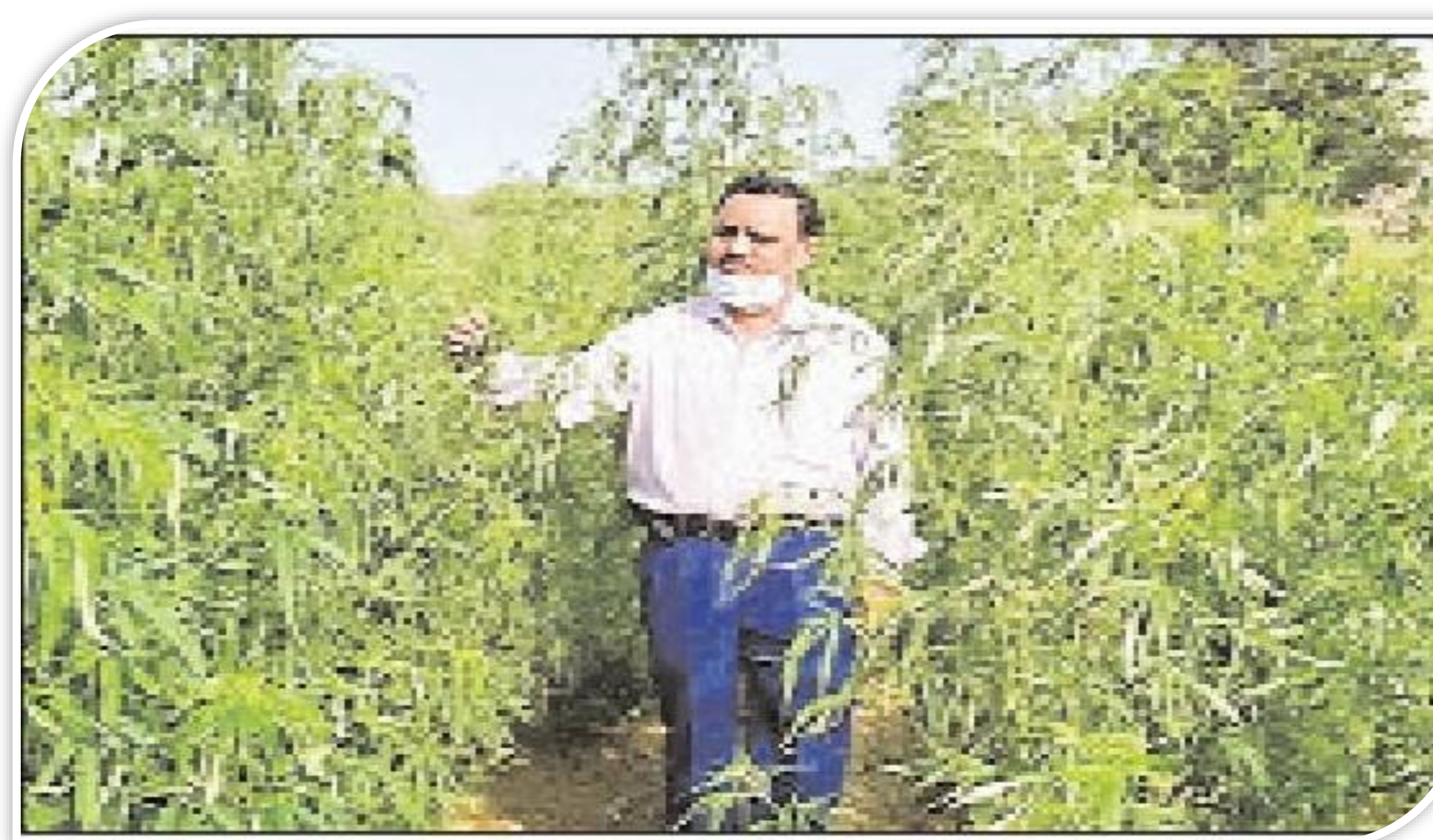


CSIR IN MEDIA



CSIR

NEWS BULLETIN 6 TO 10 AUGUST 2020



DC Sankar, MLA Nagendra inaugurate CSIR CFTRI Covid-19 testing centre

CSIR-CFTRI

10th August, 2020



Deputy Commissioner of Mysuru Abhiram G Sankar and Chamaraja Constituency MLA L Nagendra jointly inaugurated the city's third Covid-19 testing lab at Panchakarma Hospital at Brindavan Extension on KRS Road on Monday. This is the city's third Covid-19 testing lab, the other two being at Microbiology Department of MMC&RI, K R Hospital and JSS Hospital at Agrahara. The lab at Panchakarma Hospital is being set up with help from CSIR-CFTRI, the lab is fully equipped with the necessary medical equipment and all other infrastructure needed for the testing, the lab can handle about 200 samples a day.

Published in:
[City Today](#)

Today's PPE kits could be tomorrow's roads, fuel — CSIR's plan to tackle Covid plastic surge

CSIR-NCL, IITR, IIP, CMERI

10th August, 2020



Scientists from at least four Indian institutions are coming together to recycle the deluge of single-use plastics thrown up by the Covid-19 pandemic and keep them from polluting our environment. The National Chemical Laboratory (NCL) Pune, Indian Institute of Petroleum (IIP) Dehradun, Central Mechanical Engineering Research Institute (CMERI) Durgapur, and Indian Institute of Toxicology Research (IITR) Lucknow — all affiliated with the government's Council of Scientific & Industrial Research (CSIR) — are pooling their expertise to convert discarded personal protective equipment (PPE), and other plastic waste of the pandemic into fuel or pellets that can be moulded into

automobile parts or used for road construction. “We have an in-principle approval from the CSIR. The work on sanitising waste materials is already under way at the IIP and the CMERI. The waste will be shredded and then agglomerated into standardised plastic pellets,” C.V. Rode, a scientist at CSIR-NCL, who is heading the programme, told ThePrint. These pellets will be sent to the NCL, which has the technology to test their structural and chemical properties. Based on the properties of the pellets produced, the researchers will work with industry partners to decide their potential applications, Rode said. The pellets, he added, can be moulded into automobile parts, or plastic covers, or be used in road construction. India has been employing plastic waste in road construction since 2016. The country has so far reportedly built over 1 lakh kilometres of roads where raw materials include plastic waste. “Most of the expertise and infrastructure for recycling plastic wastes is already available,” Rode said. “The only thing we have to set up is a standard protocol for recycling Covid-19 wastes.”

This includes thoroughly sanitising the waste to ensure the safety of all those involved in handling it. “In two to three months, we will be ready with the process,” Rode said.

The big plastic problem

For a world already battling a massive plastic pollution problem, the Covid plastic surge requires efficient solutions to ensure humans are not left reeling under another crisis when the pandemic recedes. According to estimates by the United Nations (UN), only nine per cent of all plastic waste ever produced has been recycled. “About 12 per cent has been incinerated, while the rest — 79 per cent — has accumulated in landfills, dumps or the natural environment,” the UN said in an analysis of the plastic pollution problem. A staggering eight million tonnes of plastic, which is non-biodegradable, end up in the world’s oceans every year, the report states, adding that “more than 90 per cent of the plastic waste that ends up in the oceans” is carried by 10 rivers, including the Ganga.

Plastics in the oceans have not only been known to choke marine life, but can also end up in our meals when we consume seafood. This is just one of the many threats posed by plastic pollution. Prime Minister Narendra Modi had announced last year that India will phase out single-use plastic, but the coronavirus crisis has caused a worldwide surge in its use. Full-body PPE kits, face shields, and several components in the RT-PCR testing kits are made of plastic and have to be disposed of after single use for hygiene reasons. Standard protocol for managing biomedical waste dictates that it should be incinerated. But this poses a significant burden for the environment in view of the sheer quantity of such plastic now requiring disposal. Rode noted that PPE kits “are made of polymers which are not biodegradable”. “Because of the pandemic, the extent of utilisation of these keeps increasing everyday,” he said. For example, he added, for every 1,000 Covid-19 tests that are carried out, about 22 kg plastic waste is generated. This includes PPE kits worn by healthcare professionals, as well as testing swabs, some types of pipettes, and plastic bottles used to store the swabs. India is currently carrying out over 6.6 lakh tests per day — that would generate more than 14,500 kg of plastic waste everyday from testing centres alone.

“Currently, under biomedical waste management guidelines, these types of wastes are usually incinerated, but a lot of the waste from smaller hospitals and testing centres end up in landfills,” Rode said.

Challenges ahead

As part of the efforts to recycle plastics, the CSIR has already set up several projects over the past few years. For example, a pilot plant that can convert plastic to fuel was inaugurated at IIP in Dehradun last year. The plant uses a process called pyrolysis — which involves heating plastic in the absence of oxygen. For every kilogram of plastic, the plant can produce up to 700 ml of petrol or 850 mL diesel. Once the sanitisation process is standardised for Covid-19 waste, the team is also considering developing mobile waste recycling facilities. “The waste can be shredded and agglomerated at the place of waste generation itself and the pellets can be given to the industries that can put these to use,” Rode added. One of the challenges in recycling Covid-19 wastes is that different manufacturers use different types of materials for PPE kits or swabs, and there is no way to segregate these. The team will try to find the solution to those challenges over the next few months.

