

CSIR IN MEDIA



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CSIR-IICT gets two more APIs for anti-viral drugs

CSIR –IICT

20 May, 2020

Council for Scientific & Industrial Research (CSIR) - Institute of Chemical Technology (IICT) has completed the process of making two more Active Pharma Ingredients (APIs) for anti-viral drugs - Umifenovir and Remdesivir. It had already handed over anti-viral Favipiravir API to a large pharmaceutical firm for approvals of Drug Controller General of India (DCGI) to conduct animal/human trials before releasing it into the market.

“We are in the process of transferring two APIs to select pharmaceutical organisations for them to approach the drug control authorities for conducting necessary trials and approvals before manufacturing them,” said Director S. Chandrasekhar on Tuesday.

CSIR had identified about 25 drugs for ‘repurposing’ for quick deployment in treatment for COVID-19 since new drugs take at least 10-15 years to reach the market. IICT had taken up development of synthetic ‘process expertise’ for molecules, which are showing promising data in various trials across the globe of five drugs including - Favipiravir, Umifenovir, Remdesivir, Baloxavir and Chloroquine/Hydroxychloroquine.

“We have zeroed in on a few molecules for repurposing based on World Health Organisation (WHO) recommendations. Using molecular modelling, which includes theoretical and computational techniques to study the structures and reactions of molecules, we made rapid progress,” said IICT senior principle scientists Dr Raji Reddy and Dr. Prathama S. Mainkar.

IICT develops processes for APIs required to make the drug providing alternate cost-effective solutions and transfers it to interested pharmaceutical firms for commercialisation. Favipiravir, is a promising generic drug for treatment of COVID 19 developed in Japan and used for treatment of flu. Clinical trials of Favipiravir have begun in China, Japan and Italy and trials have so far had generated positive results, they said.

Yet, Favipiravir entry into market depends on the result of clinical trials and recommendations of DCGI. “If the results are positive, we believe it will be launched within a month or two. Umifenovir may take more time to generate additional data,” explained Dr. Reddy and Dr. Prathama.

The institute top brass kept a watch on virus situation in China and studied the available literature on drugs developed for treating influenza, Ebola and other virus-related infections from February. “The plan was to develop processes with available local chemicals as it reduces the cost and it is also difficult to source raw materials for APIs from other countries,” said Dr. Reddy.

The Director formed a team of scientists, research scholars and technicians to work in three shifts during lockdown to develop APIs for these identified drugs and also into works pertaining to RT-PCR kits, PPE material, masks, etc., to handle COVID-19 cases with all safety protocols.

“We are working on tight schedules to help in containment and treatment of the virus. It is a challenge as a new drug discovery can take take 10-15 years to reach the market, and currently there is an immediate necessity for drugs against the virus,” added Dr. Chandrasekhar.

Vizag gas leak | Action will be taken against company after receiving reports, says Minister

CSIR –NEERI

19 May, 2020

There will be no escaping for LG Polymers after the final report is tabled by the five-member expert committee that was constituted by the State government and that from the National Green Tribunal (NGT), said Tourism Minister Muttamsetti Srinivasa Rao.

Based on the reports of the committees that are probing the styrene vapour leak from the chemical plant that killed 12 persons and hospitalising over 350 from the neighbouring villages and colonies, action will be initiated, he said, addressing a press conference here on Monday.

Referring to a question that the plant did not have the requisite environment clearance, he said that all angles are being probed and decision on harsher punishment, including shifting or closure of the plant, awaits the reports.

He also accepted that as per the initial investigation, there is an indication of negligence on part of the management in plant operation.

“We are tightening our case so that there is no element of doubts and they can (management) can slip away in the court of law,” said Mr. Srinivasa Rao.

The Minister also informed that apart from giving away ₹1 crore to the family members of the deceased and ₹1 lakh to the people who were hospitalised and ₹10 lakh to those who were put on ventilators, cash relief to the tune of ₹20 crore has been given away to the affected people.

“Based on enumeration by the GVMC, about 19,800 people from 6,398 families from 17

affected villages have been identified and given ₹10,000 each. The State government has also distributed ₹8.75 lakh to those who have lost their cattle. And all these were done in a week's time after the incident," he said.

The Minister also said that based on Chief Minister Y.S. Jagan Mohan Reddy's assurance, job will be provided to at least one dependant from the family of the deceased.

