

CSIR-North East Institute of Science & Technology, Jorhat

Connecting Science & Technology for a Brighter Tomorrow

CSIR-NEIST organized International Conference on Engineering Sciences & Technologies for Environmental Care



Prof. T G Sitaram, Director IIT Guwahati addressing the inaugural ceremony. Dignitaries seated on the dais are (from right), Dr Arup Kumar Misra, Director ASTEC, Guwahati; Dr G Narahari Sastry, Director, CSIR-NEIST and Dr KSMS Raghava Rao, Director, CSIR-CFTRI, Mysuru.

CSIR-NEIST organized an International Conference on Engineering Sciences & Technologies for Environmental Care (ESTEC-2020) during 20-22 February 2020. The conference had a grand start on 20 February wherein a large number of experts and scientists from diverse areas of science and technology (S&T) from different areas of the country and abroad congregated at CSIR-NEIST. The Conference was formally inaugurated by Dr G Narahari Sastry, Director, CSIR-NEIST along with Chief Guest Prof. T G Sitaram, Director, IIT Guwahati and Guests of Honour Dr KSMS Raghava Rao, Director, CSIR-CFTRI, Mysuru and Dr Arup Kumar Misra, Director ASTEC, Guwahati. Apart from a host of dignitaries and participants from academic and research institutes, the event was also attended by some industry heavy weights. In his welcome address, Dr Sastry congratulated Mr S C Kalita, Chief Scientist, CSIR-NEIST who will be superannuating by the end of the month and in whose honour, the conference was organized. He highlighted that the CSIR-NEIST theme for the year 2020 is "Revitalizing NEIST for Strengthening North East" with thrust areas of research in Envi-



Release of Conference Souvenir by the dignitaries, Dr Arup Kumar Mishra, Director ASTEC, Guwahati & Guest of Honour of inaugural function; Prof. T.G. Sitaram, Director IIT Guwahati & Chief Guest; Dr G Narahari Sastry, Director, CSIR-NEIST; Dr KSMS Raghava Rao, Director, CSIR-Central Food Technological Research Institute (CSIR-CFTRI), Mysuru & Guest of Honour; Dr A K Barooah, Director, TRA, Jorhat; Er S C Kalita, Chief Scientist, CSIR-NEIST and Dr Swapnali Hazarika, Principal Scientist & Coordinator of the Conference (from right).

ronmental Care, Herbal Formulation and Knowledge of Empowerment. He also mentioned that to give a fillip to the niche areas of research and live up to the theme of the year, some new divisions and centres viz. Advanced Computation and Data Sciences Division (ACDS), Agrotechnology and Rural Development Division, Centre for Petroleum Research, Centre for Instrumentation and Quality Control, Centre for Knowledge Resource and Information Sciences, have been created for catering the needs of the region in particular and the country in general. Dr Sitaram stressed that to achieve the goal of becoming 5 trillion economy, we need to look beyond mundane research problem and focus on real issues which is the crux of the matter. He delved upon the fact that India is the third largest dam building nation and sustainable water is of paramount importance to our economy. In his keynote address Dr KSMS Raghava Rao recalled the contribution of CSIR in the country's growth and development and the pivotal role played by CSIR-CFTRI in spray drying buffalo milk to produce the baby food Amulspray. He highlighted the importance of process engineering in augmenting the productivity. Dr A K Misra in his key note address

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elaborated upon concepts such as environmental care and protection, circular economy, eco-footprint and said that environment care is a part and parcel of our day-to-day life and basically it starts from our home. He further pitched in that producing lofty ideas is not just important but such scientific forum will make a real sense if it churns out at least a few entrepreneurs, research scholars ecologists, environmental activists of tomorrow. The dignitaries later released the “Book of Abstracts” of ESTEC-2020. In the 3-day conference, a total of 11 technical sessions which covered 7 plenary lectures, 26 invited lectures, 19 oral and 179 poster presentations were held apart from an industry session covering 4 lectures and 3 business talks from the petrochemical industries of north eastern region. Dr G Narahari Sastry informed that the themes of the conference revolved around renewable energy/materials, climate changes, waste management, catalysis, membranes, green processes, green buildings, process intensification, risk and hazard assessment, polymers and composites, energy storage, mathematical modeling and simulation, artificial intelligence and data sciences, pollution abatement, bioremediation and building materials and structural engineering apart from a special dinner session on the first day called “Food for Thought” where 8 different groups brainstormed on topics such as petroleum research, coal and energy, process engineering, machine learning, food engineering and agro technology, urban development and pollution, environmental care and water. Among the speakers from abroad were Dr D B Das, Associate Professor, Loughborough University; Dr Sebastiano D’Amico, Coordinator, Geophysics Laboratory, Department of Geoscience, University of Malta and the Vice-President of the European Seismological Commission; Dr Rabah Boukherroub, research director National Centre for Scientific Research (CNRS) and Group Leader at the Institute of Electronics, Microelectronics and Nanotechnology (IEMN), University Lille, France. The valedictory ceremony was held on 22 February wherein Mr S C Kalita was felicitated for his forthcoming superannuation from service by Dr Sastry and special invitee Dr V S Ravishankar, Director,

