

CSIR in Media



News Bulletin
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Awareness prog on sago palm pulp organised

CSIR-NEIST

18th November, 2018

Fifty beneficiaries, including farmers and entrepreneurs, participated in an awareness programme on 'conservation, cultivation, sustainable utilization and nutritional value of tashe (sago palm pulp)' organised here in Kurung Kumey district by the CSIR-North East Institute of Science and Technology's (CSIR-NEIST) Itanagar branch laboratory on Saturday. The programme was conducted in collaboration with the Lifeline Multipurpose Society Limited (LMSL). Addressing the participants, LMSL secretary Kipa Tugung spoke on the advantages and uses of tashe compared to other cultivated crops such as cardamom, and LMSL promoter Kipa Kaman advocated conserving and cultivating tashe throughout the state for income generation, and assured to provide support to interested farmers.

Farmers can also seek support from the national banks in this regard. Senior scientist from CSIR-NEIST Itanagar branch, Dr Chandan Tamuly, delivered a talk on the importance of tashe, its nutritional value, and its health benefits. "Tashe is used as a substitute of staple food, particularly by the Puroik community of the state. During the time of food crises the locals used it as their primary food," Dr Tamuly said. He said that, according to villagers, tashe can cure diarrhoea, indigestion, etc. "It has been found that tashe is a good energy supplier and contains high amounts of carbohydrate, potassium, calcium, etc," Dr Tamuly said, adding that the locals also use tashe as fertilizers, and for making local wine, broomsticks, cattle feed, mattresses, cushions, etc.

He said that, "after proper bio-chemical analysis," tashe can be used as a source of income generation. "However, market linkage is a major concern in this regard. A suitable market linkage can be established with the help of NGOs, SHGs and cooperative societies, he said.

Since the RIFM internationally standardizes the quality of fragrant materials, it will give a big boost to the fragrance quality in India, spokesman Manoj Semwal said.

"The pact will go a long way in standardizing the fragrant material produced in India and bring it to an international level," he told IANS while adding that the CSIR, under the "aroma mission" was aiming to enhance production of fragrant materials.

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[The Arunchal Times](#)

IIT-R, CSIR-NCL jointly develop dyes to increase efficiency of solar cells

CSIR-NCL



Roorkee: Researchers from IIT Roorkee have developed organic dyes in collaboration with CSIR-NCL Pune that can increase efficiency of Dye-Sensitised Solar Cells (DSSC). The team of researchers led by M Sankar, Associate Professor, Department of Chemistry, IIT Roorkee, have worked to improve the photovoltaic conversion efficiencies of an organic dye called porphyrin for DSSC applications. Their latest research results have been published in a journal of the American Chemical Society (ACS) called ACS Applied Energy Materials. Solar cell technologies fall into three generations; the first and second generations comprise photovoltaic cells that use inorganic semiconducting materials such as

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single crystal silicon (Gen I) and thin film silicon and CdSe type semiconductors (Gen II). Inorganic semiconductors of both generations continue to be expensive and challenging for scale up. The third generation, which is in the research stage, includes dye-sensitized solar cells or DSSC, which use a combination of cheap organic dyes and nanoparticles of titanium dioxide, to convert light into electricity. Although the cost of DSSC is much lower than the earlier generations of photovoltaic's, their conversion efficiencies are also very low, necessitating further research into dyes used in such cells. Porphyrin is a complex organic molecule and is the building block of chlorophyll, the key chemical that allows plants to harvest light energy for photosynthesis. The first study on the use of porphyrins in DSSC dates back to 1993, in which, porphyrin containing copper, resulted in power conversion efficiencies of 2.6%, too low for practical applications. Since then, various modifications of

porphyrin have been studied for use in DSSC. Zinc-containing porphyrins have been found promising and the research team at IIT Roorkee uses this type of porphyrin for its studies. One way of improving the efficiency of the dye is to add molecular pendants or groups to it, which can result in a “push-pull” architecture that involves the shuttle of electrons released in the molecule. Such push-pull mechanisms also improve the absorption of light in the red and infrared regions, thereby increasing the efficiency of the dye in photo-electric conversions. For dye molecules like porphyrin, these functional groups are introduced through reactions that involve many complex steps and need expensive palladium and platinum-based catalysts. Compounds made by these reactions have low efficiencies.

