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The Innovation Engine of India

NEWS BULLETIN
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Compiled by Science Communication and Dissemination Directorate (SCDD), CSIR, Anusandhan Bhawan, New Delhi

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Union Minister Dr Jitendra Singh says, India has developed the world's latest Steel Road technology. CSIR- Central Road Research Institute (CRRI), New Delhi, which was founded in 1952, has pioneered the development of a revolutionary Steel slag road technology which facilitates the large-scale utilization of waste steel slag of steel plants in road construction

CSIR-CRRI, CEERI

17th July , 2023

Union Minister of State (Independent Charge) Science & Technology; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space Dr Jitendra Singh today announced that India has developed the world's latest Steel Road technology. He informed that CSIR-Central Road Research Institute (CRRI), New Delhi, which was founded in 1952, has pioneered the development of a revolutionary Steel slag road technology which facilitates the large-scale utilization of waste steel slag of steel plants in road construction.

The Minister further disclosed that in June 2022, Surat in Gujarat became the first city in the country to get a processed steel slag (industrial waste) road built as part of a joint-venture project by the Council of Scientific and Industrial Research (CSIR), Central Road Research Institute (CRRI), Union Ministry of Steel, government think-tank NITI Ayog, and Arcelor Mitttal Nippon Steel (AM/NS), at Hazira.

Slag is made up of impurities melted out of the ore during the steel-making process in most of the Steel Plants.

Dr Jitendra Singh said steel slag technology in paving the roads is in tune with Prime Minister Narendra Modi's "Waste to Wealth" Mantra. "This innovative technological initiative also addresses the problem of environmental degradation caused by waste steel slag and unsustainable mining and quarrying of natural aggregates. CRRI has developed several key technologies for sustainable utilization of waste materials in road construction", he said.

The stretch of six-lane road experimentally paved with slag from AM/NS plant has been shown to resist beating from weather as well as from thousands of heavy trucks, even though the surface is 30% shallower than that of roads paved with natural aggregates.

The Border Roads Organisation (BRO) also used steel slag to construct a long-lasting heavy-duty road at Arunachal Pradesh along the India-China border area. The steel slag material was given by Tata Steel Ltd free of cost and transported from Jamshedpur to Arunachal Pradesh by Indian Railways free of cost. Besides, India's largest road building agency, National Highway Authority of India successfully tested the Steel Slag Road technology on NH-66 (Mumbai- Goa).

Dr Jitendra Singh, who visited the Central Road Research Institute here today, said that the steel slag road not only cost about 30% cheaper than conventional paving but they are also more durable and resistant to weather vagaries.

"Steel slag roads have been found to last ten years as compared to three to four years for bitumen roads, thus bringing down sharply the maintenance costs. In Surat, the steel slag road top has been found to weather the erosive saline marine environment while in the cold, snowy and torrential rain prone toughest Himalayan terrain, the steel slag roads have been found to last longer" he said.

India is the world's second largest steel producer. For per ton of steel production around 200 kg Steel slag is generated as solid waste. Steel slag generation in the country is about 19 Million tons per annum and expected to reach 60 million tons by 2030. This huge quantity of

steel slag is piled up in and around the steel plants as big mounds and becoming the source of air, water, and land pollution. The potential valorisation of steel slag as processed steel slag aggregates provides an environment friendly cost-effective alternative of natural aggregates for road construction in the form of steel slag road.

The Science & Technology Minister called for more engagement, synergy and pooling of resources between the CRRI, government think-tank NITI Aayog, various Central Ministries including Steel, Road Transport and Highways, Urban Development and Rural Development, NHAI, engineering institutes such as the IITs, NITs & IIITs besides the private sector steel majors such as TATA STEEL, ARCELOR MITTAL NIPPON STEEL INDIA, JSW STEEL and Rashtriya Ispat Nigam Limited.

“The idea is to increase the scale of road construction. Once you reach out to the market, you have a linkage with the industry, the industry is expected to sell it across, and to do so, they have to propagate themselves,” he said.

