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भारत का नवाचार इंजन

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NEWS BULLETIN

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Hyderabad: 'One Week One Theme' initiative launched at IICT

CSIR-IICT, CLRI, CSCMRI, NEIST

15th July , 2024

A 'One Week One Theme' (OWOT) initiative, envisaged by Council of Scientific and Industrial Research (CSIR) to showcase innovative approaches and technological progress achieved in the field of chemicals across nine of its laboratories was launched at Indian Institute of Chemical Technology (IICT) on Monday.



Director CSIR-CLRI (Central Leather Research Institute), Dr KJ Sriram said that the vision of OWOT was to drive towards self reliance by bridging gaps between import of chemicals and their availability in the country in collaboration with the industry partners

R K Agarwal, president, Bulk Drug Manufacturers Association of India (BDMA) said that the time has come for shift of gears from volume to value in manufacturing in which CSIR, with its scientific capabilities and infrastructure can play a key role.

Prof Javed Iqbal, Director Cosmic Industries said that the country's dependence for raw materials on imports is detrimental to growth of the sector.

Directors of CSIR laboratories, Dr K. Srinivasan, CSCMRI, Dr A Tiwari, NEIST, Director IICT, Dr D Srinivasa Reddy and other senior scientists were present.

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[Telanganatoday](https://www.telanganatoday.com)

NGRI scientists unravel geological link between India and Antarctica

CSIR-NGRI

15th July , 2024

A team of scientists from city-based National Geophysical Research Institute (NGRI) has made a new discovery that sheds light on the ancient connection between the Indian subcontinent and Antarctica. Their research provides compelling evidence of a collision between India and East Antarctica over a billion years ago.

The NGRI team, including Dr K Chandrakala, OP Pandey, Biswajit Mandal, K Renuka, and N Prem Kumar, has revealed the presence of a hidden ridge beneath Darsi and Addanki regions of AP. This structure is attributed to the historic collision, and the study also suggests that the Cuddapah basin had tilted towards the south. Moreover, the region shows signs of historical seismic activity, indicating the possibility of a marginal ocean basin along the east coast during the Columbia and Rodinia supercontinent assembly periods.

By reprocessing seismic data along a 325-km profile from Alampur to Ganapeswaram, the team investigated the subsurface crustal seismic structure of the north Cuddapah basin. Their findings revealed a thin layer of alluvium underlain by Gondwana sediments and Proterozoic sedimentary layers. Gondwana was an ancient supercontinent that included present-day South America, Africa, Arabia, Madagascar, India, Australia, and Antarctica.

“Our research has uncovered that Proterozoic sedimentation in the study region was more extensive than previously known,” the NGRI scientists told TOI. “We have identified both the upper and lower Proterozoic Cuddapah sediments, resting directly over the crystalline basement. This provides new insights into the geological evolution of India’s eastern coast during the Proterozoic period,” they added. The research was published in the ‘Journal of Pure and Applied Geophysics’.

Published in:

[Times of India](https://www.timesofindia.com/)

Combating piracy. A treaty to protect traditional knowledge

CSIR-TKDL

14th July , 2024

In May 2024, member states of the World Intellectual Property Organisation (WIPO) approved a new Treaty on IP, genetic resources and associated traditional knowledge (TK) – the culmination of negotiations that began in 2001. This ground-breaking treaty includes provisions for indigenous peoples and local communities. Its objectives are to enhance the transparency and quality of the patent system regarding genetic resources and TK and to prevent erroneous patents on non-novel or non-inventive inventions. TK, as defined by WIPO, embraces the know-how, skills and practices developed and passed down by indigenous communities. These are core to the cultural and spiritual identity of the community. Essentially, while conventional intellectual property (IP) rights do not protect TK itself, inventions derived from TK can qualify for IP protection.

