

# CSIR in Media



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## India may become the first country to roll-out TB treatment

CSIR-IMTECH

16<sup>th</sup> August 2017

India could potentially become the first country to roll-out a treatment for tuberculosis (TB), for the rest of the world. According to a first of its kind agreement signed on Wednesday, Council of Scientific and Industrial Research (CSIR) and US-based drug company Johnson & Johnson will work together to accelerate discovery and approval of innovative new treatments for tuberculosis.

Under the memorandum of understanding, scientists from Johnson & Johnson will work closely with researchers from CSIR's Chandigarh-based arm, IMTECH, on a research and development programme to explore potentially more effective, safer, all-oral treatment regimens to tackle

multidrug-resistant TB (MDR-TB), as well as new molecular entities to treat all TB patients.

"We are united with India in our determination to make TB history," said Paul Stoffels, chief scientific officer, Johnson & Johnson, who joined Harsh Vardhan, minister for science and technology, at an event in New Delhi, to announce the partnership. "While we have made great advances in recent years with the approval of new TB medicines much more needs to be done. By bringing together some of India's brightest minds with our scientists, we increase the potential to achieve major research breakthroughs that can lead to innovative new treatments for the millions of people in India and around the world who suffer from TB."



The new research programme will capitalize on CSIR-IMTECH's world-class expertise in microbial technology and research and the proven research and development capabilities of Johnson & Johnson's pharma company Janssen to strengthen the collective potential of both entities, says a company statement.

"TB remains a significant challenge in India, killing approximately half a million-people in 2015 alone," said Anil Koul director, CSIR-IMTECH. "The partnership we have announced today with Johnson & Johnson has the potential to accelerate our work in support of the India's National Strategic Plan, our accelerated action plan to end TB by 2025, and most importantly save lives."

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[TOI](#)

[The Telegraph](#) [Economic Times](#) Hindustan Page 18, Business Standard Page2



## Gujarat aided CETP to help Tirupur textile units become eco friendly

CSIR-CSMCRI

16<sup>th</sup> August 2017

Scientists of Gujarat-based Central Salt and Marine Chemicals Research Institute (CSIR-CSMCRI) have helped textile processing units of Tirupur, India's textile valley set up the State's first common effluent treatment plant (CETP) in Chinnakarai making Tirupur textile dyeing units environmentally sustainable and achieve zero liquid discharge.

CETP will separate sodium chloride and sodium sulphate from solid residue. Over the years, the solid residue from the textile units has piled up to the extent of 6,000 tons and is going to landfills posing a major environmental hazard.

The Tirupur textile dyeing units and surrounding districts have been facing heat for polluting the environment and the Madras High Court in 2011 ordered closure of all units which violated pollution norms and asked the units to achieve zero liquid discharge.

The region has over 600 textile processing industries and several common effluent treatment plants (CETP) are operating to manage the waste water discharged from these industries.

Amitava Das, the director, CSMCRI, said that waste water (effluent) generated from textile processing contains sodium chloride and sodium sulphate as a major contaminant.



After primary and secondary treatment, the high TDS (total dissolved solid) effluent is processed for recovering and recycling the water back to the industries and the associated solid residue was used for land filling.

The Dyers Association of Tirupur (DAT) approached CSMCRI and they developed the process for separation of sodium chloride and sodium sulphate in useable purity based on differential solubility behaviour and demonstrated the process successfully in the laboratory as well as in pilot plant.

Subsequently, a commercial scale project for separation and recovery of sodium chloride and sodium sulphate from textile processing effluents based on CSMCRI technology know-how has been set up.

Since both of these salts are already needed for textile processing, albeit in pure form, the thought was originated by Chinnakarai CETP in association with Tamil Nadu Water Investment Company Limited (TWICL) to separate and reuse the same.

The plant is in pre-commissioning stage with the Upgradation process completed will be operational in a week's time.

Since 2000, textile units are partly meeting their requirement of sodium sulphate by recovering the same through adiabatic crystallization system, implemented by M/s Chemprocess Systems P. Ltd, (CPSPL).