Nearly 50,000 kms of National Highways have been added in the last nine years, while the pace of construction more than doubled from 12 to 29 km/day since 2014. In May this year, India achieved a milestone by laying 112.5 lane kilometres of bituminous concrete road within a timeframe of 100 hours.

“India’s network of National Highways, at 1.45 lakh km, is now the second largest in the world after the United States, and it has increased by 59 per cent in the past nine years of the government led by PM Modi. Construction of National Highway in the country grew to 1,029 kms in January 2023 from 419 kms in August 2022 to achieve this feat,” he said.

During the visit, Dr Jitendra Singh also launched the CSIR ‘One Week One Lab’ programme. He also interacted with students being conducted on a guided tour of CRRI as part of the ‘One Week One Lab’ campaign.

Dr Jitendra Singh lauded the CRRI for partnering with the Central Electronics Engineering Research Institute (CEERI) in Pilani for an AI mission project, which seeks to harness the power of Artificial Intelligence in transportation systems. During the visit, the Minister inspected the Mobile Cold Mixer-cum-Paver, specifically designed for constructing roads in high-altitude regions, and the Patch Fill-Pothole Repair Machine, which enables quick and economical repairs of roads in both urban and rural areas.

Published in:

Pib

Steel slag road technology fulfilling the Prime Minister's 'Waste to Wealth' mission: Sh. Faggan Singh Kulaste

CSIR-CRRI

19th July , 2023

Union Minister of State for Steel Sh. Faggan Singh Kulaste, while participating in the industry meet (held on 18th July, 2023) organized under the 'One Week One Lab' program of Council of Scientific & Industrial Research (CSIR)-Central Road Research Institute (CRRI), said that the Steel Slag Road technology of CSIR-CRRI is playing an important role in realising the Prime Minister Sh. Narendra Modi's mission of 'Waste to Wealth'.

The Union Minister informed that India is the second largest steel producing country in the world and about 19 million tonnes of steel slag is generated in the country as a solid waste, which will increase to 60 million tonnes by the year 2030. (About 200 kg of steel slag is generated in one tonne of steel production).

Due to non-availability of efficient disposal methods of steel slag, huge piles of steel slag have come up around the steel plants, which have become a major source of water, air and land pollution. The 1st road made with steel slag road interpretation technology in Surat, Gujarat, has become famous for its technological excellence at national and national level. About one lakh tonnes of steel slag aggregate has been used in its construction, under the technical

guidance of CRRI at the Hazira plant of ArcelorMittal Nippon Steel. No natural ballast of any kind has been used in the construction of this road.

Border Roads Organization has also constructed a steel slag road in Arunachal Pradesh along with CRRI and Tata Steel on India-China border, having a much longer life than conventional road. Similarly, the National Highways Authority of India (NHAI) has also successfully used this technology in road construction on National Highway-66 (Mumbai-Goa) in collaboration with JSW Steel, under the technical guidance of CRRI.

The Minister also highlighted that the Steel Ministry is working with the Ministry of Science and Technology and Ministry of Road Transport and Highways, Government of India, for the usage of steel slag road technology throughout the country.

He congratulated Dr. Manoranjan Parida, Director of CRRI and Dr. Satish Pandey, Principal Scientist, Head of Steel Slag Road Project, for the development of this technology and strongly encouraged the institute for road construction across India through this technology.

Steel Slag Road Technology

The technology has been developed by the Central Road Research Institute under a research project in collaboration with the Ministry of Steel, Government of India and four major steel manufacturing companies of the country, viz., ArcelorMittal Nippon Steel, JSW Steel, Tata Steel and Rashtriya Ispat Nigam. This technology facilitates the large-scale utilization of waste steel slag of steel plants and has proved very useful in effective disposal of about 19 million tonnes of steel slag generated in the country. This technique has been successfully tested in road construction in four major states of the country including Gujarat, Jharkhand, Maharashtra and Arunachal Pradesh.

