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Expert stresses on cultivating millets for attaining sustainable goals

CSIR-CFTRI

20th October, 2023

CSIR-Central Food Technological Research Institute (CFTRI) celebrated the "World Food Day 2023" on CFTRI campus here on the theme "Water is life, water is food, leave no one behind".

Water is essential to life on Earth and covers about 71% of its surface. Only 2.5% of water is fresh, suitable for drinking, agriculture, and most industrial uses. Water is a driving force for people, economies, and nature and the foundation of our food. Agriculture accounts for 72% of global freshwater withdrawals, but fresh water is not infinite like all natural resources. Rapid population growth, urbanisation, economic development, and climate change are putting

the planet's water resources under increasing stress, according to a press release here.

At the same time, freshwater resources per person have declined by 20% in the past decades and water availability and quality are deteriorating fast due to decades of poor use and management, over-extraction of groundwater, pollution, and climate change. Competition for this priceless resource is increasing as water scarcity becomes an ever-increasing cause of conflict. Around 600 million people who depend, at least partially, on aquatic food systems for a living are suffering the effects of pollution, ecosystem degradation, unsustainable practices and climate change, the release added.

Dr. N.G. Malleshi, a well-known scientist in the area of millet research and former Head, Grain Science and Technology, CSIR-CFTRI, who was the chief guest, inaugurated the programme by watering a plant sapling. Dr. Malleshi spoke on "Mainstreaming Millets for Food and Nutritional Security". He told the gathering about replacing the high water crops with millets for attaining sustainable goals and achieving water conservation as water is life for a better tomorrow and India believes in "Vasudaiva Kutumbakam". He emphasized the development of new generation of millet-based value added food product to attract more





consumers towards millet consumption which has lots of health benefits and stressed on more research and the scientific evidence to prove the other health benefits of millets and appreciated the government of India stand on promoting millets in international forums.

Dr. Sridevi Annapurna Singh, Director, CSIR-CFTRI, who presided over the function, emphasized that it is everyone's responsibility to conserve water for better tomorrow. She said millet agriculture is one of the right paths to conserve water and explained the importance of millet research and technologies that were developed at CFTRI pertaining to millets and its products.













The 82nd CSIR Foundation Day celebrations will be held at Central Food Technological Research Institute (CFTRI) at 10am on Saturday. The event will be inaugurated by Prof Rishikesha T Krishnan, director, and Ram Charan, chair professor in innovation and leadership, Indian Institute of Management, Bengaluru (IIMB). CSIR-CFTRI director Dr Sridevi Annapurna Singh, chief scientist Dr NK Rastogi and others will be present.









GI tagging to help boost farmers income

CSIR-CSMCRI

20th October, 2023

The Geographical Indication (GI) tag for agar-yielding red seaweed Gracilaria dura may encourage farmers to embrace commercial farming and help boost their income, contributing to the country's Gross Domestic Product, a senior scientist from CSIR-Central Salt and Marine Chemicals Research Institute has suggested.

Agar, also known as agar agar, is a jelly-like edible substance obtained from the red seaweed and possesses excellent thickening or gelling properties. It finds huge usage as tissue culture media during research involving growth of micro-organisms, in the fields of genetic engineering and biotechnology and dentistry.

Food-grade agar is used in the preparation of jellies, dairy products such as yogurt and confectioneries.

Dr Vaibhav A Mantri, Senior Principal Scientist from the CSIR lab in an article published in the Current Science said that when GI is tagged (to any product), it helps growers get the maximum price for their premium produce.

Making the case for GI certification to this specific strain of G. dura, he said the seaweed has

restricted distribution in and around Veraval, Gujarat and on the basis of its unique intrinsic attributes useful for aquaculture and product.

The scientist further said that the agarophyte trade based on seaweed landings is worth Rs 20 million per year. Further, to cater to the entire domestic agar demand, 4000 tonnes of dry feedstock is needed, and it can only be met through commercial farming. Seaweeds, a marine renewable resource, have recently generated enormous interest nationally and internationally due to their utility in commodity products of everyday use.



Currently, the agar requirement for our country is 400 tonnes per year. Against this, only 300 tonnes of food-grade and 90 tonnes of bacteriological-grade agar is being produced, largely derived from wild augmentation of other strains such as Gracilaria edulis and Gelidiella acerosa respectively.