News media is in a crisis & only you can fix it

You are reading this because you value good, intelligent and objective journalism. We thank you for your time and your trust. You also know that the news media is facing an unprecedented crisis. It is likely that you are also hearing of the brutal layoffs and pay-cuts hitting the industry. There are many reasons why the media’s economics is broken. But a big one is that good people are not yet paying enough for good journalism. We have a newsroom filled with talented young reporters. We also have the country’s most robust editing and fact-checking team, finest news photographers and video professionals. We are building India’s most ambitious and energetic news platform. And we aren’t even three yet. At ThePrint, we invest in quality journalists. We pay them fairly and on time even in this difficult period. As you may have noticed, we do not flinch from spending whatever it takes to make sure our reporters reach where the story is. Our stellar coronavirus coverage is a good example. You can check some of it here.

This comes with a sizable cost. For us to continue bringing quality journalism, we need readers like you to pay for it. Because the advertising market is broken too. If you think we deserve your support, do join us in this endeavour to strengthen fair, free, courageous, and questioning journalism, please click on the link below. Your support will define our journalism, and ThePrint's future. It will take just a few seconds of your time.

Published in:
[The Print](#)

सराहनीय

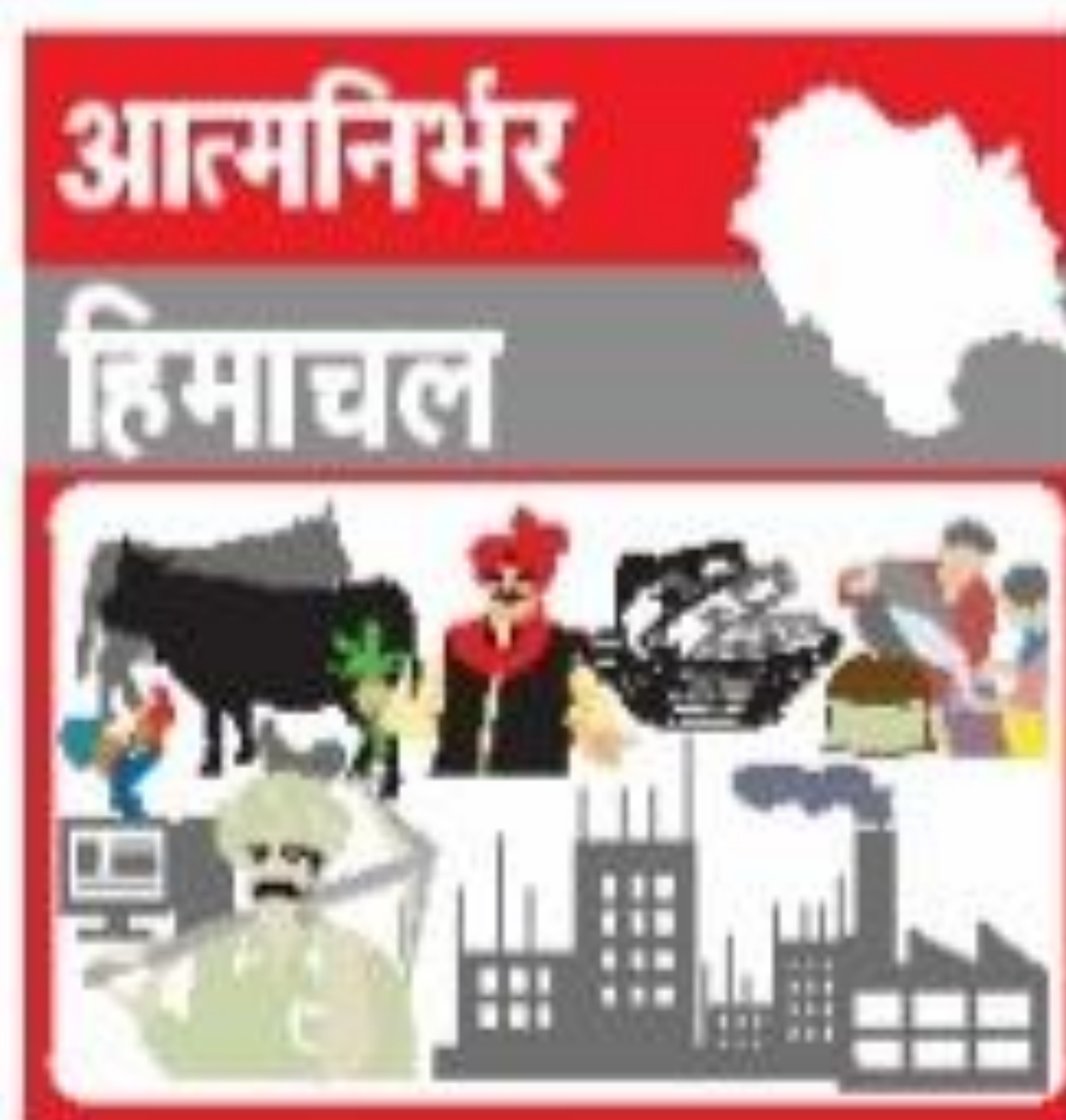
ज्वालामुखी के चौकाठ के किसान ने लेमन ग्रास की खेती कर बदली तकदीर, एक हेक्टेयर भूमि से सालाना कमा रहे डेढ़ से दो लाख रुपये

बंजर जमीन पर मेहनत की हरियाली

प्रवीण कुमार शर्मा • ज्वालामुखी

बेसहारा पशुओं की समस्या से तंग आकर कई किसान उपजाऊ जमीन को बंजर बनने के लिए छोड़ रहे हैं। ऐसे मजबूर किसानों के लिए जिला कांगड़ा के ज्वालामुखी के चौकाठ गांव के व्यक्ति ने नई राह दिखाई है। उसने मेहनत व लगन के भूते उजड़ चुकी जमीन को फिर से सोना उगलने लायक बना दिया है। उसने पांच कनाल भूमि पर लेमन ग्रास (नींबू घास) उगाकर तेल निकालना शुरू किया। बाजार में इस तेल की कीमत 1200 से 1500 रुपये प्रति लीटर मिल रही है। इसकी घास की खासियत यह है कि इसके खट्टे स्वाद की वजह से इसे कोई जानवर नहीं खाता है।

इस कामयाबी के बाद किसान अनिल कुमार ने अपने गांव के 35 और लोगों को अपने साथ जोड़ा। किसान-बागवान औषधीय एवं सुगंधित पौधों की खेती सहकारिता समिति चौकाठ का गठन किया।



आत्मनिर्भर हिमाचल
सुझाव/प्रतिक्रिया/नई जानकारी के लिए लिखें
84290-20616
01892-233825-26
dharamshala@drmjagran.com

इस समय सभी किसान करीब 80 कनाल भूमि पर लेमन ग्रास की खेती कर रहे हैं। इससे बनने वाले तेल की कौस्मेटिक उद्योग में इतनी मांग है कि पूरी ही नहीं हो रही। एक हेक्टेयर भूमि पर लेमन ग्रास की पैदावार से तेल निकालकर सालाना डेढ़ से दो लाख रुपये कमा सकते हैं।

अनिल के अनुसार बेसहारा व जंगली जानवरों की वजह से उसने



ज्वालामुखी के अनिल कुमार द्वारा लेमन ग्रास का तेल निकालने के लिए स्थापित प्रोसेसिंग यूनिट • जागरण

खेती योग्य भूमि खाली छोड़ दी थी। उस समय हिमालय जैव प्रौद्योगिकी संस्थान (आइएचबीटी) पालमपुर द्वारा केंद्र सरकार से स्वीकृत अरोमा मिशन प्रोजेक्ट के तहत सुगंधित पौधों व लेमन ग्रास से तेल निकालने का किसानों को प्रशिक्षण दिया जा रहा था। उसने पालमपुर में लेमन ग्रास की खेती की बारीकियां सीखीं और शुरू में एक कनाल भूमि पर वह

क्या है लेमन ग्रास

हिमाचल के निचले क्षेत्र लेमन ग्रास की पैदावार के लिए अनुकूल माने गए हैं। इसकी खासियत यह है कि एक बार लगा देने के बाद साल में तीन बार कटाई कर तेल निकाला जा सकता है। इसका तेल कौस्मेटिक सामान जैसे सैप, साबुन व क्रीम बनाने के लिए प्रयोग में लाया जाता है। इसके अलावा लेमन टी व आयुर्वेदिक उद्योग में भी औषधीय गुणों के कारण इसकी भारी मांग है। प्रदेश में इसका उपयोग आइसक्रीम इत्यादि बनाने के लिए सुगंध के तौर पर किया जाता है।

