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## NEWS BULLETIN

### 26 TO 31 JULY 2023





## Cannabis Committee of HP visited CSIR-IIIM; discusses Cannabis work

CSIR-IIIM

31<sup>st</sup> July , 2023

A Sub-Committee constituted by Govt. of Himachal Pradesh was on two days visit to CSIR-IIIM Jammu and its Branch Lab Srinagar to deliberate on and understand about the current research Project on Cannabis research undertaken by CSIR-Indian Institute of Integrative Medicine, Jammu.



Kewal Singh Pathania and Malender Rajan, (MLAs), Dr. Rajeev Dogra, Additional Commissioner State Taxes & Excise and Prof. Rajan Katoch, CSK Agriculture University, Palampur were the members of the visiting Committee.

Dr. Zabeer Ahmed, Director, CSIR-IIIM, during the meeting with the visiting team, informed that CSIR-IIIM, Jammu institute, under the initiative of Dr. Jitendra Singh, Union Minister of State (Independent Charge) Science & Technology; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, has started the research work on Cannabis in 2017 after obtaining the license from Jammu and Kashmir Govt.

At present, CSIR-IIIM has been able to arrange a repository of more than 500 accessions collected from different parts of the country. The scientists of the institute are working in different directions to provide the end-to-end technology for Cannabis cultivation, drug discovery with emphasis on disease conditions like pain management in cancer and epilepsy.

He also mentioned that under a tripartite agreement of CSIR with Department of Biotechnology (DBT) and Indian Council of Medical Research (ICMR), CSIR-IIIM has completed the exploratory research on Cannabis.



However, for further pre-clinical regulatory studies related to management of Cancer Pain and epilepsy, it is very important to carry out GMP manufacturing for pre-clinical and clinical studies which are mandatory requirements of the discovery of newer therapeutic drugs.

An application for getting the license from the Excise Department of J&K Govt. for Good Manufacturing Practice (GMP) manufacturing and transportation of Cannabis material exclusively for scientific purpose is under active consideration by J&K Govt.

The committee also visited CSIR-IIIM, Jammu Chatha Farm to see the cultivation of Cannabis in Captivity and glass houses and observed that there is enormous potential of cannabis-based remedies which can be used for treating a variety of health.

Kewal Singh Pathania and Malender Rajan, two MLAs, who were part of the delegation, after having detailed discussions and visits were optimistic to develop a cannabis guideline in Himachal Pradesh to make the best use of the plant which has remained abusive to use till date. They also emphasized the importance of initiating the research and clinical trials on Cannabis which would significantly contribute to producing the newer therapeutics for cancer pain management, epilepsy and other diseases.

Pertinently, the CSIR-Indian Institute of Integrative Medicine is a pioneer in the study of cannabis and holds the nation's first cultivation permit. As a result, many other states, including Uttarakhand, Uttar Pradesh, Manipur, Madhya Pradesh, and Himachal Pradesh, have begun to create policies and regulations for the use of cannabis for scientific purposes.

Among other present on the occasion were Er. Abdul Rahim, Chief Scientist and Head RMBD & IST Division, Dr. P P Singh, Sr. Principal Scientist and Dr. Saurabh Saran, Principal Scientist and I/C Technology Business Incubator & Dr. Vishav Prakash Rahul, Sr. Scientist, CSIR-IIIM, Jammu.

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## Researchers at CSIR-AMPRI have developed high-end Raman Spectrometers, which have better success rate and are also cheaper than imported ones

CSIR-AMPRI, NCL

30<sup>th</sup> July , 2023



Decades back, in 1928, legendary physicist Prof CV Raman propounded that molecular transitions caused by incident light would in-elastically scatter the light, which made him the first Asian scientist two years later to win the Nobel Prize in any branch of science.

It also served as the basis of the Raman Spectrometer, a scientific instrument which helps in identifying the vibration band and structural analysis of material which is applied in various fields, spanning from pharmaceuticals, and material sciences to Geology and Mineralogy and environmental and life sciences. But even decades later, India had to largely depend on foreign countries, particularly Japan and Europe, for high-end Raman Spectrometers.

However, successfully taking up the challenge of reducing the country's dependence on imports, more than 90 years after Prof CV Raman made the path-breaking discovery, researchers at the Council of Scientific and Industrial Research (CSIR) - Advanced Materials and Process Research Institute (AMPRI) in Bhopal have developed two genres of the high-end Raman Spectrometer in partnership with a Jaipur-based company.



Under the CSIR's New Millennium Indian Technology Leadership Initiative (NMITLI) as part of the Narendra Modi government's larger umbrella of Make in India mission, the CSIR-AMPRI team has developed two variants of high-end Raman Spectrometer, which is cheaper and show up to 80% success rate when compared to the high-end spectrometers being imported by Indian institutions and industry till now.