Sankar and the research team have developed a process to produce functionalized porphyrins, without the use of platinum and palladium catalysts. “Our continuous efforts to develop simple, efficient, stable, and cost-effective sensitizers involving fewer synthetic steps have resulted in five porphyrin Zn(II) complexes with a power conversion efficiency ranging from 5.3% to 7.1%”, explains Sankar on the results that have been recently published in the ACS journal.

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[The Hans India](#)

Cellulose nanofibres from bagasse can help in controlled release of pesticides

CSIR-NCL



National Chemical Lab scientists have found a solution in the form of controlled release formulation systems to curb overuse of pesticides in farming.

Scientists at Pune-based National Chemical Laboratory (NCL) of Council of Scientific and Industrial Research (CSIR) have developed an environment-friendly controlled release formulation system for applying agrochemicals in agricultural fields. The system has been developed by blending sugarcane bagasse with gelatinized maize starch and urea formaldehyde to form nanocomposite granules. As a model system, the researchers have encapsulated Dimethyl phthalate (DMP), an insect repellent and ecto-parasiticide, within the granules. Over the years, overuse of pesticides is posing a

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major hazard to human health and environment. In recent times, a solution has been found in the form of controlled release formulation systems. Such systems help prolong the release of the pesticide over a desired time period and help to reach the target sites in a focused manner. This enhances crop yield and reduces environmental pollution. Various natural polymers like starch, gelatin, natural rubber, and synthetic polymers such as polyurea, polyurethane, poly vinyl alcohol, and epoxy resins are employed to prepare these systems. The growing problem of micro-plastic pollution has made it necessary to focus more on producing controlled release systems based on biodegradable microcapsules from sustainable feed stocks. The new system developed by the scientists of Polymer Science and Engineering Division at NCL is a move in that direction. Explaining the mechanism of the system, research team leader, Kadhiravan Shanmuganathan, said that when the

granules were applied in the field, the starch in them absorbs water, swells and releases the pesticide at a controlled rate. Addition of cellulose nanofibres from bagasse enhanced the efficiency of the system. When starch alone is used, the initial rate of DMP release was high. It subsequently slows down and reaches a plateau after about half the DMP is released. “The system with cellulose nanofibers, on the other hand, releases DMP slowly in the beginning and releases 90% of DMP, as more water is absorbed due to its hydrophilic nature. Cellulose nanofibres also control the pore size of starch granules and hence DMP release,” Shanmuganathan, told India Science Wire. As the release rate of the active agent depends on the level of water absorption, different type of controlled release formulation systems can be developed depending on the type of soil, irrigation pattern and moisture content of the soil.

Besides Shanmuganathan, the research team included Mayur Patil, Vishal Patil, Aditya Sapre, Tushar S. Ambone, Arun Torris AT and Parshuram Shukla. The study has been published in journal ACS Sustainable Chemistry and Engineering.

Parashuram Shukla, a pioneer in the field of micro-encapsulation, and a former senior principal scientist involved in this research, noted, "NCL has developed a broad range of CRFs over a period of three decades. They have been evaluated at different institutes like Tamil Nadu Agricultural University (TNAU), Coimbatore, Nimbkar Agricultural Research Institute, Phaltan, Agricultural Rice Station, Karjat and Agricultural Research Station, Jaipur”.

Asked about the future plan, Shanmuganathan said the division wanted to extend the research to make use of controlled release formulations for control of weeds in sugarcane crops and has submitted a proposal in this regard to the Department of Science and Technology's Nano Mission.

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CSIR-NIO

15th November, 2018

SCOR-InterRidge Workshop inaugurated

Panaji, Nov 15 (UNI) Dr Ehrlich Desa, Former Director CSIR-NIO, Director, Intergovernmental Oceanographic Commission (IOC), UNESCO, and distinguished scientist at CSIR, on Thursday said that Inter-Ridge program plays an important role in promoting interdisciplinary, international studies by creating global research community, coordinating new science programs and sharing new technologies and facilities.