Over 10,000 seaweed species are reported worldwide, of which about 1,000(10%) are recorded from Indian shores. The seaweeds from Indian waters, primarily collected from their natural habitat, are used to produce agar and alginates by domestic industries. But due to the low cost of agarophyte feedstock, commercial farming has been discontinued by these seaweed growers.

According to the data available from GIs Registry, there are about 420 GIs registered under different categories, including agriculture, handicraft, foodstuff and manufactured goods.

The prospect of commercial farming of this species in Indian waters is very high. Besides, in India, this species is also reported from Mediterranean waters, e.g. Gulf of Naples, but the quality of agar obtained from the feedstock of Mediterranean waters was considerably low with diminutive industrial utility.

National body to draft island management plan for Goa

The National Centre for Earth Science Studies (NCESS) has been entrusted with the monumental task of preparing an integrated island management plan for Goa, which will aim to address sea-level rise, promote sustainable development, economic diversification, and ecosystem preservation.

The framework of the responsibilities to the NCESS has been assigned by the environment department, which facilitates in drafting the coastal zone management plan 2019.

The mandate encompasses not just the preparation of management plans for eco sensitive

areas (ESA) and critically vulnerable coastal areas (CVCA) but also the drafting of islandspecific management plans.

The NCESS will base its island management plan on suggestions and measures suggested by the joint committee on island management formed by the National Green Tribunal (NGT).

The focus of the plan will be on sustainable development, economic diversification, and ecosystem preservation.

The NGT-constituted committee comprising experts from the CSIR-National Institute of Oceanography, the National Centre for Sustainable Coastal Management, the Survey of India, the Indian National Centre for Ocean Information Services, and the IIT Kharagpur has emphasised island-specific strategies for sustainable development, economic diversification, and ecosystem preservation, recognising the unique climate challenges.

The panel has said that diversifying economies helps reduce vulnerability to climate change, while technical measures like GPS stations combat sea-level rise.

It has suggested controlled, nature-based growth and the blue economy to further enhance resilience and prosperity for island communities.

As per the Coastal Regulation Zone Notification 2019, all islands in coastal backwaters and

those along the mainland coast fall under its purview.

These backwater islands, given their distinct coastal systems and spatial limitations, are subject to a uniform CRZ extending 20 m from the high tide line on the landward side, which means no new construction is allowed within this zone.

However, certain foreshore facilities, such as fishing jetties, fish drying yards, net mending yards, traditional fishing processing units, boat building yards, ice plants, boat repair facilities, and similar activities are allowed, subject to stringent environmental safeguards.

The drafting of the island management plan by the NCESS is expected to pave the way for a more sustainable and ecologically responsible future for these coastal and inland islands.

It will represent a significant step forward in addressing the challenges posed by climate change and promoting responsible development in these unique ecosystems.

Navhind Times

Kerala Pollution Control Board greenlights study by CSIR-NEERI to develop tech to prevent sewage pollution of waterbodies

19th October, 2023

The Council of Scientific and Industrial Research-National Environmental Engineering Research Institute (CSIR-NEERI) will carry out a feasibility study on the development of process package treatment method to check pollution of the Pallikkalar stretch in Karunagapally, and Edappally, Perandoor canals in Kochi at an estimated cost of ₹45 lakh.

The Kerala State Pollution Control Board (PCB) has given its approval for the project after the National Green Tribunal (NGT) directed authorities to adopt appropriate technology to prevent pollution owing to illegal discharge of untreated wastewater from various establishments and households into the Pallikkalar river and Edappally, Perandoor canals in

Kochi. Scientists from the the CSIR-NEERI in Nagpur, Maharashtra, will carry out the study. They are expected to submit the feasibility report within 15 months.

Package treatment method involves sewage treatment through physical, chemical and biological processes to remove physical, chemical and biological pollutants/contaminants.

The CSIR-NEERI had submitted three project proposals for carrying out feasibility study on development of process package for domestic sewage and septage from Alappuzha house boats; prawn peeling units; and the Pallikkalar stretch in Karunagapally and Edappally, Perandoor canals in Kochi.

The PCB accorded priority to the third proposal in view of the case pending before the Southern Bench of the tribunal and following studies that showed indiscriminate faecal contamination in the waterbodies.

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, 2023 based on a directive issued by the tribunal. The Southern Bench had asked the Kerala 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.

GNIDA to use eco-friendly paver blocks to build roads

Noida: The Greater Noida Industrial Development Authority (GNIDA) has decided to construct roads using paver block technology, which is more durable and environmentally friendly. The Authority had earlier invited companies to present modern road-strengthening technologies for Greater Noida.

