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"CSIR JIGYASA SUMMER CAMP" exclusively for the Tamil Nadu **State Government school students**





CSIR-Structural Engineering Research Centre (CSIR-SERC), a constituent laboratory of CSIR, organising a "CSIR JIGYASA SUMMER CAMP" exclusively for the Tamil Nadu State Government school students from 24 - 26 July 2024. at CSIR Campus, Taramani, Chennai. The event is being organised with the aim of reaching out to the student communities as part of scientific, social



responsibility and knowledge sharing of various scientific developments in different fields of Science / Engineering / Technology through the JIGYASA programme. 39 students and 13 teachers from four districts (Kanchipuram, Tiruvallur, Chennai & Chengalpattu) are participating in this 3-day summer camp in Residential mode.

During the inaugural event, Dr. S. Maheswaran, Senior Principal Scientist delivered the opening remarks. Dr. J. Rajasankar, Chief Scientist delivered the welcome address. Dr. N. Anandavalli, Director of CSIR-SERC & Coordinating Director of CMC delivered the

presidential address. The inaugural session was completed with a formal vote of thanks by Mr. E. Ashokkumar, Scientist, and a group photo session.

Following the formal inauguration function, A motivational talk titled "Inspire from Nature; Protect it for Future" was delivered by the Director, CSIR-SERC, Dr. N. Anandavalli, to the participants. In her motivational talk, she spoke about the great scientists of India. She encouraged the students to be creative, innovative, and to achieve success by way of dreaming big, fixing definite goals, preparing definite plans, working hard and to act with persistence. Few inventions inspired from nature were explained.





The students & teachers visited various laboratories of CSIR-SERC, and the scientists of various laboratories demonstrated different experiments to the students. For the next two days, various events, such as laboratory visits, Quiz programmes, hands-on experiments, and scientific demonstrations, are being organized for the participants.

Dr. S. Maheswaran, Senior Principal Scientist, and Mr. E. Ashokkumar, Scientist Coordinated the entire event.











NML Jamshedpur: Enhancing industry skills through Mineral Processing Training





The Mineral Processing Department at CSIR – National Metallurgical Laboratory (NML) inaugurated a four-day corporate training program on Mineral Characterization, Beneficiation, and Agglomeration (MCBA-2024). The event brought together executive trainees from various plants of the Steel Authority of India Limited (SAIL).



In his welcome address, Sandip Ghosh Chowdhury, Director of CSIR-NML, emphasized the significance of such training programs in fostering innovation and enhancing quality in both the industry and environmental sectors. He highlighted the critical role of mineral processing in India's industrial landscape and the importance of adopting new technologies for improved recovery and sustainability in the mineral sector.

S. Sivaprasad, Head of Human Resources, also welcomed the participants and underscored the potential for new technical collaborations and industrial partnerships to drive technological advancements in mineral processing. He expressed optimism about the future direction of technological development through such cooperative efforts.

Shobhana De, Head of the Mineral Processing Department, reiterated the essential synergy between science and industry. She stated, "Corporate training programs bridge the gap between science and industry, as neither can progress effectively without the other."

Ranjit Kumar Singh, the program coordinator, outlined the schedule of the training, which runs from July 23 to July 26. Each day will feature two sessions: the morning session will





consist of lectures by scientists on relevant topics, while the afternoon session will include practical demonstrations at a large-scale experimental plant (pilot plant).

The successful organization of the training program involved significant contributions from the Mineral Processing Department's scientists, including Manoj Kumar Mohanta, Rajendra Kumar Rath, Ari Vidyadhar, Ajit Swain, Ganesh Chalvadi, Abhishek Kumar, Kalicharan Hembram, and Abhijeet Manasingh, along with all the technical officers.

The MCBA-2024 training program promises to enhance the technical skills of the participants and foster a deeper understanding of the latest advancements in mineral processing, ultimately contributing to the growth and development of the industry.











Isro successfully conducts second test of Air Breathing Propulsion Technology





The Indian Space Research Organisation (Isro) on Tuesday successfully completed the second experimental flight demonstrating Air Breathing Propulsion Technology.

The test, conducted at 07:00 am from the Satish Dhawan Space Centre in Sriharikota, marks a crucial step forward in India's space propulsion capabilities.

The experiment utilised Isro's RH-560 sounding rocket, the heaviest in its sounding rocket family, as a cost-effective flying test bed. The Air Breathing Propulsion systems were symmetrically mounted on either side of the rocket, showcasing Isro's innovative approach to

testing advanced technologies.