NEERI report

GVMC Commissioner G. Srijana said that the GVMC has already conducted two tests on the Meghadrigedda reservoir water and have found that there is no contamination. "But we will start drawing only after receiving the final report from the NEERI (National Environmental Engineering Research Institute). We are also awaiting the report on groundwater from the NEERI," she said.

Commissioner of Police Rajeev Kumar Meena, who is one among the five-member team, said that investigation is in progress.

NEERI, NGO, locals enlighten homeless, migrant workers

CSIR -NEERI

19 May, 2020



NEERI scientists guiding migrant workers about water conservation.

Around 1,200 homeless and migrant workers from various States are staying in 21 shelter homes of Nagpur Municipal Corporation (NMC) in the city. CSIR-National Environmental Engineering Research Institute (CSIR-NEERI), NGOs and locals have joined hands in support of NMC initiative to engage the workers in creative and constructive activities and to ensure their psychological comfort. CSIR-NEERI scientists, in association with NGOs and locals, organised various awareness programmes on maintaining social distancing, hygiene, environment, cleanliness, and also

held interactive discussions, counselling and other activities at the shelter homes. Also, they conducted short-term training programmes on water and soil conservation for the migrant workers staying in shelter homes.

The activity was carried out under the guidance of Dr J S Pandey, Chief Scientist and Head, Climate Change and Skilling Division, CSIR-NEERI. Other training programmes organised by NGOs included plant nursery, kitchen gardening, envelope and paper bag making etc. The homeless and migrant workers, stranded far away from their homes, are routinely easing out their stress by contributing their bit in such useful activities at the shelter homes in Nagpur, either through their skills or supporting in whatever ways their capabilities allow.

The programmes were designed in such a way that when the migrant workers move out of shelter homes, they can lead better lives with additional skills acquired., stated a press release issued by NEERI Abhijeet Deshmukh,

Judge and Secretary, District Legal Service Authority (DLSA), Nagpur also visited the shelter homes and applauded the efforts of NMC, CSIR-NEERI, and NGOs.

Dr Ranjana Lade, Deputy Municipal Commissioner; Vinay Trikolwar, City Mission Manager, NMC; Arshad Tanvir Khan, International Skill Development Society; Dr Sameer Deshpande and Dr Munmun Sinha from Econsus Foundation; Sameer Patel, Sarim Constructions; Amitabh Pawde, Aapulki Samajik Sanstha; Rupam Jha Dewangan, Mudraas Charitable Society; Prabhat Dhariwal and Pawan Gajbhiye from CPS Envirotech Pvt Ltd have significantly contributed to this joint venture.

Proposed: More stoppage time for buses, metros; limited passengers

CSIR -CRRI

19 May, 2020



transport, increase of stoppage time for buses and metros to enable commuters alight and board, separate gates for boarding and deboarding and limiting the number of passengers in the bus or metro.

The institute has suggesting splitting zebra crossings and footpaths into two, with one part for each direction. It has suggested that the Metro displays the number of vacant seats in coaches. “The number of seats vacant within a coach should be dynamically displayed at the respective stations/ coaches on the display boards. CRRI also suggests that commuters should avoid touching the scanning machine using tokens/cards, instead they should keep it at least 10 mm above the scanning point,” it stated.

NEW DELHI: The Central Road Research Institute (CRRI) has suggested two-approach recommendations to the road transport ministry for resuming public transport post the lockdown. The suggestions come on a day when Minister for Road Transport and Highways Nitin Gadkari said living with the coronavirus is the new normal.

According to the CRRI, the first approach to resumption of public transport involves the redesigning of infrastructure to ensure social distancing. Some of the measures suggested by the institute include painted markings around bus stops and other areas related to public

For e-rickshaws and autos, the institute suggests the use of a plastic sheet to separate commuters from each other and from the driver. The second approach is the reduction of demand while ensuring enhancement of capacity. It recommends the short trips by non-motorised modes of transport while suggesting longer opening times for markets to avoid crowding.

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NCL develops face masks 'capable of filtering out 99% bacteria'

CSIR -NCL

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While the cost of masks depends on the material used, the NCL mask will be sold at affordable rates, like regular cloth-based masks sold in markets these days, said the scientists. (Representational)

With face masks becoming mandatory for the next few months amid the ongoing pandemic, a group of scientists at CSIR-National Chemical Laboratory (NCL) has designed face masks which, they say, can filter out up to 99 per cent bacteria.