Officials mentioned that the Central Road Research Institute (CRRI) also participated and provided insights into using paver blocks to build roads. The CRRI suggested that using plastic-mixed paver technology would result in stronger roads that resist damage. Paver blocks can also be employed for internal roads.

Senior officials of the authority endorsed CRRI's technology and instructed its use in road construction. Shortly, tenders will be issued to build roads using this technology, which is expected to prolong road lifespan and contribute to pollution prevention by reusing plastic. GNIDA CEO Ravi Kumar NG stated that all necessary steps will be taken to enhance the quality of Greater Noida's roads with complete transparency, using modern technology to make them more robust.

Centenary celebrations of man who discovered RO

CSIR-CSMCRI

Centenary celebrations of professor Srinivasa Sourirajan's birth anniversary has been planned as a three-day international conference on 'Membrane-based separations: Past, present and future' that began on Monday and will continue till Wednesday. The Indian Membrane Society along with MS University and Central Salt and Marine Chemical Research Institute (CSMCRI), Bhavnagar, are organizing the international

conference in the city in recognition of the internationally known pioneer of membrane research.

"The conference is in the memory of professor Srinivasa Sourirajan, who was nominated three times for the Nobel prize for his discoveries in the area of membranes with applications in desalination, reverse osmosis (RO)," said professor C N Murthy. "The path-breaking discovery by professor Sourirajan has resulted in RO systems in millions of Indian homes.

He was also instrumental in the starting of Indian Membrane Society, which is headquartered in Vadodara," said Murthy.

He further said that the professor had visited MS University's faculty of technology and engineering in 1985 to deliver a series of lectures on membrane science and technology.

The inaugural function of the conference saw presence of Padma Shri awardee and former vice-chancellor of Gujarat Agricultural University Dr M H Mehta as chief guest and director of CSMCRI Dr Kannan Srinivasan as the guest of honour on Monday.

Some of the speakers who are attending the conference includes professors Takeshi Matsuura from University of Ottawa, Canada, Elena Tocci, president of European Membrane Society, Rohit Karnik from US-based Massachusetts Institute of Technology among others.

Times of India

New genomics project aims to improve global health

An international collaboration is aiming to improve global health by uncovering the effects of genomic and environmental diversity on differences in disease risk observed across the global population – thanks to a new partnership of 20 research groups from around the world.

The groundbreaking five-year project, led by researchers in the University of Bristol, the MRC Unit The Gambia at London School of Hygiene & Tropical Medicine, and the CSIR Centre for Cellular and Molecular Biology in India will explore key population health questions using datasets from across the African, Asian, and North and South American continents.

The Diverse Epigenetic Epidemiology Partnership (DEEP) study, funded by the Medical Research Council, will generate genomic datasets in underrepresented populations. The DEEP study will develop software and infrastructure, and conduct advanced statistical analyses to build new resources. These new resources will sit alongside international health and genetics databases to look at trends in variation in DNA methylation – a process where chemical groups attach to DNA in order to help to turn genes on and off.

Levels of DNA methylation differ from one person to another and are influenced by both

genetic makeup and environmental factors. Differences in DNA methylation patterns are critical factors associated with a range of measures of health and disease. By analysing DNA methylation data and health-related measures from people around world, the DEEP study aims to identify causes and mechanisms of these health outcomes.

There is huge variation in disease onset and symptoms for people living in different global regions. Much of the population health research conducted to date has drawn heavily on data collected from people of white European origins. This means that many global communities

are often under-represented in health studies and the important effects of genetic and environmental diversity on health within those communities can be missed – for example, the huge genetic diversity across Africa.

The DEEP study researchers aim to bridge this gap by studying individuals representing diverse genetic and environmental contexts and learn which DNA methylation patterns contribute to their disease risk in each context.

This research will enable identification of disease-causing mechanisms that are common worldwide and those which are unique to particular groups or regions. It will help with answering questions such as whether medicines developed in one part of the world will be effective for all. Ultimately, the DEEP study hopes to enable targeted interventions or treatments and reduce global health disparity and inequity.

Dr Josine Min, research fellow in Genetic and Epigenetic Epidemiology at the MRC Integrative Epidemiology Unit (MRC IEU) at the University of Bristol, and joint project lead, says: "Current DNA databases are mainly European. Genetic databases for genomic research need diversity to help all people and to get a better understanding of which factors are causing differences in gene regulation and, therefore, differences in disease risk."