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[Yarns and Fibres](#)



## Now, DNA sensor for quick pathogen detection

CSIR-IGIB

12<sup>th</sup> August 2017

### **This beats conventional methods**

An ultrasensitive DNA sensor that can detect *S. pyogenes*, a bacterium which causes a wide range of diseases in about 30 minutes has been developed. The DNA chip is highly specific device for *S. pyogenes*. The conventional method of identification takes 18-24 hours and the basic culture test does not specifically help distinguish *S. pyogenes*.

### **Early detection**

From mild skin and throat infections to life-threatening toxic shock syndrome, *S. pyogenes* infections affect 700 million people every year.

If not treated during early stages of the infection, *S. pyogenes* can even lead to rheumatic heart disease (heart valves damage).

The sensor was developed by scientists from CSIR-Institute of Genomics and Integrative Biology (CSIR-IGIB) and National Centre for Disease Control (NCDC) Delhi, and the results were published in the International Journal of Biological Macromolecules.

The DNA chip based sensor consists of a carbon electrode embedded with gold nanoparticles. By means of a bioinformatics study, the researchers were able to design probes which are specific for *S. pyogenes*.



The working electrode surface of the device is attached with several small-sized, single-stranded DNA probe specific to the pathogen. When patients' DNA, isolated from throat swabs, are placed on the surface, they bind to the complementary single-stranded DNA on the device and an electrochemical change is seen. This is measured using a differential pulse voltammetry.

### Identification of pathogen

For confirmation, traditional culture test was used and the results matched with the DNA sensor. "The sensor is highly sensitive and could detect even 60-65 bacteria in a 6 microlitre sample. It could identify the pathogen even at very low concentrations of DNA. We were able to get a peak with a concentration of even 0.001nanogram per 6 microlitre," explains Swati Singh from IGIB and the first author of the paper.

### Stable sensor

The sensor was found to be stable for 12 months with only 10% loss in initial current peak on storage at 4 degree C. "We are working on construction of different biosensors for different pathogens. Early and quick diagnosis can help in preventing the diseases and seek medical treatment at the early stage of infection," adds Dr. Ashok Kumar, Chief Scientist/Professor (AcSIR) at IGIB and corresponding author of the paper.

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### **Published in:**

[The Hindu](#)



## Organic farming, the seductive way

CSIR-IICT

12<sup>th</sup> August 2017

Pheromone traps help lower usage of chemical pesticides

Additionally, they have also greatly lowered costs.

Sexual attraction in the insect-world is helping scientists preach and propagate organic farming in the State.

“Sex pheromone excreted by a female, attracts the male pests. We synthesise these pheromones in the lab and place them in traps in fields,” said B.V. Subba Reddy, a scientist who is leading the effort at IICT.

The ongoing pheromone development programme at the city-based Indian Institute of Chemical Technology (IICT) has seen a group of the institute’s scientists synthesise chemicals to mimic effects of sex pheromones, chemicals released by insects to attract members of opposite gender.

According to Dr. Reddy, the synthesised pheromones are loaded in small silicone capsules, about a centimetre long.

These chemicals, synthesised to attract male members of several crop-damaging pest species, are now helping many farmers cultivate crops without chemical pesticides.

Adult male insects, in their reproductive phase of their life cycle, detect the pheromone and enter the trap, expecting to find female mates.

The insects are eventually killed after being trapped.



“Killing the adult male prevents proliferation of the pests. The eggs that surviving female pests lay in the absence of males are infertile. Eventually, the pest population dies,” he added.

Users of the technology say that pheromone traps help lower usage of chemical pesticides and reduce farming cost by more than 50%.

“The cost of conventional chemical pesticide for a crop like brinjal or chilly is ₹8,000 per acre per month. It costs less than ₹1000 to use pheromone traps,” said Vinod Tandra, secretary of the Eklavaya Foundation, which is working with IICT to get farmers to adapt the technology.

Besides the cost benefit, pheromone traps help lower load of hazardous chemicals on the crop, the ground water and eventually in the food cycle.