The spun-bound polypropylene medical-grade

cloth was tested for bacterial and particulate filter efficiency, ability to breathe when worn, and resistance to liquid splash. Coronavirus spreads through fluids like spit and other droplets, and hence, using a hydrophobic cloth material was key in the making of this mask, said NCL scientists.

The prototype masks got tested by the South India Textile Research Association (SITRA) and results for human pathogen *Staphylococcus aureus* was found to be 99.9 per cent, whereas in case of particulate filter, it stood at 92.63 per cent. The masks have now been certified for use.

For Syed Dastager, Mahesh Dharne and Shubhangi Umbarkar, it took just three weeks to develop these masks even as they faced some challenges at the time of procurement of cloth material owing to the lockdown. "We initially tested regular cotton cloth with NCL-patented bacterial nanocellulose solution. Thereafter, we tried the same using a medical-grade cloth, which passed the required tests," said Dharne.

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19 May, 2020

प्रवासी श्रमिकों को दिया कौशल प्रशिक्षण

व्यापार प्रतिनिधि

नीरी का उपक्रम

नागपुर. महानगरपालिका के विभिन्न शेल्टर होम में रुके प्रवासी श्रमिकों को ढाँढस बढ़ाने और निराशा की अवस्था में जाने से रोकने के लिए इन्हें सृजनात्मक तथा रचनात्मक कार्यों में व्यस्त रखने के लिए मनपा द्वारा एक उपक्रम चलाया जा रहा है. इस उपक्रम के अंतर्गत सीएसआईआर-नीरी और गैर-सरकारी संगठन मिलकर कार्य कर रहे हैं. नीरी के वैज्ञानिकों द्वारा सामाजिक दूरी बनाए रखना, स्वास्थ्य विज्ञान, पर्यावरण, स्वच्छता, परस्पर चर्चा और अन्य गतिविधियों से संबंधित विभिन्न सत्र शेल्टर होम में आयोजित किए गए.



■ इनमें प्लांट नर्सरी, किचन गार्डनिंग, पेपर से लिफाफे और बैग बनाना आदि शामिल है. कार्यक्रम इस तरह से तैयार किये गये हैं कि जब प्रवासी श्रमिक शेल्टर होम से बाहर निकलेंगे, यहां हासिल अतिरिक्त कौशल की सहायता से उन्हें आगे जीवन-यापन में मदद मिलेगी.

■ यह उपक्रम मुख्य वैज्ञानिक डा. जे. एस. पाण्डेय के मार्गदर्शन में चलाया गया. न्यायाधीश अभिजीत देशमुख ने इन शेल्टर होम्स का दौरा कर प्रयासों की सराहना की. मनपा उपायुक्त डा. रंजना लाडे, विनय त्रिकोलवार, अर्शद खान, डा. समीर देशपांडे मुनमुन सिन्हा, समीर पटेल, अमिताभ पावडे, रूपम झा देवांगण, प्रभात धारीवाल शामिल हुए.

अवसर • लॉकडाउन में मानसिक तनाव से मुक्ति और कला आत्मसात करने का मौका भी मिला

शेल्टर होम : अकुशल श्रमिक, कुशल बनकर लौटे

भास्कर संवाददाता | नागपुर

अल्पावधि में विविध कला सिखाई और रोजगार का अवसर भी उपलब्ध किया गया

लॉकडाउन में विविध प्रदेशों के प्रवासी मजदूर शहर में फंस गए। काम बंद होने पर बेरोजगार हो गए, तो गांव के रास्ते चल दिए। यातायात के कोई साधन नहीं, तो पैदल ही सफर शुरू किया। शहर से गांव के लिए पैदल निकले लोगों को मनपा और पुलिस प्रशासन ने रास्ते में रोक दिया। उन्हें मनपा के शेल्टर होम में पहुंचाया गया। मनपा के पांच स्थायी और 16 अस्थायी शेल्टर होम बनाए गए। शेल्टर होम में उनके रहने, चाय, नाश्ते से लेकर दो समय के भोजन का इंतजाम किया गया। जब तक सरकार ने एक प्रदेश से दूसरे प्रदेश में जाने की अनुमति नहीं दी, तब तक उन्हें शेल्टर होम में रखा गया। इस दौरान उन्हें अल्पावधि प्रशिक्षण देकर विविध कला सिखाई गई। इस कला के माध्यम से उनकी मानसिक तनाव से मुक्त हुई और कला आत्मसात कर रोजगार का अवसर भी मिला। शेल्टर होम से जब गांव के लिए निकले तो कुशल कारीगर बनकर लौटे।



