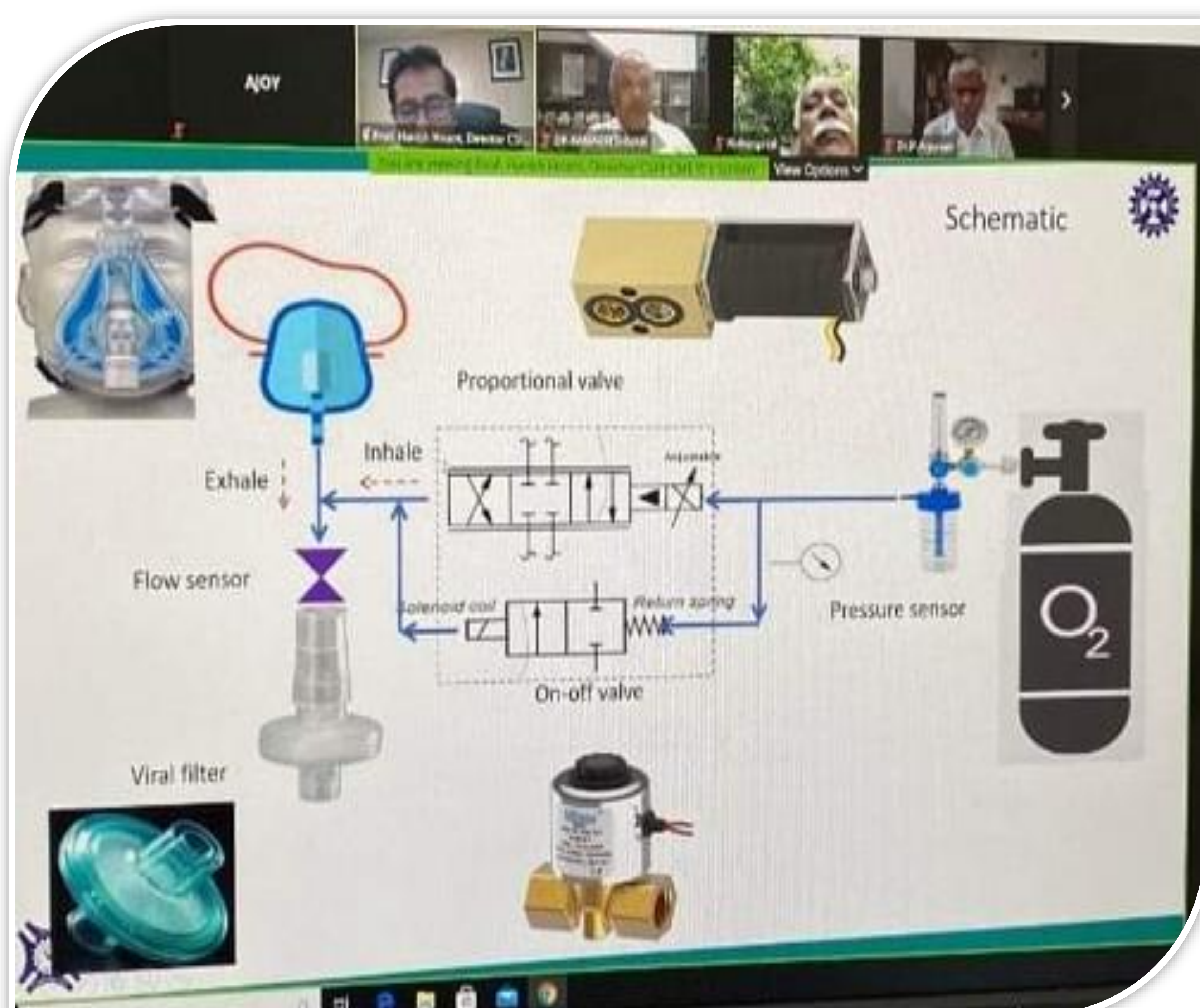


CSIR IN MEDIA



CSIR

**NEWS BULLETIN
26 TO 31 MAY 2021**

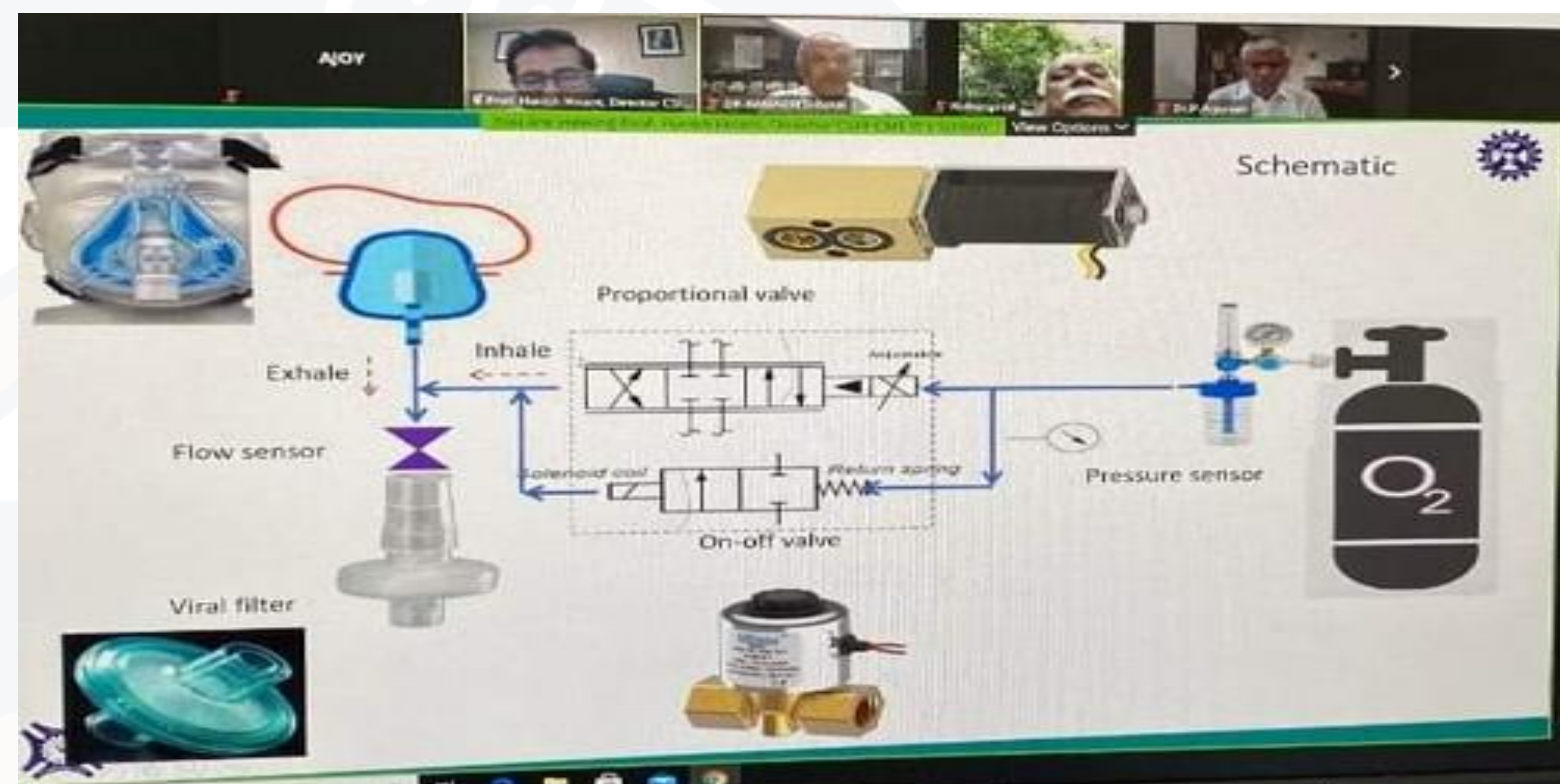


MSME-DI, Chennai to support MSMEs for adopting & rolling out oxygen technology in markets

CSIR-CMERI

31st May, 2021

Kolkata, May 31 (KNN) Director, MSME-DI, Chennai, S S Babuji has appreciated the CSIR-CMERI Oxygen Technology and assured that MSME-DI office will provide all assistance to the MSMEs for adopting and rolling out the technology in the markets. He said during a webinar on 'Oxygen Enrichment Technology' on Saturday which



was organised in association with the Indian Medical Association, Tamil Nadu, for the Doctors and Associate Medical Fraternity.

Prof. Harish Hirani, Director, CSIR-CMERI, shared that CSIR-CMERI has a vision for an oxygen sufficient India along with a Sustainable Solution. He further explained that various insightful scientific reports establish that during a single complete respiration cycle the process of inhalation uses only 1/3rd of the total time.

However, as per current practices oxygen is supplied to patients indiscriminately. These practices render almost 30 to 40 per cent of the supplied oxygen as waste.

"This is prevalent as practice because most of the oxygen related technologies available in the markets are based upon providing oxygen therapy for the patients and are not tailor-made to tackle patients with transmissible diseases," he added.