IICT is helping farmers in Telangana and other States keep away the notorious Pink bollworm from cotton, the Yellow stem borer from rice and other borers that destroy vegetable crop. This year, the State Government wants the research institute to help cotton farmers in Adilabad, greatly troubled by the Pink bollworm.

“Further research is under way to make bio-degradable or environment-friendly material to load the synthesised pheromone, instead of silicone. Research efforts are also being made to develop pheromones that attract females,” said B. Nagendra Babu, another IICT scientist.



Farmers also express the need for pheromones to control female pests, as they lay several eggs.

Their control can exponentially reduce pest population.

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## Dual use agrochemicals need to be handled carefully

CSIR-IICT

11<sup>th</sup> August 2017

An action plan to curb misuse of agrochemicals is a must as Indian farmers are either over using or misusing them said C Parthasarathi, Principal Secretary, Agriculture, Telangana State.

Though the Government comes out with several resolutions and Acts, its often found wanting in enforcing them, he said at a one day Indo-US workshop on security of dual use agrochemicals.

The objective of the series of three workshops planned in the country is to improve the security of vulnerable locations in the supply chain of agrochemicals.

Parthasarathi urged scientists and researchers involved to work

seriously in helping phase out hazardous chemicals and come out with new harmless chemicals in his address.

An important point that emerged during the discussions was that lack of knowledge of application, inefficient training and constant supervision could lead to misuse of these chemicals. It could lead to internal and external threats which are capable of significant destruction and damage.

The Director, CSIR-IICT, S Chandrasekhar, who was the chief guest at the first workshop here said though advances in science have improved the efficiency of agrochemicals the prospect of them falling into wrong hands leading to creation of explosives was real.



Agrochemicals in India are highly regulated through the insecticide Act (1968) and Insecticide rules (1971). The dual use agrochemicals in the world (signatories of Chemical Weapons Convention (CWC) including India) are governed by the regulations of the Organization for the Prohibition of Chemical Weapons (OPCW) at The Hague, The Netherlands.

The participants for the three workshops will be drawn from agrochemicals industries, the regulating and security agencies, academic and research institutions and the government agencies and industry organizations concerned with the chemical security. The US Department of State's Chemical Security Program, Washington-DC, Pacific Northwest National Laboratory (PNNL), The Oregon State University, all from USA, along with CSIR-Indian Institute of Chemical Technology (CSIR-IICT), Gujarat Forensic Science University (GFSU), Gandhinagar, Gujarat University, Ahmedabad and Institute of Pesticide Formulation Technology, Gurugram, have taken a joint initiative to organize three workshops.

The Indo-US presentations on the technical and regulatory aspects will be covered in six sessions at each workshop. The focus will be on the dual use agrochemicals - the security concerns, history of attacks, their safety and security at production, storage, transport and supply chain, cyber security, evaluating and improving their security, regulatory aspects, working with law enforcing agencies and the finally 'the way forward'.

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[Hindu Business Line](#)



## Take a deep breath of Nagpur's safe air, but don't shout

CSIR-NEERI

15<sup>th</sup> August 2017

The city has much to celebrate as its air quality has been found to be safe. However, celebrations should not be noisy, because the noise levels are alarmingly high across the city, even in silence zones.

These are the conclusions of the city's Environmental Status Report (ESR) for 2016-17. Nagpur Municipal Corporation (NMC) had commissioned CSIR-National Environmental Engineering Research Institute (Neeri) to file the report, which will be submitted to the state government in a couple of days.

Neeri carried out ambient air quality monitoring in May at nine locations — Shankar Nagar, Mankapur, Amravati Road, Dighori and Neeri premises (residential),

Itwari and Automotive Square (commercial), and Hingna and Bhandewadi (industrial). Monitoring was done on four major parameters — particulate matter (PM<sub>10</sub> & PM<sub>2.5</sub>), sulphur dioxide (SO<sub>2</sub>), oxides of nitrogen (NO<sub>x</sub>), and carbon monoxide (CO).