सुगंधित घास उगाया। अब वह पांच कनाल जमीन पर इसे उगा रहा है। उसने एक साल में करीब 70 लीटर तेल निकाला।

लेमन ग्रास से बने तेल की मार्केटिंग की कोई दिक्कत नहीं है। खेत से ही तेल सप्लाय हो जाता है। प्रोसेसिंग यूनिट से ही मंडी की नेचुरल बॉयलेट प्रोडक्ट बगगी किसानों का माल लेती है। प्रति किलो यह तेल 1400 से 1500 रुपये तक बिक जाता है।



ज्वालामुखी के चौकाठ में लगाया गया लेमन ग्रास • जागरण

2018 में लगाई प्रोसेसिंग यूनिट

लेमन ग्रास से तेल निकालने के लिए हिमालय जैव प्रौद्योगिकी संस्थान पालमपुर ने ज्वालामुखी में प्रोसेसिंग यूनिट स्थापित की। इससे किसानों को सीधा लाभ हुआ और उनकी आय में लगातार बढ़ोतरी होने लगी।

2017 में शुरू किया था काम

अनिल कुमार ने 2017 में लेमन ग्रास लगाना शुरू किया। उनके प्रयास रंग लाने लगे तो आसपास के वह किसान भी उनसे जुड़ गए जिन्होंने अपने खेत बेसहारा पशुओं की वजह से खाली छोड़ दिए थे।



-अनिल कुमार, किसान चौकाठ • जागरण

लेमन ग्रास की खेती बेरोजगार युवाओं को स्वरोजगार देने के लिए मील का पत्थर साबित हो सकती है।

अगले तीन साल में प्रदेश में तीन हजार हेक्टेयर भूमि लेमन ग्रास की खेती की जाएगी।

-डॉ. संजय कुमार, निदेशक आइएचबीटी, पालमपुर।

जैव प्रौद्योगिकी संस्थान ने देश में इस तरह के 51 यूनिट स्थापित किए हैं। लेमन ग्रास व जंगली गेंदा फूल से निकलने वाले तेल की बाजार में काफी मांग है। लेमन ग्रास का तेल 1500 रुपये प्रति लीटर व गेंदे का तेल सात से आठ हजार रुपये प्रति किलो बिकता है। हिमाचल में ऐसी 21 प्रोसेसिंग यूनिट हैं।

-डॉ. रakesh राणा, वरिष्ठ प्रधान एवं वैज्ञानिक जैव प्रौद्योगिकी संस्थान पालमपुर।

Godrej UV Case: Handy device for sanitising and keeping pathogens at bay

CSIR-CSIO

10th August, 2020



These are pandemic times and personal health and safety is top priority for everyone. Towards this, Godrej Security Solutions (GSS) has debuted its UV Case and expanded its health security segment. Its portfolio addresses the issue of sanitising daily objects, equipment and surfaces that come in contact with several people. The UV case comes in three sizes—15L, 30L and 54L—for home use to industrial use starting at Rs 8,999. I reckon the offering is apt for a diverse customer profile – hospitality, healthcare, leisure, retail, and homes. It uses the UV-C light disinfection technology that helps to create a multiple barrier approach to reduce transmission of viruses based on current

disinfection data and empirical evidence. Worldwide, UV-C sterilisation is the most established scientific method for dry killing more than 65 families of pathogens, viruses and bacteria, including Sars-CoV-1. A little word of caution here. The UVC light technology is a scientific method that requires the right amount of exposure of the objects to the UV light rays. Thus, experts caution consumers to use only products which are certified by competent laboratories and authorities. Two such trusted certifications which is a mark of safety for UV based products are CSIR-Central Scientific Instrument Organisation (CSIR) and CE certifications. CE marking is a certification mark that indicates conformity with health, safety, and environmental protection standards for products sold within the European Economic Area. The CE marking is also found on products sold outside the EEA that have been manufactured to EEA standards. The UV Case by Godrej carries both CSIR-Central Scientific Instrument Organisation (CSIR) and CE certifications. The Godrej UV Case

disinfects and decontaminates almost everything used by an individual daily—mobiles, masks, newspaper, clothes, accessories, books, bags and many other articles. It can also be helpful for the healthcare sector for sanitisation of PPEs kits. According to Mehernosh Pithawalla, vice-president, Godrej Security Solutions, the UV case enables homeowners and commercial establishments to sanitise their daily-use items like watches, wallets, keys, mobiles, clothes, parcels, among others. “Stationery, medical equipment, and salon products can be disinfected in the case to protect and sanitise them before use. Shop owners can disinfect their items for sale before and after customers have had a touch and feel of the same,” he says.

The product is currently available across stores from GSS and on its website, shop.godrejsecure.com.

Published in:
[Financial Express](#)

This new cannabis strain could help treat depression

CSIR-CIMAP

9th August, 2020

A variety of cannabis that may help in treatment of disorders like anxiety and depression may soon be a reality. A team of 15 scientists led by Central Institute of Medicinal and Aromatic Plants' (CIMAP) senior principal scientist Birendra Kumar will come up with a variety of cannabis that will have high cannabinoid (CBD) – a substance found in the plant which has high medicinal value and low tetrahydrocannabinol (THC), a hallucinogenic substance, in negligible amount – which can be used for various medicinal purposes. After a year of research, the team has received successful results. “We will come up with a new cannabis variety having 10-12% CBD which can be safely used for the treatment of various health issues including respiratory and brain disorders. It has been developed with the use of breeding technology. We have identified many strains with varying levels of THC, CBD and cannabinoid terpene which will be valuable in international medicinal cannabis industry,” said Kumar.

“India is dependent on foreign countries for drugs made from cannabis which are used in the treatment of cancer, mental disorders and muscular problems. With this variety, the country will have its own drug with high medicinal value. The research is in a package form which will not only give a new variety but also its agro-technology, oil extraction and testing on small animals,” he added. CSIR-CIMAP director Prabodh Trivedi said, “In future, the project aims at characterising strains in detail and prove the efficacy of cannabis extracts as a natural alternative to synthetic and chemical drugs.” He said cannabis medicinal industry would provide employment opportunities to farmers and educated youth while giving a boost to government's ‘Make in India’ campaign.

Published in:

[The Times of India](#)

CIMAP teams up with private firm for research on cannabis

LUCKNOW : Scientists at Central Institute of Medicinal and Aromatic Plants (CSIR-CIMAP) Lucknow will conduct an in depth research on the active compounds found in cannabis plant popularly known as marijuana that is mostly used as a psychotropic drug.

The research has been funded by a private firm.

Unregulated farming and sale of cannabis and drugs made by it is a criminal offence in India. Cannabis, when consumed, has mental and physical effects that includes euphoria, altered state of mind and sense of time, difficulty concentrating, impaired short-term memory and body movement, relaxation and an increase in appetite.

Prabodh Kumar Trivedi, director, CSIR-CIMAP said, "It's a joint research with industry which will give an opportunity to the country to reintroduce cannabis for welfare of mankind."

He said in preliminary part of the research, a team of 15 scientists led by Dr Birendra Kumar, senior principal scientist, CSIR-CIMAP has been able to perform a detailed study on the morpho-anatomical, chemical and yield

attributing trait characterization of the strains collected for THC (Tetrahydrocannabinol), CBD (cannabidiol) cannabinoid terpene and THC-a.

THC and CBD are the primary psychotropic substances found in cannabis. Several countries of Europe and North America are currently spearheading research on these substances.

"In ancient India's religious and mythological history, cannabis has been used as a revered and powerful medicine in Ayurvedic, Siddhi and Unani Schools of holistic healing. It is also well documented internationally that the basic genetic material of all strains of cannabis originated from the subcontinent," Trivedi said.

Dr Kumar, principal investigator, said in coming years, the project aims to reach the test phase to prove the efficacy of cannabis extracts as a natural alternative to many synthetic drugs that causes several serious side effects.

The project has been funded by Asheesh Concentrates International LLP (ACI) led by Mr Harshvadan Amersey and Amey Nargolare.