Addressing the gathering at the inaugural programme of SCOR-InterRidge workshop on "Mid-Ocean Ridges and Other Geological Features of the Indian Ocean" after inauguration of a workshop, jointly organised and coordinated by CSIR-National Institute of Oceanography, Dona Paula, and ESSO-National Centre for Polar and Ocean Research, Vasco-da-Gama, Goa, Dr Desa also highlighted the important aspects of ridge research and research at sea to be- technologies, resources and outreach.

He emphasized that the need of the right technologies would lean towards widening the collaboration for the desired research and also reduce the cost.

He concluded by saying reaching out to the next generation and inculcating a sense of complexities of the seas would attract talent and catalyse curiosity in the young minds and create awareness and concern, which would contribute towards the earth system.

Earlier, during the programme, Professor Sunil Kumar Singh, Director CSIR-NIO, welcomed the gathering by giving emphasis to the importance of the Mid Ocean Ridges in seafloor spreading, plate tectonic, controlling chemistry of the ocean as a rich source of elements and micro nutrients impacting biogeochemistry of the oceans.

Dr M Ravichandran, Director ESSO-NCPOR, provided an overview about the two day workshop which would focus on the geological, mid-ocean ridges.

The Role of SCOR in the Indian Ocean Research was stressed upon by Professor Colin Devey, Member SCOR, and later Dr Jerome Dymont, InterRidge Chair, accentuated the role of Inter-Ridge in mid-oceanic ridge research. Towards the end of the inaugural programme Dr Yatheesh, Senior Scientist, CSIR-NIO, and convener of the workshop proposed the vote of thanks.

Scientists from China, Russia, France, Republic of Korea, Indonesia, Canada, Mauritius, United Kingdom and India, over 130 participants are partaking in the workshop.

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Children's Day celebrated with Enthusiasm in Jorhat

CSIR-NESIT



JORHAT: Along with the rest of the country, in the district of Jorhat too the birth anniversary of Pandit Nehru was celebrated with great pomp and gaiety in all educational institutes and schools. Earlier in the morning, students from various schools paid floral tributes on the portrait of Pandit Jawaharlal Nehru, which was followed by various competitions held at Gandhi Park where juveniles from Observation Home also took part. In most of the schools like Don Bosco Higher Secondary School, Baghchung,

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Carmel School, HHMI, Kendriya Vidyalaya CSIR-NEIST, Army Public School, Assam Rifles Nodal School, Balya Bhawan and Junaki Sangha, Children's Day was celebrated with much enthusiasm. SIVASAGAR: "Children are like buds in a garden and should be carefully and lovingly nurtured as they are the future of the nation and the citizens of tomorrow." These were the words of the first Prime Minister of India, Pt. Jawaharlal Nehru, whose birthday on November 14 is celebrated as Children's Day to commemorate his love for children and his faith that proper education of children could lead to the country's progress. To mark this significant day, the Purna Vikash Central School, Demow Pathar, Joysagar, Sivasagar, in association with Sai Vikash celebrated the day here at Natya Mandir with a day-long programme. The event began with lighting of lamp by the chief guest, Superintendent of Police of Sivasagar, Subodh Sonowal and

distinguished guests like noted social worker Saurav Chaliha, Principal of the school, Nitu Rajkumari, founders of the school. The school management also felicitated the chief guest and distinguished guests on the occasion. The cultural extravaganza began with a prayer dance by Abhishek Barat. The distinguished guests in their respective speeches addressed the students, broadening their horizon about the significance of this day and the role of children in nation building.

DEMOW: Children's Day was celebrated in the schools of Demow with a day-long programme on Wednesday. The programme started with lighting the ceremonial lamp in front of the portrait of Pandit Jawaharlal Nehru in the schools. The teachers of the schools spoke about Pandit Jawaharlal Nehru and encouraged the students to follow his footsteps. On the other hand, the Sonapur Social Development Society (NGO), an NGO, with supported by Mac Magic Mumbai, Demow Circle Office, Demow Municipality and Sivasagar District Child and Adolescent Cell, celebrated Children's Day in Demow Public Hall with a day-long programme on Wednesday. The programme started with half-marathon run and after that the cultural programme competitions were held. Prizes were later given away to the winners.