All parameters in nine locations were found below the National Ambient Air Quality Standards (NAAQS). Among the nine locations, Shankar Nagar's parameters were higher than even Hingna MIDC. "Concentration of PM<sub>10</sub> varied from 37.4 to 87.3 microgram per cubic meter (g/m<sup>3</sup>). PM<sub>2.5</sub> concentrations varied from 24.9 to 58.2g/m<sup>3</sup>. Lowest concentrations of PM<sub>10</sub> and PM<sub>2.5</sub> were found at Amravati Road while they were maximum at Shankar Nagar.



High concentration of particulate matter at Shankar Nagar was observed, which may be due to high volume of traffic, airborne dust due to construction activities — roads and metro rail. Maximum concentration of PM<sub>10</sub> was found to be 121.4g/m<sup>3</sup> at Hingna MIDC in 2015, but it was 79g/m<sup>3</sup> in May," the report said.

Gaseous pollutants — SO<sub>2</sub> and NO<sub>2</sub> were also maximum at Shankar Nagar while lowest at Neeri. CO was found to be maximum at Mankapur and lowest at Neeri.

Neeri said the city does not have severe air pollution problem but the trend is increasing due to rise in number of motor vehicles. Industrial areas within city limit showed high level of air pollutants as compared to residential and commercial areas. The results point to climatic modification phenomenon, known as 'Heat Island Effect', where air temperature in densely built urban areas are higher than the surrounding rural country.

Similarly, monitoring of noise levels was done in 15 locations — silence zone (1), industrial (1), commercial (2), residential (4), and seven locations along roadways, railways, and airways, during day and night time. Government Medical College and Hospital (GMCH) was selected among silence zones for monitoring. Noise level during daytime was 59.6 dB(A) as against limit of 50 dB(A) during daytime, and 48.6 dB (A) as against limit of 40 dB(A) during night time.

Noise levels in residential areas — Shivaji Nagar, Mahajanpura and Manewada — were above limits while they were below limit at Neeri during daytime. Levels were above limits at all residential areas during night.

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[TOI](#)



CSIR

13<sup>th</sup> August 2017

## माननीयों ने विज्ञान प्रदर्शनी में दिखाई दिलचस्पी

■ नई दिल्ली (एसएनबी/एजेंसी)

संसद भवन परिसर में शुरू हुई विज्ञान प्रदर्शनी का मानसून संसद सत्र स्थगित होने के साथ ही समापन हो गया। यहां रखे गए उत्पादों में माननीय सांसदों और संसदीय स्टाफ ने काफी दिलचस्पी दिखाई। प्रदर्शनी का आयोजन वैज्ञानिक और औद्योगिक अनुसंधान परिषद (सीएसआईआर) के तत्वावधान में किया गया था। इसके आयोजन का मकसद देश में हो रही खोजों से सांसदों को अवगत कराना था। हालांकि इसमें उद्योग-जगत के लोगों को भी आमंत्रित किया गया था ताकि वे यहां प्रदर्शित उत्पादों को बाजार में उतारने में मदद कर सकें।

प्रदर्शनी के जरिए सांसदों को देश में हुए नए आविष्कारों, खोजों व तकनीकों से रूबरू कराया गया। इन खोजों से आम आदमी के जीवन को और सुगम बनाने में मदद मिलेगी। पूर्व उपराष्ट्रपति हामिद अंसारी के हाथों शुरू हुई इस प्रदर्शनी में सभी वैज्ञानिक विभागों के शोध और आविष्कार प्रदर्शित किए गए। इसके अलावा प्रदर्शनी में मिलावटी दूध की जांच की मशीन क्षीर

संसद भवन परिसर में विज्ञान प्रदर्शनी में सीएसआईआर द्वारा ईजाद की गई मधुमेह रोधी दवा बीजीआर-34 का अवलोकन करते जदयू के वरिष्ठ नेता शरद यादव।

स्कैनर प्रदर्शित की गई। बिना बिजली के पानी साफ करने वाला वॉटर प्यूरीफायर टेराफिल, इसरो के उपग्रह, जैव प्रौद्योगिकी विभाग द्वारा विकसित दवाएं और टीके, परमाणु ऊर्जा विभाग के संस्थानों द्वारा विकसित की गई तकनीकें इस प्रदर्शनी का हिस्सा रही।