HTC

मिंट की दो बूंद लगाने से मिलता है जोड़ों के दर्द में आराम

फ्रेग्रेस, फ्लेवर और फार्मास्यूटिकल इंडस्ट्री में है भारी डिमांड



■ सैयद सना, लखनऊ

मिंट सुन्ने ही आम्रतौर पर फुड्स का स्वाद आ जाता है। विशेषज्ञों का कहना है कि मिंट की देश में कई फ़ार्मास्यूटिकल प्लांट्स हैं। यह एक औषधीय और सौंदर्य वीथी है। फुड्स जहाँ पेट की समस्याओं से निजात दिलाता है वो दूसरी ओर मेथॉल मिंट या जापानी फुड्स या मेथा आरवेंसिस, मेथा पिपेरटा (पेपरमिंट), मेथा स्पार्काटा (सिफरमेट) और मेथा सिट्रसटा (बसमोट मिंट) को खेती कर अर्थो मुनाफा कमाया जा सकता है। इन सभी फ़ार्मास्यूटिकल की फ्रेग्रेस, फ्लेवर, फूड ऐड बेवरेज और फार्मास्यूटिकल इंडस्ट्री में काफी डिमांड है।

जोड़ों के दर्द में भी लाभदायक

धरों में इस्तेमाल होने वाला फुड्स या मेथा मिंटिल आरुवेड में पेट के लिए अच्छा माना गया है। इसमें मुख्यतः कार्बन तंत्रात्मिक तत्व मिलता है। इसे जोड़ों के दर्द, जकड़न में भी इस्तेमाल किया जा सकता है। जकड़न और जोड़ों के दर्द के लिए फुड्स का सत्व, अजकड़न का सत्व और कपूर को मिलाकर एक शीरी में जकड़न लगा कर रखा तें। सरसों के तेल में दो बूंद मिलाकर लगाने से जोड़ों के दर्द से आराम मिलेगा। जकड़न के लिए सरसों का तेल गर्म करके उसमें एक-दो बूंद डालकर तेल को सोने पर मलने से आराम मिलेगा। इससे जुकाम के जकड़ भाप लेने से भी जुकाम ठीक होवे है।

मेथॉल मिंट में पाया जाता है सबसे ज्यादा 80 फीसदी तक मेथॉल

हमारे देश में सबसे ज्यादा खेती मेथॉल मिंट या मेथा आरवेंसिस को होती है। देश भर में करोड़ों बड़े लाख हेक्टेयर में मेथॉल मिंट की खेती हो रही है। मेथॉल मिंट में मेथॉल की मात्रा 60 से 80 फीसदी तक पाई जाती है। इसमें मिथिल एस्टेट, मेथोन, आइसोमेथोन, अल्फा फेनिल समेत कई रासायनिक तत्व भी मिलते हैं। इसका इस्तेमाल फ्लेवर से जुड़ी इंडस्ट्री के अलावा कपा रीप, इन्हेलर्स, बम बास्कर रिएक्ट और ऐसे तमाम दर्द निवारक दवाइयों में किया जाता है।



एक फसल से होता है ₹60 हजार का मुनाफा

मेथॉल मिंट को फसली के आधारे या मर्च के फसले इसमें लगाया जाता है। इसे खेती में लगाने के दो तरीके हैं। पहला, जो पौधे की जड़ या सक्कर को सीधे जमीन में बो दिया जाए। 15 दिन बाद इसमें कल्ले आ जायें। दूसरा, 9 से 10 इंच की जड़ के टुकड़े को फसले मससे तैयार कर पैस बना ली जाए। इसके बाद खेत में लगाई जाए। एक एकड़ जमीन में 40 फिले जड़ या 40 हजार पैस लगते हैं। इसकी खेती में 40 हजार रुपये/हेक्टेयर की लागत आती है। विपरीत एक फसल से दो बार कटाई कर सकता है। पहली कटाई मई में की जा सकती है। इसमें 100 फिले तेल मिलता है, जिसकी कीमत बाजार में 1,000 से 1,100 रुपये/किलो है। ऐसे में शुद्ध मुनाफा 60 हजार रुपये तक मिल जाता है। पहली कटाई के बाद फसल लगी रहने दें। उसी फसल से दूसरी कटाई जुलाई में की जा सकती है। इसमें विपरीत को 75 से 80 फिले तेल प्राप्त होवे।

टी इंडस्ट्री में होता है मेथा पिपेरटा का इस्तेमाल

■ मेथा पिपेरटा या सिफरमेट का इस्तेमाल चय इंडस्ट्री में भी किया जाता है। इसमें 1 से 5 फीसदी तक मेथा पिपेरटा पाया जाता है। सक्कर की कटाई से इसकी चय इंडस्ट्री में काफी मांग है।

■ सिफरमेट में कार्बन पाया जाता है, जिसके कारण चिन्म और कफेवाशरी इंडस्ट्री में सिफरमेट की काफी डिमांड है। मेथा सिट्रसटा को फ्लेवर और टेल्कम फउडर जैसे उत्पादों में यूज किया जाता है। इन तीनों फ़ार्मास्यूटिकल का तेल बाजार में 2,000 रुपये/किलो के हिसाब से मिलता है।

व्यवसाय के लिए भी है अच्छा विकल्प

■ जो मेथा से कमाई करना चाहते हैं, वह विपरीत से मेथॉल तेल खरीदकर वेस्ट गृह में बो छोटे-छोटे रोटरी में बो सकते हैं। ■ आरवेंसिस विधि से अलग किए गए मेथॉल तेल के बाद बचे रासायनिक तत्वों को अलग कर कंपनियाँ को अच्छे दामों में बेच सकते हैं। ■ फसल के बाद बचे अपशेष को कंपोस्ट या कमी कंपोस्ट के रूप में तैयार कर उनकी बिक्री की जा सकती है। ■ मेथॉल निचालने के बाद बचे हुए तरपेन में गुरिया मिलाकर फर्टिलाइजर तैयार कर सकते हैं। इसकी टेम्पलेटरी रीमिंग से रास्ते दमों में मिल जायेंगी।

किसानों के लिए बनाई अगेती मिंट तकनीक

संशोधन ने मेथा की उन्नत विधि को दे, कृषि और मिम उन्नति विकसित की है। किसानों के लिए अगेती मिंट तकनीक बनाई है। इस तकनीक से फसल की बहुत कम सिंचाई करनी पड़ती है और यह 10 दिन के बजाए 80 दिन में तैयार हो जाती है। इस तकनीक का इस्तेमाल करके किसान पॉलिग्रीन से ज़रूरत कृषि गर्मी से 20-25 दिन में नरस तैयार कर सकते हैं। फसली में रोपाई कर सकते हैं। कटाई के 15-20 दिन पहले ही सिंचाई बंद कर देनी चाहिए लेकिन ध्यान रखना चाहिए फसल सूखने न पड़े।

एक्सपर्ट्स



■ डॉ. सौदान सिंह, मुख्य वैज्ञानिक, सीमैप



■ डॉ. वीरेंद्र कुमार, वरिष्ठ प्रधान वैज्ञानिक, सीमैप



■ डॉ. एसके ओझा, वरिष्ठ प्रधान वैज्ञानिक, एनबीआरआई

पौधे लगाए तो हमें बताएं

अगर आपने भी अपने लॉन, गार्डन, गमलों या छत पर औषधीय पौधे लगाए हैं तो पौधे के साथ अपनी सेल्फी nbtlucknow@timesgroup.com पर भेजें। हम ये फोटो एनबीटी लखनऊ के ट्विटर हैंडल और फेसबुक पेज पर शेयर करेंगे, ताकि आप दूसरों के लिए प्रेरणा बन सकें।

Research on cannabis: सिंथेटिक व प्राकृतिक दवाओं के विकल्प में रूप में परखा जाएगा भांग का असर

CSIR-CIMAP

7th August, 2020



केन्द्रिय औषधि एवं सगंध पौधा संस्थान (सीमैप) द्वारा भारतीय भांग के जीनोटाइप्स में पाए जाने वाले औषधीय तत्वों जैसे टीएचसी, सीबीडी और कैनबिडिड टेरपिन का पता लगाने के लिए अनुसंधान परियोजना पर काम हो रहा है। परियोजना की समीक्षा बैठक में प्रधान अन्वेषक डॉ. बिरेन्द्र कुमार ने बताया कि परियोजना के अगले चरण में कई सिंथेटिक और रासायनिक दवाओं के प्राकृतिक विकल्प के रूप में भांग यानी कैनबिस के अर्क की प्रभावकारिता को साबित करने के लिए परीक्षण किए जाएंगे। उन्होंने बताया कि टीएचसी, सीबीडी, टीएचसी - ए और कैनाबिनोइड टेरपिन के विभिन्न स्तरों के साथ कई जेनेटिक मेटिरियल स्ट्रेन्स की खोज की गई है जो अंतर्राष्ट्रीय औषधीय कैनबिस उद्योग