समुपदेशन से बढ़ा आत्मविश्वास

मजदूरों का मानसिक तनाव बढ़ रहा था। इस तनाव से मुक्त कराने के लिए मनपा ने समुपदेशन की व्यवस्था की। आपुलकी सामाजिक संस्था के अमिताभ पावड़े ने शेल्टर होम के मजदूरों के समुपदेशन में अहम भूमिका निभाई। उन्होंने बताया कि जब इन्हें शेल्टर होम लाया गया था, उस समय आर्थिक संकट और बीच में ही लटक जाने के कारण मानसिक तनाव में थे। उन्हें अल्पावधि में प्रशिक्षण देकर आर्थिक परिमार्जन का अवसर उपलब्ध कराए जाने पर आत्मविश्वास बढ़ा।

इनका रहा सहयोग

शेल्टर होम में प्रवासी मजदूरों को अल्पावधि कौशल प्रशिक्षण कार्यक्रम में मनपा में सहायक आयुक्त डॉ. रंजन लाडे, सिटी मिशन मैनेजर विनय त्रिकोलवार, इंटरनेशनल स्कील डेवलपमेंट सोसाइटी के अर्शद तनवीर खान, इको-सन्स फाउंडेशन के डॉ. समीर देशपांडे, डॉ. मुनमुन सिन्हा, सारीम कंस्ट्रक्शन के समीर पटेल, मुद्रास चैरिटेबल सोसाइटी की रूपम झा, देवांगण, प्रभात धारीवाल, पवन गजभिरे, मनपा के अधिकारियों का सहभाग रहा।

8 लोगों को रोजगार भी मिला : शेल्टर होम में निर्माणकार्य की नई तकनीकी आत्मसात करने वाले 8 लोगों को कुशल कामगार के रूप में एक कंस्ट्रक्शन कंपनी में रोजगार का अवसर भी उपलब्ध हुआ। अन्य लोगों को रद्दी पेपर से पॉकेट बनाकर बेचने पर आर्थिक लाभ हुआ। लॉकडाउन के समय औषधि दुकानों में पॉकेट की काफी मांग है। शेल्टर होम में कौशल विकास के माध्यम से प्रशिक्षणार्थियों द्वारा बनाए गए पॉकेट उपलब्ध होने से दुकानदारों की जरूरत पूरी हुई।

कलाएं सिखाई गईं

पावड़े ने बताया कि बारिश के पानी का पुनर्भरण कर योग्य नियोजन, औषधि व सुगंधित व अन्य उपयोगी वनस्पति की नर्सरी, जल व मृदा संवर्धन, गृह निर्माण में नए तकनीकी अवसर, रद्दी पेपर से उपयोगी वस्तुएं बनाना, लकड़ी से विविध सजावट के सामान बनाना आदि कलाएं सिखाई गईं।

न्यायाधीश देशमुख ने बढ़ाया हौसला

मनपा तथा सामाजिक संस्थाओं के साझा उपक्रम में न्यायाधीश अभिजीत देशमुख ने भेंट देकर मजदूरों से संवाद साधा। उन्होंने आत्मसात की कला की सराहना कर हौसला बढ़ाया।

Skill development training organised for 1,200 shelter home workers

During lockdown, more than 1,200 workers are living in shelter homes.

As many of these workers are left with no work, they are likely to pass through a phase of mental depression. Nagpur Municipal Corporation, to overcome this situation, has organised in association with NEERI and various other civil society organisations, a skill development programmes for them.

Recently, various training programmes on physical distancing, health science, environment and hygiene and cleanliness were organised in twenty-one shelter homes.

NEERI took an initiative to organise a short duration training programme on water and soil



NEERI imparting training to shelter home workers.

conservation.

Apart from this, the shelter home workers were given training in plant nursery, kitchen gardening, making envelopes from papers and also paper bags.

The training programmes are being organised under the guidance of chief scientist of NEERI, Dr J S Pande.