Dr Hannah Elliott, research fellow in Epidemiology in the MRC IEU at the University of Bristol, and joint project lead, adds: "This project will vastly expand our current knowledge

about DNA methylation variation and human health. Key to our project's success is equitable collaboration between our project partners worldwide.

"It is really important to work with partners who understand health in their respective cohorts and who are able to effectively share results back with the local communities who have donated their DNA," Dr Elliott says.

"This collaborative study involving scientists with varied expertise provides a unique

opportunity to understand gene-gene and gene-environment interaction and their role in intermediate traits associated with non-communicable diseases or the disease itself," says Dr Giriraj Chandak, Sir J C Bose Fellow at the CSIR Centre for Cellular and Molecular Biology, India and co-investigator. "I am very excited at the inclusion of Indian cohorts, (representing

a sixth of the world population) with longitudinal data on subjects making it possible to draw causal inferences, in association with the trans-ancestry cohorts."

Dr Prachand Issarapu, research fellow in Bioinformatics at the MRC Unit The Gambia at London School of Hygiene & Tropical Medicine, UK and The Gambia, and co-investigator, adds: "Understanding disease pathways that resonate across populations is key to crafting universally effective medicine. The DEEP study will unravel both population-specific and panancestry (epi)genetic underpinnings, offering crucial insights into the determinants of human health and disease."

The project will initially focus on early-life health, which is a particular interest to the partners in Africa; and cardiovascular health, which is important to the partners in India.

The project welcomes participation from additional partners who have collected DNA methylation and genetic data.

CSIR-CDRI to use AI for cancer treatment

The Council of Scientific & Industrial Research and Central Drug Research Institute (CSIR-CDRI), Lucknow have announced a strategic collaboration with a Bengaluru-based startup to develop new therapeutics for the treatment of cancer using artificial intelligence (AI) technology. The collaboration will entail the use of advanced AI and computational tools developed at Sravathi AI Technology Pvt Ltd, a start-up in AI-based drug discovery to design novel chemical entities (NCEs) with anti-cancer properties.

Sanjeev Yadav, Senior Scientist, CDRI, said on Wednesday, "There are a number of such chemical compounds available but finding whether they have anti-cancer properties manually,

through the lab is a tedious process and takes a lot of time, manpower, and money. However, with this collaboration, CSIR-CDRI Lucknow will be able to do that quickly using AI technology." "By combining our AI capabilities with CDRI's capacities in drug discovery, we believe that novel candidates (compounds) that are effective and safe will be identified faster and at lower cost," said Dr Kishan Gurram, founder and managing director of Sravathi. "CDRI has deep expertise in cancer biology and has a demonstrated track record of drug discovery and development. It is a nodal laboratory for CSIR's pan-cancer mission programme which aims to deliver drugs to treat cancers with significant unmet needs, such as triple-negative breast cancer. This collaboration will help advance the goals of the mission", said Radha Rangarajan, Director of CSIR-CDRI. "CSIR-CDRI has developed 13 drugs from bench to market and transferred more than 80 process technologies to pharmaceutical companies. The institute is an integrated centre for drug discovery with end-to-end capabilities in chemistry, biology, pharmacology, pharmacokinetics and toxicology," she added.

Published in:

The Hans India

724 seek licence to sell crackers in Chandigarh

The UT Administration has received as many as 724 applications for the issuance of temporary licence for the sale of green crackers in the city during Diwali.

An official said they were expecting to receive nearly 2,500 applications. The Administration had invited online applications for the issuance of temporary licence for the sale of green crackers only.

An official said only green crackers certified by the CSIR-NEERI would be allowed during the festival. The official said nearly 96 licences would be issued for setting up of temporary

cracker shops at various locations in the city.

Applications can be submitted on the website chandigarhservices.chd.gov.in by 5 pm on October 20, along with non-refundable fee of Rs 500 per site. The draw of lots will be held at Bal Bhawan in Sector 23 on October 25 at 4 pm.

The UT Administration has decided to allow the use of green crackers only for two hours on Diwali.

Meanwhile, members of the Chandigarh Cracker Dealers Association have decided to meet the UT Additional Deputy Commissioner tomorrow in connection with certain conditions mentioned in the online application format.

Published in:

Tribune India

International celebration of 'Ayurveda Day' gains momentum: 100 countries to unite for 'Ayurveda for One Health'

18th October, 2023

This year's 'Ayurveda Day' is set to be celebrated on a global scale in approximately 100 countries, with a resounding focus on 'Ayurveda for One Health.' The Ministry of Ayush has embarked on a mission to garner support from all national ministries to ensure the success of this monumental event, scheduled for November 10, 2023, coinciding with Dhanvantari Jayanti.

