ISSN 2231- 5926

निस्ट न्यूज
NEIST NEWS

सी एस आई आर-उत्तर पूर्व विज्ञान तथा प्रौद्योगिकी संस्थान, जोरहाट
CSIR-NORTH EAST INSTITUTE OF SCIENCE & TECHNOLOGY, JORHAT
VOL. XXXVIII NO. 5 APRIL 2016 - JULY 2016

Connecting Science & Technology for a Brighter Tomorrow

CSIR-NEIST DEVELOPS MODULAR BRICKS FROM BRAHMAPUTRA RIVER BED SAND

Modular bricks developed at CSIR-NEIST

An alternative brick from the river bed sand of the famous Brahmaputra River has been developed by CSIR-NEIST for use as building material in civil construction. The process developed by the Institute involves an eco-friendly compressed stabilized based technique with air drying and water curing, unlike the conventional burnt clay bricks which involves coal burning in brick kilns thereby causing air pollution. This indigenous technology is aimed at maximum utilization of local resources with minimum effect on long term basis that makes the process a sustainable one. Manufacturing of the bricks is easy which requires a simple machinery to be operated manually or by electrical means and can be manufactured in all seasons. The modular bricks can be used for construction of building structure, boundary wall, foundation, etc. and the main advantage is that the bricks are lighter than the conventional ones with better quality, shape and size which will give an esthetic look to the finished structure.

The bricks are suitable for earthquake resistant construction and are cost efficient which is another added advantage. Developed at large scale level (24 lakhs bricks per annum), the technology is ready for transfer to potential clients/customers for commercialization.

CSIR-NEIST ORGANIZED MOTIVATIONAL PROGRAM FOR SCHOOL STUDENTS

With an objective to motivate students towards basic science, CSIR-NEIST organized a week-long motivational program during 7-12 April, 2016 at its premise. A total of 43 students of class XII (science stream) along with 9 teachers from different schools of Assam, Mizoram and Nagaland attended the program. The program started off with an inaugural program held on 7 April, 2016

(Left) Dr D Ramaiah, Director, CSIR-NEIST addressing the students in the inaugural session. Seated on the dais are (from left) Dr B K Sarmah, Director, DBT centre, AAU-Jorhat and Dr P Sengupta, Chief Scientist, CSIR-NEIST present as Guests of Honour. (Right) Student participants and their teachers with Director, CSIR-NEIST and organizers of the program..

presided over by Dr D Ramaiah, Director, CSIR-NEIST. Dr B K Sarmah, Director, DBT Centre, Assam Agricultural University (AAU)– Jorhat and Dr P Sengupta, Chief Scientist, CSIR-NEIST were present as Guests of Honour. The week-long program included popular science talks, hands-on project work by students under the supervision of CSIR-NEIST scientists, Face-to-Face with scientists, elocution competition, visit to places of historical importance in Sivasagar district and visit to AAU. The program concluded with a short Valedictory program held on 12 April, 2016 presided over by Dr D Ramaiah. Certificates were distributed to the participants and winners of elocution competition were awarded with prizes during the program. The program received high appreciation and acknowledgement from the participants. The program was catalyzed and supported by RVPSP, DST, Govt. of India.

RESIDENTIAL SALTERS' CHEMISTRY CAMP AND TEACHERS' TRAINING WORKSHOP OF ROYAL SOCIETY OF CHEMISTRY INDIA HELD AT CSIR-NEIST

Student participants of the Salters' Chemistry Camp held at CSIR-NEIST.