During the flight, nearly 110 parameters were closely monitored to assess the performance of the propulsion system. The test achieved satisfactory performance of the sounding rocket and successfully ignited the Air Breathing propulsion systems, providing valuable data for future developments in this cutting-edge technology.

This experimental flight builds upon extensive ground tests conducted at various Isro centers, including the Vikram Sarabhai Space Centre (VSSC), Liquid Propulsion Systems Centre

(LPSC), and Isro Propulsion Complex (IPRC). Collaboration with the CSIR-National Aerospace Laboratories (CSIR-NAL) in Bengaluru further underscores the comprehensive approach taken in developing this technology.

The successful demonstration of Air Breathing Propulsion Technology represents a significant advancement in Isro's capabilities. This technology has the potential to revolutionize space travel by allowing vehicles to use atmospheric oxygen as an oxidizer, potentially reducing the overall weight of the propulsion system and increasing payload





capacity. As Isro continues to push the boundaries of space technology, this successful test flight paves the way for the next phase of development in Air Breathing Propulsion systems.

The data collected from this mission will be invaluable in refining and advancing this technology, potentially leading to more efficient and cost-effective space missions in the future.



Networking meeting for food start-ups at CFTRI

CSIR-CFTRI

The Atal Incubation Centre of Coffee Board (AIC-CCRI-CED) and BioNEST Incubation Center of CSIR-CFTRI, Mysuru, are jointly organising a networking meeting for food startups, entrepreneurs, and investors. The meeting will be held on July 26 on the CFTRI campus from 9.30 a.m. and 12.30 p.m.

Interested startups, incubators, industry experts, investors, and startup ecosystem enablers in the food and beverage domain can attend the meeting. The event is free of cost, but registration is mandatory. For more details and registration, contact: +91-9738342249/+91-9741290109.

BioNEST incubation

Also, the CSIR-CFTRI is inviting applications from food startups for its BioNEST incubation center. Startups working in food formulation, biotechnology, bioprocessing, and related domains are encouraged to apply.

Supported by BIRAC, CSIR-CFTRI Bio-NEST is dedicated to nurturing and supporting food startups, providing access to mentorship, instrumentation, pilot plant facilities and other resources, a press release said here.

The last date to submit applications is July 31.

For more information and to apply, contact Dr. P. Pavan Kumar, Manager, BioNEST Incubation Facility, CFTRI, Mysuru. E-mail: managerbionest@cftri.res.in or call 0821-2412608

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In a project led by the University of Debrecen, a collection of yeast strains was created and the anti-Fusarium and mycotoxin properties of these microbes were examined. The lactic acid bacteria strains of the Indian CSIR-NIIST research institute were also included in the research, the identification of which was partially carried out by the university. Among the lactic acid bacteria, many strains have been found that have good Fusarium antagonist properties and mycotoxin elimination ability. These strains were studied together with Indian colleagues and their technological applicability was proven at the TLR3 and TLR4 technological levels for corn silage and for different seeds – write the Agricultural sector.

During the tests, different yeasts with good mycotoxin tolerance and neutralizing ability were also included, of which the genomes of two promising strains were sequenced and their gene sets were analyzed, focusing especially on potential mycotoxin neutralizing genes. The molecular background of mycotoxin tolerance and elimination in yeasts was revealed by transcriptomic studies.

CSIR-IMMT HOSTS SERB-SPONSORED BET 2024 KARYASHALA

CSIR-Institute of Minerals and Materials Technology (CSIR-IMMT) has been instrumental in pioneering research in energy materials and devices, focusing on the development of novel materials for energy generation and storage through various technologies including hydrogen, photovoltaic cells, batteries, fuel cells, and more. Their contributions play a crucial role in advancing sustainable energy solutions and sensor technologies.

To commemorate this achievement, CSIR-IMMT is organizing a SERB-sponsored skill development workshop titled "Building capabilities in context to energy materials and devices" (BET 2024) from 22nd to 27th July 2024 at SS Bhatnagar Hall,CSIR-IMMT,

Bhubaneswar. This event marks a significant gathering of students from across the country, convened to explore and advance the boundaries of energy materials and technologies.

Speaking on this occasion, Dr. Ramanuj Narayan, Director of CSIR IMMT, extended a heartfelt welcome to everyone. He remarked that from the dawn of civilization to our ongoing quest for energy, we draw inspiration from nature and learn how to utilize its resources effectively.

During the event, the Chief Guest, Prof. Chandra Sekhar Sharma from IIT Hyderabad, delivered an inaugural lecture titled "Energy Storage Systems: Learning from the Past for Powering the Future."

Director In-Charge, Dr. Laxmidar Besra, also delivered an inaugural address. Additionally, Dr. Shahid Anwar highlighted the significance and content of Karyshala.