सीएसआईआर अनेक संस्थानों की अधिकतर खोजें जनता के बीच पहुंचने के बजाए फाइलों में बंद होकर रह जाती हैं। लेकिन अब सरकार करोड़ों रुपए खर्च कर ईजाद की गई खोजों को जनता तक पहुंचा रही है। इसी का परिणाम है कि बीजीआर-34 को बाजार में उतारा गया है।

### मुख्य आकर्षण रही बीजीआर

लोकसभा अध्यक्ष सुमित्रा महाजन, केंद्रीय विज्ञान एवं प्रौद्योगिकी मंत्री हर्षवर्धन समेत अनेक सांसदों ने यहां दिखाए गए उत्पादों के बारे में जानकारी ली। प्रदर्शनी का मुख्य आकर्षण सीएसआईआर द्वारा विकसित मधुमेह (शुगर) रोधी दवा बीजीआर-34 रही। भरोसेमंद सूचना के अनुसार देश में हर आठवां आदमी मधुमेह (डायबिटीज) से प्रभावित है। अनेक सांसद भी इससे प्रभावित हैं।

इसलिए जनप्रतिनिधियों का भी इसके प्रति जागरूक रहना जरूरी है। सीएसआईआर ने कई वर्षों के अनुसंधान के बाद मधुमेह रोधी दवा बीजीआर-34 को ईजाद किया था जिसे एमिल फार्मा ने जनता के बीच उत्पाद के रूप में पहुंचाया है।

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Rashtriya Sahara Page 9



CSIR-CBRI

12<sup>th</sup> August 2017

## प्लेटिनम जुबली विज्ञान मेला आज से

रुड़की(ब्यूरो)। सीएसआईआर प्लेटिनम जयंती के समारोह के रूप में सीएसआईआर दिल्ली की ओर से देशभर में प्रदर्शनियों का आयोजन किया जा रहा है। इसके तहत रुड़की सीबीआरआई में भी तीन दिनी प्रदर्शनी लगाई जाएगी। इसका उद्घाटन बृहस्पतिवार की सुबह नौ बजे होगा। इसमें रुड़की और आसपास के क्षेत्रों से स्कूल और कॉलेजों के छात्र-छात्राएं प्रतिभाग करेंगे। सीबीआरआई के वरिष्ठ प्रधान वैज्ञानिक डॉ. अतुल अग्रवाल ने बताया कि मेले और प्रदर्शनी का उद्देश्य लोगों को विशेषकर विद्यार्थियों को सीएसआईआर की ओर से विकसित विभिन्न नवोन्मेषों और प्रौद्योगिकीय से परिचित कराना है।

### Published in:

Amar Ujala Page 5, Dainik Jagran Page 4, Hindustan Page 6, Uttaranchal Deep Page 5, Rashtriya Sahara Page 4



Also Published in:

10<sup>th</sup> August

Amar Ujala Page 4, Dainik Jagra Page 4, Hindustan Page 7, Uttaranchal Deep Page 5, Rashtriya Sahara Page 7

11<sup>th</sup> August:

Amar Ujala Page 4, Dainik Jagran Page 4, Hindustan Page 6, Uttaranchal Deep Page 4, Rashtriya Sahara Page 6



## World Biofuel Day Celebrated at IIP

CSIR-IIP

11<sup>th</sup> August 2017

**By OUR STAFF REPORTER**

**DEHRADUN, 10 Aug:** World Biofuel Day was celebrated at the CSIR-Indian Institute of Petroleum, here. The programme aims at creating a secure, sustainable and environment-friendly economy. The theme chosen at the CSIR-IIP for this year was 'Education and Action Today for Safe Future'.

The celebrations started with the arrival of Chief Guest Prof KP Singh, Vice-Chancellor, Haryana Agricultural University, Vice-Chancellor, Haryana State University of Horticulture (Additional Charge) and Ex-Director, Uttarakhand Council of Bio-technology (UCB).