के लिए अमूल्य होगी। यह परियोजना मैसर्स अशीष कॉन्सेंट्रेट्स इंटरनेशनल एलएलपी (एसीआई), मुंबई द्वारा वित्तपोषित है। बताते चलें कि प्राचीन समय से ही भारत में भांग का उपयोग होलिस्टिक हीलिंग के लिए आयुर्वेदिक, सिद्धा और यूनानी दवाइयों में बड़े पैमाने पर उपयोग किया जाता रहा है। इस बात के भी प्रमाण हैं कि भांग के सभी जेनेटिक मेटिरियल स्ट्रेन्स का उदगम भारतीय उपमहाद्वीप में हुआ है। सीमैप के निदेशक डॉ. प्रबोध कुमार त्रिवेदी ने बताया कि इंडस्ट्री के साथ संयुक्त शोध से मानव जाति के कल्याण के लिए देश में भांग की खेती तथा उसके उत्पादों को पुनः प्रचलित करने में मदद मिलेगी और साथ ही साथ किसानों को भी अवसर मिलेंगे। उन्होंने बताया कि परियोजना के पहले वर्ष में डॉ. बीरेंद्र कुमार की देखरेख में 15 वैज्ञानिकों की एक टीम मॉर्फो-एनाटोमिकल, केमिकल और यील्ड पर एक विस्तृत अध्ययन करने में सक्षम रही है। भांग पर आधारित औषधीय उत्पादों की इंडस्ट्री से भारत में 'मेक इन इंडिया' के तहत उद्योग स्थापित करके किसानों, शिक्षित युवाओं और उद्यमियों को रोजगार के अवसर मिलेंगे।

Published in:
[Dainik Jagran](http://DainikJagran.com)

CSIR, FSSAI sign MoU for collaborative research on food and nutrition

CSIR

7th August, 2020



An agreement was signed on Friday between CSIR and FSSAI for collaborative research and information dissemination in the area of food and nutrition, the Health Ministry said. Health Minister Harsh Vardhan presided a ceremony for the signing of MoU between the Food Safety and Standards Authority of India (FSSAI) under the Ministry of Health and Family Welfare and the Council of Scientific and Industrial Research (CSIR) under the Ministry of Science and Technology, according to an official statement. "The MoU is a very significant step that will create a brighter future for India seeking collaborative research and information dissemination in the area of food and

nutrition, and food and consumer safety solutions in India. The collaboration between these two premier institutions of India will contribute in fulfilling the vision of New Food System 2050, Vardhan said. The two organisations will collaborate towards strengthening the quality assurance of laboratory networks across the country aimed at development and validation of methods for reliable reporting on quality and safety of food products, he stated. Vardhan highlighted that the country will see a surge in demand for healthy, nutritious, plant-based, local, seasonal and indigenous foods, produced organically. He said the New Food System 2050 will also see an enhanced focus on climate-friendly food production systems, conservation of land and water resources, reduction in food loss and food wastage across the value chain, increase in small scale production units for self-sustaining local economies, use of environment-friendly packaging alternatives, and repurposing of waste, according to the statement issued by the Health Ministry.

Published in:
[Business Standard](#)

Science Technology & innovation are important aspects of the future

CSIR-NEIST

7th August, 2020



In continuation with the ongoing Eminent Scientist Lecture Series of the Online CSIR Summer Research Training Program (CSIR-SRTP) 2020, the 24th lecture was delivered by Prof Ashutosh Sharma, Secretary to the Government of India, Department of Science and Technology, on August 4 on the topic 'Art of Science for the new Millennium', stated a press release. It was attended by around 3.9 K viewers through various platforms. Since all schools, colleges and universities are shut town due to COVID-19 pandemic, Dr Shekhar Mande, Director General, Council of Scientific and Industrial Research (CSIR), took the initiative of Online Summer Research Training Programme, 2020 and it

was registered by 16,000 graduate and undergraduate students. It is coordinated by CSIR-North East Institute of Science & Technology (CSIR-NEIST) Jorhat. Prior to beginning the talk, Prof. Sharma released about five CSIR-SRTP 2020 demonstration videos which are now available on YouTube for viewers. Delivering the lecture, Prof. Sharma stated that science and technology and innovation were the most important aspects of the future and he cited the three strongest pillars through which people could negotiate their future, the future of their community, society and the future of the entire nation and the world. They are – science, translation in terms of technology, in term of problems, in term of solutions to those problems and innovation. In his talk, he elaborated the exact meaning of education and how young minds should prepare for education, especially in context of future and real-life problem solving. "We learn chapter to chapter, exams to exams, course to course, degree to degree but there is no synthesis. Learning the basics, learning them well, building life-long capacity to learn and purpose of education is to bring about synthesis from everything we have learned in a seamless way so that when a problem comes, you can try to look for recognizing the problem, components of the problem and what are the diversity of tools we have

to solve the problem and to understand what tool is needed to solve the problem," he said. "Applying our knowledge in real-life problem solving by synthesis will remain the key," he added. Also Read - Borsola MLA Ganesh Limbu submits memorandum to Sarbananda Sonowal He pointed out another important aspect of education – common sense – which an educated person must have. He said that another expect of education was independent thinking which required confidence. Prof. Sharma elaborated that the future of science was all about conversion of digital and cyber technology on one hand and basic physical science on the other hand. The bold frontier of science will be the integration of basic science and machine learning, he said.

Published in:

[The Sentinel Assam](#)

सीमैप ने भांग पर किया नवीन अनुसंधान

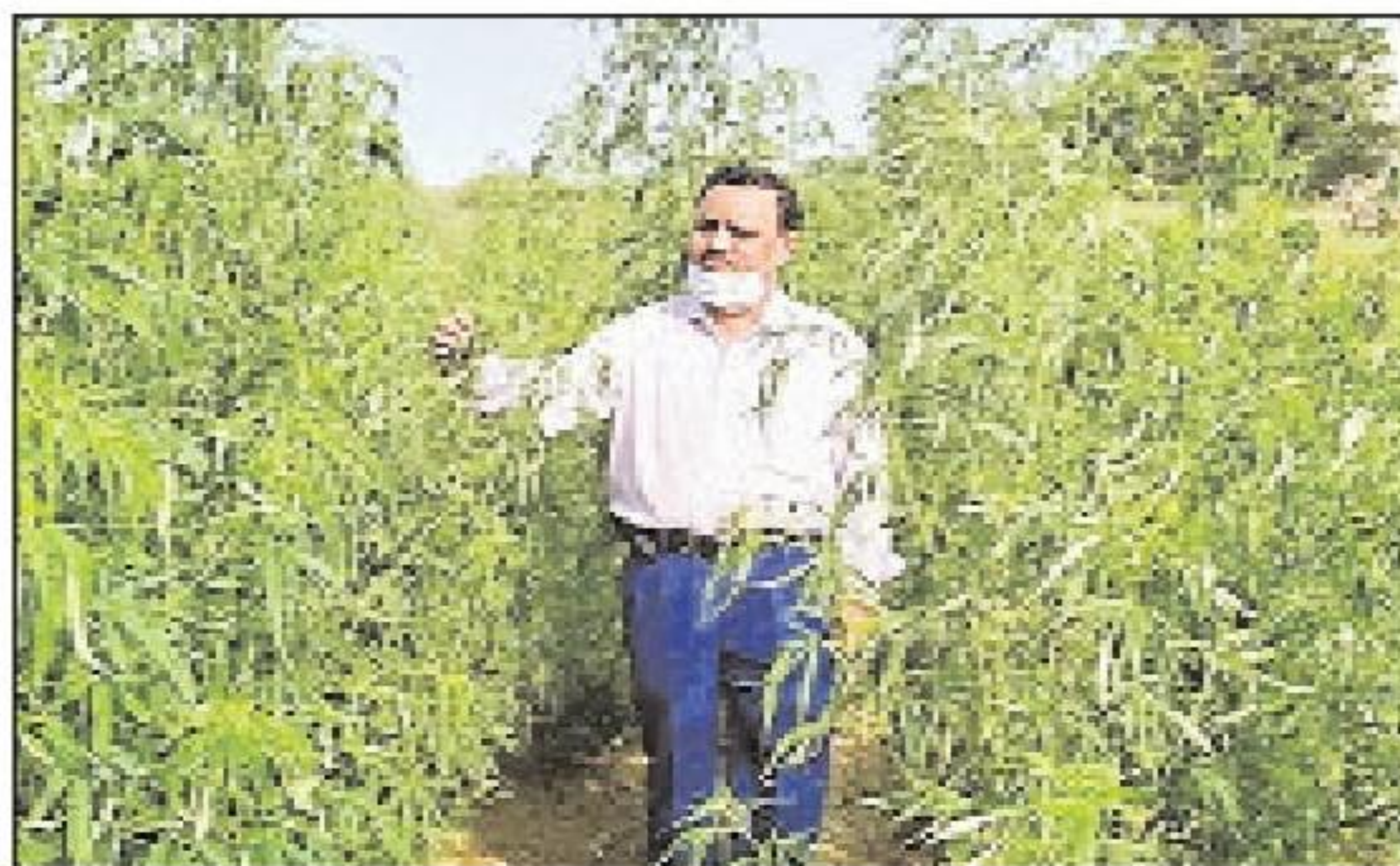
लखनऊ (एसएनबी)। केन्द्रीय औषधि एवं सगंध पौधा संस्थान (सीमैप) द्वारा भारतीय भांग के जीनोटाइप्स में पाए जाने वाले औषधिया तत्वों जैसे टीएचसी, सीवीडी और कैनबिडिड टेरेपिन का पता लगाने के लिए एक अनुसंधान परियोजना चलाई जा रही है। यह परियोजना मैसर्स अशीष कॉन्सेंट्रेट्स इंटरनेशनल एलएलपी (एसीआई), मुंबई द्वारा वित्तपोषित की गयी है।