The virtual congregation was also graced by Dr. A K Ravikumar, Secretary, Indian Medical Association, Tamil Nadu and Dr. P Ramakrishnan, President, Indian Medical Association,

Tamil Nadu. The Webinar was attended by more than 75 members a majority of whom were members of the Indian Medical Association

which included Doctors, Associate Medical Professionals and representatives of MSMEs & PSUs.

Published in:

Knnindia

Infectious COVID variant spreading rapidly across country

CSIR-CCMB

31st May, 2021

Masks, vaccines the only weapons to check its spread, says adviser to CCMB

B.1.617.2, a sub-lineage of the so-called double mutated Indian variant of SARS-CoV-2 (B.1.617) which is more infectious, is currently increasing its footprint in the entire country and gradually even eclipsing the B.1.1.7 variant originated from the United Kingdom, said top scientists at the CSIR-Centre for Cellular & Molecular Biology (CCMB) on Monday.

“It is fast becoming the dominant strain, and very efficiently. It is also seen to be spreading even in Delhi and Punjab where the UK variant was earlier found to be prevalent to the extent of 80-90%. Cases may be coming down due to the lockdowns, but the virus is still around. Face masks are the only weapon apart from vaccination to prevent it from spreading,” said former director and now adviser to CCMB, Rakesh Mishra.