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CSIR-NBRI

20th July, 2023

पौधों की नई किस्मों के विकास पर जोर

कार्यालय संवाददाता, लखनऊ

अमृत विचार : पौध प्रजाति और कृषक अधिकार संरक्षण अधिनियम 2001 के तहत पौधों की किस्मों, कृषकों व प्रजनकों के अधिकारों की सुरक्षा एवं नई पौधों की किस्मों के विकास को बढ़ावा दिया जा रहा है। इसमें जिस किसान ने कोई नई किस्म खोजी या विकसित की हो उसे किस्म को सुरक्षा प्रदान करता है।

यह जानकारी पौधा किस्म एवं कृषक अधिकार संरक्षक प्राधिकरण (केंद्रीय कृषि एवं किसान कल्याण मंत्रालय) के संयुक्त रजिस्ट्रार डॉ. दीपल रॉय चौधरी ने राष्ट्रीय वनस्पति विज्ञान अनुसंधान संस्थान (एनबीआरआई) में बुधवार को राष्ट्रीय बौद्धिक संपदा महोत्सव के मौके पर आयोजित परिचर्चा के दौरान कही।

उन्होंने बताया कि इस अधिनियम के तहत प्राधिकरण किसान की किस्मों का पंजीकरण कराकर बहुमूल्य पादप आनुवंशिकी संसाधन का गलत उपयोग होने से बचाता है। पौधों की किस्मों के परीक्षण के लिए पूरे देश में प्राधिकरण द्वारा 155 विशिष्टता, एकरूपता और स्थिरता परीक्षण केंद्र स्थापित किये गए हैं।

दीप प्रज्जवलित करते मुख्य अतिथि डॉ. दीपल रॉय चौधरी व अन्य। अमृत विचार

● **राष्ट्रीय बौद्धिक संपदा महोत्सव के दौरान परिचर्चा का आयोजन**

Published in:

Amrat Vichar, Aaj , Dainik Jagran, Hindustan, Lok Satya

Agrotech IP Conference held at CSIR-IIIM, Jammu

CSIR-IIIM

19th July , 2023

CSIR-IIIM Jammu has inaugurated the National Intellectual Property Festival-NIPF (Rastriya Boudhik Sampada Mahotshav) on July 17, 2023.

On the Second day of celebration of National Intellectual Property Festival, one day Agrotech IP Conference on "Nurturing Innovation and Intellectual Property in Plant Varieties and Agri-Startups" is being organized at CK-Atal Auditorium of CSIR-IIIM, Jammu which was attended by Farmers, Scientists, Scholars and Students.

The program aims to empower farmers with knowledge and understanding of their rights and responsibilities under the PPV&FRA Act. The program aims to educate Scientists, Farmers, research scholars and students about the key provisions and benefits of this important legislation.

Dr Uma Kant Dubey, Deputy Registrar, Protection of Plant varieties and Farmers Rights Authority (PPV&FRA), Ministry of Agriculture and Farmers Welfare, while delivering the key note address, has provided guidance on the procedure for registration of plant varieties and the steps involved in the protection process. He gave an in-depth explanation of PPV&FRA Act's key provisions, rights, and obligations for farmers and plant breeders. He created awareness about the benefits of using protected varieties and how they contribute to increased agricultural productivity.

Dr Manju Gerard, Principal Scientist, Indian Council of Agricultural Research (ICAR), New Delhi, delivered a detailed session on scope of intellectual property rights in creating agricultural start-ups. It was informed that around 200 participants inclusive of Scientists, Farmers, Technical Staff, and Research Scholars & Project Staff physically participated in this event & 240 Participants attended online.

Earlier Er. Abdul Rahim, Head RMBD & IST Division of CSIR-IIIM in his welcome address, has given a brief overview of the today's event. He further emphasized about the importance of creating awareness on PPV&FRA Act &how Geographical Indication (G.I) is utilised as a tool for marketing, branding, and expanding product portfolios around the world.Jammu & Kashmir is well-known around the world for its products such as Kashmiri Handicrafts, Kashmiri Saffron, Kashmiri Shawls, and Baderwah Rajma.

Dr Kancherla Prasad, the convenor of the program has emphasized the importance of Agrotech-IP conference is being organized by CSIR-IIIM to promote knowledge sharing, collaboration, and the protection of intellectual property rights in the agrotech industry.