Deputy commissioner of NMC Dr Ranjana Lade city mission manager Vinay Trikolwar, Arshad Tanwir Khan, Dr Sameer Deshpande, Dr Munmur Sinha, Sameer Patel Amitabh Pawade, Rupan Zha Devangan, Prabha Dhariwal and Pawar Gajbhiye worked hard for the skill development of shelter home workers.

प्रयास ● सीएसआईआर-नीरी का उपक्रम, प्रवासी ले रहे हैं रुचि

श्रमिक सीख रहे मृदा-जल संरक्षण के गुर

विभिन्न शहरों के प्रवासी श्रमिकों के रुकने के लिए मनपा ने 21 शेल्टर होम तैयार किए हैं. इसमें 1200 के करीब प्रवासी रुके हुए हैं. वे अपने घर वापस जाना चाहते हैं. काम नहीं होने से मनोवैज्ञानिक असर उन पर पड़ रहा है. निराशा बढ़ रही है.

इसे दूर करने के लिए श्रमिकों में सृजनात्मकता व रचनात्मकता लाने के लिए सीएसआईआर-राष्ट्रीय पर्यावरण अभियांत्रिकी अनुसंधान संस्थान (नीरी) ने मनपा के साथ मिलकर पहल की है. इसके अंतर्गत फिजिकल डिस्टेंस बनाते हुए श्रमिकों को जल व मृदा संरक्षण पर अल्पावधिक प्रशिक्षण दिया जा रहा



शेल्टर होम में श्रमिकों को मृदा-जल संरक्षण के गुर सिखा रहे प्रशिक्षक.

है. उन्हें स्वास्थ्य विज्ञान, पर्यावरण, स्वच्छता आदि पर मार्गदर्शन किया जा रहा है. इसके लिए नीरी ने गैर सरकारी संगठनों से हाथ मिलाया है.

नीरी के जलवायु परिवर्तन व कौशल विकास विभाग के मुख्य वैज्ञानिक व प्रमुख डॉ. जे.एस.

पाण्डेय के मार्गदर्शन में यह उपक्रम संचालित हो रहा है. गैर सरकारी संगठनों की तरफ से आयोजित अन्य प्रशिक्षण कार्यक्रमों में नर्सरी प्लांट, किचन गार्डनिंग, पेपर लिफाफे, बैग बनाने आदि शामिल हैं. श्रमिकों में सकारात्मक बदलाव देखने को मिले

हैं. उनके अंदर का तनाव व थकान दूर करने में मदद मिली है. प्रशिक्षण कार्यक्रम को इस तरीके से तैयार किया गया है कि जब प्रवासी श्रमिक शेल्टर होम से बाहर निकलेंगे तो यहां हासिल अतिरिक्त कौशल से उन्हें जीवनयापन में मदद मिलेगी. जिला विधि सेवा प्राधिकरण नागपुर के सचिव व न्यायाधीश अभिजीत देशमुख ने नीरी के उपक्रम की सराहना की.

प्रशिक्षण में मनपा की उपायुक्त रंजना लाडे, विनय त्रिकोलवार, अरशद तनवीर, डॉ. समीर देशपांडे, डॉ. मुनमुन सिन्हा, समीर पटेल, अमिताभ पावड़े, रूपम झा देवांगण, प्रभात धारीवाल, पवन गजभिये आदि का सहयोग मिल रहा है.

Asafoetida Cultivation: Unknown Facts on Hings

CSIR -IHBT

18 May, 2020

Ferula asafoetida belongs to family Apiaceae, and is commonly known as “heeng” in India. It is the dried latex (gum oleoresin) excluded from the living underground rhizome or tap root of several species of genus *Ferula*. It is a perennial herb with height of 1 to 1.5 meters. In India, it is found in Kashmir and some parts of Punjab. Afghanistan and Iran are the major exporter of this spice to world and to India. Heeng emits a strong pungent odour due to the presence of sulphur compounds and therefore mixed with starch and gum for selling. Heeng Kabuli Sufaid (milky white asafoetida) and Heeng Lal (red asafoetida) are the two main varieties of Heeng.



Uses and facts

It is a spice crop and mostly used in preparations of Indian food cuisines. It is said to have antibiotic properties and many health benefits. At some places, medicines are also produced from extracts of asafoetida. India doesn't produce heeng but accounts for around 40% of world consumption.