The treaty aims to combat the misappropriation of TK and biopiracy. After ratification by the contracting parties, the treaty will establish an international legal framework, requiring patent applicants to disclose the origin of genetic resources and associated TK used in their inventions. Key provisions include disclosure requirements in Article 3.1 and 3.2, where applicants must reveal the origin of genetic resources or the source of associated TK. If it is unknown, applicants must make a declaration attesting to the accuracy of their knowledge.

Contracting parties may establish databases of genetic resources and TK, accessible for patent search and examination, with safeguards developed in consultation with indigenous people and local communities. India has proactively protected TK through initiatives like the Traditional Knowledge Digital Library and legal safeguards in the Indian Patents Act and the Biological Diversity Act. The new WIPO Treaty will strengthen the existing protections, potentially leading to changes in domestic legislation to incorporate mandatory disclosure requirements regarding genetic resources and TK.

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[Thehindubusinessline](https://www.thehindubusinessline.com)

CSIR Director General Urges Graduates to Foster National Pride

CSIR

13th July , 2024

Dr N. Kalaiselvi, Director General of the Council for Scientific and Industrial Research (CSIR) urged graduates to create moments of pride for the nation. “The country has high expectations from you. It’s fine to go abroad to study and work, but remember to return and contribute to your nation,” she stated. Dr Kalaiselvi was speaking at the 23 convocation of the International Institute of Information Technology Hyderabad (IIITH) with 600 students graduating, including a record number of 32 PhDs and 224 Masters with thesis.



Graduates from IIITH’s Dual-Degree Master of Science and Ph.D. programmes have made significant marks globally in top universities and product groups. Yarramaneni Jaishnav, a BTech graduate in electronics and communication engineering (ECE), received the IIITH gold medal for outstanding academic performance. Thatipamula Harshvardhan, a BTech graduate in computer science and engineering (CSE), was awarded best all-rounder for notable contribution to academics, extracurricular activities, and IIITH services.

The convocation saw 136 companies registering for placements, with 102 conducting interviews. Prof. P.J. Narayanan, Director of IIITH, commended the graduates for their skills and creativity. “You are now joining the professional world, ready to tackle its complexities. Your skills and creativity will be crucial, and we expect the best from you,” he said.

Prof. Ashok Jhunjhunwala, chairman of the governing council of IIITH, emphasised the urgent need for efficient energy solutions. “Heating and cooling contribute significantly to

greenhouse gases. Can you innovate to make energy usage three times more efficient? Save the earth,” he challenged the graduates.

This academic year, the faculty, research students, and staff published approximately 812 papers in top journals and conferences, 31 PhD students received external fellowships. Alumni contributions have been significant, raising ₹2.24 crore to support deserving students. Nineteen students are being supported by these funds, the faculty informed.

CSIR funds Rs. 100 crore for Phenome India Health Cohort Knowledge base project

CSIR-CFTRI

13th July , 2024

The Council for Scientific and Industrial Research (CSIR) will soon launch the Phenome India Health Cohort Knowledge base multi-institutional project on health status for the employees of CSIR-CFTRI (Centre for Food Technological Research Institute) which is open to join hands to take up a collaborative project with its sister laboratories under the CSIR umbrella in the frontier area of science & technology.

This project of CSIR funded with Rs. 100 crore for five years is coordinated by CSIR-Institute of Genomics & Integrative Biology (IGIB) under the leadership of Dr. Shantanu Sengupta, chief scientist and project coordinator.

This is a first-of-its-kind initiative aimed to establish baseline data on the prevalence of various disorders and lifestyle diseases in the Indian population. By doing so, the study will provide valuable insights into the health status of different individuals within this demographic. The baseline data is crucial for understanding the current health challenges and trends, which can then inform public health policies, interventions, and healthcare strategies tailored to the specific needs of the population.

Dr Sridevi Annapuna Singh, director, CSIR-CFTRI, Mysuru emphasized the importance of this CSIR-Cohort health knowledge base project, which is being undertaken for the first time in India. In order to study the cardiometabolic health status and predicting possible risk of communicable and non-communicable diseases of employees and their spouses, this project is being implemented across all the 37 laboratories of CSIR-New Delhi.