All S&T staff of Plant Sciences & Agro technology (PSA) division of CSIR-IIIM, Jammu & Chatha Farm attended the Conference.

Dr. Suphla Gupta, Senior principal Scientist has conducted the proceedings, while as Dr.Sumeet Gairola, Principal Scientist presented the vote of thanks.

Published in:
Scoopnews

CSIR-IHBT

19th July, 2023

नई तकनीक सीख उन्नत समाज का करें निर्माण

संवाद सहयोगी, पालमपुर : वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद (सीएसआइआर)- हिमालय जैवसंपदा प्रौद्योगिकी संस्थान (आइएचबीटी) पालमपुर में मंगलवार से न्यूट्रास्यूटिकल डिलीवरी में नैनोटेक्नोलाजी विषय पर शुरू हुई व्यावहारिक प्रशिक्षण कार्यशाला में युवा शोधकर्ताओ को उच्च गुणवत्ता अनुसंधान के लिए अपेक्षित कौशल प्राप्त करने का अवसर मिलेगा। संस्थान निदेशक डा. सुदेश कुमार यादव ने मंगलवार को कार्यशाला का उद्घाटन किया तथा उपरोक्त विषय पर किए जा रहे कार्यों का उल्लेख किया।

आइएचबीटी पालमपुर में नैनोटेक्नोलाजी विषय पर आयोजित कार्यशाला के बाद संस्थान निदेशक के साथ प्रतिभागी • जागरण

डा. यादव ने नैनोटेक्नोलाजी एवं न्यूट्रायूटिकल तथा उनके समन्वय पर भी प्रकाश डाला। साथ ही उन्होने प्रतिभागियों से इस अवसर का भरपूर उपयोग करने का आह्वान किया ताकि वे नई तकनीकों को सीखें और एक उन्नत समाज का निर्माण करें। कार्यशाला आयोजक डा.अंकित सनेजा ने बताया कि कार्यशाला विज्ञान और इंजीनियरिंग अनुसंधान बोर्ड, विज्ञान और प्रौद्योगिकी विभाग, भारत सरकार की ओर से प्रायोजित की जा रही है। कार्यशाला में देश के विभिन्न संस्थानों, दिल्ली विश्वविद्यालय, जवाहरलाल नेहरू विश्वविद्यालय, नाइपर हैदराबाद, दक्षिण बिहार केंद्रीय विश्वविद्यालय, पीजीआइ चंडीगढ़, श्री धन्वंतरी आयुर्वेदिक कालेज एवं हास्पिटल चंडीगढ़ के एमएससी, पीएचडी स्कालर भाग ले रहे हैं।

Published in:

Dainik Jagran, Amar Ujala, Triciy Times, Divya Himachal

Hyderabad: One Week, One Lab campaign to begin at CCMB from Aug 1

CSIR-CCMB

18th July , 2023

Hyderabad: As a part of the One Week, One Lab which is to showcase technological breakthroughs and innovations in laboratories that are attached to the Council of Scientific and Industrial Research (CSIR), Hyderabad-based Centre for Cellular and Molecular Biology (CCMB) will remain open for all from August 1 to August 5.

According to the officials of CCMB, during the One Week, One Lab initiative, the CCMB will showcase its different facets of research and technology development.

The novel initiative is also aimed to develop collaboration with industry for deployment and commercialisation, identifying potential industries for the co-development of next-gen technology and products and motivating youngsters and budding entrepreneurs to create startups.

The 'One Week, One Lab' initiative will be inaugurated on August 1 and on the second day (August 2) will feature a workshop with high school teachers aimed to popularise educational kits developed by CCMB. On August 3, the genetic research facility will distribute its improved rice varieties to farmers drawn from across Telangana while on August 4, an exclusive session between CCMB senior scientists and college students will be held. On the last day, a consultative meeting on invasive species between invited forest and government officials will be organised, said senior officer, CCMB.

The themes chosen for this year's event include Developmental Biology, Structural Biology, Genomics and Epigenetic Regulation, Cell and Stem Cell Biology, Microbes and Biology of Infection and Wildlife Conservation and Ecology, he added.

