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Nasa Shows interest in India-made tech for spacecraft

CSIR 30th January, 2018

A new thermal spray coating technology used for gas turbine engine in spacecrafts developed by a Rajasthan-based researcher has caught the attention of a NASA scientist, an official said.

Expressing his interest in the research, James L Smialek, a scientist from NASA wrote to Dr Satish Tailor after it was published in the journal Ceramics International and Thermal Spray Bulletin, said SC Modi, the chairman of a Jodhpur-based Metallizing Equipment Company (MEC).

While working at MEC as a chief scientist, Research and Development, (R&D), Dr Tailor developed the controlled segmented Yttria Stabilised Zirconia (YSZ)-Plasma sprayed coating technology, which according to him could reduce the thermal spray coating cost by almost 50 per cent."In simple language, vertical cracks (segmentation) in the coating are beneficial for gas turbine engine application used in spacecrafts," Dr Tailor said.

"At present, researchers are developing such cracks through very expensive processes (in several crore) and cracks are generated during the coating deposition process, and crack generation is not controllable," he told PTI.He said he has shared his research papers with the NASA scientist who had written him an email regarding this.

Scientists working at the country's leading research organisations - the Council of Scientific and Industrial Research (CSIR) and Defence Research Development Organisation (DRDO)- are equally impressed with the new technology.

Dr RM Mohanty, the chief scientist at the CSIR headquarters in New Delhi, said that indeed the outcome of the reported R&D presents an inexpensive solution for superior survival of current YSZ thermal barrier coatings produced by atmospheric plasma sprayed (APS) technique, and has a potential of wider industrial/strategic acceptability.

Mohanty said this novel APS linked process has an advantage over current, costly techniques.

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CSIR-CIMAP

30th January, 2018

31 जनवरी को देशभर के किसानों का जमावड़ा

सीमैप

लखनऊ | हिन्दुस्तान संवाद

केंद्रीय औषधीय एवं सुगंध पौधा संस्थान (सीमैप) की ओर से 31 जनवरी को एक दिवसीय किसान मेले का आयोजन किया जा रहा है। संस्थान परिसर में आयोजित होने वाले इस मेले में उद्घाटन केंद्रीय राज्यमंत्री सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय गिरिराज सिंह करेंगे। यह जानकारी सीमैप के निदेशक प्रोफेसर अनिल कुमार त्रिपाठी ने रविवार को पत्रकार वार्ता में दी।

प्रो. त्रिपाठी ने बताया कि मेले में कृषि मंत्री सूर्य प्रताप शाही बतौर विशिष्ट अतिथि मौजूद रहेंगे। मेले के दौरान वैज्ञानिक, कृषक व उद्यमी परस्पर संवाद कर सकेंगे। इसके अलावा प्रदर्शनी के माध्यम से उन्नत पौध सामग्री, प्रकाशन, हर्बल उत्पादों, गुलाब जल, अगरबत्ती बनाने, मृदा परीक्षण, ग्रामीण विकास सम्बन्धी विभिन्न तकनीकों की जानकारी दी जायेगी। प्रो. त्रिपाठी ने बताया कि सीएसआईआर की 18 प्रयोगशालाओं के भी स्टाल लगाये जा रहे हैं। जिनके माध्यम से लोग विकसित जनोपयोगी प्रौद्योगिकियों और उपलब्ध सेवाओं के बारे में जान सकेंगे। मेले में उत्तर प्रदेश, बिहार, पंजाब, हरियाणा, मध्यप्रदेश , गुजरात, राजस्थान, झारखण्ड, तमिलनाडु, विदर्भ समेत अनेक प्रदेशों के करीब सात हजार किसानों के भाग लेने की संभावना है। सीमैप की पिछली उपलब्धियों पर विस्तार से चर्चा करते हुए श्री त्रिपाठी ने बताया कि मेले मे पिछले वर्ष शुरू की गई एरोमा मिशन से लाभान्वित किसान अपनी प्रगति के बारे में बताएंगे। पत्रकार वार्ता में प्रो आलोक कालरा व डॉ संजय कुमार ने मेले के बारे में जानकारी दी।

मेंथा की खेती से होगा 20 गुना फायदा : किसानों के लिए मेंथा की उन्नति किस्म की जड़े तैयार की है। इस किस्म से दूसरी किस्मों के मुकाबले ज्यादा मेंथाल का उत्पादन होता है। मेंथा की खेती करने पर किसान को उसकी लागत का 20 गुना फायदा होगा। सीमैप के निदेशक प्रो. अनिल कुमार त्रिपाठी ने बताया कि मेंथा की खेती में बेहतर लाभ की संभावना को देखते हुए किसानों को 700 कुंतल मेंथा की उन्नत किस्म की जड़ें वितरित करने का लक्ष्य तय किया गया है। जिसमे से 500 कुंतल सीमैप के किसान मेले में और 200 कुंतल पंतनगर कृषि विवि में आयोजित होने वाले किसान मेले में वितरित की जाएगी। इससे करीब 15 करोड़ की आय होगी।

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CSIR-IHBT

29th January, 2018

उपलब्धि हिमाचल के पालमपुर स्थित सीएसआईआर-आईएचबीटी ने तैयार किया क्रिसपी फ्रूट और सब्जियां

फल-सब्जियां होंगी कुरकुरी, स्नैक्स की तरह ले सकेंगे स्वाद

पालमपुर। मुकेश मेहरा

आमतौर पर बच्चे जिन सब्जियों और फलों को देखकर मुंह चिढ़ाते हैं, अब मजेदार और स्वादिष्ट हो जाएंगे। ये अब स्नैक्स यानी क्रिस्पी (कुरकुरी) रूप में आएंगे और इनमें न्यूट्रीशन की भरपूर मात्रा होगी। जी हां, फलों और सब्जियों को क्रिस्पी करने की यह तकनीक हिमाचल प्रदेश के पालमपुर स्थित सीएसआइआर-आइएचबीटी (काउंसिल ऑफ साइंटिफिक एंड इंडस्ट्रियल रिसर्च-इंस्टीट्यूट ऑफ हिमालयन बायोरिसोर्स टेक्नोलॉजी) ने ईजाद की है।

इस तकनीक में सब्जियों और फलों से पानी निकालकर उन्हें डिहाइड्रेट (सूखा) कर दिया जाता है। संस्थान की ओर से तैयार की गई इस तकनीक से इन क्रिस्पी फलों और सब्जियों को तीन से चार माह तक आसानी से रखा जा सकता है और इसका लाभ सब्जी और बागवानी से जुड़े लोगों को भी होगा। एक अनुमान के अनुसार, लगभग 25 फीसद फसल भंडारण या आवागमन में ही खराब हो जाती है। ऐसे में इस तकनीक के जरिये फलों से पानी निकालकर इन्हें ड्राइ किया जा सकता है। इस तकनीक से फलों व सब्जियों के रंग, स्वाद और सुगंध भी जस की तस रहती है।

सीएसआईआर-आईएचबीटी द्वारा तैयार किए गए क्रिसपी रूट और सब्जियां।

सबके लिए बेहतर खाना क्रिस्पी फ्रूट टेक्नोलॉजी से तैयार इन स्नैक्स को बच्चे शौक से खा सकते हैं, क्योंकि ये बाजार में मिलने वाले स्नैक्स की तरह होते हैं। न्यूट्रीशन की भरपूर मात्रा होने से जहां बच्चों और बड़ों को इन क्रिस्पी फलों और सब्जियों से वो स्वाद मिलेगा जो वे चाहते हैं। ऐसे में मां-बाप को भी बच्चों को फल व सब्जियां खिलाने के लिए पीछे नहीं भागना पड़ेगा। पहले फलों व सब्जियों को डिहाइड्रेट किया जाता है और इनमें कोई भी रसायन नहीं मिलाया जाता। क्रिस्पी होने पर यह बाजार में मिलने वाले स्नैक्स की तरह कुरकुरी हो जाती हैं। स्वाद अनुसार मीठा या नमक डालकर इन्हें खाया जा सकता है।

तकनीक पर कितना आएगा खर्च

क्रिस्पी फ्रूट टेक्नोलॉजी की मशीनरी लगाने का खर्च फलों और सब्जियों की मात्रा पर निर्भर करता है। यह 200 किलो से अधिक या कम भी हो सकती है। आमतौर पर पूरी मशीनरी को बड़े प्रोजेक्ट के रूप में लगाने पर 35 लाख से दो करोड़ रुपए तक खर्च आ सकता है।