To facilitate the camp at CSIR-CFTRI, a team of experts had arrived from Centre for Cellular & Molecular Biology (CCMB), Hyderabad and IGIB, Delhi. The camp, which was held between 7.30 am to 4.00 pm daily for six days wherein employees as well as retirees of CFTRI

and their spouses were being examined for their health status, has concluded.

The range of different tests that were carried out included blood biochemistry, body composition, lipid profile, the health status of the liver, lung, eyes, skin, thyroid, kidney, heart, gut microbiota analysis and immuno-phenotyping analysis etc. Outcome of this study is expected to provide baseline data of the Indian population for different disorders and life style diseases. This project also helps to establish the health status of different individuals. CSIR-CFTRI, Mysore has previously participated in a similar cohort project on sero-surveillance during the Covid-19 pandemic, and contributed to the highest number of samples for Corona antibody assays. While the Gut microbiota results will be known in 3-4 months, Phlebotomy results will be disseminated in 3-4 days and all other results are known immediately through SMS (short message service) and updated on the CSIR Cohort portal.

Dr Prakash Halami, head, microbiology & fermentation technology department, CSIR-CFTRI who was coordinating this project at the Mysuru campus of CSIR-CFTRI and Dr SP Muthukumar, chief scientist & co-principal investigator of the project monitored entire the health checkup programme wherein about 309 CFTRI employees and retirees availed this opportunity for six days.

By leveraging artificial intelligence (AI) and machine learning (ML) tools throughout these phases, we can effectively analyze data, extract meaningful insights, and make informed decisions for follow-up actions in the next two phases, said Dr Halami.

TB remains a major killer disease despite use of antibiotics: Kerala expert

CSIR-CCMB

13th July , 2024

Dr Vinay Nandicoori, director of CSIR-CCMB and a leading microbiologist, said that tuberculosis has remained as the number one killer among all infectious diseases, despite the clinical use of over 20 antibiotics and BCG, a century-old vaccine. The disease accounts for nearly 1.5 million deaths yearly. He was delivering a talk on the topic 'Delineating Molecular Mechanisms that drive the survival of Mycobacterium Tuberculosis (Mtb)' at the Rajiv Gandhi Centre for Biotechnology (RGCB) in Thiruvananthapuram.

Dr Nandicoori, a J C Bose Fellow, said that the gradual rise in the emergence of increasingly drug-resistant strains and HIV-TB co-infection highlights the urgency to identify newer attractive drugs. "India, unfortunately, has the highest burden of TB in the world, and it is our problem. Many people do not know that TB is not limited to the lungs. It can be in the eyes, reproductive organs, liver, stomach, and bones. And the worst part of it is diagnosis is even more difficult," he said.

"It is not an easy pathogen to deal with. And if you end up getting multi-drug resistant (MDR) bacteria, that would be a serious issue if it comes to treatment. The reason is for anybody with a TB disease, the treatment time is four to six months, depending on the therapy. And if you end up getting MDR TB, it takes about nine months to a year, sometimes even longer," he said. He, however, said recent findings in labs on mycobacterial cell division held out hopes of dealing with the increasingly drug-resistant strains of the disease in a more effective manner. Dr Nandicoori said that it is important to continue with research on TB. Covid alone has killed around 10 million people, but TB kills around 1.5 million people every year. "For SARS and Covid, one can develop a vaccine, but for TB, it is not an easy one," he said.