Published in:

The Hans India

NEERI to recommend appropriate technology for rejuvenation of polluted waterbodies

CSIR-NEERI

18th July , 2023

The Council of Scientific and Industrial Research-National Environmental Engineering Research Institute (CSIR-NEERI) has recommended a detailed feasibility study for identifying appropriate technology for the rejuvenation of waterbodies affected by pollution owing to the illegal discharge of untreated wastewater.

A two-member team of scientists from the institute had conducted a site assessment on select polluted stretches in Ernakulam, Alappuzha, and Thiruvananthapuram in the second week of May based on a directive issued by the National Green Tribunal (NGT). The Southern Bench of the tribunal had asked the government to implement temporary measures such as phytorid wastewater treatment technology proposed by the NEERI while stating that projects to rejuvenate canals could not be kept pending forever.

The agency has informed that it will submit a detailed project proposal on the suitable treatment technology applicable for the polluted sites. The Kerala State Pollution Control Board has requested the NEERI to submit a project proposal, with scope of work and financial budget immediately. It has suggested that the assistance of the Suchitwa Mission, local bodies, National Institute for Interdisciplinary Science and Technology, Thiruvananthapuram, and engineering colleges may be sought for the project in order to strengthen their technical capability while undertaking such projects.

The team from NEERI had inspected Perandoor and Edappally canals, Pallikallar stretch in Karunagappally, Manichithodu, Ashtamudi lake, and sewage pumping stations in Pattom, Pattoor, Kannamoola and Rajaji Nagar in Thiruvananthapuram.

The scientists held discussions with officials on various aspects of phytorid technology and its feasibility. The technology involves a constructed wetland exclusively designed for

treatment of municipal, urban, agricultural and industrial wastewater. The system uses certain specific plants that can absorb nutrients directly from wastewater but do not require soil. These plants act as nutrient sinker and remover.

Published in:
The Hindu

State nod for research & dev project on ALS patients

CSIR-IICB

18th July , 2023

The state Department of Science and Technology & Biotechnology has given consent to CSIR-Indian Institute of Chemical Biology (IICB) to take up a research and development project on mutation aggregation profiling of Amyotrophic Lateral Sclerosis (ALS) patients in West Bengal.

ALS is a rare neurological disease that affects motor neurons — those nerve cells in the brain and spinal cord that control voluntary muscle movement. It is the most common form of Motor Neuron Disease (MND).

The disease is irreversible and there are no medications. Recently, renowned city-based doctor, Subrata Goswami died in the city on July 5 after suffering from MND. He was the founder of the pain management unit at the ESI Hospital Sealdah.

“We had received a proposal from CSIR- IICB for taking up thorough research to combat & overcome the very rare MND in June. We felt that the time is ripe to encourage research in this disease and hence we have given it the necessary nod,” Ujjal Biswas, minister for Science and Technology and Biotechnology said. His ministry will be funding the research.

Dr Krishnananda Chattopadhyay, Chief Scientist of CSIR –IICB said that there is limited or no data available regarding patients suffering from this disease in the country or the state, however, presently the doctors are attending quite a good number of patients suffering from this disease. The patients for genome sequencing will be provided by the Bangur Institute of

MND is a rare condition that progressively damages parts of the nervous system.

Sometimes, death occurs fast and sometimes it takes place slowly. In the case of Dr Goswami's death, it occurred in two years while Stephen Hawkins died after 20 years. "This aspect will be taken up in our research," said Mahua Ghosh Chaudhury, Associate Professor of School of Material Science and Nano Technology that has joined hands with IICB in this research.

ALS often begins with muscle twitching and weakness in an arm or leg, trouble swallowing or slurred speech. Eventually, ALS affects the control of the muscles needed to move, speak, eat and breathe.