> संस्थान ने फलों व सब्जियों को स्नैक्स की तरह बनाने के लिए क्रिस्पी फ्रूट टेक्नोलॉजी विकसित की है। इसमें फलों व सब्जियों को डिहाइड्रेट कर क्रिस्पी बनाया जाता है। इनका स्वाद, रंग व पौष्टिकता जस की तस रहती है। यह तकनीक बागवानी व सब्जी उद्योग को होने वाले नुकसान से बचा सकती है।'
>
> **-डॉ. संजय कुमार**, निदेशक
> सीएसआईआर-आइएचबीटी पालमपुर

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CSIR

29th January, 2018

स्टार्टअप्स को मिलेगी एक करोड़ रुपये की मदद

जागरण ब्यूरो, नई दिल्ली : विज्ञान और तकनीक क्षेत्र से जुड़ी प्रतिभाओं को प्रोत्साहित करने में जुटी सरकार ने ऐसे सभी स्टार्टअप्स को अब शुरुआती तौर पर ही एक करोड़ की मदद देने की पेशकश की है। हालांकि इसके लिए उन्हें पहले अपनी तकनीक का प्रदर्शन करना होगा। इसमें खरा उतरने के बाद ही उन्हें यह मदद दी जाएगी। उन्हें तुरंत बाद 10 लाख की मदद तुरंत दी जाएगी। बाकी राशि के लिए स्टार्टअप्स की पूरी योजना देनी होगी।

अधिकारियों के मुताबिक विज्ञान और तकनीक क्षेत्र के स्टार्टअप्स को सीधे तौर पर आर्थिक मदद देकर प्रोत्साहित करने की अपनी तरह की यह पहली योजना है। इसके अलावा इस क्षेत्र में और स्टार्टअप पैदा करने के लिए भी कई योजनाओं पर काम चल रहा है। इनमें से हाल ही में स्कूल-कालेजों से निकलने वाले छात्रों को स्टार्टअप्स बनाने की एक योजना शुरू की गई है। इसके तहत अगले पांच

प्रोत्साहन

- विज्ञान एवं प्रौद्योगिकी मंत्रालय ने बढ़ावा देने को उठाए बड़े कदम
- स्टार्टअप की तकनीक खरी उतरी तो तुरंत मिलेंगे दस लाख रुपये

सालों में देश भर में इंक्यूबेटर्स की संख्या 200 करने का लक्ष्य रखा गया है। मौजूदा समय में देश में 140 इंक्यूबेटर संचालित है। जहां विज्ञान और तकनीक में रुचि रखने वाला कोई भी अपने सपने को साकार कर सकता है। मौजूदा समय में दुनिया में सबसे ज्यादा 2400 इंक्यूबेटर चीन में हैं, दूसरे नंबर पर अमेरिका है, जहां इसकी संख्या करीब 1500 है। गौरतलब है कि स्टार्टअप्स की तकनीक को आंकने की जबावदेही मंत्रालय से जुड़ी संस्था वैज्ञानिक एवं औद्योगिक अनुसंधान परिषद (सीएसआईआर) को दी गई है जो सरकारी फंड पर चलने वाले दुनिया के 1200 संस्थानों में नौवें स्थान पर है।

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Dainik Jagran, Page no. 1

What is SARAS?

CSIR-NAL

28th January, 2018

The SARA aircraft is capable of executing both day and night missions. It can be used for transporting civilians, freight, and in remote sensing exercises. It can take off and land from semi-prepared airfields and even on grass runways.

The SARAS PT1N prototype completed its first test flight on January 24, 2018. The indigenous multi-role aircraft is developed by National Aeronautics Laboratories and can perform both civilian and military operations. (Photo: NAL)

The SARAS is an indigenous aircraft developed by the National Aeronautics Laboratories (NAL), which is overseen by the Council of Scientific & Industrial Research (CSIR). The upgraded 14-seater SARAS PT1N completed its test flight earlier in January, nearly 11 years after it had crashed during previous tests. The crash had led to the scrapping of its development program before it was revived. The new 14-seater, 7-tonne class multi-role transport aircraft was commanded by Indian Air Force Aircraft and Systems Testing Establishment's (ASTE) Wing Commander UP Singh, Group Captain RV Panicker and Group Captain KP Bhat during the January test flight. A team of 40 scientists and engineers worked for nine months to develop the aircraft. The aircraft will soon be certified for both civil and military use. The plane is capable of executing both day and night missions. It can be used for transporting civilians, freight, and in remote sensing exercises. It can take off and land from semi-prepared airfields and even on grass runways. The aircraft was designed to operate and manoeuvre at high altitudes and under extreme temperatures. The aircraft has been designed to travel at 425 km/h and it has a maximum continuous flight time of around five hours. The Indian Air Force has expressed interest in acquiring at least 15 aircraft, while CSIR-NAL is pushing for at least 50.

The project kicked off in 1991 and the first prototype was introduced in 2004. After years of development, the second SARAS prototype crashed outside Bengaluru in 2009. The project was canned till the Directorate General of Civil Aviation completed its investigation. Despite the allegations of defects in design, the probe absolved the design team.

The PT1N has received upgrades from the previous version. The revised version of the plane is equipped with a more modern avionics system, improved radar, linear wing flap actuator, environment control, engine flap actuators, better flight control system, a larger metallic rudder for enhanced control, redesigned landing-gear actuators, a brand-new brake system, and a fire resistant design for the aircraft's nacelle.

In its first high-speed taxi trial earlier this month, the aircraft was the in air for about 40 minutes and reached an altitude of 8,500 ft and touched 269 km/h. The aircraft will undergo evaluation in over 20 flights till the production design is frozen.

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CSIR-CIMAP

28th January, 2018

सीमैप व अवध विश्वविद्यालय मिलकर करेंगे शोध

जासं, लखनऊ : सीमैप और डॉ. राम मनोहर लोहिया अवध विश्वविद्यालय के बीच एमओयू साइन किया गया है। एमओयू पर सीमैप के निदेशक प्रो. अनिल कुमार त्रिपाठी और अवध विश्वविद्यालय के कुलपति प्रो. मनोज दीक्षित ने हस्ताक्षर किए। इसके तहत दोनों संस्थान साझा रिसर्च करेंगे। दोनों संस्थान आपस में सुविधाओं व विशेषज्ञता को आपस में साझा करेंगे।

इससे न सिर्फ शोध एवं शैक्षिक गुणवत्ता सुनिश्चित की जा सकेगी बल्कि वैज्ञानिक, शिक्षक एवं शोध छात्रों को एक-दूसरे के वहां कार्य करने का अवसर मिलेगा। इसके अतिरिक्त इन संस्थानों द्वारा प्रशिक्षण कार्यक्रम, पीएचडी प्रोग्राम तथा अन्य विषय विशेष प्रशिक्षण कार्यक्रमों में वैज्ञानिक व शिक्षक एवं शोध छात्र प्रतिभाग कर सकेंगे। वहीं सीमैप तथा विश्वविद्यालय के वैज्ञानिक व शिक्षक एक दूसरे के शोध छात्रों को अपने निर्देशन में शोध भी करवा सकेंगे।

एमओयू का आदान-प्रदान करते प्रो. अनिल त्रिपाठी और मनोज दीक्षित

दोनों संस्थान राष्ट्रीय तथा अंतर्राष्ट्रीय स्तर की परियोजनाओं के लिए संयुक्त आवेदन कर सकेंगे। सीमैप व अवध विश्वविद्यालय समयबद्ध एवं वैज्ञानिक सहयोग से सरयू नदी के तटों पर खस तथा अन्य सगंध पौधे की खेती तथा उनका प्रसंस्करण एरोमा मिशन के अंतर्गत करेगा। वहीं विश्वविद्यालय में हर्बल गार्डन की स्थापना में सहयोग करेगा। डॉ. राम मनोहर लोहिया अवध विश्वविद्यालय के कुलपति प्रो. मनोज दीक्षित ने उम्मीद जताई कि औषधीय व सगंध पौधे की उन्नत प्रजातियों से किसानों की आमदनी में बढ़ोतरी होगी और इस माडल क्लस्टर से फैजाबाद के किसानों को पारंपरिक खेती का विकल्प भी मिलेगा।