In the current second wave of the pandemic, the low Ct (cycle threshold) value has been apparent indicating the high viral loads, possibly contributing to more people getting infected. Similarly, it was also noticed that a significant number of those infected have been needing oxygen support.

“We have to analyse why this has been happening and if the disease is progressing faster by taking the samples from the hospitals, genome sequencing and have an interaction between doctors and scientists. What we have is anecdotal account and this needs to be backed by scientific research. This is the right time to do it when the pressure has somewhat eased on the healthcare system,” he observed. The new mutation is being kept under close watch with 10 designated laboratories, under INSCOG or Indian SARS-CoV-2 Genome Sequencing Group, taking up genome sequencing of the patients’ swab samples from different geographical locations across the country.

“We are able to pick the information so far but we need to do epidemiological studies based on the data. With more labs joining this effort, we are going to increase our genome sequencing numbers to understand the virus transmission in the population. The virus will come out with new versions and we have to watch out for those which could escape our immune systems — trained by natural infection or by vaccination,” said the CCMB scientist.

The way out to prevent further surges is to ramp up testing and surveillance. “The biggest opportunity is when the cases are low, we should for the kill by continuing with the testing, tracing and isolation till we get rid of the pandemic status. If the face masks are worn properly over nose and mouth — surgical masks, triple-layered cloth masks or N-95 — it can protect any person against any variant without exception as the virus can only spread from person to person,” he affirmed.

This along with avoidance of “clustering of people will fetch the same results of a lockdown keeping the virus spread under control”, added Dr. Mishra.

Published in:

[Thehindu](https://www.thehindu.com/)

AIIMS Vs NEERI: As Govt Credits NEERI For Saline-Gargle Covid Test, AIIMS Delhi Says It Did It First

CSIR-NEERI

30th May, 2021

Nagpur-based National Environmental Engineering Research Institute (NEERI), which operates under the Council of Scientific and Industrial Research (CSIR) has developed an “Innovative Patient-Friendly Saline Gargle RT-PCR Testing Method.”

The Ministry of Science of Technology has termed this method of Covid testing as a “milestone”.



In this new method, a person needs to take 5 ml of saline water in his mouth, gargle it for 30 seconds and spit it back into a tube with the help of a funnel. The saline-gargle can be used to test if the person has been infected with Covid-19.

This innovation will make RT-PCR test not only easier but also much cheaper. However, AIIMS doctors have alleged that they discovered an almost similar testing method around June last year and submitted research papers to the country's top research body, the Indian Council of Medical Research (ICMR) a month later in July.

They have written a letter to the Union health minister in this regard and forwarded it to the Indian Council of medical Research (ICMR) and CSIR as well.

“It is quite unfortunate that the credit for the innovative work of young doctors belonging to AIIMS, New Delhi has gone to some other body” Dr Amit Malviya, an office-bearer from Resident Doctors Association (RDA) told Outlook.

However, the person behind the innovation at NEERI, Dr Krishna Khairnar, senior scientist, Environmental Virology Cell, dismissed the allegations levelled by AIIMS doctors saying, “there is a major difference between the two studies.” Before going into the details of the differences, let’s first understand how the RT-PCR test works and what’s common between AIIMS’s claim and Dr Khairnar’s innovations.

How does RT-PCR test work?

For the Covid test, a nylon swab is inserted deep into the nose of a person so that the virus (if present) in nasal secretions gets stuck onto the swab. The swab is then put into a viral transport medium (VTM) and taken to a diagnostic lab.

Lab technicians extract the virus from the swab with the help of a chemical that comes in the form of an RNA extraction kit. The extraction is in liquid form and it is then subjected to a polymerase chain reaction (PCR) process. This finally tells whether the person’s nasal secretions contain a virus or not. The whole process gives a CT score which indicates the viral load. A lower CT score indicates a higher load of virus in an individual.

What is NEERI’s innovative research?

In the “Saline Gargle RT-PCR Testing Method” after a person spits back into a tube as mentioned above, the tube is then transported to a diagnostic lab, kept under 4 degree Celsius.

This solution is then heated to 98 degree Celsius and subjected to RT-PCR test to get the desired result. Dr Khairnar’s innovation eliminates two steps of RT-PCR tests – a Viral Transport Medium that costs about Rs 80 per test and an RNA extraction kit that costs about Rs 300 per test.

“The non-invasive sampling not only imparts comfort to the patient but also reduces the dependence on trained health care professionals for sample collection. This improves the overall management of sample collection for a large number of cases,” Dr Khairnar said.

What is AIIMS' claim?

Research papers available at AIIMS' doctors Twitter handle suggests that they also worked on the saline gargling method and submitted their paper to the Indian Journal of Medical Research (IJMR) in July last year.

The doctors too used 5 ml saline water for 30 second gargling test on Covid confirmed patients and found the method as accurate as the RT-PCR test.

“Our researchers thought for the first time to collect samples for Covid-19 diagnosis in the form of gargled-saline water. To investigate whether it works or not, they collected both nasal swabs as well as saline gargled water from 50 patients who were confirmed Covid-19 positive,” Dr Malviya said.

He added, “Both nasal swab and saline gargled water gave 100 percent similar results. Even the viral load was almost similar in samples obtained by the two methods. However, this did not garner much attention despite having the potential to revolutionize India's testing strategy.” In June last year, the team had presented the research to top officials at the ICMR headquarters in New Delhi.