BET 2024 will provide a pivotal platform for understanding fundamental to latest developments, breakthroughs, and challenges in the field of energy materials. Over the next

six days, participants will engage in a rich program featuring keynote addresses, technical sessions, and panel discussions designed to address both current needs and future requirements of our nation in areas such as piezoelectric energy harvesting, electrochemical devices, thermoelectric waste heat recovery, green energy generation from hydrogen sources,

etc.

CSIR-CLRI organises Leather Tech Fair and Expo in Chennai

One-Week-One-Theme (OWOT) The campaign for the 'Chemicals (including Leather) and Petrochemicals (CLP)' theme was celebrated at CSIR-Central Leather Research Institute (CLRI) on July 16, 19 and 10. Following the grand inauguration and panel discussion organised on July 16, an array of informative and thought-provoking talks were organised on July 19 at CLRI. Dr K.J.Sreeram – Director of CSIR-CLRI welcomed the gathering comprising students and faculties of schools, and colleges, CSIR family and the industry stakeholders. He emphasized the importance of bringing about a change in perceptions about the leather industry among the public, the role of the leather industry in circularity, the reduction of carbon footprint, and the journey of CSIR-CLRI.

B. Ramalingam – Head of M/s Bhartiya International Ltd spoke about the reusability and recyclability of leather and its role in the productive conversion of bio-waste (hides and skins)

to value-added products.

Dr.B.Madhan - Chief Scientist at CSIR-CLRI shared insights on collagen and its diverse applications. C.Rajeshwara Rajha from M/s Sai Chamois Inc. spoke of the unique features of chamois leathers. Dr.Amit Ashok Vernekar – Scientist at CSIR-CLRI enlightened the students on the various opportunities available for Research Fellowships. This was followed by a talk by N. Priva – Senior Technical Officer at CSIR-CLRI, about the various instrumentation and analytical facilities at the institute. The talks were attended by around 480 students from National Public School, Gurunanak College, Presidency College and Veltech University and

research scholars of CSIR-CLRI. The event also witnessed the presence of Scientists of CSIR and Industry representatives.

CSIR-CLRI and CSIR-CECRI also jointly organized a Tech Expo of Leather and Coatings on July 19 and 20, wherein the public and students were informed about the different types of leathers and leather products, demonstration of batteries etc.

The leather Museum housed in the Institute was also kept open to the public. It exhibited a premium collection of leather artefacts of the last three centuries, e.g. leather vases, bags, garments, footwear and musical instruments. CSIR-CLRI hosted leather products show and sale with 100% genuine leather products from renowned leather product companies. There were around 700 visitors on both days for the Leather and Coatings Tech Expo, Leather Museum and Leather Products' sale.

Genetic study shows why some east Indian tribes are adopting Indo-European languages

A large-scale genetic study by scientists at the CCMB in Hyderabad and the Birbal Sahni Institute of Palaeosciences in Lucknow suggested that industrialisation and cultural exchange caused Austroasiatic and Indo-European languages to mix among some East Indian tribal populations.

About 5 per cent of Indians speak Austroasiatic languages, largely among the ancient tribal populations of Odisha, Chattisgarh, and Jharkhand. Overall, the Austroasiatic speakers have retained their languages firmly for the last 4000 years. However, recently, some of these populations have started adopting Indo-European languages.

A recent study led by Dr. Kumarasamy Thangaraj at the CSIR Centre for Cellular and Molecular Biology (CCMB), Hyderabad, and Dr. Niraj Rai at the DST-Birbal Sahni Institute of Palaeosciences, Lucknow, shed light on understanding these changes in the ancient tribes of East India. Cell Press has published the findings in the international journal Heliyon.

This is the first high-throughput genetic study of the East Indian tribal populations. The researchers studied four major tribal populations—Bathudi, Bhumij, Ho, and Mahali—from Odisha. They examined the genetic affinities of these populations and a few Indo-European speakers from nearby areas.

Their findings suggest that the two groups do not mix genetically. The researchers suggested that the linguistic mixing between the Austroasiatic and Indo-European speakers happened likely due to the industrialization movement of Indo-European speakers, which may be from neighbouring states, and modernization, i.e., cultural exchange, which may be due to marriage, trade, or education that brought them into close cultural contact with the Austroasiatic speakers, and some of them have adapted Indo-European as a primary language.

The study did not find any Indo-European-speaking population that has adopted the Austroasiatic language. "Using genetic and linguistic data, we established for the first time that the language of Austroasiatic-speaking tribal groups is altered by the recent demographic changes. These linguistic shifts largely have sociocultural effects and present a threat to the Austroasiatic languages if this trend continues, given that only a small number of people speak these languages," said Dr. Thangaraj.