सीमैप में किसान मेला 31 को

जासं, लखनऊ : केंद्रीय औषधीय एवं सगंध पौधा संस्थान (सीमैप) परिसर में 31 जनवरी को किसान मेला लगेगा। इसमें बतौर मुख्य अतिथि केंद्रीय राज्य मंत्री (स्वतंत्र प्रभार) सूक्ष्म, लघु मध्यम एवं उद्यम मंत्रालय की गिरिराज सिंह मौजूद रहेंगे। सीमैप के निदेशक प्रो. अनिल कुमार त्रिपाठी ने बताया कि किसान मेले के बारे में मुख्य वैज्ञानिक डॉ. आलोक सभी को रूबरू कराएंगे। कार्यक्रम की अध्यक्षता सीएसआइआर के महा निदेशक डॉ. गिरीश साहनी करेंगे। इसके बाद मुख्य अतिथि गिरिराज सिंह और विशिष्ट अतिथि प्रदेश के कृषि मंत्री सूर्य प्रताप शाही का संबोधन होगा। दोपहर 1.15 बजे से सीमैप के विकिज प्रेक्षागृह में गोष्ठी होगी। इसमें उद्योग प्रतिनिधियों व किसानों को खेती व व्यवसाय के तरीके तथा विधियों के प्रयोग के बारे में बताया जाएगा।

Published in:
Dainik Jagran

Scientists in Telangana develop pheromone raps to kill pests in agricultural fields

CSIR-IICT 27th January, 2018

VISAKHAPATNAM: AT a time when recurrent pest attacks on crops and harmful effect of indiscriminate use chemical pesticides is giving the farmers and scientists the jitters, the scientists at the CSIR- Indian Institute of Chemical Technology (IICT), Hyderabad, have come up with an eco-friendly way of keeping the pest infestation at bay.

They have developed a pheromone trap which can kill insects in the fields itself, restricting their multiplication without application of any toxic chemical.

Pheromone is a biochemical the pests release to attract the opposite sex for mating. This device uses pheromones to attract a particular pest which gets trapped and killed in the process. Having implemented the technology successfully in Nalgonda, Adilabad, Gujarat and in some parts of Guntur and Srikakulam districts, the CSIR is now trying to spread it across Andhra Pradesh, by imparting to farmers.

“The traps are small cone-shaped plastic bags containing pheromones and are placed at the corners of the crop fields. As insects communicate through smell, they get attracted only to get trapped in the bags. Once trapped, they can’t go out of the bag and get killed,” S Chandra Sekhar, director of CSIR- IICT says.

“This biological control method helps farmers avoid the use of chemical insecticides which are harmful to crops, soil health and environment at large,” he explains He added that already, the method has been successfully implemented in around 25,000 hectares in Nalgonda, Adilabad and Gujarat.

Four traps can be used for an acre of farmland. However, he says that the traps are effective when the pest numbers are low.

“Approximately, 3 to 5mg of pheromone is used per trap which remains effective for about a month. As one trap costs `30, farmer can ensure effective pet control by spending around `1,000 per season,” says IICT, Semiochemicals head Subba Reddy.

Published in:
The New Indian Express

CSIR-NGRI

27th January, 2018

National Geophysical Research Institute: Study to assess property lost due to earthquakes

By Ajay Moses | Express News Service | Published: 27th January 2018 02:44 AM |
Last Updated: 27th January 2018 08:33 AM | A+ A A- |

HYDERABAD: In an attempt to measure the extent of loss that can be caused by earthquakes and subsequent building collapse, scientists are quantifying data to ascertain the probable property loss due to shaking of the ground. Scientists at the National Geophysical Research Institute (NGRI) are conducting a study to bring out a risk map to know the vulnerability of buildings prone to earthquakes at seismically active zones in India.

According to United Nations Office for Disaster Risk Reduction (UNISDR) report on 'the human cost of weather-related disasters' between 1995-2015, 92 per cent of economic damage caused due to geophysical disaster in the entire world is shared by India and China. The economic damage at the two nations was estimated to be 709 billion dollars while the damage estimated in the entire world was 763 billion dollars.

"Risk maps for critical areas where amplification of earthquakes are high is being prepared," said Dr D Sri Nagesh, head of Seismology Observatory in NGRI, adding that Dehradun, Lucknow, and Indo-Gangetic plains are currently being studied. More than 2,000 buildings with different typologies and construction methodologies are being examined in each place, he informed.

Commissioned by the Centre for Scientific and Industrial Research (CSIR), a Fast Track Translationary Project (FTTP) to assess the micro-seismic hazard of the region and ground motion response spectrum is being prepared. "Assessing vulnerability will allow for retrofitting to be done. It will aid constructors to have a different construction methodology in areas where there is more scope for an earthquake," observed Nagesh. The observations have been submitted to the Bureau of Indian Standards (BIS), that categorises earthquake vulnerability in India, he added.

Published in:
The New Indian Express

CSIR-NML

26th January, 2018

Curtains come down on CMTA 2018 at NML

Jamshedpur, Jan. 25 : The valedictory function of the four-day interactive programme on 'Coal for Metallurgical and Thermal Applications: An Appraisal of its Characterization & Utility (CMTA 2018)', organised by CSIR-National Metallurgical Laboratory (NML) concluded today at the Lecture Hall of CSIR-NML Jamshedpur.

While addressing the gathering, D. Bandyopadhaya, chief scientist and head of MER Division, CSIR-NML iterated that all the programmes at CSIR-NML are for the benefit of the society and this programme is the beginning in this direction. He expressed thanks to faculty members and participants from different industries. He expressed deliberations during four days programme will help to shape the future programme and utility of coal in a better way. The opinion expressed by the delegates would be incorporate in the future research programme.

Prof. Rajender Gupta from University of Alberta, Canada, and the Chief Guest of the valedictory function addressed the delegates. Prof. Gupta distributed the Training certificates to 50 participants from Tata Steel Jamshedpur; ECL, Asansol; ISM, Dhanbad; BCCL, Dhanbad; Inspectorate Griffith; CCL, Ranchi; D.B. Power Ltd, Raigarh; CMPDI, Ranchi; JNU, New Delhi; TATA STEEL, Usha Martin, Jamshedpur; NIT, Jamshedpur; CCO, Kolkata and ISP, Bumpur. Prof. Gupta stressed on the need for development, consortium to address the problems faced by the user industries and generate qualified manpower.

Dr. IndraniChattoraj, Director, CSIR-NML, Jamshedpur, expressed hope that similar programme would be conducted to bring research organisation and user industries in one platform.

The feedback and interactive session was conducted by Dr. Sanchita Chakravarty, Senior Principal Scientist & Group Leader, CSIR-NML and Convener, CMTA-2018.

The delegates from ISP Burnpur, COO Kolkata, CMPDI Ranchi shared their views during valedictory session that such interactive programme was very useful for coal sampling preparation and helped them in upgrading their knowledge.

Prof Chaffee from University of Monash showed his interest to collaborate with NML in near future.

Dr. D. Bandyopadhaya proposed the vote of thanks. He expressed his appreciation to all the members of the organising committee for their untiring effort in making the seminar a success. He also expressed his sincere thanks to Dr. Sanchita Chakravarty, Convener of the programme, Dr. J. Konar, Dr. A.K. Upadhyay, Manjit Singh, Dr. A.K. Sahu, J.N. Patel and Rupa Das Biswas for their continuous support.

Published in:
The Avenue Mail

Plant this tree and tap solar power!

CSIR-CMERI

26th January, 2018

'It can be set up in 4 sft area and can withstand winds of up to 200 kmph'

The Solar Power Tree offers a way out of the space or land constraint faced in setting up panels for generation of clean, alternative energy. The tree has been manufactured by a city-based start-up using patented technology of CSIR-Central Mechanical Engineering Research Institute. The Solar Power Tree is on display at AU's Dr. Y.V.S. Murthy Auditorium, where an exhibition of technologies from various CSIR laboratories is under way as part of the CSIR's 'Be an Entrepreneur of Science and Technology' programme. Union Minister Y. Sujana Chowdary launched it on Thursday. "The 3 kWh Solar Power Tree is sufficient to meet the needs of a middle class family, without depending on grid power," says National Research Development Corporation CMD H. Purushottam. "It can be set up in a very small space of 4 sft and can withstand winds of up to 200 kmph," says M. Chandrabose, proprietor of the start-up, Surya Power Tree. Even the space under it can be used for greenery. "It has been a few months since we obtained the patent and came out with the tree. We have licence to manufacture and market it," he says. "The 3 kWh tree can be scaled up to 12 kWh to meet the power needs of the agriculture or commercial enterprises," Mr. Bose told *The Hindu*. "There will be a multi-fold decrease in the land required for big solar plants," he pointed out. "Alternatively, 1 kWh tree also can be manufactured to suit the residential needs," he says. It will cost around ₹85,000.