“Based on the inputs from ICMR scientists, the same group of our researchers embarked upon another study to evaluate if the virus remains alive in normal saline for extended periods. They had submitted a follow-up research paper in October 2020. The research paper has already been accepted by IJMR for publication in April 2021,” Dr Malviya said.

AIIMS also claims that an earlier adaptation of this innovation by ICMR could have saved a lot of resources, money and manpower.

The only difference between the AIIMS method and Dr Khairnar's research is the use of an RNA extraction kit.

Dr Khairnar's research uses a heating method to eliminate the use of an RNA extraction kit. The AIIMS method requires the RNA extraction kit.

Dr Malviya said, "It is our collective responsibility to innovate and come up with solutions for the greater good of the country. But it is equally important to keep research ethics intact. Moreover, as has been the practice, peer-reviewed publications carry more weightage than press releases when it comes to medical science."

NEERI's Defence

"It is interesting to note that the use of Saline Gargle for Covid detection, as a reliable sampling method had also been entrusted and resonated by AIIMS, New Delhi," Dr Khairnar's said.

"However, the dependence of AIIMS study on commercially available RNA extraction kits for RNA extraction imparts a considerable economical burden on the system," he added.

CSIR-NEERI also claims that its Saline Gargle technique has been developed using Phosphate Buffered Saline (PBS).

"So, there is absolutely no question of using their technique or plagiarism," Dr Khairnar said. He also claimed that prior to the AIIMS study, the saline gargle method had already been established for detecting respiratory pathogens.

"ICMR has bestowed the responsibility on CSIR-NEERI to train various Covid-19 testing labs across India. CSIR-NEERI has also tied up with commercial manufacturers for scaling up the manufacturing of Saline Gargle RT-PCR test kit, for fast implementation across the country," Dr Khairnar said.

Published in:

[Outlookindia](https://www.outlookindia.com)

CSIR-NEERI

30th May, 2021

RTPCR testing with NEERI's saline gargle method starts in city

■ Staff Reporter

SCIENTISTS of National Environmental Engineering Research Institute (NEERI) have developed 'Saline Gargle RTPCR Method' for testing COVID-19 samples. On Saturday, use of this method was started at Regional Police Training School (RPTS) centre in the city.

Radhakrishnan B, Municipal Commissioner; Ram Joshi, Additional Municipal Commissioner, visited the centre and took stock of the response of the people to the new method. Dr Krishna Khairnar, Senior Scientist, Environmental Virology Cell, NEERI; and Dr Morey, Nodal Officer of RPTS centre, also were present on the occasion.

Dayashankar Tiwari, Mayor; Radhakrishnan B, Municipal Commissioner congratulated Dr Khairnar and his team for developing the new method of RTPCR testing. Tiwari said that, it was a matter of pride for Nagpur that NEERI team had developed the method, which has received approval of Indian Council of Medical Research (ICMR).

'Saline Gargle' method is simple, fast, cost-effective, patient-



NEERI team guiding a young man about 'Saline Gargle RTPCR Method' of testing at RPTS centre on Saturday.

NMC to start 5 post-COVID care centres from May 31

NAGPUR Municipal Corporation (NMC) will start five post-COVID care centres in the city from May 31. These centres will be at KT Nagar Hospital, Indira Gandhi Rugnalaya, Pachpaoli Maternity Home, Sadar Diagnostic Centre and Pakwasa Ayurvedic Hospital. At these five centres, test for Mucormycosis (Black Fungus) will be done. In all, 10 doctors, nurses and medical officers have been appointed at these centres.

Dr Prashant Nikhade, Chairman of Task Force, imparted training to NMC's doctors, nurses and medical officers regarding screening of Mucormycosis patients. Dr Ramkrishna Shenoy, member of the Task Force; Dr Sanjay Chilkar, Medical Officer of NMC; Dr Vijay Joshi, Assistant Medical Officer; Dr Varsha Deosthale and Dr Shubham Mangate were present during the training programme held at Corona War Room in NMC premises on Saturday. Dr Chilkar stated that patients would be screened at these centres on Monday, Tuesday, Thursday and

Published in:

The Hitavada

ICMR approves Saline Gargle RT-PCR Covid self-test kit. Here's how to use

CSIR-NEERI

29th May, 2021

The 'Saline Gargle RT-PCR' test method can give the result within 3 hours

The scientists of Nagpur-based National Environmental Engineering Research Institute (NEERI) under the CSIR have developed this RT-PCR testing method

Coronavirus testing: Scientists of Nagpur-based National Environmental Engineering Research Institute (NEERI) under the

Council of Scientific and Industrial Research (CSIR) have developed a do-it-yourself version of the RT-PCR test for testing Covid-19 samples.



The NEERI scientists have developed the 'Saline Gargle RT-PCR Method' for coronavirus detection that has also received ICMR's approval. According to CSIR-NEERI, the 'Saline Gargle RT-PCR' method can give the result within 3 hours.