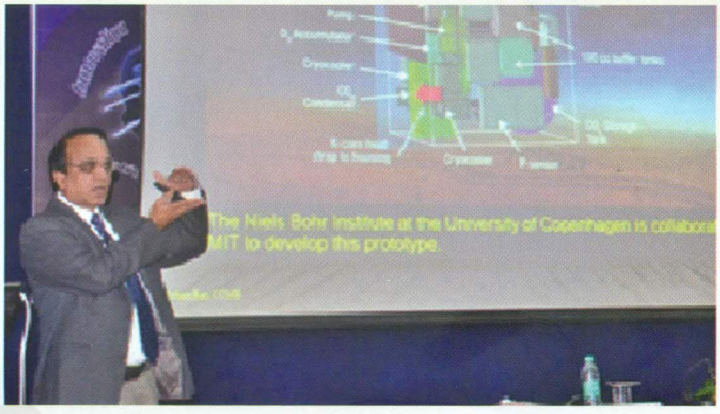
The Royal Society of Chemistry India (RSC) in association with CSIR-NEIST and Kaziranga University, Jorhat organized Teachers' Training Workshop and Residential Salters' Chemistry Camps in July, 2016 at CSIR-NEIST campus. The Salters' Chemistry Camp was held during 11-13 July, 2016 wherein 67 students of std IX from 17 government/less-privileged schools of Jorhat participated. The main objective of the program was to encourage the young minds towards basic science and especially in the chemistry subject by providing them a platform to experience hands-on lab experiments, which they generally don't experience in schools. The program also offered them a chance to meet like-minded students and help in exchange of ideas and knowledge.

This was followed by a two-day Teachers' Training workshop held during 14-15 July, 2016 for government school teachers at CSIR-NEIST. The teachers' training program was also held at CSIR-NEIST branch labs in Itanagar and Imphal during 18-19 July, 2016 and 21-22 July, 2016 respectively. Altogether 33 teachers from 25 different schools of Jorhat participated at the program at CSIR-NEIST while 30 teachers from 27 schools and 33 teachers from 31 schools participated at the programs held at Itanagar and Imphal respectively.

The teachers' program was held with an aim to provide them an opportunity to learn new techniques and skills to teach science in an engaging and exciting manner. The programs were coordinated by Mr Partha Paul, Scientist, CSIR-NEIST and Ms Bhakti Dhamdhere and Mr Ershad Abubacker from the RSC.

OTHER IMPORTANT EVENTS HELD

NATIONAL TECHNOLOGY DAY 2016



(Left) Dr Ch Mohan Rao, Former Director, CSIR-Centre for Cellular & Molecular Biology, Hyderabad, delivering Technology Day Lecture 2016 at CSIR-NEIST. (Right) CSIR-NEIST Annual Report 2015-16 released by the Chief Guest in presence of Dr D Ramaiah,

CSIR-NEIST celebrated National Technology Day 2016 with a special program held at Dr J N Baruah Auditorium on 11 May, 2016. Dr Ch Mohan Rao, Former Director, CSIR-Centre for Cellular and Molecular Biology, Hyderabad graced the occasion as Chief Guest and delivered the Technology Day Lecture on the topic, 'Science & Technology for Social Good'.

CSIR-UGC NET EXAM HELD AT JORHAT

CSIR-UGC NET exam was held for the first time in Jorhat on 19 June, 2016. Held at J B College, the exam was conducted in two sessions and an overall 71.07% of the registered candidates appeared for the exam from the subject areas viz., Life Science, Physical Science, Chemical Science, Math Science and Earth Science. It may be mentioned that Jorhat has been included as an exam centre w.e.f 2016 with CSIR-NEIST as the Coordinator.

SOCIETAL ACTIVITIES

CSIR-NEIST IMPARTS TRAINING ON MUSHROOM CULTIVATION

Trainees from 5 Air Force Hospital, Jorhat (left) and student trainees of AcSIR (right).

Under CSIR 800 project titled, "Rural Entrepreneurship and Skill Development through Demonstration and Training of Appropriate Technologies of CSIR-NEIST", CSIR-NEIST organized a series of training program on Mushroom cultivation during the month. Altogether 13 nominated personnel of 5 Air force Hospital, Jorhat received the training held at CSIR-NEIST premise on 3 May, 2016. This was followed by two programs held on 10.05.2016 and 21.05.2016 wherein 9 AcSIR students received the training as a part of their academic curricula concerned with societal/rural issues. The training covered detail demonstration on cultivation practice and knowledge dissemination about the health benefits of Mushroom and processing of the same to produce value added products. The programs were coordinated by Dr S P Saikia, Senior Scientist & PI of the project.