HOWRAGHAT: The birth anniversary of the country's first Prime Minister, Pandit Jawaharlal Nehru was observed across Karbi Anglong district. Children's Day was observed in educational institutions and Integrated Child Development Services (ICDS) projects by holding various competitions. Students, teachers, ICDS workers, officials and children offered floral before the portrait of Pandit Jawaharlal Nehru in their respective schools and ICDS projects.

A wonderful programme was organized on the occasion at Langsomepi ICDS project under the initiative of Subhana Devi, Child Development Project Officer (CDPO), and active support of staff of the said project. Before offering floral tribute on the portrait of Pandit Jawaharlal Nehru, Subhana Devi highlighted the contribution of Nehru to the country.

TANGLA: Along with the rest of the nation, the birth anniversary of Pandit Jawarharlal Nehru was celebrated as Children's Day in various schools of Tangla town. Tangla Adarsha Vidyapeeth also celebrated the day with a day-long programme in a unique manner on Wednesday. A school magazine titled Buddridum was released by Nursery student Jyotishman Kashyap and his friends. An interactive session was also held which was presided over by Bhanita Boro, a student of the academy. The programme earlier started with floral tributes paid to the portrait of Pandit Jawarharlal Nehru by the students and teachers. The programme was made vibrant with speeches by the students on the life and works of Chacha Nehru and lively with performance of the students.

DOOMDOOMA: Children's Day was celebrated at Learners High School, Rupaisiding on Wednesday to commemorate the birth anniversary of the first Prime Minister of India, Pandit Jawaharlal Nehru. The programme got underway with lighting of lamp in front of the portrait of Jawaharlal Nehru by Director of the institution, Verghese Panjikoran. Thereafter, the students presented various songs and dances items that befitted the occasion. Teacher Paban Sarma also presented a song.

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Indian Researchers Redesign Anti-Cancer Drug to Increase its Efficiency

CSIR-NCL

13th November, 2018



Dr Dheeman Sarkar and Dr S. Chakrabarty working in the lab

Cancer drugs are generally toxic and result in serious side effects in patients. A group of Indian researchers have now redesigned one such drug to get new chemicals which themselves may be potential anti-cancer and anti-bacterial drugs. The group has synthesized several new compounds from Sunitinib, a drug used for treating kidney cancers. At least one of them promises to be more effective than Sunitinib itself. Although potent like other anti-cancer drugs Sunitinib causes serious side effects. Globally chemists are working to tweak its structure to improve its potency while trying to reduce toxic effects. The chemical structure of Sunitinib has three parts - an indole-2 ring, a

pyrrole structure and an N-diethylaminoethyl-substituted-carboxamide group. “The first two form the main body while the third forms the active limb of the compound. While other groups have been trying to modify the drug at the diethylaminoethyl substituted carboxamide end, we looked at the indole-2 ring,” explained Sangeeta V. Jagtap, a member of the research team, while speaking to India Science Wire. “We replaced the indole-2-ring with different chemical structures such as acids, amides and esters and carboxamide group with esters and carboxylic groups,” Dr Jagtap added. “The compounds where the carboxamide group was replaced with esters showed significant anti-cancer activity”. In all, 21 compounds, seven each containing one of the three chemical groups, have been synthesized. “We then determined their structure and verified them using nuclear magnetic resonance techniques,” she added. The team then tested the compounds on different types of human cancer cells – prostate, breast,

cervical and monocyte. In addition, the new compounds have been tested on four types of bacteria - Staphylococcus aureus, Bacillus subtilis, Escherichia coli and Pseudomonas aeruginosa. The tests revealed that seven of the newly synthesized compounds were active against both cancer cells and bacteria. They were further tweaked to see if the effect can be improved. One of the compounds, code named 9g, seemed to be the most effective against both cancer cells and bacterial agents “Other compounds too showed potential anti-proliferation and antibacterial activity. Further structural optimization of these compounds may offer new anticancer drug“, researchers said. Asked about future plans, Sangeeta said: “The compounds are effective on cultured cells. However, they need to be further tested on animal models and humans before they are used as drugs. It might take another three to five years to all the tests.” Dr Dheeman Sarkar, CSIR-National Chemical Laboratory, who evaluated the biological activity of the new chemical agrees. “ We need to improve 9g against the intracellular target. This is doable. As Sunitinib data is available, it will be faster to develop the molecule as drug.” He said.