Published in:

[Newindianexpress](https://www.newindianexpress.com)

CSIR-AMPRI से आत्मनिर्भर बनेगा भारत, US-फ्रांस जैसे देशों से आने वाले अहम पार्ट्स भोपाल में होंगे तैयार

CSIR-AMPRI

12th July , 2024

मध्य प्रदेश (Madhya Pradesh) की राजधानी भोपाल (Bhopal) में अब अंतरिक्ष (Space Sector), डिफेंस (Defence) और मेडिकल (Medical) से जुड़े कई ऐसे पार्ट्स (Parts) तैयार किए जाएंगे, जिसके लिए भारत (India) पहले विदेश पर निर्भर रहता था. इंडियन नेवी (Indian Navy), डीआरडीओ (DRDO), हिंदुस्तान एयरोनॉटिक्स लिमिटेड (HAL) जैसे संस्थानों के लिए कॉम्पोनेंट अब भोपाल में स्थित सीएसआईआर एम्प्री CSIR-Advanced Materials and Processes Research Institute (AMPRI) में ही बनेंगे. इस कदम से मेक इन इंडिया (Make in India) और आत्मनिर्भर भारत (Self-reliant India) या (Atmanirbhar Bharat) जैसी पहल को बल मिलेगा. आइए एम्प्री भोपाल के डायरेक्टर डॉ अवनीश श्रीवास्तव से जानते हैं कि कितना अहम है प्रोजेक्ट.

CSIR-AMPRI Bhopal: डायरेक्टर डॉ अवनीश श्रीवास्तव

हाई-टेक मशीनें हुईं स्थापित

यह प्रोजेक्ट मटेरियल डेवलपमेंट टेक्नोलॉजी में बड़ी पहल माना जा रहा है, इस फैसले से विदेशी उपकरणों पर लग रही लागत में कमी आएगी. इसी के साथ देश की जरूरतों को ध्यान में रख मैनुफैक्चरिंग परफॉर्मेंस पर जोर दिया जाएगा. देश में पहली बार ऐसी हाई-टेक मशीन स्थापित हुई हैं, जो मुख्य तौर पर 3डी प्रिंटिंग (3D Printing) और लेज़र कटिंग (Laser Cutting) का काम करेगी. एम्प्री भोपाल (AMPRI Bhopal) में बने कल-पुर्जे देश के विभिन्न संस्थान मुख्यतः डीआरडीओ, हिंदुस्तान एयरोनॉटिक्स, इंडियन नेवी और मेडिकल सेक्टर में इस्तेमाल किए जा रहे उपकरणों का हिस्सा बनेंगे.

क्यों खास हैं ये पार्ट्स?

अंतरिक्ष में कम तापमान होने से ऐसे पुर्जों को बनाया जाना जरूरी होता है, जिस पर तापमान असर न करें. इन्हें डिमांड के अनुसार बनाए जाना एक चुनौतीपूर्ण कार्य रहता है. बड़ी बात है कि स्टील, ग्राफीन और टाइटेनियम समेत कई अन्य मेटल को मिलाकर इसे बनाया जाता है. मटेरियल्स को 3500 डिग्री तक मेल्ट करने के साथ सुनिश्चित किया जाता है कि मटेरियल हाई टेंपरेचर के साथ लो टेंपरेचर पर भी अच्छे से काम कर सके.

क्या फायदे होंगे?

अहम मशीनों में लगने वाले इन पुर्जों की मैनुफैक्चरिंग अब देश में होने से वेटिंग टाइम में कमी आएगी और इसके साथ साइंटिस्ट्स अपने ज़रूरत के अनुसार इन पुर्जों पर काम कर इन्हें डिजाइन कर पाएंगे.

IMMT-led consortium in fray to pilot India's first green steel initiative

CSIR-IMMT

12th July , 2024

A consortium headed by the Institute of Minerals and Materials Technology (IMMT) has expressed interest to pilot India's first green steel-making initiative using 100 per cent hydrogen-based DRI production method. The project will be partly supported by the steel ministry.

In industrial-scale hydrogen-iron making, also known as direct reduction of iron (DRI) using hydrogen, the oxygen is removed from the iron-ore. But instead of using high carbon emitting fossil fuels, it is done using hydrogen with the waste gas being water. The DRI so produced, also called sponge iron, is then fed into an electric arc furnace where electrodes generate a current to use it to produce steel.