National Institute of Design (NID), Jorhat. The prizes won in the poster and oral presentations in the conference were presented to the winners at the end.

Glimpses of the Food for Thought programme and Poster Session held under the Conference



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CSIR-NEIST celebrated National Science Day



From top: Prof Pawan K Dhar, Dean, School of Biotechnology, JNU New Delhi delivering the National Science Day Lecture on topic, "Synthetic Biology". Dr G Narahari Sastry, Director, CSIR-NEIST delivering welcome address on the occasion.

CSIR-NEIST celebrated National Science Day on 28 February with "Women in Science" as the focal theme. To mark the occasion, a special programme was held at Dr J N Baruah auditorium wherein Prof Pawan K Dhar, Dean, School of Biotechnology, JNU New Delhi graced the occasion as Chief Guest and delivered the Science Day Lecture. Dr G Narahari Sastry, Director, CSIR-NEIST in his welcome address spoke about the significance of the day and encouraged all to continue their efforts in communicating, popularizing and promoting science. He acknowledged and recognized the contribution of various women scientists in the advancement of science & technology in India and across the world. Dr Sastry urged CSIR-

NEIST community to keep themselves abreast with the changing times and be relevant to the needs & problems of the society while doing science. Prof Pawan K Dhar, Dean, School of Biotechnology, JNU New Delhi delivered the Science Day Lecture on "Synthetic Biology" wherein he spoke about the fundamentals of cell modelling/engineering, Gene expression and also shared critical insights and experiences in the development of Junkomics. As a part of the celebration, CSIR-NEIST observed Open Day during 2.00 pm to 3.30 pm to facilitate the visit of students and general public to the Institute.

Workshop on Science Communication held at CSIR-NEIST



Dr G Narahari Sastry, Director, CSIR-NEIST addressing the participants on the occasion. DBT India Alliance officials seen seated on the dais (from right) are Dr Hina Lateef Nizami, Dr Yukti Arora, Communications & Public Engagement Officers; Dr Maheswar Reddy Gummalla and Dr Syed Asraffuzzaman, Grants Advisers.

CSIR-NEIST in association with Wellcome Trust/DBT India Alliance organized one-day Science Communication workshop on 03 February 2020 at its premise. The workshop was held with an aim to help Ph D scholars, young post docs and students in their early stage of science career develop skills for effective science communication through an interactive platform where they can discuss with peers and mentors about various issues pertaining to scientific research and career advancement. Dr Hina Lateef Nizami and Dr Yukti Arora, Communications & Public Engagement Officers and Dr Maheswar Reddy Gummalla and Dr

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Syed Asraffuzaman, Grants Advisers from DBT India Alliance deliberated on key subjects such as Research Ethics, Manuscript Writing, Presentation Skills, Impressive CV (Curriculum Vitae) writing, Tips for Interview and Research Proposal writing. The workshop also included a session wherein various funding opportunities of India Alliance were discussed in detail by Dr Asraffuzaman. Addressing the participants on the occasion, Dr G Narahari Sastry, Director, CSIR-NEIST pointed out that science should be accessible to everyone and this can be achieved when scientists learn how to communicate or disseminate their research findings effectively for the benefit of not only scientific community but a broader audience comprising non-science and common people. He also emphasized the various ethical issues and the moral responsibilities that come together in the process of research and communication. The workshop was attended by 98 students mostly Ph D scholars from CSIR-NEIST, Tezpur University, Rain Forest Research Institute (RFRI), Tea Research Association (TRA), Assam Agricultural University (AAU) and Jorhat Medical College. The participants showed keen interest and actively participated in all the sessions with questions, response and feedback.



Participants of the workshop with Dr G Narahari Sastry, Director, CSIR-NEIST and officials from both CSIR-NEIST and DBT India Alliance.