(L to R): Dr Sangeeta Jagtap, Rahul Sonawane and Nishant Rasal

The research team included Dr Sangeeta Jagtap, Nishant Rasul and Rahul Sonawane (Baburaoji Gholap College, Pune); Amit S. Choudhari (Biocon Limited, Bengaluru) and Shakti S. Chakraborty and Dhiman D. Sarkar (CSIR-National Chemical Laboratory, Pune). The findings have been published in journal Chemistry Select. The research was partly funded by Scientific and Engineering Research Board as a Post doctoral fellowship

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प्राचीन काल से ही पृथ्वी पर रही है विज्ञान की भूमिका

पत्रिका न्यूज़ नेटवर्क

rajasthanpatrika.com

पिलानी. पृथ्वी पर प्राचीन काल से ही विज्ञान की भूमिका किसी न किसी रूप में उपस्थित रही है। समय एवं परिस्थितियों के अनुसार इस के स्वरूप में परिवर्तन होता रहा है। यह कहना वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद (सीएसआइआर) महानिदेशक एवं भारत सरकार के सचिव डा. शेखर सी माण्डे का । डा. माण्डे रविवार को पिलानी स्थित केन्द्रीय इलेक्ट्रॉनिक अभियांत्रिकी अनुसंधान संस्थान (सीरी) में वैज्ञानिक समुदाय को संबोधित कर रहे थे।

डा. माण्डे ने कहा कि आजादी से पूर्व में सीएसआइआर से जो अपेक्षाएं थी। उनमें आज बदलाव

आया है। उन्होंने देश के वैज्ञानिकों द्वारा समय समय पर किए गए वैज्ञानिक अनुसंधानों को रेखांकित करते हुए इनके बल पर विश्व में भारत की बढ़ती साख पर खुशी जताई। उन्होंने युवा वैज्ञानिकों से मानव अपेक्षाओं के अनुरूप नवीन अनुसंधान कर समाज को नई दिशा देने की अपील की।

इससे पहले सीरी संस्थान निदेशक प्रो. शांतनु चौधरी ने स्वागत भाषण करते हुए कार्यक्रम के आयोजन पर प्रकाश डाला तथा सीरी संस्थान में संचालित शोध परियोजनाओं के बारे में विस्तार से जानकारी दी। इस मौके डा. माण्डे द्वारा कौशिका विज्ञान डीएनए फिंगर प्रिंटिंग तथा जैव विज्ञान के क्षेत्र में दिए गये

योगदान से जुड़ी जानकारी भी दी। वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद (सीएसआइआर) का कार्य भार ग्रहण करने के बाद औपचारिक दौर पर आए सीएसआइआर निदेशक डा. शेखर सी माण्डे ने संस्थान की प्रयोगशालाओं का निरीक्षण करते हुए दिशा निर्देश दिए। महानिदेशक डा. माण्डे ने शोध साइबर फिजिकल सिस्टम्स, स्मार्टसेंसर्स एवं माइक्रोवेव डिवाइसेज सहित प्रयोगशालाओं से जुड़ी जानकारी लेते हुए बेहतर इस्तेमाल कर देश के विकास में योगदान करने के लिए प्रेरित किया। कार्यक्रम में संस्थान के वरिष्ठ वैज्ञानिक डा. राजसिंह, डा. एस अली अकबर सहित संस्थान से जुड़े वैज्ञानिकों ने भाग लिया।