ज्ञात हो प्राचीन समय से ही भारतवर्ष में भांग का उपयोग होलिस्टिक हीलिंग के लिए आयुर्वेदिक, सिद्धा और यूनानी दवाइयों में बड़े पैमाने पर किया जाता रहा है। अंतरराष्ट्रीय स्तर पर वैज्ञानिक प्रमाण मिलते हैं कि भांग के सभी जेनेटिक मेटिरियल स्ट्रेन्स का उद्गम भारतीय उपमहाद्वीप में हुआ है। परियोजना की वार्षिक समीक्षा करने के बाद सीमैप के निदेशक डा. प्रबोध कुमार त्रिवेदी ने बताया कि इंडस्ट्री के साथ इस संयुक्त शोध से मानव जाति के कल्याण के लिए देश में भांग की खेती तथा उसके उत्पादों को पुनः प्रचलित करने में मदद मिलेगी, साथ ही साथ किसानों को भी अवसर मिलेंगे। उन्होंने बताया कि परियोजना के पहले वर्ष में सीमैप के सीनियर प्रिंसिपल साइंटिस्ट डा. वीरेन्द्र कुमार की देखरेख में 15 वैज्ञानिकों की एक टीम मॉर्फो-

एनाटोमिकल, केमिकल और यील्ड पर एक विस्तृत अध्ययन करने में सक्षम रही है।

परियोजना के प्रधान अन्वेषक डा. वीरेन्द्र कुमार ने बताया कि

आने वाले वर्ष में परियोजना का उद्देश्य कई सिंथेटिक और रासायनिक दवाओं के प्राकृतिक विकल्प के रूप में कैनबिस के अर्क की प्रभावकारिता को साबित करने के लिए टेस्टिंग करना शामिल है। उन्होंने बताया कि पिछले कुछ महीनों में टीएचसी, सीवीडी, टीएचसीए और कैनाबिनोइड टेरेपिन के विभिन्न स्तरों के साथ कई जेनेटिक मेटिरियल स्ट्रेन्स की खोज की गई है जो अंतराष्ट्रीय



औषधीय केनबिस उद्योग के लिए अमूल्य होगी।

परियोजना को हर्षवादन अमर्सी और अमेय नरगोलारे के नेतृत्व में मैसर्स अशीष कॉन्सेंट्रेट्स इंटरनेशनल एलएलपी (एसीआई), मुंबई द्वारा वित्त पोषित किया गया है, जिनके पास अंतरराष्ट्रीय कैनबिस कंपनियों के साथ काम करने का व्यापक अनुभव है। भांग पर आधारित औषधीय उत्पादों की इंडस्ट्री से भारत में 'मेक इन इंडिया' के तहत उद्योग स्थापित करके किसानों, शिक्षित युवाओं और उद्यमियों को रोजगार के अवसर मिलेंगे।

Centre formulating R&D policy to bolster drug discovery

Blueprint to cover medical devices, include incentives for scientists, says official

SPECIAL CORRESPONDENT
HYDERABAD

The Centre will soon unveil a new Research & Development (R&D) policy to boost drug discovery and the manufacture of medical devices in the country.

Alongside, numerous production-linked incentives are also on the anvil, including to the scientists involved in the process, P.D. Vaghela, Secretary, Department of Pharmaceuticals, said on Wednesday.

The government proposes to set up three major manufacturing parks including one in Hyderabad, with an investment of ₹1,000 crore each to help drive import substitution of basic raw ma-



Local cure: The central government has so far received 13 requests for setting up bulk drug parks. ■ REUTERS

terials, active pharmaceutical ingredients (API) and the making of medical devices, Mr. Vaghela said.

Addressing a webinar to commemorate the 77th anniversary of CSIR-Indian Insti-

tute of Chemical Technology (IICT), the Secretary said there had to be renewed focus on bringing together research institutions, academia and the industry to identify new chemicals, up-

date processes and discover new drug delivery systems.

‘Become millionaires’

He said current approval processes were archaic and that there was a dire need to strengthen institutions and recognise scientists’ role in new discoveries, and to help them commercialise the projects so they too can ‘become millionaires’.

The Centre has so far received 13 requests for setting up the bulk drug parks.

CSIR-DG Shekhar C. Mande said about 53 APIs had been identified for manufacture, of which 26 were being processed on a war footing, with results expected in 2-3 years.

CSIR-IICT

6th August, 2020

Industry-academia partnership stressed

CITY BUREAU

Hyderabad

The city-based Indian Institute of Chemical Technology (IICT) is all set to play an important role in establishing Centres of Excellence in bulk-drug research in three National Institute of Pharmaceutical Education and Research (NIPER) institutes in India.

Secretary, Department of Pharmaceuticals (DoP), Ministry of Chemicals and Fertilizers, Dr PD Vaghela, during 77th Foundation Day celebrations of IICT on Wednesday, urged the chemical research institute to champion industry-academia partnership.

Dependence on imports

Vaghela appreciated IICT and Cipla collaboration on Covid-19 drug Favipiravir, which will be available at much lower cost.

“The need of the hour is to reduce dependence on imports of critical chemicals. We expect IICT to take a significant role in making India self-reliant in the pharmaceutical sector,” he said. Dr Shekhar C Mande,

IICT and Cipla have collaborated on Covid-19 drug Favipiravir, which will be available at much lower cost

Director General, Council of Scientific and Industrial Research (CSIR), assured Dr Vaghela that CSIR will extend all possible collaboration in making India an Atmanirbhar Bharat by actively participating in R&D in the pharma sector and building industry-academia relationships.

IICT Director Dr S Chandrasekhar said the repurposing of Favipiravir was the beginning and the institute is working to deliver solutions for betterment of the society.

Founder of VIMTA Labs, Dr SP Vasireddi, Senior scientist Prof Arun Kumar were among many scientists who participated in the virtual meet held to celebrate Foundation Day of city-based chemical technology institute.

Published in:
Telangana Today

➤ జనరిక్ మందుల తయారీలో ఐఐసీటీ పాత్ర కీలకం

తార్నాక, న్యూఢిల్లీ: జనరిక్ మందుల తయారీలో ఐఐసీటీ పాత్ర కీలకమని కేంద్ర రసాయన, ఎరువుల మంత్రిత్వ శాఖకు చెందిన పార్మాస్యూటికల్స్ విభాగ కార్యదర్శి డాక్టర్ పి.డి.వామేలా అన్నారు. తార్నాకలోని ఇండియన్ ఇనిస్టిట్యూట్ ఆఫ్ టెక్నికల్ టెక్నాలజీ (ఐఐసీటీ) 77వ వార్షికోత్సవాన్ని బుధవారం నిర్వహించారు. ఈ సందర్భంగా ఆన్లైన్ సదస్సులో డాక్టర్ పి.డి.వామేలా మాట్లాడుతూ దేశంలోని విద్యా, పరిశోధన, పారిశ్రామిక సంస్థలను సమన్వయం చేయాలని తెలిపారు. ఐఐసీటీ సంచాలకుడు డా.చంద్రశేఖర్ ఇత్తుడ పరిశోధనలను వివరించారు. ఐల్సీ డ్రగ్స్ అసోసియేషన్ జాతీయ అధ్యక్షుడు వి.వి.కృష్ణారెడ్డి, ప్రొ.ఆరున్ తివారీ మాట్లాడారు.

'SAANS' masks by IICT, CF

CITY BUREAU

Hyderabad

Hyderabad-based Indian Institute of Chemical technology (IICT) has joined hands with Cipla Foundation (CF) to manufacture 'SAANS' face masks which are affordable, multi-layered, hydrophobic and anti-microbial properties.

The 'SAANS' initiative was taken-up with a seed grant for production of one lakh high quality masks and distribute them in identified mandals of rural parts of Telangana, said Dr D Shailaja, Chief Scientist and Chair Business Development, CSIR-IICT.

Pan India project

Efforts are also on to expand the initiative to make it a pan India project by involving the NGO partners of CF, Dr Shailaja added. The IICT has approached potential partners for collaboration under CSR activity.

The SAANS facemask, made with CSIR-IICT's de-

sign has three to four layers made of co-extruded hydrophobic polymers with anti-bacterial properties.

The mask is expected to provide a virus rejection of 60 per cent to 70 per cent, but more importantly, a 95 per cent to 98 per cent rejection of respiratory droplets of minimum 0.3 μ m size, a key factor in controlling the spread of the virus, said Project Leader and Senior Principal Scientist, Head, Membrane Team at CSIR-IICT, Dr S Sridhar.