Here is all you need to know about the Saline Gargle RT-PCR Method:

1. In this test, no samples will be taken from the nose and throat.
2. No skilled healthcare worker is required to collect the sample.
3. Self-sampling is possible.
4. Fast sampling is possible.
5. No RNA extraction kit is required.
6. Since one can do the test without needing any lab staff, it will be helpful in rural and tribal areas. The Nagpur Municipal Corporation has given a go-ahead to this test.

"The Saline Gargle RT-PCR method is instant, comfortable and patient-friendly. Sampling is done instantly and results will be generated within 3 hours," Dr Krishna Khairnar, senior scientist, Environmental Virology Cell, NEERI said.

Here's how to use the Saline Gargle RT-PCR Method:

In a short video, Dr Khairnar, Senior Scientist, Environmental Virology Cell, NEERI explained how an individual can collect his or her samples.

The Saline Gargle RT-PCR method uses a simple collection tube filled with saline solution.

The patient gargles the solution for 15 seconds and rinses it inside the tube. This sample in the collection tube is taken to the laboratory where it is kept at room temperature, in a special buffer solution prepared by NEERIs, and kept for 30 minutes at room temperature. Then the liquid is heated up at 98 degree for six minutes to extract RNA for the RT-PCR test, senior scientist Dr Krishna Khairnar said.

Published in:

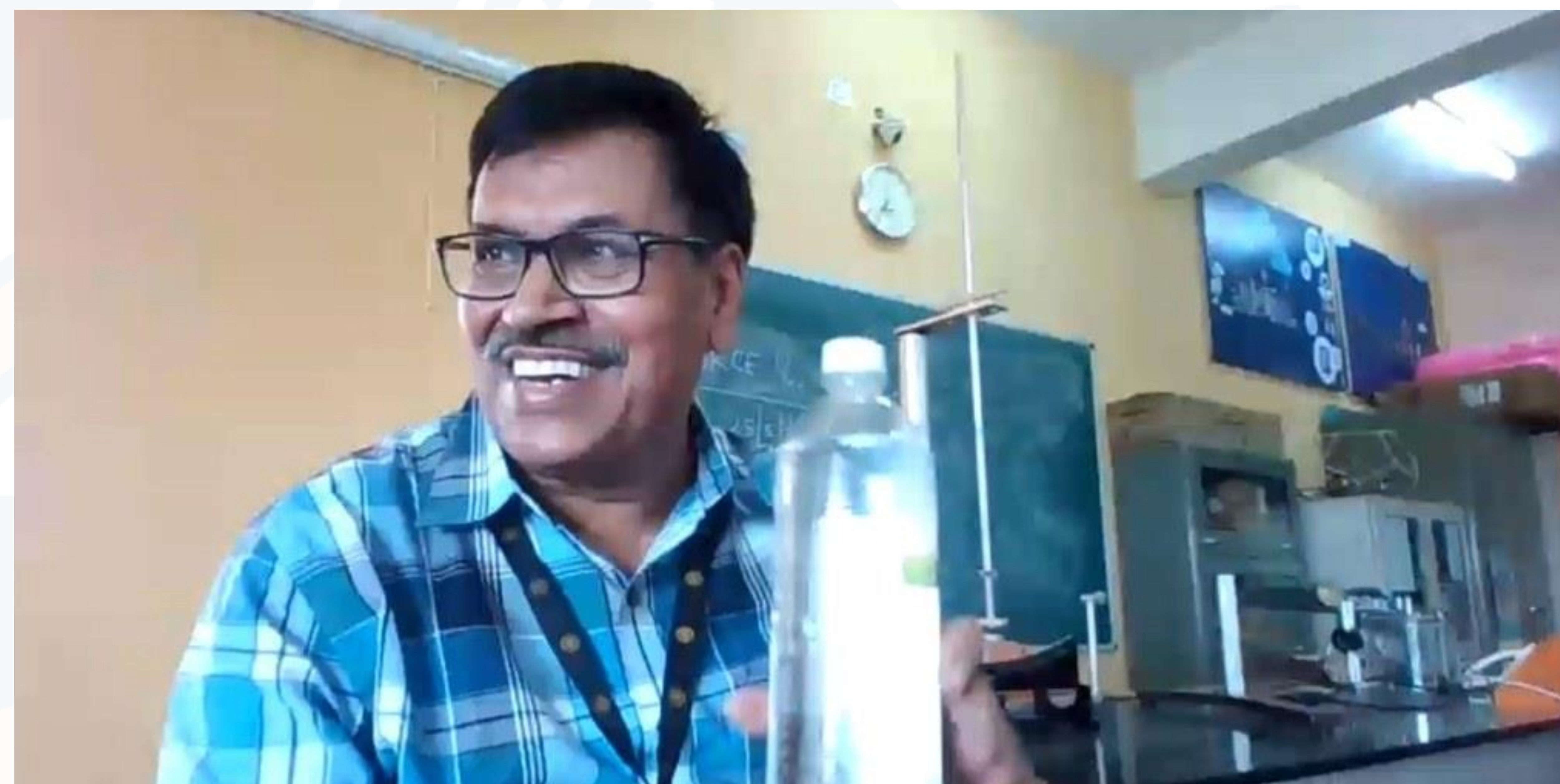
[Livemint](https://www.livemint.com/)

CSIR-NCL conducts a Demonstrative Lecture under CSIR DST Vigyan Jyoti Program

CSIR-NCL

28th May, 2021

Pune, 28th May 2021: Prof YK Vijay, Director of the Center for Innovation in Science Teaching (CIST) at the IIS University, Jaipur, gave away a lecture on 'The effect of Force: Equilibrium and Motion.' Dr BLV Prasad, Chair of Physical and Materials Chemistry Division at the CSIR-NCL, delivered the opening remarks.