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CSIR-IHBT

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पालमपुर में सजी कार्यशाला

■ कार्यालय संवाददाता, पालमपुर

राष्ट्रीय उद्यमशीलता पुरस्कार के तीसरे संस्करण के लिए हिमाचल प्रदेश राज्य से नामांकन के लिए सीएसआईआर-आईएचबीटी संस्थान पालमपुर में एक कार्यशाला आयोजित की गई। कार्यशाला राष्ट्रीय नवप्रवर्तन प्रतिष्ठान द्वारा आयोजित की गई, जिसमें क्षेत्र के उद्यमियों ने भाग लिया। राष्ट्रीय नव प्रवर्तन प्रतिष्ठान भारत सरकार के विज्ञान एवं प्रौद्योगिकी विभाग की एक स्वायत्तशासी संस्था है। कार्यशाला का उद्देश्य प्रदेश राज्य को राष्ट्रीय उद्यमशीलता पुरस्कार में सक्रिय रूप से भाग लेने के लिए प्रोत्साहित करना। राष्ट्रीय नवप्रवर्तन प्रतिष्ठान के प्रबंधक तुषार गर्ग ने बताया कि राष्ट्रीय उद्यमशीलता पुरस्कार एनईए 2018 के तीसरे संस्करण के लिए नामांकन 17 अक्टूबर से 16 नवंबर

तक खुला है। कौशल विकास और उद्यमशीलता मंत्रालय एमएसडीई द्वारा युवाओं में उद्यमशीलता संस्कृति प्रोत्साहित करने के लिए एक महत्वपूर्ण कदम के तौर पर प्रथम पीढ़ी के उत्कृष्ट युवा उद्यमियों तथा उनके पारिस्थितिकी तंत्र निर्माताओं को उद्यमशीलता विकास के क्षेत्र में उनके उत्कृष्ट योगदान को मान्यता देने और सम्मानित करने के लिए राष्ट्रीय उद्यमशीलता पुरस्कार का आयोजन किया है। राष्ट्रीय उद्यमशीलता पुरस्कार 2018 के लिए कुल 43 पुरस्कार प्रदान किए जाने पर विचार किया गया है। विजेताओं को एक ट्रॉफी, प्रमाण पत्र और पांच लाख रुपए उद्यमों और व्यक्तियों को तथा दस लाख रुपए संगठनों संस्थानों की नकद धनराशि से दिसंबर 2018 माह के अंत में आयोजित किए जाने वाले समारोह में पुरस्कृत किया जाएगा।

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Divya Himanchal

Students of RVS Academy visit NML

CSIR-NML



Jamshedpur : A group of 34 students of Std.XII from RVS Academy, Dimna accompanied by three teachers, Harmeet Kaur, Anjan Kumar, Om Parkash Mahato visited CSIR-National Metallurgical Laboratory, Jamshedpur and interacted with scientists and research scholars this morning under the aegis of Gigyasa programme, recently launched in collaboration with Council of Scientific & Industrial Research and Ministry of Human Resource & Development, Govt. of India. The basic aim of this programme is to inculcate scientific passion and temperament among school student to pursue carrier in science.

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The students were thrilled to visit the laboratory and interact with working group. The programme was schedule for three hours, which comprises, brief-up about programme, NML & CSIR documentary film show and laboratory visit. P.N. Mishra, Principal Scientist, delivered welcome address and briefed about the programme and team member. Dr S.K. Mandal, Chief Scientist & Head KRIT discussed an overview of NML. The scientific activities of different division. He requests students to create passion towards science and pursue carrier for future development of society in particular and Nation in general. Dr Anjani Kumar Sahu, Senior Technical Officer at last given a vote of thanks. Futher, a laboratory visit programmeme was followed and few selective units visited to acquaint students and teachers to minutely observed R&D environment. Miss Soni Jha has nicely explained the role and activities of Analytical Chemistry Centre. The students were very much eager to know about

different instrument and asked its role for the application in the gainful utilization of natural resources through chemical analysis. Dr. Ashok Kumar Mohanty, Senior Scientist has explained the product developed by NML for the protection of metals made up of brass, copper and silver and different alloys. He also explained the reason for the discolour of metals after long exposure in the environment.

Rekha Panda, SRF has nicely explained with sample on the recycling of waste such as printed circuit boards, mobile phone, batteries, tube light and recycled products. Students asked different question and solved out at the same time.

Puja Dandapat of Std.XII expressed that, she has first time knew about different process involved in the extraction of metals. MsPriti Chatterjee also pointed out the similar view and observed the advancement of science and technology in India.

KashfaTanzil, Std.XII expressed that she has gain first-hand knowledge about CSIR & NML and their role for the development of country. Ms Rich Kamari expressed that she has gain knowledge about natural resources and will enhance her stock of knowledge for future use.

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