Comparing the cost of power and how it would benefit commercial enterprises, Mr. Bose said, while the distribution companies charge ₹9 per unit, solar power could be produced at ₹3.5 per unit.

“After meeting their needs, any excess power can be exported to the grid, which also helps in earning revenue,” he said.

Published in:
The Hindu

CSIR-IHBT

25th January, 2018

मशीनीकरण से चाय बागानों को उभारा जा सकता है:डा. सूद

पालमपुर(कांगड़ा)। सीएसआईआर हिमालय जैव संपदा प्रौद्योगिकी संस्थान पालमपुर में एक चाय प्रशिक्षण कार्यक्रम आयोजित किया गया। इसके लिए किसानों को उजड़े चाय बागानों का विकास, चाय बागानों के मशीनीकरण एवं औषधीय और सगंध पौधों की खेती पर जागरूक किया गया।

प्रशिक्षण समन्वयक डॉ. आरके सूद वरिष्ठ प्रधान वैज्ञानिक ने कहा कि चाय उन फसलों में से एक है जो न केवल जलवायु परिवर्तन, बंदरों और जंगली जानवरों के प्रकोप तथा मौसम की मार के नुकसान से बचाती है, बल्कि अच्छा लाभ भी देती है, लेकिन अच्छा लाभ तभी मिलेगा, जब बागों का प्रबंध और चाय की गुणवत्ता उच्च स्तर की होगी। बागानों में श्रमिकों की कमी और अधिक लागत की समस्या का समाधान केवल मशीनीकरण से ही संभव है। उन्होंने यह भी बताया कि चाय उत्पादक अपनी आमदनी बढ़ाने के लिए अपने खाली पड़ी जमीन में सुगंध फसलें जैसे जंगली गेंदा, सगंध गुलाब, मुशकवाला जैसी फसलें उगा कर अपना मुनाफा दोगना कर सकते हैं। संस्थान के चाय अनुसंधान फार्म में करीब 25 लघु और सीमांत चाय बागान मालिकों को उजाड़ पड़े बागानों का प्रबंधन और चाय फार्म का मशीनीकरण विषय पर प्रशिक्षण दिया। चाय उत्पादकों को सुगंध फसलों के बारे में भी जानकारी दी। इस समय प्रदेश में करीब 12 हजार हेक्टेयर चाय बागान उजाड़ पड़े हैे। इस प्रशिक्षण में बैजनाथ, सुलह, राजपुर टांडा, बंड बिहार, चढ़ियार, चौंतड़ा, जोगेंद्रनगर क्षेत्रों के किसानों ने भाग लिया।

Published in:
Amar Ujala

CSIR-IMTECH

25th January, 2018

Foundation Day celebrations at IMTECH

CHANDIGARH: The Institute of Microbial Technology (IMTECH) celebrated its 34th Foundation Day on Wednesday. Professor at Kalinga Institute of Industrial Tecnhology, Achyuta Samanta, delivered a lecture on 'Social Innovation and Sustainable Society". He laid emphasis on importance of quality education to eradicate poverty from India. Speaking on the occasion, IMTECH director Anil Koul said the growth of business driven research here has brought national and international recognition to its scientists.

Published in:
Hindustan Times

CSIR-CSMCRI

24th January, 2018

જિજ્ઞાસા યોજના છાત્રને રૂચિ વધારવા માટે આશિર્વાદરૂપ

■ ભાવનગર CSIR દ્વારા જામનગર કેન્દ્રીય વિદ્યાલય ખાતે જિજ્ઞાસા અંતર્ગત કાર્યક્રમ યોજાયો

ભાવનગર, તા.૨૩

જિજ્ઞાસા એ એવી યોજના છે જે વિદ્યાર્થીને રોજિંદા જીવનનું વિજ્ઞાન અને વિજ્ઞાન પ્રત્યેની રૂચિ વધારવામાં મદદરૂપ થાય છે. તાજેતરમાં ભાવનગર ખાતે આવેલી સી.એસ.આઈ.આર.-દિલ્હી અને કેન્દ્રીય વિદ્યાલયના સંગઠન દ્વારા જામનગર શહેરમાં જિજ્ઞાસા પ્રોગ્રામનું આયોજન કરવામાં આવ્યુ હતું. જામનગરમાં ૪ કેન્દ્રીય વિદ્યાલયના ૮૦ થી વધારે વિદ્યાર્થીઓએ આ કાર્યક્રમમાં ભાગ લીધો હતો. સી.એસ.આઈ.આર.-સી.એસ. એમ.સી.આર.આઈ.માં ફરજ બજાવતા વૈજ્ઞાનિક ડો.જોઈ મિત્રા અને ડો. અનિલકુમારએ કેન્દ્રીય વિદ્યાલયની મુલાકાત લીધી હતી અને વિદ્યાર્થીઓ સાથે વિવિધ વિષયો પર ચર્ચા કરી હતી.

ડો.જોઈ મિત્રાએ ભૌતિક વિજ્ઞાન અને રસાયણ વિજ્ઞાન જેવા વિષયો પર વિદ્યાર્થિઓને જાગૃત કર્યા હતા અને રોમાંચક રીતે પ્રશ્નોના જવાબ આપ્યા હતા. તેમણે વિદ્યાર્થીઓને સમજાવ્યુ હતુ કે આગિયા કેમ ચમકે છે ?, ફેસબુકનો રંગ કેમ બ્લુ છે ?, રંગોનું આપણા જીવનમાં શું મહત્વ છે ?, કેમોલુમીનેસ સેન્સ શુ છે ?, કાચિંડો રંગ કેમ બદલે છે ? વગેરે અંગે જાણકારી આપી હતી.

એક મહિલાને વૈજ્ઞાનિક બનવામાં કેવા પડકારનો સામનો કરવો પડે છે એવા પ્રશ્નો વિદ્યાર્થિનીઓએ પૂછ્યા હતા. આ અંગે જોઈ મિત્રાએ કહ્યું કે, વિજ્ઞાન એ ખાલી જીવ વિજ્ઞાન, ભૌતિક વિજ્ઞાન, રસાયણ વિજ્ઞાન નથી. વિજ્ઞાન એ વિવિધ વિદ્યાશાખાઓને જોડતો વિષય છે. ડો. અનિલકુમારે સમજાવ્યું હતુ કે આપણે પ્રગતિ કરવી જોઈએ પણ પર્યાવરણને નુકસાન કરીને નહીં. જે વિદ્યાર્થી અન્ય વિષય જેવા કે ઈજનેર, ભૌતિક વિજ્ઞાન, રસાયણ વિજ્ઞાન, જીવ વિજ્ઞાન, ગણિત, કલા, સમાજશાસ્ત્ર, અર્થતંત્ર સાથે સંકળાયેલા છે, એ બધા જ પર્યાવરણની સાથે જોડાયેલા છે. અગાઉ સુરત શહેરમાં પણ આ પ્રોગ્રામનું આયોજન થયુ હતું.

Published in:

Sandesh, Page no. 7

CSIR-NML

23rd January, 2018

एनएमएल में थर्मल एप्लीकेशंस में कोयले के प्रयोग पर इंटरेक्टिव प्रोग्राम का शुभारंभ

भारत 67 साल से कोयला आधारित तकनीक का विकास करने के लिए प्रयासरत : डॉ चट्टोराज

सिटी रिपोर्टर • जमशेदपुर

एनएमएल जमशेदपुर में सोमवार को चार दिनी इंटरेक्टिव प्रोग्राम शुरू हुआ। इसमें धातुकर्म (मेटलर्जी) और तापीय अनुप्रयोग (थर्मल एप्लीकेशंस) में कोयले की भूमिका पर चर्चा हुई। मुख्य अतिथि अल्बर्टा यूनिवर्सिटी कनाडा के प्रोफेसर राजेन्दर गुप्ता ने इंटरेक्टिव प्रोग्राम के लिए एनएमएल को बधाई दी। उम्मीद जतायी कि यह प्रोग्राम शिक्षा जगत, इंडस्ट्री और रिसर्च एंड डेवलेपमेंट के लोगों को एक मंच पर लाने में कामयाब होगा। उन्होंने ग्रीन टेक्नोलॉजी के अपनाने पर जोर दिया। एनएमएल जमशेदपुर के निदेशक डॉ.इन्द्रनील चट्टोराज ने स्वागत भाषण देते हुए कहा कि भारत दुनिया में कोयले का तीसरा सबसे बड़ा उत्पादक देश है। उन्होंने बताया कि एनएमएल जमशेदपुर पिछले 67 साल से कोयला आधारित तकनीक के विकसित करने के लिए प्रयासरत है।