The high-end Raman Spectrometer developed by CSIR-AMPRI in March 2022 had its first big institutional order in April 2022 itself, with the Indian Institute of Chemical Biology, Kolkata approached it. Subsequently, it has been installed successfully at Maulana Azad National Institute of Technology (MANIT-Bhopal) and Indian Institute of Science Education and Research (IISER-Pune). It's in the process of being installed at the National Chemical Laboratory (NCL-Pune).

According to sources at CSIR-AMPRI, Bhopal, many other institutions and industries from India and even industries from abroad are now making enquiries from the Jaipur-based company for the device. Researchers at CSIR-AMPRI are also working on the PM's vision of transforming waste-to-wealth.

Realizing that growing stockpiles of Alumina industrial waste called 'red mud' in India and across the world, which run into billions of tones, are becoming a major environmental hazard (particularly polluting soil and groundwater), researchers at AMPRI have successfully used the same toxic 'red mud' to develop lead-free X-Ray shielding tiles. The private as well as govt has shown interest in utilizing the radiation shielding tiles, CSIR-AMPRI director Dr Avanish Kumar Srivastava said.

“The lead-free X-ray shielding red mud tiles are up to 40% cheaper than the existing lead lining walls till now fitted at X-ray centers across the country. Mass production of such tiles by the company to which the technology has been transferred will also result in creation of employment and workforce skilled in the waste-to-wealth technology,” he said.

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## Coast Guard tows NIO ship to Mormugao harbour

CSIR-NIO

30<sup>th</sup> July , 2023

VASCO: Demonstrating efficiency and rapid response in a daring rescue operation, the Indian Coast Guard Ship (CGS) Sujeet towed the CSIR-NIO research vessel 'Sindhu Sadhana', which was in distress off Karwar and brought it to Mormugao harbour on Friday night. It also rescued the 36 crew including eight scientists on board the research vessel.

The ship had encountered an engine and total power failure, rendering it non-functional and at the mercy of the ocean currents. The distress signal was received at the Coast Guard District Headquarters in Goa on July 26, afternoon.

After entering the harbour, Mormugao Port Authority (MPA) Deputy Conservator (Marine) Capt Manoj Joshi said, "I look at this operation as a perfect coordination because it was multi agency task involving DG (Shipping), MPA Coast Guard and NIO. It was a big asset worth Rs 700 crore with 36 lives on board and critical operation under the guidance of MPA Chairman Dr Vinodkumar although he was not in town. But he was in touch with me regularly and taking stock of the situation at every minute. You can take this as an example of perfect coordination. All the agencies did their job perfectly and brought the ship alongside. It also tested out strength as my two pilots, three tugs and VDS (visual distress signal) was pressed to safeguard the vessel."

DIG Coast Guard District Headquarters, Goa, Arunabh Bose said, "I am extremely happy that we were able to do this operation successfully and almost 36 lives were involved. The vessel drifted 35 miles west off Karwar and 4,000 plus tonnage ship and with scientists onboard. As soon as we got information, ICG Sujeet which was the closet, was diverted and it steadied the vessel. The weather was extremely rough on that day and ship braved the rough conditions with wind gusting up to 45 knots. It was extremely challenging conditions in which the ship went there. We assured the crew and towed it up to Goa harbour, which was a Herculean task



because tow line snaps at times. CG is there to protect all seafarers.” Commanding Officer of ICGS Sujeet, DIG D Dinakaran said, “t was an opportunity for us to prove our mettle. Sea was very rough with wind speed almost 40 knots. It was not an easy task. We have been trained and experienced for such incidents. Our people fought against nature and achieved what we did today. We thank NIO for reposing their faith in Coast Guard.

Thanking the Coast Guard, Director of NIO Sunil Kumar Singh said, “We all were scared and stressed. The situation was critical as the ‘Sindhu Sadhana’ was equipped with valuable scientific instruments and carried crucial research data.”



## CSIR labs under the Ministry of Science and Technology are in the forefront of India's cancer research efforts, while the Central Drug Research Institute in Lucknow is leading the way in development of High Value Generic drugs: Dr Jitendra Singh

CSIR

29<sup>th</sup> July , 2023



Union Minister of State (Independent Charge) Science & Technology; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr Jitendra Singh, who is also a nationally known medical professional and Diabetologist, said here today that early detection is the key to control Type 2 Diabetes Mellitus and many other lifestyle disorders as well as to cure several Cancers including Breast Cancer.

The Minister said, with early diagnosis, and easy access to breakthrough treatments available in the country, India can conquer breast cancer in its early stages itself.

Speaking at "The Week Connect" event titled 'Expanding Breast Cancer Care for Indian Women' here, Dr Jitendra Singh lauded "The Week" for having a HEALTH supplement, which has been in print for more than 15 years now. He said, this is in keeping with the tradition and legacy of Malayala Manorama Group.