CSIR-NEIST ORGANIZED HEATH CAMP

Dr P K Baruah, Medical Officer & Head, Clinical Centre, CSIR-NEIST examining a beneficiary from the targeted malnourished population.

A Health Camp was organized under CSIR 800 project titled, "S&T interventions to combat malnutrition in women and children" during 4-5 June, 2016 at CSIR-800 Techvil in Bokajan (Sonitpur), Assam. The camp provided consultation and free medical examination/check-up to 180 targeted malnourished people. Blood samples of the targeted population were collected for clinical examination and biochemical testing while medicines were distributed for free of cost. It may be mentioned that the project which was launched in 2014 has conducted series of health camps to study the health status of the people of the area (Bokajan) and out of which 180 people were found to be malnourished including children.

CSIR-NEIST also developed nutritional food products viz., 'nutra ready mix' and 'soft rice' from pigmented/local rice varieties and provided to the people on various occasions. Apart from these, CSIR-NEIST also imparted training on Mushroom cultivation which is a highly nutritional food item. The program was coordinated by Dr S P Saikia, Nodal Scientist of the project.

HONOUR/RECOGNITION

DR D RAMAIAH, DIRECTOR, CSIR-NEIST APPOINTED AS EDITOR, JOURNAL OF PHOTOCHEMISTRY AND PHOTOBIOLOGY B: BIOLOGY

Dr D Ramaiah, Director, CSIR-NEIST has been appointed as an Editor of the Journal of Photochemistry and Photobiology B: Biology with effect from April, 2016. Dr Ramaiah has made important contributions to the general area of chemistry and particularly in the design and study of molecules for biological applications. Some of his significant contributions include synthesis of novel NIR absorbing squaraines, porphyrins, clorins and aza-BODIPY dyes and also demonstration of their potential as sensitizers in photodynamic therapeutical (PDT) applications. He has published more than 100 research papers in peer reviewed international journals with an average impact factor of around 6. He has obtained 21 national and international patents and received around 2500 citations with an H-index of 31. The announcement from Elsevier mentions Dr Ramaiah as the third Editor of the Journal.

WORKSHOP ATTENDED

Ms. Alokananda Sengupta, Head- Research Planning & Business Development Division (RPBD) and Mr Rajib Deka, Scientist, RPBD attended a workshop on, "Workshop on S&T Innovations for 'Make in India' –Promoting Manufacturing at the District Level" as an invitee by the DST, New Delhi. The workshop was an initiative of DST, KnIDS and ASCI and held at IASST on 9 June, 2016. Ms. Sengupta projected the CSIR-NEIST technologies available for commercialization, particularly those that can be taken up at the District level. The importance of an interface for interacting with CSIR-NEIST regarding grass-root problems and CSIR-NEIST available technologies was further highlighted. She also presented the progress of her project titled, "An investigation in to Intellectual Property Management practices in research institutes and universities of North East India and preparation of a wish-list of technologies for North East" funded by DST-NSTMIS following the workshop on 10 June, 2016 at IASST, Guwahati.

PAPERS PUBLISHED

IN INTERNATIONAL JOURNALS

1. Saikia P K, Sarmah P P, Borah B J, Saikia L, Saikia K, Dutta D K: Stabilized Fe3O4 magnetic nanoparticles into nanopores of modified montmorillonite clay: a highly efficient catalyst for the Baeyer Villiger oxidation under solvent free conditions, Green Chemistry, 2016, 18 p: 2843-2850.

2. Dey T, Dutta P, Prasenjit M, Kalita J, Deka Boruah H P, Buragohain Alak Kumar, Unni B G, Ozah D, Goswami M K, Kotokey R K: Cigarette smoke compounds induce cellular redox imbalance, activate NF-?B, and increase TNF-a/CRP secretion: a possible pathway in the pathogenesis of COPD, Toxicology Research, 2016, 5 p: 895-904.