इस प्रोग्राम को कराने का मकसद यह है कि कोयले को लेकर होने वाले शोध को और आगे बढ़ाया जाय, ताकि सेफ इलेक्ट्रिसिटी का उत्पादन हो सके। एनएमएल के चीफ साइंटिस्ट डॉ.डी बंदोपाध्याय ने पावर और स्टील सेक्टर में कोयले की भूमिका पर प्रकाश डाला। उन्होंने बताया कि अगले चार दिन तक हम पावर और स्टील सेक्टर में कोयले की भूमिका पर मंथन करेंगे। उम्मीद जतायी कि भारत में पाये जाने वाले कोयले की गुणवत्ता को कैसे बढ़ायी जाय, उसके बारे में इसमें बातचीत होगी।

इस प्रोग्राम की संयोजक डॉ.संचिता चक्रवर्ती ने इस प्रोग्राम के मकसद को बताया। प्रोग्राम के आयोजन में डॉ.एके महंती, डॉ.जे.कोनार, डॉ.एके उपाध्याय और रूपा दास बिश्वास का अहम योगदान रहा। प्रोग्राम में देश भर के 12 उद्योग और संस्थानों के 50 से ज्यादा प्रतिनिधि शिरकत कर रहे हैं। वे प्रतिनिधि इन संस्थानों के हैं-एनटीपीसी, सीसीएल रांची, ईसीएल आसनसोल, सीएमपीडीआई रांची, जेएनयू नई दिल्ली, टाटा स्टील जमशेदपुर, आईएसएम धनबाद, बीसीसीएल धनबाद, डीवी पावर लिमिटेड रायगढ़, ऊर्जा मार्टिन जमशेदपुर, एनआईटी जमशेदपुर, सीसीओ कोलकाता और आईएसएम बर्नपुर।

12 संस्थानों के 50 प्रतिनिधि कर रहे शिरकत

नेशनल मेटलर्जिकल लेबोरेटरी में व्याख्यान देते डॉ. इंद्रनील चट्टोराज व मंच पर बैठे अतिथि।

यूनिवर्सिटी ऑफ अल्बर्टा कनाडा के प्रोफेसर राजेन्दर गुप्ता से डीबी स्टार की खास बातचीत

भारत में कोयले पर निर्भरता बनी रहेगी, मगर पर्यावरण प्रदूषण को कम करने के दबाव में अपनानी पड़ेंगी ग्रीन टेक्नोलॉजी

संजय प्रसाद • यूनिवर्सिटी ऑफ अल्बर्टा कनाडा के प्रोफेसर राजेन्दर गुप्ता ने कहा- भारत जैसे देश में कोयले से होने वाले बिजली उत्पादन पर निर्भरता बनी रहेगी। राष्ट्रीय धातुकर्म प्रयोगशाला (एनएमएल) जमशेदपुर में सेमिनार में शिरकत करने आए गुप्ता ने डीबी स्टार से बात करते हुए कहा कि थर्मल पावर से पर्यावरण को काफी नुकसान होता है, क्योंकि इससे कार्बन डाय ऑक्साइड और सल्फर डाय ऑक्साइड जैसी जहरीली गैसें उत्सर्जित होती हैं। हाल ही में पेरिस में हुए जलवायु परिवर्तन समझौते में भी दुनिया भर के देशों ने तापीय बिजली (थर्मल पावर) पर निर्भरता को कम करने पर हस्ताक्षर किया है, लेकिन भारत जैसे देश के लिए कोयले पर निर्भरता मजबूरी है, क्योंकि यहां पर कोयला प्रचुर मात्रा में मिलता है। अभी भी वैकल्पिक ऊर्जा के स्त्रोत बहुत विकसित नहीं हो पाये है। ऐसे में अगले 50 साल तक बिजली के लिए कोयले पर हमारी निर्भरता बनी रहेगी। आने वाले साल में बिजली की मांग और बढ़ने वाली है जिसे हम न्यूक्लियर पावर और प्राकृतिक गैस के जरिए पूरा कर सकते हैं। लेकिन न्यूक्लियर पावर को लेकर अभी भी विवाद है। जापान ने फुकुशिमा न्यूक्लियर पावर प्लांट में हुए विस्फोट के बाद अपने सारे न्यूक्लियर रिएक्टर को बंद कर दिया है और थर्मल पावर के जरिए बिजली बनाना शुरू किया है, जबकि जापान में कोयला भी नहीं है। बकौल गुप्ता, मैं 20 साल से जापान में आ जा रहा हूं। वहां पर कभी भी हड़ताल या विरोध नहीं देखा था। फुकुशिमा घटना के बाद पहली बार जापानी जनता को सड़क पर देखा, जिन्होंने न्यूक्लियर पावर प्लांट को बंद करने की मांग की।

कोयले के साथ प्राकृतिक गैस और न्यूक्लियर प्लांट से भारत में हर घर में पहुंचायी जा सकती है बिजली

ज्यादा नमी होती है भारत के कोयले में

भारत के संदर्भ में कहा कि हमारे देश में कोयले की गुणवत्ता लो ग्रेड की होती है। इससे जब बिजली बनती है तो एक तो वातावरण में ग्रीन हाउस गैस का उत्सर्जन ज्यादा होता है दूसरे थर्मल प्लांट के उपकरण भी जल्द खराब होते हैं। बकौल प्रोफेसर राजेन्दर गुप्ता, भारत के कोयले में मॉस्चर (नमी) और मिनरल्स (खनिज) ज्यादा होते हैं। जब यह प्लांट के बॉयलर में जाता है तो इससे कार्बन डाय ऑक्साइड गैस ज्यादा निकलती है। ऐसे में हमारी प्राथमिकता होनी चाहिए कि हम कोयले को क्लीन करें।

भारत में कोयले के साथ नेचुरल गैस से भी बनेगी बिजली

प्रोफेसर राजेन्दर गुप्ता ने बताया कि भारत जैसे देश में प्राकृतिक गैस का खजाना भी है। अभी भी इसे लेकर शोध जारी है। अगर भविष्य में प्राकृतिक गैस का भंडार मिलता है तो कोयले के बाद प्राकृतिक गैस बिजली उत्पादन का दूसरा बड़ा स्त्रोत होगा। पहले से ही कई देशों में प्राकृतिक गैस पर आधारित बिजली का उत्पादन काफी होता है।

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Dainik Bhaskar

CSIR leveraging technology development by forging synergistic partnership with the Japanese Universities and R&D Organization

CSIR 22nd January, 2018

Council of Scientific and Industrial Research (CSIR) has been making endeavours to forge synergistic partnership with the Japanese Universities and Research & Development (R&D) organizations to leverage technology development in cutting edge domains. The partnership with the Hiroshima University has started bearing fruits. The technology areas for cooperation include electronics, robotics, mechatronics, advanced manufacturing, environment and intelligent transportation.

Director General, CSIR, Dr. Girish Sahni, with President, Hiroshima University held the 1st meeting of International Linkage Degree Program (ILDP) on January17-18, 2018 in Hiroshima, Japan. Senior representatives of other partnering Institutes namely IIT-D, IIT-B, IIM-A, BITS-Pilani, IIEST-Sibpur also participated in the meeting to promote student/researchers exchanges and R&D partnership.

Indian Ambassador in Japan Mr. Sujan Chinoy and Dr. Girish Sahni, Director General, CSIR delivered special addresses at the event, alongside Governor of Hiroshima prefecture.

DG, CSIR, Dr. Sahni, has led the CSIR delegation to Japan to vitalise CSIR's ongoing partnership with Japanese National Institute of Advanced Science & Technology (AIST) in Tsukuba. CSIR in collaboration with AIST, Japan is in the process of setting up a unique low cost semiconductor device fabrication scheme – Minimal Fab, which will not require setting up of costly clean room and chip fabrication facility. CSIR, with this facility, will be creating an avenue for Electronics System Design Manufacturing (ESDM) sector industries to fabricate semiconductor chips meeting the demand of IOT devices in India and abroad.

CSIR delegation also held bilateral meetings with University of Tokyo and RIKEN Brain Science Institute to build R&D cooperation in the areas of mutual interest, aimed at translational research.

In recent times, CSIR has accelerated its efforts for translational research addressed at unmet needs with strong stakeholder and people connect. In doing so, seamless and synergistic partnership with international R&D organizations of eminence is of prime importance for CSIR to leverage its technology development efforts. In this march of CSIR, Japan has emerged as one of the major country for desired partnerships.