DBT India Alliance Outreach Programme at CSIR-NEIST

Following the one-day Science Communication workshop held on 03 February 2020, DBT India

Alliance organized an Outreach Programme at M S Iyengar Hall, CSIR-NEIST on 04 February 2020. The main objective of the programme was to raise awareness about the funding opportunities of India Alliance among the scientists and faculty staff working in Bio-medical and related areas. Dr Maheswar Reddy Gummalla and Dr Syed Asraffuzaman, Grants Advisers from DBT India Alliance discussed and shared information about various funding schemes and programmes of DBT India Alliance. Further, Dr Asraffuzaman conducted a session on writing effective grant proposal wherein he shared useful tips and ideas with anecdotes. The programme was attended by 26 scientists and technical officers from CSIR-NEIST.



Participants of the outreach programme with experts/officials from DBT India Alliance.

CSIR-NEIST Branch Lab Itanagar organized training on Mushroom cultivation

Under Green Skill Building Programme (GSBP), CSIR-NEIST Branch Itanagar in collaboration with G B Pant National Institute of Himalayan Environment & Sustainable Development, North East Regional Centre, Itanagar organized a training programme on mushroom cultivation at its premise on 24 February 2020. Dr Budhen Ch Baruah Senior Technical Officer, CSIR-NEIST Branch Itanagar explained the health & nutritional benefits of mushroom and the prospects of its cultivation on commercial scale for socio-economic development. A practical demonstration on preparation of mushroom bags was also conducted under the guidance of Dr Baruah during the training programme. About

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20 unemployed youth and students from Naharlagun participated in the training programme.



Participants of the training programme with Dr Budhen C Baruah, Sr Technical Officer, CSIR-NEIST Branch, Itanagar.

CSIR-NEIST Branch Lab Itanagar imparted training on Vermicompost production



Dr Budhen C Baruah, Sr Technical Officer, CSIR-NEIST Branch, Itanagar interacting with the trainees during their visit to the branch lab vermicompost unit.

A training programme on “Vermiculturing and vermicomposting” was imparted to the participants of undergoing 25 days training programme on Vermiculture and vermicompost production at Krishi Vigyan Kendra, Nirjul on 27 February 2020. About 25 trainees from different districts of Arunachal Pradesh participated in the programme. Dr Budhen C Baruah, Sr Technical Officer, CSIR-NEIST Branch Itanagar explained the various aspects of “Vermiculturing and vermicomposting” to the trainees including a practical demonstration. Dr Baruah

was provided technical guidance for preparation of vermin beds and its management in the training programme. The trainees also visited CSIR-NEIST Branch Itanagar vermicompost unit on 28 February 2020.

CSIR-NEIST Branch Lab Itanagar organized training on cultivation and processing of aromatic plants

CSIR-NEIST Branch Itanagar organized a one-day



Dr Budhen C Baruah, Sr Technical Officer, CSIR-NEIST Branch, Itanagar briefing about aromatic plants cultivation.

training programme on cultivation and processing of aromatic plants at its premise on 25 February 2020. Dr Budhen C Baruah, Sr Technical Officer, CSIR-NEIST Branch Itanagar explained the prospect of cultivation of aromatic grass on commercial scale particularly the improved varieties of citronella and lemongrass for socio-economic upliftment of the people. Dr Baruah demonstrated the extraction (distillation) process of citronella and lemongrass oil from the grass to the trainees. About 25 nos. of unemployed youth from Papumpare district participated in the training programme.

CSIR-NEIST Branch Lab Imphal organized awareness cum training programme for augmenting income for rural women

CSIR-NEIST Branch Imphal organized a two-week awareness cum training programme for aug-

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-menting women's income generation through appropriate technologies during 10-22 February 2020. The programme comprised of awareness on biodiversity, forest conservation, field visits, and training & demonstration on banana fibre extraction, vermicomposting, aromatic plants cultivation and essential oil distillation. Altogether 60 trainees from Imphal attended the two-week programme.



A group of trainees of the two-week training programme with H B Singh, Scientist-in-charge, CSIR-NEIST Branch, Imphal.

Lectures Series held under NEIST Science Forum

- **Speaker:** Dr Suryanarayana Iragavarapu, Former Scientist, CSIR-NEIST
Topic: Petroleum Industry in India
Date: 14 February 2020

Papers published

- Islam N, Dihingia A, Khare P, Saikia B K: Atmospheric particulate matters in an Indian urban area: Health implications from potentially hazardous elements, cytotoxicity, and genotoxicity studies, *Journal of Hazardous Materials*, 2020, 384 p: 121472. **Highest Impact Factor paper (IF: 7.650).**
- Dutta M, Islam N, Rabha S, Narzary B, Bordoloi M, Saikia D, Silva L F, Saikia B K: Acid mine

drainage in an Indian high-sulphur coal mining area: Cytotoxicity assay and remediation study, *Journal of Hazardous Materials*, 2020 p: 1-11. **Highest Impact Factor paper (IF: 7.650).**