Earlier in June, steel Ministry had floated tenders – under the National Green Hydrogen Mission with an outlay Rs ₹455 crore - seeking participation for industry to pilot green steel-making, that is steel made where carbon emission or carbon content is substantially lower. The pilots will use hydrogen as an alternative to conventional coking coal.

Three steel-making methods were explored; the first one involve 100 per cent hydrogen-based DRI production; the second involves injecting hydrogen into an existing blast furnace; and third will see blending of hydrogen with natural gas in an existing DRI plant so as to gradually bring down fossil fuel usage.

“So far a consortium-based pilot for H₂ based DRI facility has received a bid. The CSIR IMMT-headed consortium along with some other stakeholders have so far come ahead and placed a bid. It is under consideration at the moment,” a Ministry official told businessline. “The last date of bid submission is July 12 for all the three processes. And till a few days ago, we had received one bid for 100 per cent hydrogen based DRI making,” the official said.

Incidentally, apart the the IMMT-based consortium, another institute, IIT–Roorkee, has recently come up with a presentation to the Ministry for retro-fitting in (coal-intensive) blast furnaces that allows them to use gas or bio-coke as alternatives.

CO₂ emissions in steel-making

The need to decarbonise the industry is pressing.

Steel production in India remains heavily dependent on coking coal in traditional blast furnaces, which produces huge amounts of carbon dioxide. Electric arc furnaces typically used in the recycling of scrap or final stages of steel production are less carbon-intensive. But can also be highly polluting.

Overall, steel production is calculated to be responsible for 7-9 per cent of the world's annual CO₂ emissions, according to the World Steel Association.

Incidentally, the average CO₂ emission intensity of the Indian steel industry was projected to come down from 3.1 T/tcs in 2005 to 2.64 T/tcs by 2020 and is targeted to come down to 2.4 T/tcs by 2030 (that is, approximately 1 per cent per year).

Cost of hydrogen

Ministry officials said, work in underway to bring the cost of hydrogen to around \$1–1.5 per kg, as against the existing \$4-odd per kg. Some incentives have been announced already.

The second tranche of the SIGHT (Strategic Interventions for Green Hydrogen Transition) scheme with an outlay of ₹2,220 crore and a capacity addition of 1,500 MW has been announced.

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Sugarcane bagasse to vegan leather: Innovation to help increase income for sugarcane farmers

CSIR-NIIST

11th July , 2024

In a significant development for the sugar industry and sugarcane farmers, bagasse, a byproduct of sugar production, is now being utilized to produce vegan leather. This innovative approach not only addresses environmental concerns but also opens up new avenues for revenue generation.

India's vast sugarcane production could effectively utilize sugarcane waste through technology developed by PA Footwear P Ltd, a company specializing in vegan leather alternatives. Emphasizing how sugarcane bagasse can be useful for the industry and farmers, Chinnasami Anbumalar, Vice Chairman of PA Footwear Ltd, said, "In sugar mills, it is occasionally used to generate electricity. Farmers use it when producing jaggery in temporary crushing units installed in their fields. In both scenarios, excess bagasse is often burned in the fields, leading to waste. By purchasing a portion of this surplus material, we can prevent it from being burned and provide farmers with an additional source of income, resulting in a marginal increase in their earnings."

Speaking about other products in the pipeline from sugarcane, he added, "The National Institute for Interdisciplinary Science and Technology (NIIST), Thiruvananthapuram, a constituent laboratory of CSIR (CSIR-NIIST), has already transferred technology for making disposable cutlery from sugarcane bagasse."