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Press Information Buero

Artificial small intestine to study food, drug absorption

CSIR-CFTRI

22nd January, 2018

"Bioactive compounds can use different mechanisms for crossing the intestine. So we tested both compounds," says Anandharamakrishnan. | Photo Credit: Special Arrangement

This can overcome ethical issues and infrastructure requirements that restrict researchers

Scientists from Central Food Technological Research Institute (CSIR-CFTRI), Mysuru, and Indian Institute of Food Processing Technology (IIFPT), Thanjavur, have developed an artificial small intestine system to test the level of absorption of micronutrients and other bioactive compounds from food. While the artificial system requires just two hours to analyse the intestinal absorption, the methods currently in use are time-consuming and not suitable for studying large number of compounds. The Netherlands Organisation for Applied Scientific Research has also developed an artificial system. "Unlike their system, ours simulates the exact physiological conditions and helps to evaluate both bioaccessibility and bioavailability of nanoformulated bioactive compounds," says Dr. C. Anandharamakrishnan, Director of IIFPT and corresponding author of the paper published in the *Journal of Food Engineering*. It cost Rs 20 lakh to develop the system. The system consists of a perfusion chamber fitted with rat intestine. "To perform animal trials, we need at least 6–10 rats, but using this system just two–three rats would suffice," explains Dr Parthasarathi Subramanian from CFTRI and first author of the paper. "There are severe ethical issues and infrastructure requirements that restrict the researchers in carrying out *in vivo*studies. To overcome this, the artificial small intestinal system was fabricated."

The researchers checked the permeability of both fat-soluble (vitamin E) and water-soluble (gallic acid) compounds using the new set-up. “Bioactive compounds can use different mechanisms for crossing the intestine. Fat-soluble compounds follow transcellular absorption whereas paracellular route of absorption is used by water-soluble compounds. So we tested both compounds,” says Dr. Anandharamakrishnan. The researchers then compared the performance of the set-up to *in situ* intestinal perfusion study. For the perfusion study, the rat was anaesthetised and the absorption of both compounds were studied.

In the case of the fat-soluble compound, the permeability was higher in rats than the new system. But the artificial system performed better for the water-soluble compound.

“The absorption of the fat-soluble compound is facilitated by carrier proteins like NPC1L1 in the intestinal cells. But in the engineered system, there is no carrier-mediated uptake, only passive diffusion. So the engineered model is best for studying compounds with passive diffusion” adds Dr. Anandharamakrishnan.

A patent has been filed and the system is currently in use at CSIR-IIFPT.

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The Hindu

India third most sought after destination for R&D in world, says science minister

CSIR 22nd January, 2018

Contrary to the popular perception that R&D in science is being neglected and government is not spending enough, the union minister of science & technology Harsh Vardhan on Wednesday said that in the past couple of years, the investment has trebled and the country has become the third most sought after destination for R&D.

As per the study of the National Science and Technology Management Information System (NSTMIS), the country's gross expenditure on R&D has tripled in a decade - from Rs 24,117.24 crore in 2004-05 to Rs 85,326.10 crore in 2014-15 - with the government chipping in with more money as compared to private sector industries.

"Science in India is at its best under the leadership of the Prime Minister. We have become the third most sought after destination for R&D in the world. In the area of science, we have top quality collaborations with 44 countries in the world...

Our investment in R&D has trebled in the recent years and our expenditure in R&D is better than UK, France, Sweden, Denmark, Russia, Australia, Israel and Canada," he said while addressing the members of the Jain International Trade Organisation (JITO) in Hyderabad.

He pointed out that the country has made rapid strides in the felid of science and the prestigious science body -- Council of Scientific and Industrial Research (CSIR) -- stands ninth among the 1,200 government-funded science institutions globally. He also added that India is third when it comes to nanotechnology.

The minister in his speech mentioned that every problem of this planet can be solved with the help of science and urged the industry to generously contribute towards the R&D area. Meanwhile, he also credited the ex-prime minister Atal Bihari Vajpayee for bringing science to the centre stage of politics in the country by modifying the popular slogan of Jai Jawaan Jai Kisan and making it 'Jai Jawaan, Jai Kisan aur Jai Vigyan'.

Hyderabad: Contrary to the popular perception that R&D is being neglected India and the government is not spending enough, Union minister of science & technology, Harsh Vardhan on Wednesday said that in the past couple of years, investment in R&D has trebled and the country has become the third most sought after destination for R&D.

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Published in:
The Times of India

CSIR-NBRI

21th January, 2018

गुलाब एवं ग्लैडियोलस से चहका अवध का आंगन

अमर उजाला ब्यूरो

लखनऊ।

एनबीआरआई की बहुप्रतीक्षित गुलाब व ग्लैडियोलस प्रदर्शनी शनिवार को शुरू हो गई। दो दिवसीय प्रदर्शनी का उद्घाटन उत्तर प्रदेश वन निगम के प्रधान मुख्य वन संरक्षक डॉ. रूपक डे ने किया। उन्होंने संस्थान द्वारा बनाए गए एक नए पौध गृह का भी उद्घाटन किया। इस पौध गृह में औषधीय पौधों के साथ मसाले वाले पौधों को भी भिन्न-भिन्न जगहों से लाकर संरक्षित किया गया है। यह पौध गृह संस्थान के वानस्पतिक उद्यान में बनाई गई, जिसमें विभिन्न प्रजातियों के लगभग 67 पौधों को संरक्षित किया है।

एनबीआरआई में दो दिवसीय पुष्प प्रदर्शनी शुरू

प्रो. सरोज के बारिक निदेशक एनबीआरआई ने बताया कि प्रदर्शनी में 58 लोगों से कुल 579 प्रविष्टियां शामिल की गई है। विशेषज्ञों ने कुछ प्रदर्शों को पुरस्कार के लिए चुना है। इनमें एचएएल कॉलोनी फैजाबाद रोड के आरके उपाध्याय को सर्वोत्तम गुलाब, पिकेडली होटल के अयोध्यानाथ को सर्वोत्तम ग्लैडियोलस स्पाइक, एचएएल की सुषमा को सर्वोत्तम एचटी लाल गुलाब और सर्वोत्तम एचटी दुरंगे गुलाब और सर्वोत्तम रंगीन धारीदार एचटी गुलाब एचएएल उपसाधन प्रभाग, सर्वोत्तम सुगंधित हाइब्रिड टी गुलाब एचएएल कोरवा डिवीजन अमेठी, सर्वोत्तम एचटी पीले गुलाब, एचएएल कोरवा डिवीजन को अरुण कृष्णा को और सर्वोत्तम गुलाबी गुलाब की ट्रॉफी एचएएल कोरवा डिवीजन अमेठी को मिली है। इसी तरह सर्वोत्तम भारतीय प्रजनित हाइब्रिड टी गुलाब का पुरस्कार निदेशक सीएसआईआर सीमैप को झोली में गया है। प्रदर्शनी रविवार को सुबह 10 बजे से शाम छह बजे तक आम जनता के लिए खुली रहेगी।

अमर उजाला 21/01/2018

एनबीआरआई में शनिवार को शुरू हुई गुलाब प्रदर्शनी का अवलोकन करते प्रधान मुख्य वन संरक्षक डॉ. रुपक डे व फूलों के साथ सेल्फी लेते शौकीन।

Published in:
Amar Ujala

Interlinking of rivers, dams may affect estuary ecosystem, fear NIO scientists

CSIR-NIO 20th January, 2018

VISAKHAPATNAM: Scientists at the National Institute of Oceanography (NIO)'s Vizag centre are apprehensive about the artificial interlinking of rivers. They feel diverting water for use during dry period and raising of dams will affect the estuaryecosystem by reducing fresh water discharge and may have a catastrophic impact in future. Dams and river interlinking projects have been proposed on the rivers in AP-Telangana region, which will affect the Krishna-Godavari estuary ecosystem, they point out.

NIO has been engaged in a research on how the variations of river discharge due to monsoon impact the estuary ecosystem. They found that during the times of El Nino and Indian Ocean Dipole (natural periods of weak monsoon and diminished rainfall), the discharge or river water flowing to the estuary decreases by 30%. An estuary is the tidal mouth of rivers, where river water meets the sea, creating a transition zone between riverine and marine environment. This naturally-caused diminished discharge in turn results in three-fold increase in harmful algae blooms that decreases oxygen and phytoplankton (fish feed) causing mass mortality of fish and aquatic creatures.