CSIR-National Chemical Laboratory (CSIR-NCL), Pune, organized a virtual event under Jigyasa Program's Vigyan Jyoti Lecture Series. The program introduced by the Department of Science and Technology, Govt. of India is aimed to encourage the girl students to take an interest in science and pursue careers in STEM subjects.

Prof Vijay delivered a demonstrative lecture by giving the attendees a tour of Innovation Hub in his Lab. Here, he showed a complete set-up of different experiments and explained certain scientific and physical phenomena. This virtual tour was elaborative, through which he described the working and functions of specific interesting innovations and apparatus. Some of the eye-catching innovations in his lab included an aeroplane that flew in circular motion based on the principle of Centrifugal Force. A pulley built in such a way that it could allow even children to lift heavy weights with ease.

After the lab tour, Prof Vijay gave a detailed presentation on 'The effect of force: Equilibrium and Motion' with a virtual demonstration. With an introduction to basic fundamental forces, he gradually moved into the details using suitable experiments. He demonstrated a Magnetic

Oscillator experiment to explain to the viewers about the Magnetic Newton's Cradle. He also presented an experiment based on Atomic Configurations and how it is related to force and equilibrium. Another part of this lecture included the explanation of different forms of fundamental energies through practical demonstrations. The 'Linear Airtrack Dynamic' that he demonstrated towards the end of the event caught many students' eye since it staged an interesting movement caused due to magnetic force. He also explained the Bohr orbital and coupled oscillator concept through the working model of the Raman Effect.

Prof. Vijay took questions from some of the students and offered them an opportunity to register their queries through his email or call and invited them to visit his Innovation Laboratory. Earlier, Dr Wafia Masih, Coordinator of the program, welcomed the speakers and the audience. She also informed them of the purpose and importance of the Vigyan Jyoti program and some of the activities for the upcoming programs under the Vigyan Jyoti Scheme.

Dr BLV Prasad embarked upon the importance of scientific temperament among young students while delivering the opening remarks. He also praised the efforts of the Jigyasa initiative in promoting scientific temperament through various events. He explained the importance of being curious about things and approaching science with a practical based attitude.

Dr Prasad gave an example of the great scientist Michael Faraday and said that Faraday could become great only because of his curiosity. The event was attended by more than 250 students, teachers and principals from different Navodaya Vidyalayas across Maharashtra. It received a positive and enthusiastic response from the students, who also showed immense interest in getting an opportunity to visit Prof. Vijay's Innovation Lab at Jaipur. The virtual event was wrapped up with a vote of thanks by Dr Wafia.

Published in:

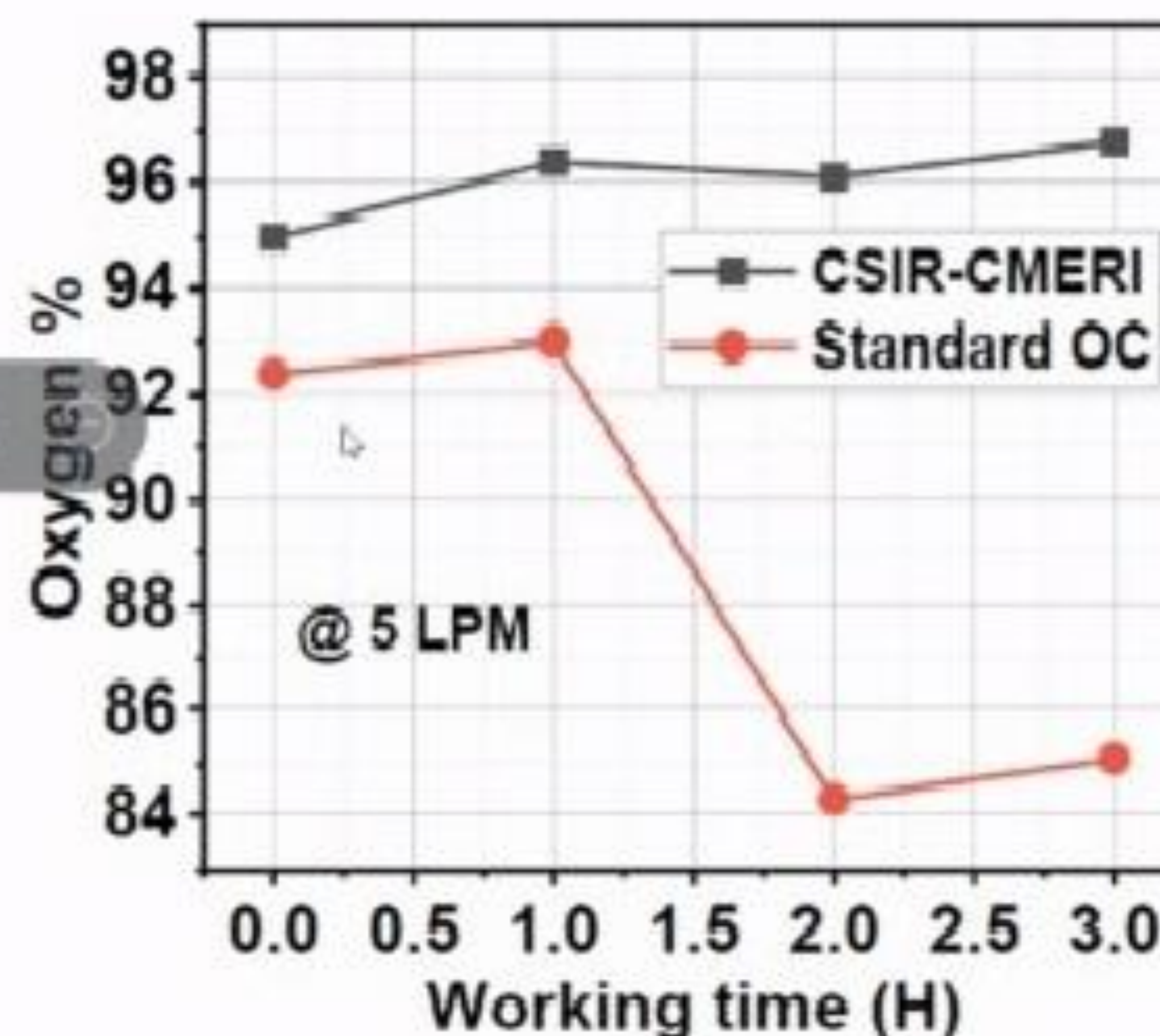
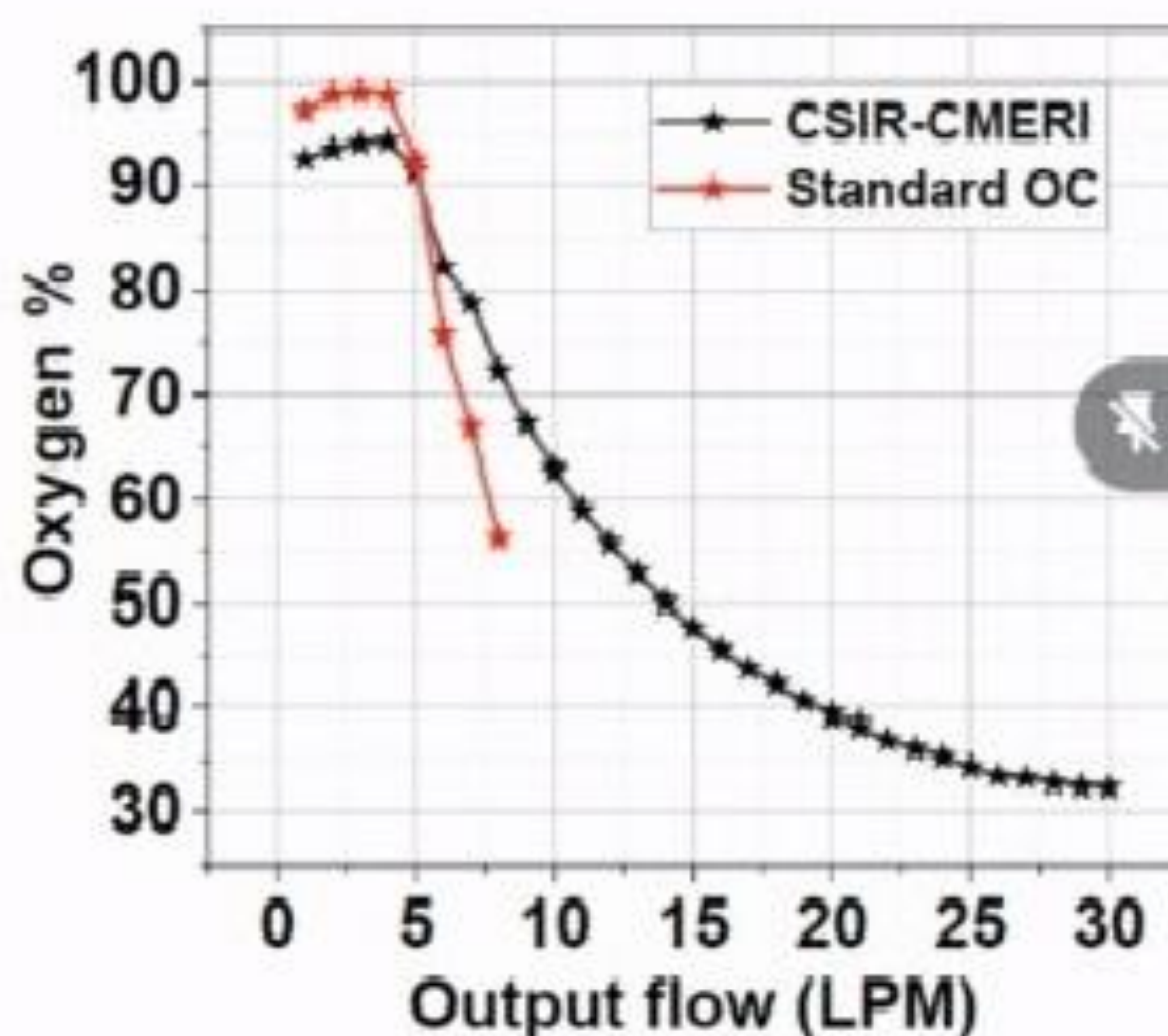
Punekarnews