The demand for vegan leather made from sugarcane seems to be growing. Anbumalar noted, "There has been a general interest in evaluating vegan sugarcane sheets for all kind of products like shoes, sandals, bags, belts and mobile pouches. PA Footwear and Ortholite have joined forces, crafting foot-bed and insole innovations with vegan and recycled materials. Incorporating VeganVirya, a 95% plant-based material, they stride toward sustainable footwear. This collaboration marries innovation and eco-consciousness, paving the way for a

greener future in footwear manufacturing.” Animal rights group PETA India emphasized that India’s leading position as a major global sugarcane producer presents ample opportunities for expanding the use of sugarcane-based vegan leather. PETA India also plays a significant role in promoting sugarcane-based vegan leather.

In a statement, PETA India said, “Globally, brands are increasingly adopting vegan materials across a range of products from shoes to cars. The Material Innovation Initiative’s report, “Brand Engagement with Next-Gen Materials 2023,” highlights numerous collaborations between innovative vegan material companies and brands in apparel, accessories, footwear, automotive, and home goods sectors. Prominent celebrities such as Sunny Leone, Dia Mirza, Sonakshi Sinha, Jacqueline Fernandez, and Milind Soman have appeared in PETA India campaigns advocating for vegan fashion. The “PETA-Approved Vegan” (PAV) certification is proudly used by over 1000 brands including Allen Solly, Virgio, IMARS Fashion, The CAI Store and more to promote handbags, shoes, clothing, accessories, furniture, and home decor items made from vegan materials instead of animal-derived ones like leather, silk, wool, fur, and feathers. Brands that obtain certifications demonstrate their commitment to ethics, animal compassion, and sustainable production.”

“PETA is celebrating the innovation of vegan leather material from sugarcane crop by National Institute for Interdisciplinary Science and Technology (NIIST) and P A Footwear that signals tremendous opportunity in the vegan leather market. The Central Leather Research Institute in Chennai received an award from PETA India for creating leather from mangoes. The NIIST also developed vegan leather from agricultural waste.” it further added.

By converting bagasse into sustainable vegan leather, manufacturer is contributing to the circular economy while meeting the growing demand for eco-friendly alternatives to traditional leather. This initiative is poised to enhance the income opportunities for sugarcane farmers and bolster the economic sustainability of the sugar industry, aligning with global trends towards sustainable practices and reducing environmental impact.

Published in:

[Chinimandi](#)

CSIR-NEIST holds training on MFMPU & millet processing in remote Namte

CSIR-NEIST

11th July , 2024

Naharlagun CSIR-North East Institute of Science and Technology branch laboratory of in collaboration with Tawang district agriculture officer organised a demonstration-cum-training for utilization of 'multipurpose food and millet processing unit' (MFMPU) in Namet village on Wednesday.

It facilitated promotion of sustainable food processing technologies among 65 participating e farmers, KVK scientists and agricultural department field functionaries. Kitpi EAC T. Kakki, speaking as chief guest, stressed on maintaining hygiene while processing value added food products. He asked the farmers to adopt scientific cultivation practices with special emphasis on organic farming. District agronomist L. Zimba advised them to utilize processing machineries to full capacity.

Entomologist K.B. Kayastha spoke on different aspects of packaging and marketing of processed food items for profitability.

In technical session, CSIR-NEIST senior principal scientist Dr. Chandan Tamuly highlighted importance and potential impact of food processing technologies for value addition followed by demonstration on millet and multipurpose food processing units.

The MFMPU was handed over to the villagers. Such training is also proposed, at Teli and Pamaghar villages of the district, according to an official release.

Published in:

Arunachalobserver

Global recognition for CSIR-NGRI scientist

CSIR-NGRI

11th July , 2024

CSIR-NGRI chief scientist Subash Chandra has been elected global vice-chair of the Society for Exploration Geophysics' Near Surface Geophysics Technical Section for a term of two years. Mr. Subash Chandra is an expert in groundwater research specialising in electromagnetics, aquifer mapping and converting geophysical data into hydrogeological models. His research in the Ganga plains led to the discovery of a paleo river near Prayagraj, enhancing understanding of river aquifer interactions, according to a press release.

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