In a pivotal meeting held on October 17, 2023, the Ministry of Ayush convened representatives from various ministries, where they shared their innovative ideas to make 'Ayurveda Day' a grand success. Notably, ministries and departments such as Home, Culture, Foreign, Tribal, Water Resources, Science and Technology Department, CSIR participated enthusiastically, emphasizing the potential of digital technology and various involvement activities to transform 'Ayurveda Day' into a global celebration. Secretary of the Ministry of Ayush, Vaidya Rajesh Kotecha, who presided over the meeting, echoed the vision of the Prime Minister, emphasizing that 'Ayurveda Day' should evolve into a national program, uniting and benefiting from the collective cooperation and support of all ministries across the country. Kotecha further elaborated that the central theme of 'Ayurveda for One Health' should revolve around three key pillars: 'Ayurveda for students, Ayurveda for farmers, Ayurveda for public health,' with a resounding message of 'Ayurveda for everyone every day.' The core objective of 'Ayurveda Day' is to propagate and disseminate the ancient wisdom of Ayurveda at the international level, establishing it as a global resource for the well-being of humans, animals, plants, and the environment.

Published in:

CSIR-IMMT Bhubaneswar organised Fit India Swachhata Freedom Run 4.0

Bhubaneswar: CSIR-IMMT, Bhubaneswar organised 'Fit India Swachhata Freedom Run' 4.0 with the theme "Swachh Bharat, Swasth Bharat" for its employees at Konark, on Sunday. The Fit India Swachhata Freedom Run was also organised at Chandrbhaga golden sea beach. Leading the 'Fit India Swachhata Freedom Run' 4.0, director of the Institute Dr. Ramanuj Narayan called upon the staff members and the public present there to adopt various healthy living habits like walking, running, yoga etc. which will make them fit physically and mentally fit.

Can a low-nicotine tobacco plant benefit smokers?

For smokers trying to quit but with little success, news that genetic science may have come up with a tobacco plant with 60-70 per cent less nicotine is nothing short of a dream come true. Take the example of Ankit Tiwari, 34, from Delhi, who has tried nine times to quit and failed. "It is the most horrible addiction. The longest I have gone without a cigarette is four months, and something or the other happens, spoiling my plans," he says. Tiwari couldn't be happier if smoking were made a tad less injurious.

Hope rides on the CSIR-Central Institute of Medicinal and Aromatic Plants (CIMAP), which has successfully lowered nicotine content in the Petit Havana Tobacco plant by 40-50 per cent

and is hoping to reduce it by another 10 per cent. CIMAP is hoping this reduction can be applied to commercial varieties as well so that the harmful effects of nicotine can be reduced.

To achieve this, the institute discovered a biosynthetic pathway for nicotine in the root of the tobacco plant, which is what synthesises nicotine and transports it to the leaves used in cigarettes. By regulating this pathway or completely blocking it, the amount of nicotine being transported to the leaves can be altered.

Such a discovery matters immensely to a country grappling with a huge burden of tobaccolinked deaths and disease. As per the World Health Organization (WHO), 7 per cent of all deaths (around 1.2 million per year) in India are attributable to tobacco, and there are losses to the tune of \$27.5 billion (Rs 2.28 lakh crore) a year due to diseases related to tobacco use. The most common and concerning of these diseases is cancer, with tobacco smoke being known to cause over 27 per cent of all cancers and 90 per cent of all oral cancers in India. "Deeper lung smoke over years can cause changes in cells. It is worrying that the age at which many cancers are detected is lower today because tobacco use is also starting at a younger

age," says Dr Shishir Shetty, oncologist at Apollo Hospitals, Navi Mumbai. More awareness about the harm caused by smoking has increased the number of people wanting to kick the habit. Additionally, as part of the National Tobacco Control Programme, the government now asks all companies to use 85 per cent of the space on cigarette packs for pictorial health warnings. Tobacco is also a highly taxed commodity†"kept in the 28 per cent GST slab.

Such efforts have had an impact, with WHO predicting that India's tobacco use will fall by about a third by 2025. There has already been a reduction of about 8.1 million smokers in the past decade in the country. But it is not enough. "We have one of the highest numbers of tobacco users in the world, but we also have one of the highest percentages of people who want to stop. If we are to bring down the burden of tobacco-induced diseases, then we must focus on this huge group of people who have the willingness but not the means to quit," says Dr Vikrant Mohanty, head of the National Resource Centre for Oral Health and Tobacco

Cessation, New Delhi.