Dr Vikram Sharma, a scientist from Bilaspur district pioneered the research on this crop in Himalaya. In 2017, he procured heeng seeds from Iran for chemical characterization, and further aims to develop seedlings from them. Sharma is of the view that this spice crop can prove as a boon for the farmers of cold desert and mid-himalayan region. CSIR- Institute of Himalayan Bioresource Technology (IHBT), Palampur was the first institute to introduce

asafoetida for cultivation in India. Under the vigil of National Beaurau of Plant Genetic Resources (NBPGR), New Delhi, IHBT procured seeds of this spice crop in 2018 for analysis and trials at their centre.

Government initiatives

Governor of Himachal Pradesh, Shri Bandaru Dattatraya emphasised on the promotion of active collaborations among state agencies for large scale adoption of Asafoetida cultivation. In 2020 state budget, chief minister Jai Ram Thakur ji has proposed to promote cultivation of a new variety of heeng (Asafoetida) in high altitude areas of Lahaul-Spiti, Kinnaur and Chamba districts. Heeng cultivation will uplift farmers livelihood conditions in these areas, as it is a high demand and profitable crop.

CSIR-CMERI Develops Mobile Indoor Disinfection (MID) Sprayers

CSIR –CMERI

17 May, 2020



Daily cleaning and disinfecting frequently touched surfaces such as Tables, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets, faucets, sinks, cardboards, etc. are highly recommended by CDC to minimize the risk of transmitting Corona viruses to people who inadvertently come in contact with those surfaces.

Scientists at CSIR-CMERI, Durgapur have developed two mobile indoor disinfection sprayer units (BPDS and POMID) that can be used for the effective cleaning and disinfecting pathogenic micro-organism present on hospital wards, hospital bed, surfaces, rooms, halls, building corridors, etc. The BPDS is Battery Powered Disinfectant Sprayer, while POMID is Pneumatically Operated Mobile Indoor Disinfection Unit. Both the sprayer systems are designed with two stage spraying units and separate storage tanks to clean and disinfect the indoor areas by the numbers of fixed and flexible nozzles set in the lower & the upper tiers. There is also an Industrial Variant of the Disinfectant Sprayer which has utility for heavy usage and larger span of coverage.

Prof. Harish Hirani, Director, CSIR-CMERI, Durgapur stated that, “CSIR-CMERI is consistently focussed upon developing efficient and effective technologies to contain the spread of

COVID19. We have developed MID sprayers for cleaning and disinfecting frequently touched non-living surfaces. The particle size as well as number of particles of disinfectant are two very important parameters in determining effectiveness of sprayed disinfectant. Prof. Hirani told that most of the disinfectant sprayers prevalent in the market are based either on Cleaning or Disinfecting using a single chamber storage for the liquid and are pump based. The droplets produced by a pump sprayer are much larger in size and effective coverage of surface is lesser.

However, the CSIR-CMERI developed indoor sprayer systems consists of Dual Chamber Storage for Disinfectants and Cleaning and have better nozzle design, better arrangement of nozzles and lesser droplet sizes and therefore sprayed disinfectant covers greater surface area for the specified volume of liquid. The MID sprayers will be assistive to cleaning workers, who are at greater risk of COVID-19. The next stage of development for the devices would be to incorporate 360degree coverage for the disinfectants and cleaning spray as well as to make it compact and autonomous for usage in Schools and Homes” The sprayers are also equipped with mopping features and extendable arms to reach hidden area and clean comprehensively. This technology will have relevance even beyond the current COVID-19 crisis, since Viruses have been existent throughout and a substantial number of cases of such influenza has been spreading throughout the globe every year during the Flu season. Hence, Dr Hirani has urged the MSMEs of the Nation to come forward and invest in this technology, keeping in mind the future orientation of Hygiene and Healthcare devices and equipment.

The technology for BPDS is transferred to M/s Power Tech Mining Pvt. Ltd. (West Bengal) on the same day for commercialization. Mr. Shantanu Choudhry, proprietor told that after inspection and demonstration, we already ordered two units of BPDS, which may be delivered by next week.

