

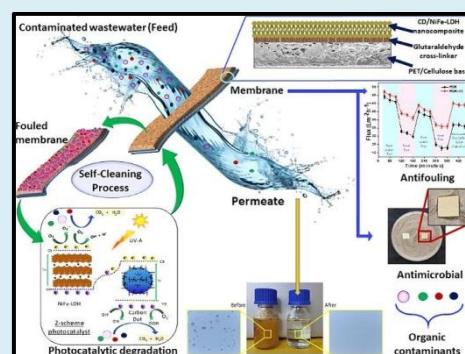
NEW PLANT SPECIES BEGONIA NEISTI HAS BEEN DISCOVERED IN DIBANG VALLEY BY CSIR-NEIST



Fig: *Begonia neisti* sp. Nov. B Hajong, N Bhat & P Bharali, (A) Habit, (B) leaf, abaxial view, (C) leaf, adaxial view, (D) stipule, (E) inflorescence, a branch, (F) infructescence, a branch, (G) pistillate flower, (H) staminate flower, (I) cross section of ovary, (J) stamen. Photos by B Hajong.

A remarkable new plant species *Begonia neisti* has been discovered in the landscapes of Arunachal Pradesh's Dibang Valley. This naming celebrates CSIR-NEIST's sixty years of impactful contributions to science and technology, particularly benefiting India's Northeast region. This unique species was described as new to science by a team of dedicated researchers led by Dr. Pankaj Bharali, with Dr. Nazir Ahmed Bhat and Mr. Bipankar Hajong, who documented its distinct characteristics. The discovery highlights the biodiversity richness of the Dibang Valley and CSIR-NEIST's enduring legacy in fostering scientific advancements for regional development.

ADVANCED NANOCOMPOSITE MEMBRANE DEVELOPED BY DR. S. HAZARIKA'S TEAM FOR EFFICIENT INDUSTRIAL WASTEWATER PURIFICATION



Removing organic pollutants from wastewater can be a challenging task, and industries are eager for energy-efficient, simple solutions to treat wastewater for clean water production and recycling. Membrane technology stands out as an efficient approach due to its low energy requirements, easy operation, and strong performance. However, membranes often face issues which reduce their effectiveness over time.

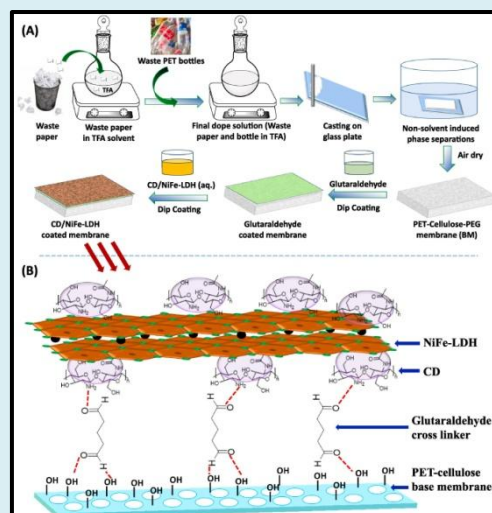


Fig. 1. (A) Schematic representation of the tri-layer membrane fabrication technique (B) Plausible interactions between CD/NiFe-LDH nanocomposites and PET-CNF membrane.

In response, Dr. S. Hazarika and team have developed an innovative nanocomposite membrane by combining carbon dots with NiFe-layered double hydroxide (CD/NiFe-LDH). This composite is coated onto a superhydrophilic membrane made from PET (polyethylene terephthalate) and cellulose, giving it a highly effective separation capability. The membrane's design allows it to clean itself, thanks to the photocatalytic properties of the CD/NiFe-LDH, which break down organic pollutants on the surface when exposed to UV-A light. This self-cleaning feature helps extend the membrane's lifespan.

Over 30 days of continuous use, the membrane maintains strong performance, with water flux rates of around 42 L/m²/h for crude oil-water emulsions and 48 L/m²/h for phenol solutions. It achieves a rejection rate of 99% for both contaminants, indicating high purification efficiency. Additionally, the membrane has a flux recovery ratio of 88.07% after exposure to light, showing excellent resilience. Its design also resists organic solvents and prevents bacterial growth in wastewater, making it a promising solution for sustainable, long-term water purification in industrial settings.