While lowered nicotine content in a cigarette might potentially reduce the health risks, it will by no means make smoking safe. Regular cigarettes deliver over 7,000 chemicals aside from nicotine. However, at the very least, it will help people like Tiwari feel less stressed while smoking. "The issue is that when I can't quit and I relapse, I feel so stressed and unhappy because I feel I am killing myself," he says. "This then feeds my need to smoke and it takes me months before I can attempt to quit again, thanks to the growing unhappiness. Knowing that the harmful effects might be a little less in a cigarette will take some of the pressure away. I

think that would help reduce the amount of time between a relapse and retry for me."

Published in:

India Today

Breakthrough technology to help save water, yield salt too!

Wastewater continuously flowing down the drain is a daily agonizing sight in lakhs of homes that have reverse osmosis (RO) units installed. Numerous studies have shown that 8-10 litres is wasted for every one litre purified through RO. But hopes of saving this huge quantity of water, which could have otherwise quenched the thirst of millions or nurtured the environment, have brightened. CSMCRI,

Bhavnagar, scientists have developed a new membrane technology that ensures zero-liquid discharge from purifiers.

State's coastal areas can get pure drinking water using new tech Scientists at the Central Salt Marine and Chemicals Research Institute (CSMCRI), Bhavnagar, have developed a new membrane technology that will ensure zero-liquid discharge from the purifiers. The laboratory affiliated with the Council of Scientific and Industrial Research (CSIR) has successfully tested the membrane and is ready to transfer the technology to

The technology has dual benefits, one environment conservation due to the zero water wastage, and recovery of non-edible salt that has various uses in the industry. Besides homes, the innovative membrane distillation crystallisation technology is expected to hugely benefit units which sell water purified through RO to domestic consumers and business establishments like restaurants. "The new membrane selectively separates water and salt from the source. It is hydrophobic, which means that it allows the entry of water vapour only," explained Vinod Shahi, the chief scientist who developed this technology with Anshul Yadav.

The technology will be particularly helpful in coastal areas where salinity is high and where there is a high level of total dissolved salts (TDS) in water.

"The high TDS water that enters from one side will get boiled and converted into the vapour. This vapour will pass through the newly developed membrane and again get converted into pure potable water. The impure water will be crystallized and separated as non-edible salt which can be used in industries or other purposes," he said.

KB Pandey, a senior scientist at the institute said, "This breakthrough will inspire the development of similar applications in other industries that are facing wastewater challenges. The use of this technology will be a potential game-changer in water management."

CSIR-NEERI's Noise tracker app to measure real-time noise level in the city

CSIR-National Environmental Engineering Research Institute (CSIR-NEERI) has taken an initiative to measure the real-time noise levels in the Nagpur City by using its Noise tracker app in android smart phones. A social organization, 'JanAkrosh', has extended its support to CSIR-NEERI in this noble endeavour. A meeting was held in this regard between CSIR-NEERI scientists and members of 'JanAkrosh' in the

NEERI Auditorium on 16 October 2023 to chalk out a proper action-plan. Er. SatishLokhande, who developed the Noise tracker app, elaborated various steps involved in managing the noise monitoring app. 'JanAkrosh' assured that it will deploy volunteers in the city for noise monitoring.

Dr. Atul Vaidya, Director, CSIR-NEERI said that the data generated through this Noise tracker app will help to identify the hotspots in the city and take control measures that need to be put in place. Dr. Atya Kapley, Chief Scientist and Head, Environmental Biotechnology and Genomics Division, CSIR-NEERI, who is involved in preparing Environmental Status Report (ESR) for the Nagpur City, said that the noise data will enable regulatory authorities to take measures for abatement of noise.

Ravindra Kaskhedikar, Secretary, Shri ShyamBhalerao and Shri Anil Joshi from JanAkrosh were prominently present in the meeting. They also desired to deploy their volunteers in other cities for noise monitoring using the Noise tracker app developed by CSIR-NEERI.