MODEL -1 : Pneumatically Operated Mobile Indoor Disinfection (POMID) Unit:

APPLICATION:

Hospitals/Malls/Restaurants etc. , Seminar/Conference Halls , Govt. & Corporate Offices

The mobile indoor disinfectant unit is made by steel frames mounted on four wheels. The approximate overall dimension of the system is 1.0 m (L) x 0.9 m (H) x 0.5 m (W). The system is covered by top cover plate.

PNEUMATIC SYSTEM:

The system comprises of compressors, piping and fittings and spray nozzles. Three (03) nozzles are mounted (adjustable along horizontal plane) in the bottom tier and another three (03) nozzles are located (adjustable both in horizontal and vertical planes) in the top tier. The hand held flexible spray arm can be used for disinfecting in any direction as per requirement. The system pressure is maintained in the range 6-8 bar for operating the spray nozzles.

STORAGE TANK:

No. of tanks: 2, each tank capacity: 10.0 Litre (approx).

MODEL-2 Battery Powered Disinfectant Sprayer (BPDS): APPLICATION :

All type of indoor hospital, indoor Office buildings, inside of the factory supermarket, shopping malls etc

KEY FEATURES:

Cordless machine
Two nozzle spray system
Extended arm spray unit
Cost effective

SPECIFICATION:

Storage Capacity: 20 Litres each tank
Battery back-up time in a single charge : 4 hours
Gross weight (empty tank): 25 Kg
System Dimension (Overall) : L41 x W 44 x H 44 (in cm)
Covering width: 10.5 cm
Pump capacity & spec: 4- 5 L/min flow with 7 bar pressure
Extension sprayer length (Full stretch): 250 cm

‘Efforts sincere but testing needs to be ramped up’

CSIR –NEERI

16 May, 2020

Among the frontline warriors of global pandemic Covid-19 are the personnel who are carrying out testing for coronavirus. To know more about their work, risks they face and testing, TOI speaks to Krishna Khairnar, senior scientist and head of environmental virology cell at the National Environmental Engineering Research Institute, which is one of the testing laboratories of Covid-19 in the city.

How is the testing going on in Vidarbha? Do you think there is a need to scale it up?

The top administrative officers of Nagpur, especially the divisional commissioner and additional divisional commissioner of the region are working very hard. The quantum of the Covid-19 attack is so big and pronounced that all the effort made towards salvaging the situation are becoming more demanding by every passing day. The population dynamics of a country like India is very large. It's a challenging time for the government to close the gap between testing vs number of people. Despite of sincere efforts, the ratio of number of tests vs number of people is still one of the lowest in the world. Many government organizations, including the Council of Scientific and Industrial Research (CSIR), have joined the war against Covid-19, but more needs to be done to ramp-up the testing so that the ratio increases. Director general of CSIR Shekhar Mande has taken this gauntlet of ramping up the council for fight against Covid-19 in a major way at the national level. Director of Neeri, Rakesh Kumar has been a great support and a key person in the involvement of the institute in this war against COVID-19. It's not just about scaling up of testing centres, but also about more institutions and organizations joining the testing efforts. More testing will help identify more cases and timely identifications will help manage the situation better.

Do we need to test asymptomatic patients too?

Always better. There are many asymptomatic carriers who are posing a great threat to the susceptible population like senior citizens and persons with underlying health conditions.

How does the testing happen?

Thanks for asking this! It's not just day a in our life, it's also night (pun intended). We are a small team, mostly comprising students, but we are effective. Our team is divided into sub-groups for handling the different steps involved in testing. The first personnel handles sample processing that involves maximum risk of exposure and is therefore performed in a containment room. The personnel don full PPE before entering the room. Then, viral RNA is extracted by the same personnel using ICMR-approved kits. Another personnel simultaneously handles entire reagent and mastermix preparation in a clean room using PPE. We always ensure a one-way flow and the set guidelines of a containment facility. All follow Covid distancing and use PPE in the facility at all times. Equipment, instruments and surfaces in the containment area and other workstations are cleaned thoroughly. A designated MPCB authorized biohazard and medical waste handling agency finally collects and disposes the waste.

How long does it take to test a sample? Please tell the procedure in brief.

The procedure involves sample receiving, sorting, documentation, assigning sample IDs, labelling, sample processing, aliquoting (storing samples in small proportions), RNA extraction, result and analysis, documentation of results, report preparation, test report generation, uploading the data in various government portals etc. It takes around 8 hours if the procedures are performed without any break. In normal course, it's done within 12 hours.

