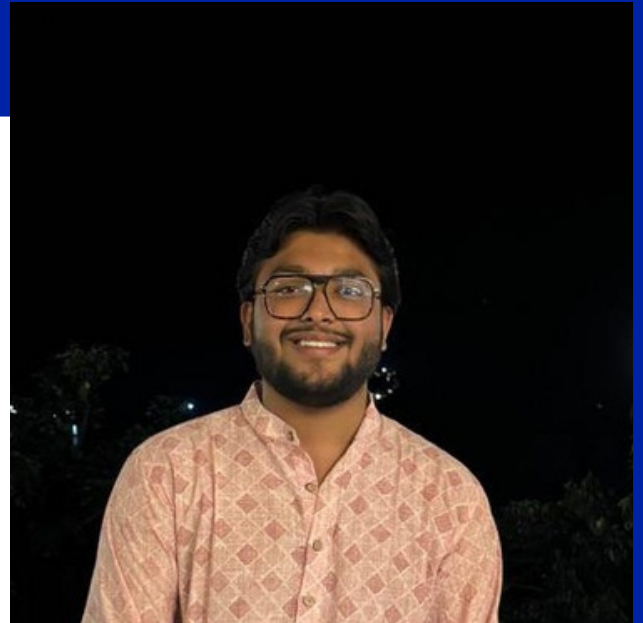
ZOMBIE FUNGUS

Zombie fungus commonly called Cordyceps that paralyzes and kills caterpillars could prove beneficial to humans, it can be used to prevent and cure many types of cancer. It releases a chemical which is called Codrycepin which can inhibit signals from cancer cells or microbes responsible for cancer in humans which in turn will not allow them to replicate and spread in the human body. This finding can revolutionize cancer treatment in a quick and minimally invasive manner and can lead to a pain-free treatment in the future.



‘Harnessing Viruses in Breast Cancer Therapy’ - Dhruvank Solanki

Cancer is feared almost as an ultimatum for death in our society due to the limited number of treatments. Moreover, those that are available usually cost an arm and a leg and are not completely reassuring due to the time and energy they demand from our body and lifestyle. I have always been interested in the discoveries and innovations in the field of Oncology and recently Beata Halassy's fight against cancer revolutionized the way we look at possible cures.



Halassy's journey is a story of courage and innovation. Diagnosed with an aggressive form of the disease, she treated her own stage 3 breast cancer by injecting the tumor with lab-grown viruses, the Hungarian biochemist took the extraordinary step of experimenting on herself first before going public to the world. Combining cutting-edge immunotherapy with precision medicine, she reprogrammed the cells of her immune system, which are usually unable to identify cancer cells, to recognize and fight off cancer. Her approach involved genetic tumor analysis, immune cell modification, and the use of natural compounds like curcumin alongside CRISPR technology.

Her success has inspired a new wave of personalized cancer treatments, proving that bold, unconventional thinking can redefine medical science. The everlasting curiosity in me finds fuel to its fire knowing that there are people in the world of science like Beata Halassy willing to make a difference for the betterment of humankind .

'Gut Bacteria- the Hidden Link to Stress Management'

- Vaidhrata Sinh

Stress is the new epidemic and I have noticed the rise in stress among students, especially in higher classes. This sparked a curiosity to find a solution for this pressing issue.

This led me to a study on "How gut Bacteria could be the missing link to stress relief".

Dr. Gabriel Tofani and Prof. John Cryan, two researchers from APC Microbiome Ireland based in University College Cork have found out how "your gut bacteria could be the missing link to stress relief." Gut microbes help the body's circadian cycle (body clock) to regulate stress response, a depletion in the no. of gut microbes can adversely affect stress hormone rhythm.

Some bacteria like *Lactobacillus Reuteri* affect the release of glucocorticoid hormones (stress hormones) in the body. Our modern lifestyles take a heavy toll on the normal circadian rhythm of the body leading to higher stress levels in everyday life. By targeting specific gut bacteria that influence stress hormones in the body we can deal with many stress-related mental health disorders such as anxiety and depression

I believe that this research can be a big game changer in the field of stress relief, and will be a major help to many students in India and around the globe.



THE TEAM

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Vaidhrata Sinh – Secretary

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SPECIAL THANKS

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