In this context, NIO scientists point out that if natural phenomena like El Nino and IOD decrease the water discharge to the estuary and adversely affect the marine ecosystem, then man-made river inter-linking and dam construction projects would further reduce fresh water flow to the sea by diverting river water. Thus, the diminished discharge into the estuary would have a catastrophic impact, they say. NIO scientist V V S S Sarma, who heads the ongoing CSIR-NIO programme to assess the impact of monsoon failure on the estuary ecosystem, said: "We have been monitoring the impact of variations in discharge due to diminished/weak monsoon (El Nino/IOD effect) on the estuary for the last decade, and found that there is a 30% decrease in water discharge.

It has also affected the mixing of high density sea water with low density fresh water in the estuary region. "It was observed that during monsoon, there is a phytoplankton bloom which encourages more fish to come to the estuary. With the abundance of phytoplankton available, the fish breed, lay eggs and then go back to the sea. But when the estuarine discharge diminishes by 30% due to low rainfall, instead of phytoplankton, harmful algae bloom increases three-fold. These are toxic to the fish and blocks their gills, thereby killing the fish. When human beings eat these fish, it is harmful for them too.

"Though the algae dies in a day or two, the dead algae floats and removes oxygen from the water through bacterial decomposition of organic matter. It leads to mass mortality of fish and other marine creatures due to hypoxic condition. By taking up this project and monitoring, we could predict the future of fisheries in the region if monsoon fails and alert the fishermen beforehand so that they can take some alternative measures."

However, under this scenario, if dams are put across rivers or if rivers are interlinked and their water diverted elsewhere artificially, it would further decrease the discharge to the estuary in addition to decrease during poor monsoon. The world has had a bad experience when the estuary became a dead zone in Hudson river in the USA and river **Scheldt** in the Netherlands.

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The Times of India

Union Minister hails CSIR-NGRI research work

CSIR-NGRI

19th January, 2018

The Honourable Union Minister for Ministry of Science and Technology and Environment, Dr Harsh Vardhan visited the city based CSIR-National Geophysical Research Institute (CSIR-NGRI) on Thursday.

The Honourable Union Minister for Ministry of Science and Technology and Environment, Dr Harsh Vardhan visited the city based CSIR-National Geophysical Research Institute (CSIR-NGRI) on Thursday. While Director, CSIR-NGRI, Dr V M Tiwari apprised about the research activities and initiatives to the Minister, the young researchers of the institute presented recent significant research results through poster displays.

Highlights:

- Dr Harsh Vardhan praises the research work of CSIR-NGRI in the fields of groundwater, seismic hazards, exploration of hydrocarbon and mineral resources.

- He puts forward a challenge to the CSIR-NGRI scientists to focus their research work in solving the problems of North-east regions of India

- Assures all help from his ministry including recruitment of manpower for research

Interacting with the scientists, Dr Harsh Vardhan emphasised the urgent need to translate the lab research into products benefitting the society to make it people centric which is the vision of the Honourable Prime Minister. He inaugurated a new WD-XRF research laboratory facility in the institute and showed keen interest in its functions and applications. He also saw display of synthetic gas hydrate produced in the Laser Raman Spectroscopy Laboratory and visited the LA-MC-ICPMS research lab (engaged in finding the age of the rocks) and the Seismological Observatory of the institute. Emphasising the need for green and healthy environment, he planted a sapling in the campus.

Later, addressing the staff of the CSIR-NGRI, Dr Harsh Vardhan praised the research work of CSIR-NGRI in the fields of groundwater, seismic hazards, exploration of hydrocarbon and mineral resources. He said that the heliborne geophysical technique applied by CSIR-NGRI has a great potential to upscale the exploration of groundwater in our country.

As our Prime Minister is working very passionately about 100 backward districts and North-east Indian region that lacks in terms of facilities, Dr Harsh Vardhan put forward a challenge to the CSIR-NGRI scientists to focus their research work to solve the problems of these districts, especially the water scarcity issue as CSIR-NGRI has the needed capabilities and appropriate know-how for the same.

He assured all help from his ministry including recruitment of manpower for research. He further emphasised the need for intra- and inter-lab synergy among the researchers and encouraged them to dream for high quality and socially relevant research and implementable ideas. The minister advised to organise regular brainstorming sessions among the senior researchers and young minds.

These innovative scientific ideas will help our country achieve its dream of becoming among the top three nations in the field of scientific research by 2030.

He recollected the efforts of our former prime minister Atal Bihari Vajpayee in bringing science to the forefront and adding the phrase “Jai Vigyan” to “Jai Jawan Jai Kisaan”. He assured that the Government of India stands rock solid behind the bright ideas and innovative research which could fructify into entrepreneurship, product and processes useful for the society through the flagship Start-up and Stand-up movements.

Dr Harsh Vardhan also spoke about an app called ‘Green app’ through which he said he would be able to connect to 132 crore Indians and give them tips on to how to increase greenery in their surroundings. Individual can upload their videos for their works relating to green mission and if they have problems and queries they can direct the same directly to the minister and he said he would get back to the individuals within a span of two to three days.

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The Hans India

CSIR-IHBT

19th January, 2018

अरे वाह!

सीएसआईआर संस्थान ने शुरू किया नेशनल अरोमा मिशन

सगंध फूलों से महकेगी देवभूमि

■ जयदीप रिहान, पालमपुर

प्रधानमंत्री नरेंद्र मोदी के 2022 तक किसानों की आय दोगुना करने और इसके साथ अनुपयोगी भूमि को उपयोग में लाए जाने की सोच के तहत सीएसआईआर संस्थान ने अरोमा मिशन की शुरुआत की है। इसके तहत हिमाचल व साथ लगते क्षेत्रों में किसानों को सगंध फूलों की खेती की ओर प्रोत्साहित किया जा रहा है, वहीं वेस्टलैंड के उपयोग पर भी नजर रखी जा रही है। राष्ट्रीय स्तर पर शुरू किए गए सीएसआईआर-अरोमा मिशन के तहत हिमाचल के साथ जम्मू-कश्मीर और उत्तराखंड तक के किसानों को सगंध फूलों व पौधों की खेती करने के लिए प्रोत्साहित किया जा रहा है, जिन्हें जानवर नुकसान नहीं पहुंचाते और बाजार में मांग व अच्छे दाम के चलते किसानों की आय बढ़ने की पूरी संभावना है।

सीएसआईआर के इस मिशन के तहत जहां विभिन्न कारणों से खेती से दूर हो रहे किसानों को फिर खेती से जोड़ा जा सकेगा, वहीं ऐसी भूमि के उपयोग की संभावना भी बनेगी, जिसका फिलवक्त कोई उपयोग नहीं हो रहा। प्रदेश की भौगोलिक संरचना के आधार पर सीएसआईआर के वैज्ञानिकों ने अलग-अलग ऊंचाई वाले क्षेत्रों में अलग-अलग किस्म के फूलों की खेती को प्रोत्साहित करने की योजना बनाई है। मैदानी, मध्य पवर्तीय व पवर्तीय क्षेत्रों में अधिक उत्पादन देने वाले फूलों की किस्में तैयार करवाई जाएंगी, ताकि किसान अधिक से अधिक लाभ ले सकें। प्रदेश में लेमन ग्रास, गुलाब, जंगली गेंदा सहित अन्य फूलों की खेती की जाएगी।

जानवरों की चिंता नहीं, कमाई भी

अरोमा मिशन के तहत किसानों को ऐसे सगंध फूलों व पौधों की खेती के लिए प्रोत्साहित किया जा रहा है, जिन्हें जानवर नुकसान नहीं पहुंचाते। इनमें अधिकतर ऐसी किस्में हैं, जिनकी खास महक से बंदर दूर रहते हैं। आज के दौर में जब किसान जानवरों द्वारा पहुंचाए जा रहे नुकसान के चलते खेती छोड़ रहे हैं, वहीं अरोमा मिशन से किसानों को एक नई दिशा मिलने की संभावना है। खबर की पुष्टि सीएसआईआर-आईएचबीटी के निदेशक डा. संजय कुमार ने की है।