The SAANS mask can be washed 30 times and re-used for up to two to three months. It provides greater breathability making it a better mask compared to other expensive limited use masks.

Dr Shekhar C Mande, Director General, CSIR, Director of CSIR-IICT, Dr S Chandrasekhar, Managing Trustee, Cipla Foundation, Rumana Hamied congratulated researchers for coming-up with the unique face masks.

IICT to celebrate Foundation Day today

HYDERABAD: Indian Institute of Chemical Technology (IICT), Hyderabad is celebrating its 77th Foundation Day on Wednesday.

On the occasion, the Secretary, Department of Pharmaceuticals, Ministry of Chemicals and Fertilisers Dr PD Vaghela will address the staff and students of the IICT as chief guest while DG, CSIR and Secretary, DSIR Dr Shekhar Mande will deliver the presidential address.

Noted personalities from the scientific community and pharmaceutical sector including scientist, Arun Tiwari, national president of Bulk Drug Manufacturers Association of India, VV Krishna Reddy, non-executive chairman and founder of Vimta Labs, Dr SP Vasireddi will take part in the Foundation Day event.

Cipla to mass-produce IICT-designed masks

SPECIAL CORRESPONDENT
HYDERABAD

CSIR-Indian Institute of Chemical Technology (IICT) has joined hands with Cipla Foundation (CF) to make one lakh high quality masks for distribution across Telangana. The project titled 'SAANS' is likely to be taken nationwide involving voluntary bodies of CF, said chief scientist and chair, business development of the institute, D. Shailaja, on Wednesday.

Startups, medium and small scale enterprises and self-help groups are to be made partners in mask production with the objective of income generation and to improve the quality of hygienic life in the rural areas for mitigation of COVID-19, she said. CSIR Director General Shekhar C. Mande launched the programme. More such indus-

try-lab research partnerships were required for the 'Atmanirbhar Bharat', he said.

SAANS mask made with CSIR-IICT's design has three-four layers made of co-extruded hydrophobic polymers with antibacterial properties. The mask is expected to provide a virus rejection of 60-70%, but more importantly, a 95-98% rejection of respiratory droplets of minimum 0.3 μm size - a key factor in controlling the spread of COVID-19, said senior principal scientist and head of the membrane team at IICT, S. Sridhar.

Dr. Sridhar said SAANS mask can last till 30 washes and re-used for up to two-three months. It provides greater breathability making it a better mask compared to expensive limited-use masks, he claimed.

Published in:
The Hindu

ఐఐసీటీ..

77 ఏళ్లు



ఈనాడు, హైదరాబాద్

రేలేనా చిత్రాకు కొత్త మందులు వచ్చేవరకు ప్రభావ వంతంగా పనిచేస్తున్న పాత ఔషధాలనే ఉపయోగిస్తున్నారు. పలికాలు ఆశాజనకంగా ఉండటంతో మన దేశంలోనూ ఆత్మవసర చికిత్సలో వాడేందుకు కొన్ని పాత మందులకు డ్రగ్ కంట్రోల్ జనరల్ ఆఫ్ ఇండియా అనుమతిచ్చింది. లైసెన్సింగ్ ఉప్పుండుతో మన పాఠ్యా కంపెనీలు ఆయా ఔషధాలను మార్కెట్లోకి విడుదల చేస్తున్నాయి. వీటి దరలు అందుబాటులో ఉండేలా.. దేశీయంగా లభించే ముడి పదార్థాలతో తయారు చేసేలా ఇండియన్ ఇన్స్టిట్యూట్ ఆఫ్ కెమికల్ టెక్నాలజీ(ఐఐసీటీ) రెమిడిసివిర్, పెవిపిరవి

పునాది 1944లోనే..

ఏడున్నర దశాబ్దాలుగా దేశ పారిశ్రామిక, ఆర్థిక రంగ పురోభివృద్ధికి ఎంతో కృషిచేసిన ఐఐసీటీకి పునాది 1944లో పడింది. అప్పటి హైదరాబాద్ స్టేట్లో నిజాం ఆదేశాలతో సెంట్రల్ ల్యాబరేటరీస్ వర్ సైంటిఫిక్ అండ్ ఇండస్ట్రియల్ రీసెర్చ్ (సీఎల్ఎస్ఐఆర్) ఏర్పాటైంది. ప్రధాన క్షాత్రపన్ నిర్మాణానికి 1949లో శంకు స్థాపన చేయగా 1954 జనవరి 2 తొలి ప్రధాని నెహ్రూ ప్రారంభోత్సవం చేశారు. 1956లో కొన్ని ఆఫ్ సైంటిఫిక్ అండ్ ఇండస్ట్రియల్ రీసెర్చ్ (సీఎస్ఐఆర్)లో సీఎల్ఎస్ఐఆర్ను విలీనం చేసి రీజిస్టర్ రీసెర్చ్ ల్యాబరేటరీ(ఆర్ఆర్ఎల్)గా పేరు మార్చారు. అనంతరం

- చౌక ఔషధాల తయారీపై పరిశోధనలు
- కొవిడ్-19 ప్రయోగాల్లో విజయవంతం

జనరిక్ మందులపై..

వలు ఔషధాల బరీదు ఎక్కువ కావడంతో దేశీయంగా జనరిక్ మందుల తయారీకి కావాల్సిన సాంకేతికతను ఐఐసీటీ అభివృద్ధి చేసింది. హెచ్ఐవీ వంటి వాటికి పూర్తిగా స్వదేశీ సాంకేతికతతో తక్కువ ధరకే మందులను సిద్ధం చేయడంలోపాటు ప్రైవేటు సంస్థలతో కలిసి ప్రపంచ మార్కెట్కు అందించిన మనత ఉంది. ఔషధ అభివృద్ధిలను వేగవంతం చేసేందుకు 2 వేల మూలకాల నిధిని ఏర్పాటు చేశారు. కొవిడ్-19 ప్రారంభంలో ఔషధాల ముడి సరకుల కోసం వైనాసహా ఇతర దేశాలపై ఆదారపడాల్సిన పరిస్థితి దీంతో దేశీయంగా ముడి పదార్థాల అభివృద్ధిపై ఐఐసీటీ దృష్టి పెట్టింది. స్థానికంగా దొరికే రసాయనాలతోనే ముడి పదార్థాల అభివృద్ధి సాంకేతికతపై కృషి చేసి విజయం సాధించింది.

1989లో ఐఐసీటీగా మార్చారు. మొదట్లో పురుగు మందులు, టోగ్గు, సిరామిక్స్, నూనెలు, పాలిమర్స్పై పరిశోధనలు మొదలు పెట్టి క్రమంగా పరిధిని పెంచుకుంది. తర్వాత పాఠ్యా, ఇందన, ఇతర ప్రధాన రంగాలను పరిశోధనలకు విస్తరించింది.

ఒక్క మాస్కు.. 30 ఉతుకులు

• ఐఐసీటీ రూపకల్పన

ఈనాడు, హైదరాబాద్: ఇండియన్ ఇన్స్టిట్యూట్ ఆఫ్ టెక్నాలజీ టెక్నాలజీ(ఐఐసీటీ) శాస్త్రవేత్తలు సరికొత్త మాస్కును తయారుచేశారు. మూడు, నాలుగు పొరలు కలిగి ప్రాజెక్టోఫోటిక్ పాలిమర్లతో బ్యాక్టీరియా, వైరస్లను సమర్థంగా నిలువరించేలా దీన్ని రూపొందించారు. తుమ్మినప్పుడు, దగ్గినప్పుడు, మాట్లాడేటప్పుడు వెలువడే తుంపర్లలో 0.3 మైక్రాన్ల పరిమాణం వరకు ఈ మాస్కు నిలువరిస్తుంది. గరిష్ఠంగా 60 నుంచి 70 శాతం వరకు వైరస్లను అడ్డుకుంటుందని ఐఐసీటీ సీనియర్ ప్రిన్సిపల్ శాస్త్రవేత్త, ప్రాజెక్టు డైరెక్టర్ శ్రీధర్ తెలిపారు. ఈ 'సాఫ్ట్ వేస్ మాస్కు'ను 30 సార్లు ఉతికి తిరిగి వాడుకోవచ్చని



ఐఐసీటీ రూపకల్పన చేసిన మాస్కులు

వారం ఈ ప్రాజెక్టును ప్రారంభించారు. ఐఐసీటీ డైరెక్టర్ ఎస్.చంద్రశేఖర్, సిప్లా ఫౌండేషన్ మేనేజింగ్ ట్రస్టీ రుమానా హమీద్ తదితరులు పాల్గొన్నారు.