3. Darabdhara G, Boruah P K, Borthakur P, Hussain N, Das M R, Ahamad T, Alshehri S M, Malgras V, Wu K C W, Yamauchi Y: Reduced graphene oxide nanosheets decorated with Au-Pd bimetallic alloy nanoparticles towards efficient photocatalytic degradation of phenolic compounds in water, Nanoscale, 2016, 8(15), p: 8276-8287.

4. Leo V V, Passari A K, Joshi J B, Mishra V K, Uthandi S, Ramesh N, Gupta V K, Saikia R, Sonawane V C, Singh B P: A novel triculture system (CC3) for simultaneous enzyme production and hydrolysis of common grasses through submerged fermentation, Frontiers in Microbiology, 2016, 7(Mar), p: 447.

5. Das T, Boruah P K, Das M R, Saikia B K: Formation of onion-like fullerene and chemically converted graphene-like nanosheets from low-quality coals: Application in photocatalytic degradation of 2-nitrophenol (Article), RSC Advances, 2016, 6(42), p: 35177-35190.

6. Baruah R, Kalita D J, Saikia B K, Gautam A, Singh A K, Deka Boruah H P: Native hydrocarbonoclastic bacteria and hydrocarbon mineralization processes (Article), International Biodeterioration and Biodegradation, 2016, 112 p: 18-30.

7. Saikia I, Sonowal S, Pal M, Boruah P K, Das M R, Tamuly C: Biosynthesis of gold decorated reduced graphene oxide and its biological activities, Materials Letters, 2016, 178(1), p: 239-242.

8. Sedai P, Kalita D, Deka D: Assessment of the fuel wood of India: A case study based on fuel characteristics of some indigenous species of Arunachal Pradesh, Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, 2016, 38(7), p: 891-897.

9. Pahari P, Saikia U P, Das T P, Damodaran C, Rohr J: Synthesis of Psoralidin derivatives and their anticancer activity: first synthesis of Lespeflorin I1, Tetrahedron, 2016, 72(23), p: 3324-3334.

10. Saikia B.K, Saikia A, Choudhury R, Xie P, Liu J, Das T, Dekaboruah H P: Elemental geochemistry and mineralogy of coals and associated coal mine overburden from Makum coalfield (Northeast India) (Article), Environmental Earth Sciences, 2016, 75(8), p: 660.

11. Boruah P K, Borthakur P, Darabdhara G, Kamaja C K, Karbhal I, Shelke M V, Phukan P, Saikia D, Das M R: Sunlight assisted degradation of dye molecules and reduction of toxic Cr(VI) in aqueous medium using magnetically recoverable Fe3O4/reduced graphene oxide nanocomposite, RSC Advances, 2016, 6 p: -11063.

12. Saikia M, Saikia L: Palladium nanoparticles immobilized on an amine-functionalized MIL-101(Cr) as a highly active catalyst for oxidative amination of aldehydes, RSC Advances, 2016, 6(18), p: 14937-14947.

13. Saikia M, Saikia L: Sulfonic acid-functionalized MIL-101(Cr) as a highly efficient heterogeneous catalyst for one-pot synthesis of 2-amino-4H-chromenes in aqueous medium, RSC Advances, 2016, 6(19), p: 15846-15853.

14. Hussain N, Gogoi P, Azhagan M V K, Shelke M V, Das M R: Correction: Green synthesis of stable Cu(0) nanoparticles onto reduced graphene oxide nanosheets: A reusable catalyst for the synthesis of symmetrical biaryls from arylboronic acids under base-free conditions, Catalysis Science and Technology, 2016, 6(4), p: 1234.

15. Das T, Boruah P K, Das M R, Saikia B K: Formation of onion-like fullerene and chemically converted graphene-like nanosheets from low-quality coals: Application in photocatalytic degradation of 2-nitrophenol (Article), RSC Advances, 2016, 6(42), p: 35177-35190.

16. Goswami L, Gogoi S, Gogoi J, Boruah R K, BORUAH R C, GOGOI P: Facile Diversity-Oriented Synthesis of Polycyclic Pyridines and Their Cytotoxicity Effects in Human Cancer Cell Lines, ACS Combinatorial Science, 2016, 18(5), p: 253-261.