Dr Jitendra Singh said, Prime Minister Narendra Modi's focus on health, youth and women is the best bet to tackle breast cancer, one of the commonest malignancies among women



worldwide and also in India. He said, there has been immense advancement in breast cancer research, which has facilitated better understanding of its molecular landscape and tumour heterogeneity. Sequencing efforts, for example, have helped explain the primary driver genes involved in breast cancer, he added.

Dr Jitendra Singh informed that CSIR labs under the Ministry of Science and Technology are in the forefront of India's cancer research efforts. Moreover, the Central Drug Research Institute in Lucknow is leading the way in developing High Value Generic drugs through non-infringing and cost-effective synthetic route, designing and synthesising of New Chemical Entities against clinically validated cancer drug targets, preclinical evaluation of potent anti-cancer entities, among other activities, he added.

Quoting figures, Dr Jitendra Singh said, In India, 37.2 percent women died from breast cancer in 2020, as compared to the Asian rate of 34 per cent, while the global average was 30 per cent. He added that the high mortality rates with breast cancer in India could be related to late diagnosis, which is primarily due to lack of proper awareness and the absence of screening for the at-risk population.

The Minister, however, underlined that there is reason for hope because breast cancer is highly preventable and highly curative; the earlier it is detected, the better are the chances of effective treatment and survival. He said, research has yielded a number of exciting developments in breast cancer diagnosis and treatment that ensure fewer complications, and fewer side effects and improve the lives of breast cancer patients for the years to come.

Dr Jitendra Singh was pleased to note that earlier, patients were only treated with chemotherapy and radiation apart from surgery. Now there are many available treatment options. New oral therapies have come in, such as the CDK4/6 Inhibitors which are used to treat hormone positive Metastatic Breast Cancer. Indian companies like Cipla are introducing a generic version of Palbociclib (a CDK4/6 Inhibitor) in India, which costs less than ₹5000/monthly, and can be accessed by a large pool of patients. This way, the introduction of more



Indian generics will help impact a great number of patients, the Minister said.

Supporting the idea of special breast cancer clinics across the country like the wellness centres, Dr Jitendra Singh said that Ayushman Bharat is so far the world's best health insurance scheme and credit goes to Prime Minister Narendra Modi for having conceptualised it.

He emphasised that this is possibly the only health insurance scheme in the world which offers the option of seeking insurance cover even for a pre-existing disease, like for example, if today a person is detected having cancer, or even breast cancer, one can get herself insured to receive the financial support for treatment.



## NIIST sets up dedicated facility for sustainable energy technologies

CSIR-NIIST

28<sup>th</sup> July , 2023

The CSIR-National Institute for Interdisciplinary Science and Technology (NIIST) has set up a dedicated facility for research and development (R&D) in sustainable energy technologies. The Centre for Sustainable Energy Technologies (CSET) has the mandate of strengthening ongoing activities at NIIST in the energy sector and nurturing new research areas, NIIST officials said.

### Jump in production

Inaugurating CSET in virtual mode on Friday (July 28), NITI Aayog Member V.K. Saraswat emphasised the role of innovative biofuel technologies in achieving the target of 20% ethanol-mixed fuels for transportation. The focus should be on scaling up the production of second generation (2G) ethanol while bringing down production costs, he said. “Today, first generation (1G) ethanol is being procured at ₹65 per kg whereas the cost of 2G ethanol ranges between ₹120 and ₹ 130 per kg. This difference has to be reduced,” he said.

India’s ethanol production had shot up from 38 crore litres in 2013-14 to 173 crore litres in 2019-20. The current production capacity of ethanol is 684 crore litres, which must rise to 1,500 crore litres by 2025-26, he said.

### Shift to cleaner fuel

Dr. Saraswat urged the research community to focus on cleaner technologies for a carbon neutral economy. “The country’s energy demand has tripled over the past three decades and is marked by a falling share of traditional biomass, leaving coal and oil in a dominant position,” Dr. Saraswat said. In a business as usual (BAU) scenario, electricity demand in the country is projected to touch 5,651 terawatt hours (TWh) in 2047. Coal will play a dominant role and its share in primary energy will remain at 50% in 2047. Combined with this scenario, the country’s import burden of fossil fuels shows why it should shift to cleaner, alternative fuels,



he said. N. Kalaiselvi, Director General, Council of Scientific and Industrial Research (CSIR), said CSIR can play a pivotal role in shaping the energy transition pathway for the country.

NIIST Director C. Anandharamakrishnan stressed the need to move from 1G bioethanol to the 2G variant as the latter does not disrupt the food supply chain. “For 2G ethanol whatever waste is produced from agro processing also can be converted as bioethanol,” he pointed out.