Published in:

The Live Nagpur

City Times Exclusive: Eco-Friendly Alternatives From Mango, Wheat, Rice, and Sugarcane At A Price Range Of 300 To 500 Rupees Per Square Foot

CSIR-CLRI

16th October, 2023

Indian eco friendly leather: India takes a bold step towards eco-friendly leather by exploring alternatives to synthetic materials. Researchers at the Central Leather Research Institute (CLRI) in Chennai are pioneering techniques to create leather from fruits and straw, with potential market availability in the near future. Indian eco friendly leather: Central Leather Research Institute (CLRI) Leading the Way in the

technology to create leather from Fruits pulp, Hay, Flower. At present only two countries producing similar products are Netherland and Mexico.

Indian eco-friendly leather: Leather products crafted from wheat, rice, and sugarcane straw are projected to be on the market by the end Of Next year, While Products Designed From Leather Produced From Mango Pulp Can hit market by the year end.

Chennai, 16 October (City Times): Indian eco friendly leather: In recent years, there has been a global shift towards eco-friendly and Environmentally friendly materials USE and its practices, driven by strict environmental regulations in many Western countries. As a result, governments and businesses are actively seeking alternatives to reduce their reliance on materials that harm the environment. India, too, is taking significant strides in the direction of developing Biodegradable leather. One of the key areas of focus is reducing dependence on synthetic leather – a material traditionally associated with harmful environmental impact.(Indian eco friendly leather)

The Synthetic Leather Challenge

The global synthetic leather market was valued at an astounding US\$33.7 billion in 2021. However, this economic success comes at a considerable environmental cost. Synthetic leather, typically made from petrochemicals, poses a significant challenge due to its non-biodegradable nature. These materials can take centuries to decompose fully. For instance, polyurethane synthetic leather, one of the most common variants, takes more than 500 years to break down. This issue has prompted Indian scientists and researchers to seek innovative solutions.(Indian eco friendly leather)

The Pioneering Efforts of the Central Leather Research Institute (CLRI) In a remarkable initiative, the Chennai-based Central Leather Research Institute (CLRI) has taken on the challenge of finding sustainable alternatives to synthetic leather. This endeavor aligns with similar efforts in Western countries. In Mexico, cactus leather has gained recognition, and the Netherlands has explored leather production from mangoes. CLRI

embarked on its research journey simultaneously.

Dr. Tanikavelan, a scientist at CLRI, has led a team that has achieved a ground breaking discovery this year – the technology to create leather from mangoes. This remarkable innovation was developed in collaboration with a private company, and talks are currently underway with various enterprises to transfer this technology. Leather produced from mango pulp is expected to be available in the market by the end of this year. Additionally, leather products crafted from wheat, rice, and sugarcane straw are projected to be on the market by the following year. These environmentally-friendly leather options are expected to decompose

within 50 years, a significant improvement compared to synthetic leather, which takes 500 years.(Indian eco friendly leather)

Challenging Leather Industry Stereotypes

One prevalent misconception associated with the leather industry is its connection to animal harm. While it is true that some companies in the leather industry source their materials from slaughterhouses, a substantial portion of leather production is moving towards alternative, cruelty-free methods. The global transition to synthetic leather was partly fueled by a desire

for non-violent, animal-friendly options.(Indian eco friendly leather)

The Discovery from CLRI: An Affordable and Sustainable Choice In countries worldwide, vegetarian leather, created as a synthetic leather alternative, has been

available at a price range of 300 to 500 rupees per square foot. What sets CLRI's discovery apart is its cost-effectiveness. The vegetarian leather produced as a result of their innovative research is not only environmentally friendly but also comes at a competitive price, making it accessible to a wider audience.

A Greener Path Forward for India's Leather Industry

India's journey towards eco-friendly leather alternatives demonstrates the significant strides that can be made in reducing environmental impact while maintaining a commitment to costeffectiveness. CLRI's pioneering work with mango, wheat, rice, and sugarcane leather offers a

promising and biodegradable solution that could revolutionize the leather industry, both in India and globally. As the world embraces sustainable practices, these innovative alternatives provide a beacon of hope for a greener and more environmentally-conscious future.

Citytimes

NAL hands over AMCA's carbon composite flaperon test box to DRDO's ADA

The Aeronautical Development Agency (ADA), in collaboration with CSIR-NAL, has successfully designed and developed a cutting-edge Flaperon Structural Assembly for the Advanced Medium Combat Aircraft (AMCA) program, India's to-be 5th generation stealth fighter jet, achieving a breakthrough in composite technologies. This milestone was marked by the completion of the AMCA's Flaperon Test Box Assembly on October 5, 2023, a significant day for the Indian aerospace industry. According to sources from the National Aerospace Laboratories director's office, the assembly has been officially handed over, symbolising a milestone in this collaborative effort.