రెండు మూడు నెలల వరకు పనికొస్తుందన్నారు. పెద్దఎత్తున మాస్కుల ఉత్పత్తికయ్యే వ్యయాన్ని తరించేందుకు సిప్లా ఫౌండేషన్ ముందుకొచ్చిందని ఐఐసీటీ ప్రధాన శాస్త్రవేత్త డి.శైలజ తెలిపారు. సిప్లా ప్రతినిధులతో కలిసి సంస్థ డీజీ శేఖర్ మండే మంగళ

Deep below the surface, boreholes offer clues to past warming in the Western Ghats

CSIR-NGRI

5th August, 2020



- *According to a study, the Western Ghats has experienced an increase in temperature of about 0.8 degrees Celsius in the past 100 years due to climate change.*
- *The study leveraged temperature-depth data recorded from boreholes dug in Maharashtra's Koyna region.*
- *Temperature-depth borehole profiling can be used as a robust technique to reconstruct past climate warming. The data from boreholes supplement the lack of long-term meteorological records and fulfil the need for accurate data in climate change studies.*

Mapping changes in temperature with depth in boreholes drilled in Maharashtra's Koyna region has thrown light on past climate warming in the biodiversity-rich Western Ghats. The results detailed in a study in the journal *Theoretical and Applied Climatology* show that the Western Ghats has experienced warming of about 0.8 degrees Celsius in the past 100 years due to climate change. The authors underscore that despite limitations, digging into surface ground temperature in boreholes "provides a true estimate of climate change and can be used as a robust technique to reconstruct past climate warming." "Our study estimate is comparable with the warming estimates obtained from the meteorological data, which states that warming has been around 0.56 degrees Celsius in the past 100 years (1901 to 2001)," study author Srinidhi Jha of IIT-Indore told Mongabay-India. The scientists used temperature-depth data recorded in 2014 from five deep boreholes (ranging in depth from 140 metres to 198 metres) in the Koyna region in the Western Ghats to quantify the climate warming in

the chain of mountains running parallel to India's western coast. A borehole is a narrow vertical hole drilled in the ground and used for a variety of purposes such as extraction of groundwater, petroleum, mineral investigation and simple temperature-depth profiling in this case. In this process, the temperature records are collected at subsequent depths in a borehole with the help of a temperature probe attached to a string, said Jha. These wells were drilled in the 1990s by National Geophysical Research Institute (NGRI) for examining the pore-pressure changes in the seismically active Koyna-Warna region. Jha said the study addresses the need for reliable climate warming estimates for the Western Ghats traversing the states of Kerala, Tamil Nadu, Karnataka, Goa. "Ecologically rich Western Ghats play a crucial role in deciding the country's climatological characteristics. Over the past few years, the estimation of climate warming in the world's ecological hotspots has been gaining attention," Jha adds. "In this study, we have considered a short period of 100 years for a particular place. It also depends on the rock type; how they absorb the heat. The area of the study site is basaltic area and it has a particular temperature gradient," NGRI's D.V. Reddy and study co-author told Mongabay-India. Temperature-depth data from boreholes supplement the lack of long-term meteorological records and fulfil the need for accurate data in climate change studies. "Most of the meteorological records which are available in India date back to the 1900s. Further, longer historical data is not available for many places. The borehole profiling method allows us to reconstruct the proxy meteorological records of such regions," said Jha. This reconstruction is possible by unpacking how temperature changes down a borehole at present, which in turn offers clues to the changes in surface temperature in the past. According to an [explanation](#) provided by the United States' National Oceanic and Atmospheric Administration, deviations from the expected increase in temperature with depth can be interpreted in terms of changes in temperature at the surface in the past, which have slowly diffused downward, warming or cooling layers meters below the surface. Jha stresses that one of the critical advantages of using this method is that it offers the 'true' estimate of past climate. "Since current modeling practices to build proxy meteorological data are based on many limitations and assumptions, these assumptions further produce inaccurate estimates of the historical data."

“Also, the historical data of the past century may be imprecise due to computational and technical limitations. However, in this method, the temperature-depth profiles are present-day and real, produces a real assessment of past climate,” Jha said. The current study results are also in line with a [2018 research](#) that indicated ground surface warming in peninsular India during the past three centuries.



T.V. Ramachandra of Indian Institute of Science, Bengaluru, who was not associated with the borehole temperature-depth profile study, said the observations of temperature increase align with their studies reporting annual temperature increase of 0.07 degree Celsius in the Western Ghats (from 2001 to 2016). However, there are certain limitations to the borehole profiling method. “Any error in the profiling may lead to inaccurate estimates because temperature-depth profiles provide the basis for most of the calculations. Most of the boreholes in India earlier were not drilled for climate change studies. Therefore, the availability of suitable data remains a big limitation,” said Jha. Combining different kinds of data from different approaches offers a more robust understanding of the relations in variations in temperature and rainfall. These are the two most essential climate parameters, underscored earth scientist Atreyee Bhattacharya, research affiliate at CIRES at the University of Colorado, Boulder. Bhattacharya was not associated with the present study. “Every approach has its limitations, challenges, and constraints. As we try to understand climate systems more and more, we realise that we can’t rely on the last 50 to 60 years of

instrumental data that is available; we need to have comparable quality and quantity of data going back to at least a 100 to 150 years or longer because some of these climate cycles (temperature and rainfall cycles) of relevance to human dimensions operate at a timescale of 10, 40, 100 years. So, you need many of these cycles before you can think of the impacts,” Bhattacharya told Mongabay-India. Different approaches allow one to go back further in time. And paleoclimatic investigations usually apply a “multi-proxy” approach to understand a system; especially the processes that drive variations in climate variables (such as in temperature and rainfall) and “once you understand these processes, you can model climate and related societal outcomes more effectively.” “We are currently living in the Anthropocene where we have impacted the Earth’s environment and the climate with our actions. We know from modeling and observational studies that the heat trapped, and then exchanged between different reservoirs of the Earth drives the response of the climate system and, ultimately, our ecosystem and environment. So, we would have to know the natural frequency of climate cycles and events, so that we understand how these cycles are changing, and assess the total amount of impacts, in terms of changes that we can expect in our human-environment systems,” said Bhattacharya. Bhattacharya’s research focuses on applying geochemical and statistical techniques to characterising and quantifying responses of human-environmental systems to different scales of climate variability in semi-arid and coastal regions. Intrigued by the human dimensions linked to Earth’s climate, she said paleoclimate provides the background for assessing and understanding technologies, vulnerabilities, and resilience. Bhattacharya and co-authors have pointed out that there are major gaps in coverage in north-eastern, eastern, interiors of western regions, and central parts of India, in an initial review of the existing paleoclimate data. Except in the western, southern, and south-central parts of the country, where a combination of tree ring, stalactite and lake-based reconstructions provide critical information, paleo data on timescales of human interest- sub decadal, decadal, multi-decadal and centennial- are minimal, they said in the review. She said efforts are on to create a paleoclimate database of publications and related datasets-specific to the Indian sub-continent so that investigators and planners interested in the issues of the region can access regional data efficiently.

Large parts of India, except for the Indo-Gangetic plains, have experienced significant warming in the last 60 years due to human-induced climate change, according to a 2020 study by IIT-Gandhinagar scientists. They noted a pronounced increase in the frequency of hot days in the last four decades. India's first-ever climate change assessment report states that the country's average temperature is expected to rise by 4.4 degree Celsius by the end of the year 2100. The rise in temperature is also playing havoc with India's rainfall, which is significant for India's agriculture sector on which millions are dependent. The report highlighted that the summer monsoon precipitation (June to September) over India has declined by around six percent from 1951 to 2015, with notable decreases over the Indo-Gangetic Plains and the Western Ghats.



The forests of the Western Ghats include some of the best representatives of non-equatorial tropical evergreen forests anywhere and are home to at least 325 globally threatened flora, fauna, bird, amphibian, reptile and fish species. The Western Ghats, apart from being a storehouse of tropical biodiversity, is also the source of 38 east-flowing rivers and 27 rivers flowing into the Arabian Sea. The Godavari, Krishna, Mandovi, Kaveri and Zuari are some prominent rivers that originate in the Western Ghats. Experts have consistently warned against rushed approvals to infrastructure projects in the Western Ghats that could spell doom for the ecosystem. "Changes in climate (increase in temperature, or fluctuations in precipitation regime) would perturb the ecology and hence biodiversity and hydrologic regime of a region. Invasive species would take over, leading to the loss of native

biodiversity. This would alter the hydrologic regime affecting the sustenance of water and threaten food security, which affects the livelihood of people,” said IISc’s T.V. Ramachandra. “Loss of food and medicine (biodiversity) would affect us as it is now with COVID 19 pandemic. Degradation of landscape (deforestation) would lead to the escalation of carbon in the atmosphere and aggravate global warming. It would give way for zoonotic diseases (COVID, dengue, Kyasanur Forest Disease, etc.) – affecting human livelihood and the economy,” he elaborated.

“Our decision-makers are keen on lopsided development hoping for improvements in GDP, but end up paying a heavy price with the loss of ecosystems. Need to learn from past mistakes and respect mother nature,” he added.

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