NIIST has been working for almost two decades in technology development for 2G and 1G bioethanol and has led the pan-CSIR consortium on integrated process development for 2G ethanol from agro residues.



## CSIR is engaged in the R&D activities to address air pollution issues in six cities i.e. Chennai, Delhi, Hyderabad, Kolkata, Mumbai: Dr Jitendra Singh

CSIR-CECRI, NEERI

27<sup>th</sup> July , 2023

Union Minister of State (Independent Charge) Science & Technology; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr Jitendra Singh today said, Government is exploring the potential of Bus Roof Mounted Air Purification Systems (BRMAPS) to capture Particulate Matter in the highly polluted cities.

In a written reply to a question in the Rajya Sabha, Dr Jitendra Singh said, the Central Pollution Control Board (CPCB), a Statutory Body under the Ministry of Environment, Forest and Climate Change (MoEFCC) has installed Pariyayatra Filtration units on top of 30 buses to filter dust in Delhi-NCR.

Dr Jitendra Singh said, CPCB conducted pilot trials of various new technologies for management and improvement of air quality in Delhi-NCR through premier institutions. A pilot study was conducted on the deployment and evaluation of Wind Augmentation and Purifying (WAYU) units for traffic junction pollution abatement in Delhi. He said, under this study, 54 units were installed which operated at five traffic intersections in Delhi i.e., ITO, Anand Vihar, Shadipur, Wazirpur Chowk and Bhikaji Cama Place for reduction in air pollution.

A pilot study was conducted on control of dust emissions using dust suppressants. Under this, application of dust suppressant (salts of calcium/magnesium and bio additives) was done at 03 sites: Sarai kale khan road, DDA construction site at Narela and Dilshad Garden flyover to Shaheed nagar metro station to check the control on dust emissions. Installed a negative ion generator at IIT Delhi, Sonipat campus for accessing the impact of generated Negative Air ions (NAIs) on ambient air quality. Further, two experimental pilot projects of smog towers, one at Anand vihar by Central Government and another at Connaught place by Delhi Government has been commissioned to reduce particulate air pollution.



The Minister said, Council of Scientific and Industrial Research - Central Electrochemical Research Institute (CSIR-CECRI), Karaikudi and CSIR-National Environmental Engineering Research Institute (CSIR-NEERI), Nagpur are engaged in the R&D activities to address air pollution issues in six cities i.e. Chennai, Delhi, Hyderabad, Kolkata, Mumbai.

Department of Science and Technology (DST) has supported Research & Development (R&D) project for development of indigenous photonic system for real time remote monitoring of air quality parameters.



## Maheshtala: 200 manufacturers attend green firecracker training workshop

CSIR-NEERI

27<sup>th</sup> July , 2023

Maheshtala: Minister of state for transport, Dilip Mondal, hopes that the 15-bigha land identified for developing a cluster for green cracker manufacturing at Nandarampur in Maheshtala can be promoted as a model cluster for the entire state. He appealed to all the firecracker manufacturers to support the development of the cluster.



“The development of the cluster for manufacture of green firecrackers is the brain child of Chief Minister Mamata Banerjee.

Over 1.5 lakh people across the state are directly associated with the manufacturing of firecrackers and the state government is committed to safeguard the livelihood of the people associated with this industry,” Mondal said while addressing a state-level workshop on safety measures for small-scale green fireworks industry, at Maheshtala, in South 24 Parganas, on Wednesday ahead of the hands-on training that commenced from Thursday.

CSIR NEERI (National Environmental Engineering Research Institute), at the request of state MSME department, is providing training in the manufacture of green fire crackers to 200 odd manufacturers at Jhowtala area under Maheshtala police station from Thursday to Sunday.

In 2017, the Supreme Court had banned crackers due to high pollution following which NEERI was assigned with the responsibility for developing new formulations which can curb pollution. As per the latest order by the apex court, only green crackers approved by NEERI



can be used. “Green firecrackers involve a mixture of some chemicals and addition of special additives into it which reduces particulate matter in the air and hence the harmful effect on health is decreased to a reasonable extent.

The present formulation that we have developed can reduce pollution by 30 to 35 per cent. Research is on to further decrease it,” Sadhana Rayalu, chief scientist from NEERI, who will be heading the training, said.

In 2018, there were only 100 manufacturers who were using NEERI formulations across the country which has gone up to 1,200 now.

“We have plans to develop infrastructure for storage of 50,000 kg green firecrackers in the cluster that will be developed,” Sukdev Naskar of Pradesh Atasbazi Byabsayee Samity said.

Around 10 lakh people are directly and indirectly dependent on the fire cracker industry in the country that has an annual turnover of Rs 6,000 to 8,000 crore.



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