ADA gets a breakthrough in composite technologies As per NAL, the project utilised 'state-of-the-art' intermediate modulus grade carbon composites (IM7), a futuristic material with an exceptional strength-to-weight ratio. ADA and NAL worked together to study robust, mid-level carbon materials. The flaperon assembly, a critical component of the AMCA, incorporates co-cured technology, a cutting-edge approach to composite fabrication. This achievement is set to revolutionise the design and production of medium-weight combat aircraft, as the high-strength carbon composites promise a reduction in overall weight, according to NAL's official statement.

Metal-cutting for AMCA Last year, R Madhavan, the Chairman and Managing Director of Hindustan Aeronautics Limited, marked the onset of AMCA's technology demonstrator's development by launching the 'Metal Cutting for Titanium Bulkhead of AMCA aircraft' at the Aircraft Manufacturing Division Nachily on July 10. The sumt was also attended by AV. Check, Project Director

Division, Nashik, on July 13. The event was also attended by AK Ghosh, Project Director (AMCA) at ADA, along with senior officers from DMRL, ADA, and other key government agencies.

Future prospects for AMCA

Looking ahead, the first prototype rollout of the AMCA is anticipated in the near future, following HAL's plan to commence production between 2026-28. However, full-fledged production operations are slated to kick off in 2029, as per a prior statement from HAL.

In parallel, the AMCA program would in the future see the augmentation of an indigenous 125kN thrust engine. DRDO would develop this in a joint venture with another firm. As of now, Rolls Royce and Safran are leading the choice of a JV with DRDO. Indian Defence Minister Rajnath Singh also visited the Safran facilities during his France visit on October 11, 2023.

Defence State Minister Ajay Bhatt, last year, highlighted the strategic importance of the AMCA program, emphasising its cost-effectiveness in comparison to similar fifth-generation aircraft. "The process for obtaining Cabinet Committee on Security's (CCS) approval for the

design and prototype development of the Advanced Medium Combat Aircraft (AMCA) has been initiated. 5th Generation fighter aircraft, due to very special features, are costlier than 4th Generation fighter aircraft. Since AMCA is an indigenous 5th Generation aircraft, it is less costly than similar aircraft available outside," stated the State Defence Minister. The AMCA project is India's second foray into fifth-generation fighter aircraft, following the notso-satisfactory collaboration with Russia on the SU-57 Felon program, and it highlights India's 'Atma Nirbhar' initiative in pursuit of self-reliance. <u>Published in:</u>

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IICT Hyderabad launches autobiography of former Director Dr A V Rama Rao

"My Life My Way", an autobiography of Dr A V Rama Rao, was unveiled at CSIR-Indian Institute of Chemical Technology (IICT) auditorium in Hyderabad. Eminent chemical engineer and former director of Institute of Chemical Technology- ICT (UDCT) Prof M M Sharma launched the autobiography as a part of joint book release programme and Alumni association meet.

Prof. Sharma commended Dr Rao's extraordinary courage in venturing into the pharmaceutical industry post-retirement, an uncommon feat for a scientist.

To begin with, Dr Rama Rao focused his research on synthetic dyes and advanced studies on plant and insect pigments. Association with Corey at Harvard University shifted his focus to studies related to the synthesis of biologically active natural products and he turned his attention to antitumour antibiotics, macrolides, immunosuppressants, and cyclic peptides.

After his return to India and resuming his career at NCL, he set up a school for the synthesis of biofunctional molecules. Later, he guided the Indian Institute of Chemical Technology to become one of the top schools in India and introduced private and public sector industry participation in the research projects of the institution.

The contributions of Dr Rama Rao are reported to be noteworthy in the area of organic synthesis, especially asymmetric synthesis. He is known to have developed cheaper methodologies for the synthesis of anti-tumour antibiotics such as Anthracyclines,

Fredericamycin-A, Cervinomycins A1 and A2, Aronorosin, and Lavendamycin. Mumbai-based pharma firm Cipla utilised the cost-effective methodology Rao introduced in the manufacture of Azidothymidine (AZT), the first curative drug in the disease management of AIDS. His research has also helped in the synthesis of the HIV inhibitors namely Betzalladines,

Calanolides, Mischellamines, and Abbot's protease inhibitor.

He holds 30 patents, for chemical synthesis and isolation processes, many of which are in use with drug manufacturers in the US and India. Besides being a member of many government policy-making bodies, he has been associated with the World Health Organization and the Ozone Cell of United Nations Environmental Programme.

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