The Acting Director, Amar Kumar Jain, initiated the proceedings with a word on the importance of the World Bio-fuel Day. He informed the audience that Research & Development was going on how to use vegetable oil as a transport fuel by converting it to bio-diesel. It was the fuel-versus-food debate that led to the conversion of bio-mass and waste plastics to fuel. Jain also referred to the various programmes held on the use of bio-fuel during the preceding years.

The Chief Guest was introduced by Dr SS Ray, Chief Scientist.

Prof KP Singh said, "For about a hundred years we have been ruled by



science but for the next fifty years, life sciences will rule the world." He talked about the discovery of the double helix structure of DNA by Francis Crick and James D Watson using X-ray diffraction and the mathematics of a helix transform. "We have been using fuel buried for many geological ages. Therefore, there is a need to switch over to alternative sources and bio-fuel is one such source," he added.

He called upon all scientists to translate the laboratory research to ground level and to find linkages between agriculture and bio-fuel, especially in the diverse climatic conditions of India. Professor Singh also talked about the National Green Tribunal and its

commendable role. He warned that, in the future, energy crisis was a certainty, yet we cannot use food-based materials for fuel as they are already scarce. He said that algae was a great source of methane and that CSIR-IIP should collaborate with agricultural universities in order to increase the income of our farmers.

This was followed by two short lectures on bio-fuels by Dr Anil Sinha, Senior Scientist, Mohit Anand, Scientist, and Saleem Akhtar Farooqui, Scientist (jointly) who chose the topic 'Bio-fuel for Aviation' and Dr Neeraj Atray, Sr. Scientist, who spoke on 'Bio-diesel as an Alternative Fuel.'

The programme, compered by Dr Neeraj Atray, concluded with a vote of thanks by the Controller of Administration, Jaswant Rai. Later in the day, some BTech students from the University of Petroleum & Energy Studies, The Graphic Era University, as also the students of the Kendriya Vidyalaya, CSIR-IIP from the 11th & 12th standards were taken for a visit to the Bio-technology Laboratory, the Thermo-catalysis Laboratory, the Chemical Conversion Area and the Bio-jet Laboratory and were shown demonstration runs as well as various posters on the subject.

Published in:

Garhwal Post



CSIR-IIP

11<sup>th</sup> August 2017

# ऊर्जा के वैकल्पिक स्रोतों पर जोर

**आईआईपी**

देहरादून | कार्यालय संवाददाता

वैज्ञानिकों का मानना है कि भूगर्भ में दबे ईंधन के अत्याधिक दोहन के बाद ऊर्जा के वैकल्पिक स्रोतों की ओर बढ़ने का यही समय है। जरूरी है कि प्रयोगशाला में चल रहे प्रयोगों को अब जमीन पर भी उतारा जाए।

सीएसआईआर-भारतीय पेट्रोलियम संस्थान (आईआईपी) में विश्व जैव-ईंधन दिवस समारोह के मुख्य अतिथि हरियाणा कृषि विश्वविद्यालय के कुलपति प्रो. केपी सिंह ने कहा कि आने वाले 50 सालों में जैविक विज्ञान की भूमिका अहम होगी। वैकल्पिक स्रोतों से

**क्यों मनाते हैं जैव ईंधन दिवस**

1873 में इसी दिन डीजल इंजन के आविष्कारक सर रुडोल्फ डीजल ने मूंगफली के तेल के साथ यांत्रिक इंजन को सफलतापूर्वक पहली बार चलाया था। इस प्रयोग से यह साफ हो गया था कि अगली सदी तक वनस्पति तेल जीवाश्म ईंधन की जगह लेकर अलग-अलग यांत्रिक इंजनों को ऊर्जा देगा।

ईंधन की निर्भरता पूरी करने के लिए प्रयोगशाला के अनुसंधानों को मूर्त रूप देना होगा। भविष्य में ऊर्जा की कमी होगी पर इसके लिए खाद्य-आधारित सामग्री से ईंधन नहीं लिया जा सकता। क्योंकि उसकी पहले से ही कमी है। कार्यकारी निदेशक अमर कुमार जैन ने बताया कि वनस्पति तेल को परिवहन ईंधन के रूप में उपयोग पर प्रयोग चल रहे हैं। ईंधन-बनाम-खाद्य पदार्थों वाले विवाद ने ही जैव-मात्रा और अपशिष्ट प्लास्टिक ईंधन में रूपांतरण को दिशा दी है। जैव ईंधन