CSIR-NEIST CELEBRATES NATIONAL AYURVEDA DAY, INSPIRING YOUTH THROUGH AWARENESS AND HERBAL KNOWLEDGE



As part of the nationwide observance of National Ayurveda Day 2024, CSIR-NEIST organized engaging awareness programmes at Kendriya Vidyalaya, Air Force Station, Jorhat, and Charingia High School, Jorhat, on 29 October 2024, aimed at fostering appreciation for Ayurveda among students.



Dr Kalyani Medhi, Principal Scientist, CSIR-NEIST



Dr Rituraj Konwar, Senior Principal Scientist, CSIR-NEIST

The event at Kendriya Vidyalaya began with an address by Dr Kalyani Medhi, Principal Scientist at CSIR-NEIST, on the significance of Ayurveda. Following this, Dr Rituraj Konwar discussed the health benefits of Ayurveda and emphasized its role in promoting holistic wellness and also Dr Mohan Lal enlightened the session by delivering a speech on the properties of various medicinal plants, explaining their properties and significance in Ayurvedic traditions. As a gesture to inspire the younger generation, medicinal plants were presented to the school principal and later distributed among the students.



At Charingia High School, Mr Raktotpal Mahanta gave a short introductory speech where he described about CSIR-NEIST and introduces the present scientists of the institute at the event. After which Dr. Dipankar Neog gave a motivational talk on the importance of Ayurveda, while Dr Rituraj Konwar encouraged students to recognize medicinal plants familiar to them. Dr Dipankar Neog then highlighted entrepreneurship

opportunities in Ayurveda, sharing inspiring examples to motivate students towards potential careers in Ayurvedic enterprises. The session closed with an engaging plant identification activity, and the distribution of medicinal plants to students. These efforts by CSIR-NEIST reflect a commitment to promoting Ayurveda and nurturing awareness of traditional medicine among the youth, fostering a connection with India's rich medicinal heritage.

Achievements:



Dr Prasenjit Saikia

Dr Prasenjit Saikia has been honored with the prestigious NESAFellowship Award for 2024 by the National Environmental Science Academy, in recognition of his significant contributions to the field of environmental science. The Academy, acknowledged by the Ministry of Science and Technology, confers this fellowship upon distinguished scientists who have demonstrated exceptional dedication to advancing environmental research and sustainability.



Dr Sumit Singh, Scientist,
CSIR-NEIST

Dr. Sumit Singh, Scientist at CSIR-NEIST, has been elected as a Fellow of the Royal Asiatic Society (FRAS) of Great Britain and Ireland. This prestigious honor recognizes his outstanding contributions to the fields of science and cultural studies, further

highlighting his dedication and expertise in advancing knowledge in these areas.



Dr Banashree Saikia

Dr. Banashree Saikia, Senior Project Associate, has been awarded the prestigious DST-WISE Postdoctoral Fellowship for her research on "The Advanced CRISPR/Cas-Based Genome Editing System and Functional Genomics for Biotic Stress Tolerance in Plants." Her work aims to enhance crop sustainability by developing innovative solutions to combat biotic stress in plants. This fellowship recognizes her expertise and commitment to advancing agricultural biotechnology.

TEST SAMPLE REPORT:

Number of samples received: 70

Number of test report dispatched: 20

PAPER PUBLISHED:

In International Peer Reviewed Journals

1. **Title:** The molecular dynamics between reactive oxygen species (ROS), reactive nitrogen species (RNS) and phytohormones in plant's response to biotic stress

Authors: Krishna Gogoi, Hunmoyna Gogoi, Manashi Borgohain, Ratul Saikia, Channakeshavaiah Shridhar Chikkaputtaiah, Hiremath, Udit Basu

Journal: Plant Cell Reports 2024

[https://link.springer.com/article/10.1007/s00299-](https://link.springer.com/article/10.1007/s00299-7/s00299-)

IF: 6.2

2. **Title:** Seismic monitoring of 2020 Baghjan oil-well blowout incident in Assam, India

Authors: Santanu Baruah, Shankho Niyogi, Abhijit Ghosh, Davide Piccinini, Gilberto Saccorotti, Alan L.