- Borah H J, Gogoi M, Das D B, Hazarika S: Cyclodextrine-glutaraldehyde cross-linked nanofiltration membrane for recovery of resveratrol from plant extract, *Journal of Environmental Chemical Engineering*, 2020, 8 p: 1036203.
- Phukon J, Gogoi S: Palladium(II)-catalyzed vinylic geminal double C-H activation and alkyne annulation reaction: synthesis of pentafulvenes, *Chemical Communications*, 2020, 56 p: 1133--1136.
- Choudhury B K: Attenuation of regional seismic Lg waves and its spectral characteristics in and around the Indo-Burman Ranges of North Eastern region of India, *Acta Geodaetica et Geophysica*, 2020, 55 p: 133-150.
- Chaliha B, Kotoky R, Saikia D, Nath S C, Saikia S P: Oleic Acid Rich Tree-borne Oilseeds from Forests of Assam, India, *Journal of Oleo Science*, 2020, 69(2), p: 105-114.
- Dihingia A, Ozah D, Borah T, Kalita J, Manna P: Gamma-glutamyl-carboxylated Gas6 mediates positive role of vitamin K on lowering hyperglycemia in type 2 diabetes, *Annals of the New York Academy of Sciences*, 2020, 1462 p: 104-117.
- Munda S, Sarma N, Lal M: GxE interaction of 72 accessions with three year evaluation of *Cymbopogon winterianus* Jowitt. using regression coefficient and Additive Main effects and Multiplicative Interaction model (AMMI), *Industrial Crops and Products*, 2020, 146 p: 112169.
- Tamuli K J, Bordoloi M: Recyclable Itaconic

- Acid with Water as Green Catalytic System: Synthesis of Substituted 1, 5-Benzodiazepine Derivatives at Room Temperature, *ChemistrySelect*, 2020, 5(4), p: 1353-1358.
- Dutta N B, Bhuyan M, Baishya G: K₂S₂O₈ mediated C-3 arylation of quinoxalin-2(1H)-ones under metal-, photocatalyst- and light-free conditions, *RSC Advances*, 2020, 10(6), p: 3615-3624.
 - Borthakur S, Basyach P, Kalita L, Sonowal K, Tiwari A, Chetia, Saikia L: Sunlight assisted degradation of a pollutant dye in water by a WO₃@g-C₃N₄ nanocomposite catalyst, *New Journal of Chemistry*, 2020, 44(7), p: 2947-2960.
 - Rabha S, Saikia B K: An environmental evaluation of carbonaceous aerosols in PM₁₀ at micro- and nano-scale levels reveals the formation of carbon nanodots, *Chemosphere*, 2020, 244 p: 125519.
 - Nath B, Kalita P, Das B, Basumatary S: Highly efficient renewable heterogeneous base catalyst derived from waste *Sesamum indicum* plant for synthesis of biodiesel, *Renewable Energy*, 2020, 151 p: 295-310.
 - Borah N, Mapelli S, Pecchia P, Bithika C, Saikia S P: Adaptation of *Camelina sativa* (L.) Crantz in Assam, India: agronomic, physiological and biochemical aspects of a potential biofuel feedstock, *Biofuels*, 2019 p: 1-8.
 - Ogundele A V, Das A M: Chemical constituents from the leaves of *Elaeocarpus floribundus*, *Natural Product Research*, 2019 p: 1-5.
- Health Benefits of Foods - Current Knowledge and Further Development, 2019 p: 1-15.
- Kakoti P, Gogoi P, Yadav A, Singh B P, Saikia R: Foliar Fungal Diseases in Pulses: Review and Management, In: Management of Fungal Pathogens in Pulses, 2020 p: 131-142.
 - Gogoi P, Kakoti P, Saikia J, Sarma R K, Yadav A, Singh B P, Saikia R: Plant Growth-Promoting Rhizobacteria in Management of Soil-Borne Fungal Pathogens, In: Management of Fungal Pathogens in Pulses, 2020 p: 1-13.

Farewell

The following member(s) of the staff have retired from Council's service on superannuation from CSIR-NEIST on 29 February 2020.

1. Shri Subodh Chandra Kalita, Chief Scientist
2. Shri Pradip Prasad Khound, STO-1
3. Shri Prasanna Kumar Dutta, Sr Technican-2

Book chapters

- Chaliha B, Saikia D, Saikia S P: Tree-Borne Edible Oilseeds as Sources of Essential Omega Fatty Acids for Human Health, In: The