Published in:
Millenniumpost

CSIR-IMMT' Programme On IP Awareness Among Greater Masses

CSIR-IMMT

18th July , 2023

In continuation to the celebration of Azadi Ka Amrit Mahotsav – Rashtriya Boudhik Sampada Mahotsav (RBSM) / National Intellectual Property Festival (NIPF), CSIR-IMMT has conceptualized and Flagged Off "CSIR- IP Rath for Unleashing IP knowledge to greater masses and IP Yatra will be performed for two weeks – sensitizing school/college students, researchers/faculty, startups/entrepreneurs, farmers/self help groups, artisans, and others at large on various aspects of IPRs (including GI, Indian Knowledge systems and plant varieties) using videos, posters and short presentations. Expressing his happiness about this programme, Director Ramanuja Narayan said, We are proud to organise such awareness workshops on Intellectual Property. This will be really helpful for the participants in their future endeavor. My best wishes for this programme.

This two week CSIR-IP Rath Yatra, will be covering schools, colleges, institutions, universities, MSME, local villages and industrial units within the proximity of about 100 KM from Bhubaneswar. CSIR -Institute Of Minerals & Materials Technology (IMMT) in cooperation with its teams from Jigyasa (for student reach), CRTDH (for MSME/Industry reach), InTEC (for Incubation -Startup/entrepreneur reach), Skill Development (for other/ general reach), ESD – Workshop (for IP Rath) organizing this programme. An online or hybrid mode, two/three-day workshop will be organiz

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Odishanewsonline

CSIR-CFTRI scouts for tech-transfer in fish, meat, chicken, egg wafers

CSIR-CFTRI

17th July , 2023

CSIR- Central Food Technological Research Institute (CFTRI) is now looking for technology transfer opportunities from entrepreneurs who are engaged in food and beverage processing.

Some of the products that the Mysuru-based institute developed are fish wafers, meat wafers, chicken and egg wafers. These are positioned as snack foods and products with a lot of promise. These were presented at the recently-concluded One Week One Lab (OWOL), a theme-based campaign held at the CFTRI campus.

Fish, meat and egg wafers can be readily fried in any cooking oil or the dehydrated product can be used as ready to fry. These products can be introduced in school feeding programmes. Product can be prepared in shape with 1.5 to 2 mm thickness. It contains more energy material. It can be fried under normal condition. Product may be packed in flexible pouches at low moisture and oxygen transmission.

According to CFTRI, the product has excellent market potential since it contains sufficient quantity of carbohydrate, protein and mineral content. All the raw materials are indigenously available. The raw material confirms the general food standard. Major equipment required are meat mincer, cooker, slicer, fryer and dryer.

The technical assistance cell dealing with the products shared the economics of the project. The capacity of production is - 100 kg/day and the cost of plant/equipment is around Rs 3 lakh. In the case of meat wafers, starch, sheep or goat lean meat, sugar, and salt are used as the raw materials for the products.

The process for manufacturing of meat wafer involves following steps: dressed meat, de-boning, mincing, mixing of ingredients, moulding, cooking, cooling, conditioning, slicing,

drying, frying and packing. The major equipment required are meat mincer, bowl chopper, cooker, nitrogen packing machine, mixer, cooler, slicer, boiler, fryer and dryer.

Sharing the details of the production capacity and other related information, CFTRI said that for the manufacture of 100 Kg / day across 300 days per annum there is need for a rented building. The working capital needed is Rs 2.10 lakh for 15 days. The cost of plant/equipment is Rs 7 lakh.

In the case of chicken wafers, they are to be used as a snack food. The product can be readily fried in any cooking oil or the dehydrated product can be used as ready to fry. Chicken wafers can be introduced in school feeding programmes. Product can be prepared in shape with 1.5 to 2 mm thickness. It contains more energy material. It can be fried under normal condition. Product may be packed in flexible pouches at low moisture and oxygen transmission. The cost of plant/equipment is around Rs 3 lakh.

In the case of egg wafers, starch, egg, sugar, rice flour, garlic powder and salt are used as the raw materials for the products. The major equipment required are mixer, cooker, nitrogen packing machine, heat sealer, slicer, boiler, fryer and dryer. The working capital needed is Rs 1.09 lakh for 15 days and the cost of plant/equipment is Rs 4.80 lakh.

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Fnbnews

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