दिव्य हिमाचल Fri, 19 January 2018

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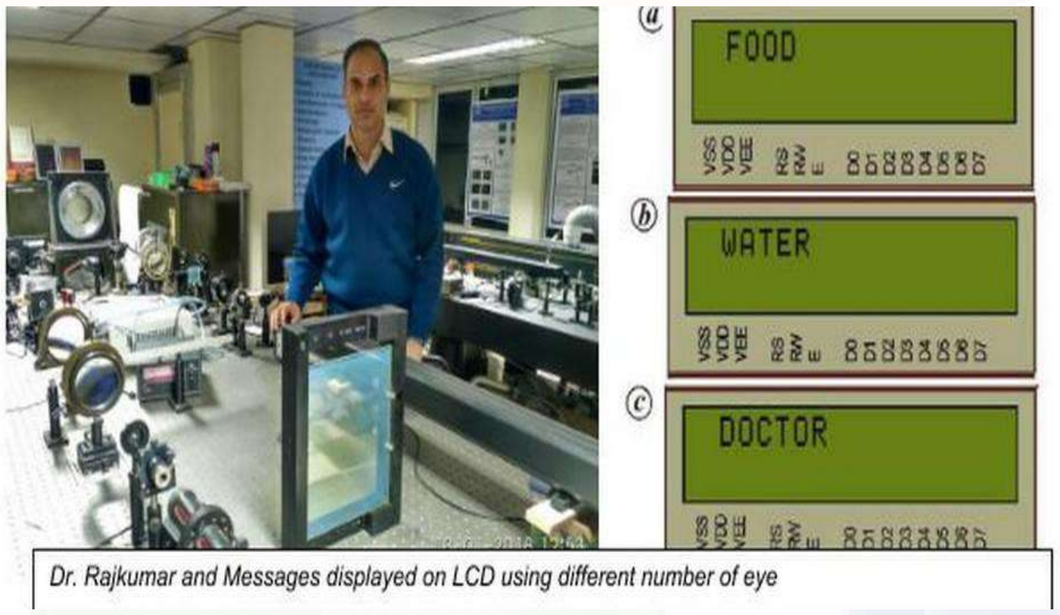
Divya Himanchal

Eye blink can control devices

CSIR-CSIO

18th January, 2018



Dr. Rajkumar and Messages displayed on LCD using different number of eye

Imagine being able to switch on a television set or open an electronic lock just with blink of your eyes. Indian scientists have developed a man-machine interface that can be operated using electric signals generated during eye blink. The system could potentially be used for persons with locomotive and other disabilities for performing day-to- day activities. When you blink your eyes, the brain produces signals which can be captured from the scalp in the form of electroencephalography or EEG signals. These signals can be processed using a microcontroller and based on how it is programmed, it can take a decision to perform desired tasks by actuating a corresponding device from several devices connected to it. This concept has been demonstrated in laboratory by a team of researchers from Central Scientific Instruments Organization (CSIO), Chandigarh, using EEG signals generated during intentional eye blinks. They say that such a system can be deployed to developed eye blink-controlled devices. Initial findings of the research have been published in the latest issue of scientific journal *Current Science*. "This concept can easily be implemented for device development. In fact, we have used it in our laboratory to control devices like speed of a DC motor and results have been highly encouraging," Dr Raj Kumar, scientist at the Holography Group, Optical Devices Systems Division at CISO, told India Science Wire. An important feature of the system is that it can be adapted to particular needs of the user and can be attached or detached for actuation of different appliances according to one's requirements, he added. Since human brain works like a

processor for body control, scientists have been exploring the use of electrical signals from the brain in the form of EEG and EOG (electrooculogram) to facilitate human–machine interface. Simple tasks like switching on or off lighting systems or moving an assisted wheelchair can be performed by tracking eye-generated signals. Since eye movement is frequent and mounting electrodes directly on eyelids is rather difficult, scientists have been looking for other options. Signals emerging from the eye movement also get mixed with those generated by movement of facial muscles. Therefore, acquiring EEG signals in a non-invasive manner is critical, as done in the present study. The new concept is based on intentional eye blinks and can eliminate the possibility of false detection. "Two consecutive intentional eye blinks are likely to be of the same amplitude. To actuate a device, if the subject blinks twice intentionally, followed by another unintentional blink as an after effect, then the difference in amplitude between the intentional and unintentional blinks will be significant. If the difference in amplitude between the two signals surpasses one-third of the prior blink, then it would be considered as a false signal and will be rejected by the system. This eliminates almost all detections which occur due to unintentional eye blink," researchers have explained in the study. The signals generated in the brain due to eye blinks are acquired by electrodes fixed on the scalp. They are then fed to a filtering block so that useful signal and random signal can be separated. The processed signals are then moved to 'feature extraction block' where, the number of blinks are extracted from the signals received. "Rejection of false signal is an important issue which we have addressed successfully and this makes the system more reliable. Even after thresholding, EEG signals can have some false detection due to involuntary blinks. So, rejection filter has been introduced to detect these false signals. The output signal is then fed to the actuator for any movement," explained Dr Rajkumar. In the laboratory setup, tasks were assigned for different number of blinks to demonstrate and validate functioning of the system. For instance, the system was programmed to convert one blink in display of word 'water' on an LCD panel; two blinks meant the person needed food, while three intentional blinks denoted the patient needed to consult a doctor.

Similar programming was done to switch on and control the speed of a DC motor in the lab. In the same way, different number of eye blinks can be assigned to different functions of a wheelchair such as 'left turn', 'right turn', 'forward move', 'backward move', etc. Execution of particular function depends on the device that is connected to the system.

"These experiments clearly demonstrate that the system is suitable for human–machine interface and may be used for the development of devices that are helpful for persons with disabilities. The system allows a person freedom to control devices using his brain signals without any extensive training session," the study says.

"Now we are looking for industry partners having interest, capability and track record of manufacturing related systems," Dr Rajkumar said. The research team included Dr Raj Kumar (Central Scientific Instruments Organization) and two research scholars -Subhra Sankha Sarma and Piyush Kant. The research was funded by the Council of Scientific and Industrial Research (CSIR).

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CSIR-NEERI

16th January, 2018

E-firecrackers in the works to combat pollution

hindustan times

the air we breathe

Joydeep Thakur
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The sale of firecrackers was banned in Delhi in 2017 HT FILE

NEW DELHI: The festival of lights may soon go fully electronic.

Scientists from top government-backed research institutes are developing smokeless, eco-friendly "e-crackers" that will simulate the lights, colours and sounds emitted by traditional firecrackers but neither add to pollution, nor be a fire hazard.

India's premier Council of Scientific and Industrial Research (CSIR) laboratories under the Union science and technology ministry have been asked to create a substitute for firecrackers in a bid to check pollution, which spikes every year in several cities across north India, including Delhi, right after Diwali.

"The electronic devices will produce cracking and bursting sounds and lights but there won't be any smoke because there won't be any chemical combustion," said Santanu Chaudhury director of CSIR's Central Electronics Engineering Research Institute (CEERI) located in Pilani.

The scientists say a prototype will be ready in six months, and the e-crackers may even be ready for use before Diwali this year.

"The idea was discussed in a meeting held by the Union science and technology minister Harsh Vardhan on January 5. The minister urged scientists to develop electronic firecrackers that will help reduce pollution after Diwali," said D Saha, head of the air quality laboratory at pollution watchdog CPCB.

CONTINUED ON P 8

CSIR-NEERI

16th January, 2018

E-crackers

The CPCB (Central Pollution Control Board) is India's top pollution watchdog.

E-firecrackers have small pods connected to each other with wires and twinkling LEDs. When turned on, they produce sounds and lights similar to the conventional firecrackers. Some countries, including China, have already come up with a few non-polluting firecracker variants.

These Chinese crackers were sold in Indian markets this Diwali, but India is trying to come up with its own, more affordable, variants.

"This is the first time Indian scientists are trying to develop such e-crackers," said Chaudhury.

While CEERI is developing e-fireworks, researchers at National Environmental Engineering Research Institute (NEERI) in Nagpur are working on a pollution-free version of traditional firecrackers.

Firecrackers are highly polluting because manufacturers use a range of compounds that use metals such as barium, antimony, copper and lithium, which emit toxic fumes.

Delhi suffered its worst smog in 17 years after firecrackers and fireworks worth crores of rupees were burnt on Diwali in 2016. In 2017, the Supreme Court banned the sale of crackers in the National Capital Region around Diwali, but there was spike in pollution levels again last year, primarily due to crackers procured from outside the region.

"Our research will comprise of two phases. In the first phase, we will work on how to cut down the amount of pollutants which are emitted from firecrackers. Then, we will try to come up with pollution-free crackers," said Rakesh Kumar, director of CSIR-NEERI.

Scientists say they are also testing chemicals that could be used in manufacturing smokeless firecrackers, including Azide-based compounds that produce the harmless nitrogen gas on combustion.

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