Do we need more testing centres in the coming days?

There has been a rapid escalation of cases in the last few weeks but not considerable in testing, isolation and contact tracing. Covid distancing measures can help in buying time for preparing the health systems to cope up with increasing cases in future. However, just distancing is not enough to tackle this pandemic. It's the combination of all measures which will make the difference. It is important that all countries take a comprehensive approach. The most effective way to prevent infections and save lives when vaccine and drugs are not available, is by breaking the chains of transmission. To break the chain of transmission we must test and isolate. Ultimately, one cannot fight this pandemic blindfolded. We need to know who is infected to stop this pandemic. The World Health Organization's (WHO) director has issued a simple message for all of us: Test! Test! Test!

Being a hub, how is Neeri ensuring that other testing centres work effectively and scientifically?

Neeri is the only CSIR institute to be designated as a hub by the Centre. Overall, there are 10 regional hubs in the country. Neeri has collected all inputs from other testing centres like AIIMS, GMCH, IGGMCH and NVC for scaling-up and capacity building. A consolidated report has already been communicated to the Department of Biotechnology (DBT). The secretary DBT is in the process of seeking necessary approvals from the central government for scaling-up and facilitation.

Special plasma trial in Calcutta

CSIR –IICB

16 May, 2020

Starting next week, doctors at Calcutta Medical College hope to draw 500ml plasma from the blood of patients who have recovered from the new coronavirus infection and offered their help in a clinical trial somewhat different from others in India.

The trial, approved on Friday by the apex regulatory agency called the Central Drug Standards Control Organisation, will provide convalescent plasma therapy to 40 patients with the coronavirus disease and simultaneously monitor their immune systems' response

Doctors will infuse the plasma — expected to contain anti-viral antibodies — into 40 Covid-19 patients admitted at the Infectious Disease Hospital, Belegghata, over the coming weeks and track their progress.

Similar trials with convalescent plasma therapy are underway or will soon begin at over 30 hospitals across the country, including several in Calcutta, under an Indian Council of Medical Research trial that will observe 452 patients to receive plasma therapy.

But the IDH-CMC trial is special as it will also send blood samples from patients to the Indian Institute of Chemical Biology (IICB), Calcutta, where scientists will look at the patients' white blood cells and their viral genetic material.

“We’re looking for specific molecular or immunological signatures to help understand what the plasma therapy might be doing,” said Dipyaman Ganguly, a physician-researcher at the IICB. “In patients who get cured, are there any associated immunological changes that could be attributed to the plasma?”

Medical researchers across the world anticipate that convalescent plasma contains antibodies that neutralise the virus or influence the recipient's immune systems in some other manner to enable them to beat back the viral infection.

Many patients in India and other countries have recovered after receiving plasma, but doctors and health authorities point out that such anecdotal accounts do not make up evidence in support of the therapy for routine use.

“We’re primarily looking at the clinical outcomes of patients — it is one window to look at the effect of therapy,” said Anil Gurtoo, a senior internal medicine specialist at the Lady Hardinge Medical College, New Delhi, who is involved in the ICMR trial.

“Studies that also look at immunological changes and viral factors will provide multiple views,” Gurtoo told **The Telegraph**.

Ganguly and his colleagues Shilpak Chatterjee and Sandip Paul will specifically look at changes in three subsets of cells — B cells, T cells and dendritic cells — any of which could play a role in responding to the infection. They view their study as a deep-dive probe into the effects of plasma therapy.

“If a patient who received the plasma therapy on day zero shows significantly increased activity in such cells on day 4 or day 8, it could mean something,” Ganguly said. “We’ll have to wait and see.”

Scientists expect the patients’ outcome to the viral infection and therapy is influenced by their immune response as well as features of the virus. The IICB researchers will thus also look at specific mutations on the virus and try to look for connections between disease outcomes.

“We already have 15 to 20 recovered patients who have offered to donate blood,” said Prasun

Bhattacharya, professor of transfusion medicine at the CMC and study collaborator. The plasma donation process takes about 45 minutes and plasma from one donor could go into two patients.

At Beleghata ID hospital, Yogiraj Ray and other doctors are awaiting the plasma for infusion into patients. Ganguly said a preliminary analysis would be possible after 20 patients have received plasma and it is expected that the results of the trial on 40 patients will emerge within six to eight week.



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