17. Dey T, Dutta P, Manna P, Kalita J, Boruah H P D, Buragohain A K, Unni B, Ozah D, Kumar Goswami M, Kotokey R K : Cigarette smoke compounds induce cellular redox imbalance, activate NF-?B, and increase TNF-a/CRP secretion: A possible pathway in the pathogenesis of COPD (Article), Toxicology Research, 2016, 5(3), p: 895-904.

18. Das H, Saikia P, Kalita D : Physico-mechanical properties of banana fiber reinforced polymer composite as an alternative building material, Key Engineering Materials, 2016, 650 p: 131-138.

19. Dutta P, Dey T, Manna P, Kalita J: Antioxidant Potential of Vespa affinis L., a Traditional Edible Insect Species of North East India, Ploseone, 2016, 11(5), p: 2016.

20. Khan R, Pal M, Kuzikov A V, Bulko T, Suprun E V, Shumyantseva V V: Impedimetric immunosensor for detection of cardiovascular disorder risk biomarker (Article), Materials Science and Engineering C, 2016, 68(1), p: 52-58.

21. Surneni N, Barua N C, Saikia B: Application of natural feedstock extract: The Henry reaction (Article), Tetrahedron Letters, 2016, 57(25), p: 2814-2817.

22. Choudhury R, Gupta U N, Waanders F B, Saikia B K: A multi-analytical study on the sulphur components in some high sulphur Indian Tertiary coals (Article), Arabian Journal of Geosciences, 2016, 9(2), p: 1-13.

23. Chandrasekhar D, Borra S, Nanubolu J B, Maurya R A: Visible Light Driven Photocascade Catalysis: Ru(bpy)3(PF6)2/TBHP-Mediated Synthesis of Fused ß-Carbolines in Batch and Flow Microreactors, Organic Letters, 2016, 18(12), p: 2974-2977.

24. Banik D, Bora P P: A taxonomic study on the diversity of Indian Knema Lour. (Myristicaceae), Taiwania, 2016, 61 p: 141 - 158.

25. Mishra D, Yadav V, Khare P V, Jyotshna, Das M R, Meena A, Shanker K, Yadav V : Development of crystalline cellulosic fibres for sustained release of drug, Current Topics in Medicinal Chemistry, 2016, 16(18), p: 2026-2035.

26. Baruah S, Saikia S, Baruah S, Tatevossian R, Kayal J R: The September 2011 Sikkim Himalaya earthquake Mw 6.9: is it a plane of detachment earth-quake?, Geomatics, Natural Hazards and Risk, 2016, 7 (1), p: 248-263.

27. Leo V V, Passari A K, Joshi J B, Mishra V K, Uthandi S, Ramesh N, Gupta V K, Saikia R, Sonawane V C, Singh B P: A novel triculture system (CC3) for simultaneous enzyme production and hydrolysis of common grasses through submerged fermentation, Frontiers in Microbiology, 2016, 7(MAR), p: 447.

28. Saikia P J, Sarmah Saikia P C, Rahman A: Microstructure and optical properties of ultra thin film of gold nanocomposite polyaniline, Indian Journal of Pure and Applied Physics, 2016, 54(6), p: 401-405.

29. Lal M, Dutta S, Bhattacharyya P R: Development of a high yielding variety, jor lab L-8 of Lemongrass (Cymbopogon flexuosus L.), Annals of Agricultural Research, 2016, 21(1), p: 22-23.

30. Lal M, Dutta S, Bhattacharyya P R: Development of a new superior variety (Jor Lab C-5) of Java citronella with characteristics of stable and high oil yield, Annals of Biology, 2016, 32(1), p: 22-23.

31. Borthakur P, Boruah P K, Hussain N, Sharma B, Das M R, Matic S, Reha D, Minofar B: Experimental and Molecular Dynamics Simulation Study of Specific Ion Effect on the Graphene Oxide Surface and Investigation of the Influence on Reactive Extraction of Model Dye Molecule at Water-Organic Interface, Journal of Physical Chemistry C, 2016, 120(26), p: 14088-14100.