Kafka, Danica Roth, Mahendra Kumar Yadava, Manoj K. Phukan, G. Narahari Sastry, Mohamed F. Abdelwahed, J. R. Kayal, Sausthov M. Bhattacharyya, Chandan Dey, Kimlina Gogoi, Timangshu Chetia, Prachurjya Borthakur, Sebastiano D'Amico, Nandita Dutta & Sowrav Saikia

Journal: Scientific Reports

<https://www.nature.com/articles/s41598-024-74428-y>

IF: 4.6

3. **Title:** Advanced Biocoal Carbon Materials from Biorefinery for both Supercapacitors and Lithium-Ion Capacitor Applications

Authors: Mousumi Bora, Abhishek Hazarika, Akhil Rajbongshi, Santhi Maria Benoy, Debashis Sarmah, Binoy K. Saikia

Journal: ACS Applied Electronic Materials

<https://pubs.acs.org/doi/10.1021/acsaem.4c01017>

IF: 4.7

4. **Title:** The oleochemical potential of some wild nutmegs from North East India Biochemical Systematics and Ecology 2024

Authors: Rubi Barman, Jadumoni Saikia, Prasanna Sarmah, Parthapratim Konwar, Siddhartha Proteem Saikia, Saikat Halder, Dipanwita Banik

Journal: Biochemical Systematics and Ecology

[https://www.sciencedirect.com/science/article/abs/pii/S0305197824001224#:~:text=About%2011%20common%20and%20significant,\(0.47%E2%80%9318.62%25\)%2C%20shyobunol](https://www.sciencedirect.com/science/article/abs/pii/S0305197824001224#:~:text=About%2011%20common%20and%20significant,(0.47%E2%80%9318.62%25)%2C%20shyobunol)

IF: 1.6

5. **Title:** Liner Nanostructure of Metal Boride as a Cathode Material for High-Performance and Flexible Solid-State Asymmetric Hybrid Battery Supercapacitors

Authors: Javed Muhommad, Manash R. Das & Sasanka Deka

Journal: Energy & Fuels 2024

<https://pubs.acs.org/doi/10.1021/acs.energyfuels.4c03404>

IF: 5.3

6. **Title:** Prooxidant and anti-inflammatory potential of *Garcinia xanthochymus* fruit and its phytochemical characterisation by UHPLC-Q-Orbitrap HRMS

Authors: Jyoti Lakshmi Hati Boruah, K. Nusalu Puro, Deep Jyoti Das, Parishmita Gogoi, Moloya Gogoi & Anupam Biswas

Journal: Natural product research 2024

<https://www.tandfonline.com/doi/full/10.1080/14786419.2024.2419492>

IF: 2.2

7. **Title:** Genetic diversity and population structure analysis of *Homalomena aromatica* Schott.: An industrially significant medicinal plant species

Authors:

Tanmita Gupta, Raghu Tamang, Twahira Begum & Mohan Lal

Journal: Industrial Crops and Products 2024

<https://www.sciencedirect.com/science/article/abs/pii/S0926669024018107>

IF: 5.9

8. **Title:** Deciphering the stability of *Eryngium foetidum* L. through AMMI and Eberhart and Russell model for herbage and essential oil yield

Authors: Mohan Lal, Twahira Begum, Anindita Gogoi, Sunita Munda & Manabi Paw

Journal: Industrial Crops and Products 2024

<https://www.sciencedirect.com/science/article/abs/pii/S0926669024018259>

IF: 5.9

9. **Title:** Comparative study of chemical constituents and biological potency in *Lantana camara* Linn. leaf essential oil collected from two different sites in Northeast India

Authors: Gargee Dey, Priyanka Dutta, Twahira Begum, Mohan Lal,

Kahkashan Perveen & Mashail Fahad
Alsayed

Journal: Journal of Essential Oil
Bearing Plants 2024

<https://www.tandfonline.com/doi/abs/10.1080/0972060X.2024.2404147>

IF: 2.4

10. **Title:** Advancements in lignocellulolytic multienzyme bioprocesses for sustainable biofuels and biochemicals: strategies, innovations, and future prospects

Authors: Pawan Baghmare, Ashutosh Namdeo, Vishal Thakur, Pradeep Kumar, Jitendra Singh Verma & Sachin Ramesh Rao Geed

Journal: Biomass Conversion and Biorefinery 2024

<https://link.springer.com/article/10.1007/s13399-024-06181-1>

IF: 4