पर वरिष्ठ वैज्ञानिक डा. अनिल सिन्हा, मोहित आनंद, सलीम अख्तर फारुखी, डा. नीरज आत्रेय ने व्याख्यान दिए। मौके पर प्रशासन नियंत्रक जसवंत राय, मुख्य वैज्ञानिक डा. एसएस रे मौजूद थे।

वहीं पेट्रोलियम विश्वविद्यालय, ग्राफिक एरा विवि व केवी आईआईपी के छात्रों को आईआईपी की प्रयोगशालाओं का भ्रमण कराया गया। आईआईपी के तकनीकी निदेशालय के अध्यक्ष डीसी पांडे ने बताया कि जैव ईंधन दिवस देश के 100 शहरों में एक साथ मनाया गया।

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## NTTF students get exposure of Research Environment

CSIR-NML

15<sup>th</sup> August 2017



A group of 42 Diploma course students of the Nettur Technical Training Foundation (NTTF), Burmamines accompanied by teachers; Sarmistha Das and Deepak Singh visited CSIR-National Metallurgical

Laboratory, Jamshedpur and interacted with scientists and research scholars this morning under the aegis of CSIR-NML-School Interactive programme. The students were thrilled to visit the laboratory and interact with working group.

The programme was scheduled for two and half hours, Dr.PN Mishra, Principal Scientist, started the programme with welcome address and introduced students with the members of SNIP programme and further discussed about CSIR-NML R&D activities and programme.

Dr. SK Mandal, Chief Scientist and coordinator of the programme discussed about fundamentals of science and its various branches to inculcate interest towards science among students and advised them to pursue science as career for further study. The vote of thanks was extended by Dr. AK Sahu, Senior Technical Officer.



After brief up, a laboratory visit programme was organized under the leadership of Dr. PN Mishra, SN Hembram and Dr. AK Sahu, where all the students were divided into three separate groups and each of the respective leaders had made arrangements to interact with scientists and research scholars.

The students expressed their desire, feeling, asked numbers of question, and clarified their doubts with working scientists. Students visited creep testing units of MST Division and came to know about fatigue, creep, fractures prevailing in different types of industrial components. They had gather exposure of various kinds of machines like Servo Hydro Testing Machine, Servo Electrical Machine and furnace.

Geopolymer section of Waste Management Unit is also covered in this visit. They further visited Mechanical Testing Unit and came to know about forging, shaping, rolling & wire Drawing Machine, Trolley furnace chamber operated at 12000C. NML Workshop units are the centre of attraction among students. They discussed in detail about function and operation of different machines.

Students were surprised to observe the 66-year history of CSIR-NML at museum and asked various questions based on samples and posters pertaining to minerals based product and facilities. Teachers and students have requested for their next visit to the laboratory for gaining deeper knowledge.

Teachers expressed their exciting views and were completely satisfied to know about the consistent effort and research emphasis in various sectors for the ultimate development of make India.

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CSIR-NML

12<sup>th</sup> August 2017

## टीएसटीआइ के छात्रों ने किया एनएमएल का भ्रमण



**जमशेदपुर.** बर्मामाइंस स्थित एनटीटीएफ टाटा स्टील टेक्निकल इंस्टीट्यूट (टीएसटीआइ) के 42 छात्र-छात्राओं के दल ने शुक्रवार को सीएसआइआर-एनएमएल का भ्रमण किया।

एनएमएल के वैज्ञानिकों व पदाधिकारियों ने छात्र-छात्राओं को सीएसआइआर-एनएमएल के इतिहास, शोध कार्य, प्रयोगशाला आदि की विस्तृत जानकारी दी। आरंभ में प्रिंसिपल साइंटिस्ट डॉ पीएन मिश्र ने छात्र-छात्राओं का स्वागत करते हुए एसएनआईपी के सदस्यों से उनका परिचय कराया।

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