IN NATIONAL JOURNALS

1. Bhau B S, Borah B, Ahmed R, Phukon P, Gogoi B, Sarmah D K, Lal M, Wann S B: Influence of root-knot nematode infestation on antioxidant enzymes, chlorophyll content and growth in Pogostemon cablin (Blanco) Benth., Indian Journal of Experimental Biology, 2016, 54 p: 254-261.

BOOK CHAPTERS

1. Wann S B, Borah B, Ahmed R, Gogoi B, Phukon P, Baruah J, Sharma D K, Bhau B S: Isolation, Characterization of Nematode-Controlling Bacteria and Fungi from Nature, In: Microbial Inoculants in Sustainable Agricultural Productivity Vol.1, Ed by Singh DP, Singh H B, Prabha R, Springer Pvt. Ltd., 2016 p: 271-295.

2. Bhau B S, Sharma D K, Bora M, Gosh S, Puri S, Borah B, Guru K D, Wann S B: Molecular Markers and Crop Improvement, In: Abiotic Stress Response in Plants, Ed by Tuteja N, Gill SS, Wiley-VCH, Germany, 2016 p: 379-406.

3. Bhau B S, Phukan R, Gogoi B, Borah B, Boruah J, Sharma D K, Wann S B : A Novel Tool of Nanotechnology: Nanoparticle Mediated Control of Nematode Infection in Plants, In: Microbial Inoculants in Sustainable Agricultural Productivity Vol.2, Ed by Singh DP, Singh H B, Prabha R, 2016 p: 253-269.

VISIT

- A group of faculty members from the School of Agricultural Sciences & Rural Development, Nagaland University visited CSIR-NEIST on 6 June, 2016.

- A group of 48 students of std VIII-X along with 3 teachers from Bahguri Udayan Tribal High School, Dergaon (Golaghat) visited CSIR-NEIST on 6 June, 2016.

- A group of 30 students along with 4 teachers from Purna Vikash Central School, Sivasagar visited CSIR-NEIST on 17 June, 2016.

- A group of 40 students along with their teachers visited CSIR-NEIST on 29 July, 2016 as a part of the 'Maths, Science, English and Science Workshop' of Kamarbandha College, Golaghat and 'Sunny Club & Library'.

COLLOQUIUM HELD

- Speaker: Prof Dhruba Saikia, Vice Chancellor, Cotton College Science University
  Topic: Light from the Universe
  Date: 23.06.2016

FAREWELL

The following members of the staff have retired from the Council's service on superannuation from CSIR-NEIST during April-July, 2016.

1. Dr Dilip Konwar, Chief Scientist
2. Dr D K Dutta, Chief Scientist
3. Mr Basanta Sarma, Sr Technical Officer
4. Mrs Purnima Hazarika, Private Secretary
5. Mr Brojendra N Deuri Phukan, Sr Technician (2)
6. Mr Ram Kr Borah, Sr Technician (2)
7. Mr Tuledhar Bora, Technician
8. Mr Baba Saikia, Lab Assistant
9. Mr Makhan Bora, Lab Assistant
10. Mr Deben Kalita, Lab Assistant
11. Mr Nogen C Gogoi, Lab Assistant
12. Mr Photik Bora, Lab Assistant
13. Ms Pratima Bora, Group D

CONDOLENCE HELD

The Director and members of the staff of CSIR-NEIST deeply condoled the sad demise of its employee, Shri Kolamoni Kalita, Non-Tech (who breathed his last on 07.07.2016) at a condolence meeting held in front of the administrative building on 08.07.2016.

CSIR-NORTH EAST INSTITUTE OF SCIENCE & TECHNOLOGY
JORHAT-785006, ASSAM
Phone: 0376-2370012, Fax: 0376-2370011
Website: www.neist.res.in
Published by : Director, CSIR-NEIST
Produced by : Research Planning & Business Development Division
Editor: A Sengupta, Editorial Staff : Illika Zhimo, Probin Baruah
Design & Graphics : Paresh Saikia, Photo : Rakesh Bora
Printed at: Saraighat Offset Press, Guwahati