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*Ask the right questions, and nature will open the door to her secrets
- Dr. C.V. Raman, The Nobel Prize in Physics 1930*

Lucknow Institute CSIR-NBRI Developed New Variety "Lotus" Flower

Ministry of Science & Technology unveiled a new variety "Lotus" flower developed by Lucknow Institute, Council of Scientific and Industrial Research (CSIR)-NBRI (National Botanical Research Institute), which is a premier plant-based, multidisciplinary, state-of-the-art National R&D center. The lotus named 'NBRI Namoh 108' and it has 108 petals.

IISc Used a Novel Cutting-Edge Imaging Technique to Study DNA Strands

Researchers at the Department of Biochemistry, Indian Institute of Science (IISc), used a novel imaging technique to pinpoint how strongly adjacent bases the building blocks of DNA stack up on top of each other in a single strand. The findings opened up possibilities for building complex DNA nanodevices and unravelling fundamental aspects of DNA structure. To study all possible base-stacking combinations, the researchers used DNA-PAINT (Point Accumulation in Nanoscale Topography). DNA-PAINT is an imaging technique that works on the principle that two artificially designed DNA strands – each ending on a different base – when put together in a buffer solution at room temperature, will bind and unbind to each other randomly for a very short time. The team tagged one of the strands (imager strand) with a fluorophore that would emit light during binding and tested the stacking. Using this technique, the team was able to uncover interesting insights into base-stacking.

IIT Delhi Developed State-of-the-Art Machine Learning Model for Monsoon Rainfall Prediction

Researchers at the Department Of Science & Technology (DST) Centre of Excellence in Climate Modeling at Indian Institute of Technology (IIT) Delhi, in collaboration with Indraprastha Institute of Information Technology, (IIIT) Delhi, MIT USA, and JAMSTEC Japan, developed a state-of-the-art Machine Learning (ML) model for monsoon rainfall prediction. The AI/ML model developed and tested has proven to be better performing than the current physical models used for monsoon predictions in the country. It has demonstrated a remarkable forecast success rate of 61.9% for the test period of 2002–2022. IIT Delhi also added that the study holds immense significance for the entire country, as an accurate monsoon forecast well ahead of time is pivotal for making crucial decisions in various socio-economic sectors, including agriculture, energy, water resources, disaster management and health. Further, the data-driven techniques would be extended to provide state-wise monsoon rainfall prediction, making them more useful for regional applications.

JNCASR Scientists Found a Potential Treatment Route for Alzheimer's Disease (AD)

Scientists at Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), an autonomous institute of the Department of Science and Technology (DST), Govt. of India, found that highly abundant naturally occurring plant-based polyphenols (PPs) like tannic acid found in twigs of trees like Chestnut and Oak could modulate the ferroptosis-AD axis to yield a safe, cost-effective strategy for combating Alzheimer's disease (AD) and reduce the societal burden of this debilitating neurodegenerative disorder. The study also presented that naturally occurring polyphenols (PPs) as innovative and multimodal therapeutic agent with dual capabilities to ameliorate ferroptosis and AD. The study was published in the journal Chemical Sciences.

Special Update: Successful Completion of Chandrayaan-3: Lunar Orbit Insertion (LOI)

The national space agency of India, 'Indian Space Research Organisation (ISRO) informed that Chandrayaan-3 mission achieved a crucial milestone with the successful completion of the Lunar Orbit Insertion (LOI). The insertion was carried out by retro-burning at the Perilune for 1835 seconds, starting at 19:12 Hrs IST. The maneuver resulted in an orbit of 164 km x 18074 km, as intended. ISRO also added that this was the third time in succession that ISRO has successfully inserted its spacecraft into the lunar orbit, apart from doing so into the Martian orbit.