"This study is crucial and also an important add-on to the existing genetic database of Austroasiatic speakers. Considering the fact that India is one of the most diverse assemblages of people in the world, this research work is significant in demonstrating the origin of Austroasiatic speakers and demographic changes that happened in the deep past and those ongoing," explained Dr Vinay Kumar Nandicoori, Director, CCMB. The other institutes and agencies involved in this study are the Academy of Scientific and Innovative Research (AcSIR), Ghaziabad, Shreyanshi Health Care Private Limited, Raipur, Chattisgarh, and Panjab University, Chandigarh.

Lavender Cultivation: J&K's New Agricultural Gold

Many local farmers receive income and employment from saffron farming, which has long been an important aspect of the region's agricultural character. Nonetheless, the introduction of the Purple Flowers Revolution—fueled by the growing of lavender—has brought about a profound shift in Jammu and Kashmir's agricultural environment in recent years. The Indian government, through the Council of Scientific and Industrial Research (CSIR), launched the Aroma Mission in 2016, with the goal of encouraging the cultivation of aromatic crops to lessen reliance on imported aromatic oils and boost the country's agro-economy. This initiative has played a major role in driving this change.

The region's unique climate, characterized by mild summers and abundant sunshine, proved to be ideal for lavender cultivation. Initially met with skepticism, the idea gradually gained traction as the economic benefits of lavender farming became evident. Unlike traditional crops such as corn, rice, and millet, which require significant investment and agricultural inputs, lavender thrives in marginal soils and requires less irrigation, making it an attractive option for farmers dealing with shrinking land holdings and water scarcity. Moreover, the high market value of lavender and the increasing demand for its essential oil in the perfume and aromatherapy industries promised substantial financial returns for farmers. The government initiative, combined with the enthusiastic response from farmers, resulted in the rapid expansion of lavender cultivation across the region. From the initial few acres, the area dedicated to lavender farming has now exceeded to many acres. Beyond economic gains, lavender cultivation has also brought about positive social and environmental changes. The shift to lavender farming has created new livelihood opportunities, particularly for women in rural areas. The labor-intensive nature of lavender cultivation and processing has enabled women to participate actively in the agricultural workforce, thereby contributing to household incomes and economic empowerment. Environmentally, lavender farming is a more sustainable practice compared to traditional agriculture. Lavender's low water requirements and resilience

to stress conditions make it an ideal crop for regions facing water scarcity and erratic weather patterns. Additionally, the aromatic plant's antimicrobial, antifungal, and antibacterial properties contribute to soil health, reducing the need for chemical inputs and promoting ecological balance.

Despite the impressive achievements of the Purple Flowers Revolution, several challenges remain. Market access and the volatility of prices for lavender products pose significant risks to farmers' incomes. Ensuring a stable and fair market for lavender and its derivatives is crucial for the long-term sustainability of the initiative. Additionally, expanding lavender cultivation to its full potential requires addressing infrastructural gaps, such as improving road connectivity to remote farming areas and establishing efficient supply chains. Investing in research and development to continually improve cultivation practices and develop valueadded products will also be essential to maintain the momentum of the Purple Revolution. Moreover, there is a need for comprehensive policy support to integrate lavender farming into the broader agricultural and economic framework of Jammu and Kashmir. This includes providing financial assistance, facilitating access to credit, and ensuring that farmers receive adequate compensation for their produce. Strengthening cooperatives and farmer associations can also enhance collective bargaining power and market access.

Furthermore, leveraging the cultural and historical significance of lavender in the region can enhance the branding and marketability of Jammu and Kashmir's aromatic products. The journey from saffron fields to lavender meadows in Jammu and Kashmir exemplifies the

transformative potential of innovative agricultural practices and strategic government interventions. The Purple Flowers Revolution, fuelled by the Aroma Mission, has not only revitalized the region's agricultural economy but has also brought about significant social and environmental benefits. As lavender cultivation continues to expand, it is poised to become a cornerstone of Jammu and Kashmir's agricultural landscape, driving economic growth, sustainable development, and improved livelihoods for its farmers. The success of this initiative serves as an inspiring model for other regions and countries seeking to enhance agricultural productivity and rural prosperity. By embracing the principles of sustainability,

innovation, and community empowerment, the Purple Flowers Revolution has set a new benchmark for agricultural excellence and economic resilience in Jammu and Kashmir. The journey ahead is filled with promise, and with continued support and collaboration, the region's lavender meadows will continue to bloom, heralding a bright and prosperous future

for all.

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