Maharashtra MSMEs virtually assemble to acquaint about CSIR-CMERI Oxygen Technology

CSIR-CMERI

28th May, 2021

Results of **Oxygen% vs output flow** of CSIR-CMERI developed Oxygen Enrichment Unit and Available Oxygen Concentrator



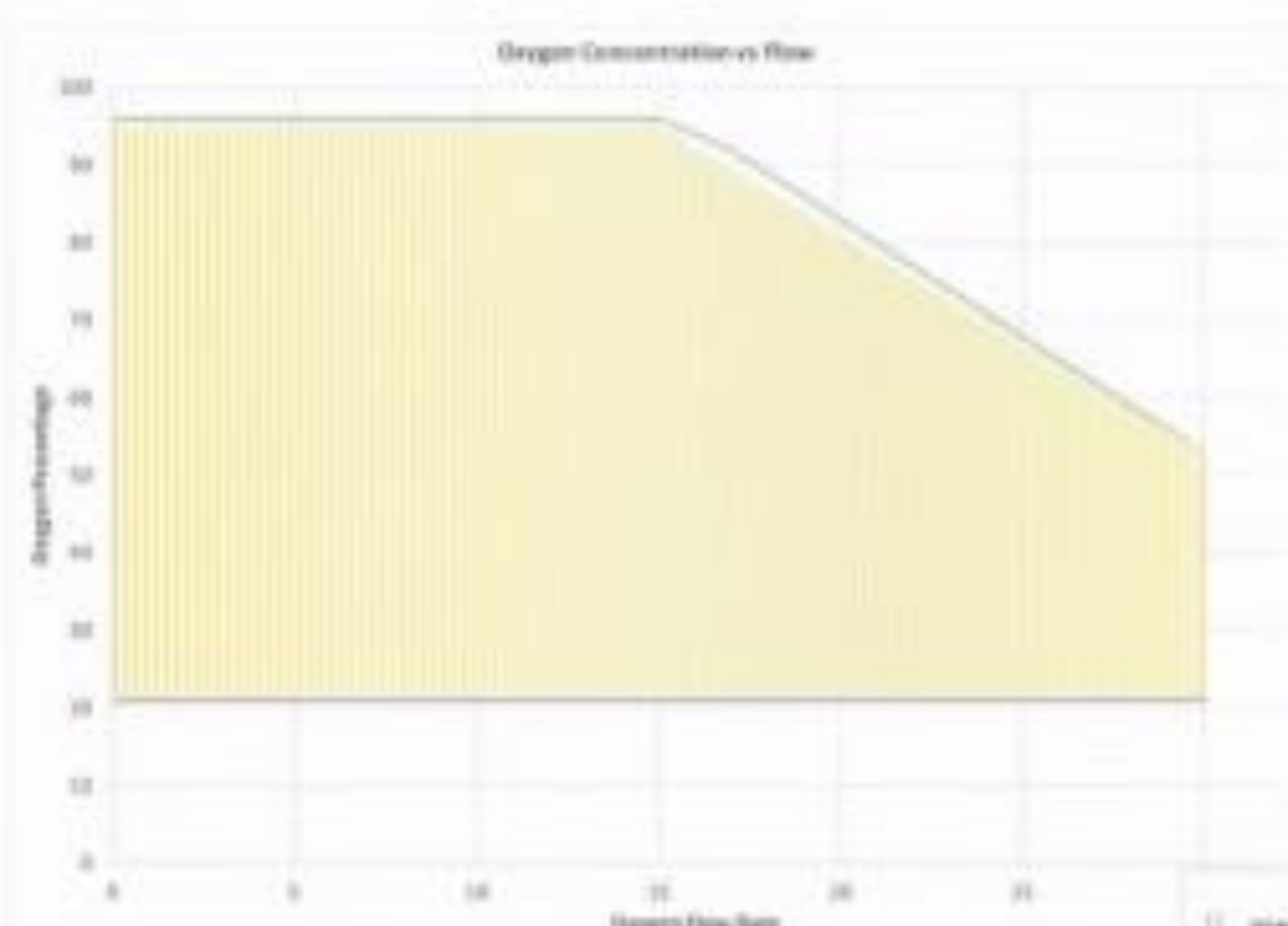
Mumbai, 28 May 2021: A Webinar on 'Oxygen Enrichment Technology' developed by CSIR-Central Mechanical Engineering Research Institute was organised by the MSME Development Institute, Mumbai in association with Indo-German Tool Room, Aurangabad today. Prof. Harish Hirani, Director, CSIR-CMERI, was invited as the Chief Speaker to deliver his address on the CSIR-CMERI Oxygen Technology and Future Advancements. The Webinar was attended by numerous MSMEs representatives of the region and beyond, besides representatives of Small Industries Development Bank of India, Chamber of Marathwada Industries and Agriculture and Marathwada Association of Small Scale Industries and Agriculture.



Advanced OEU: Specification

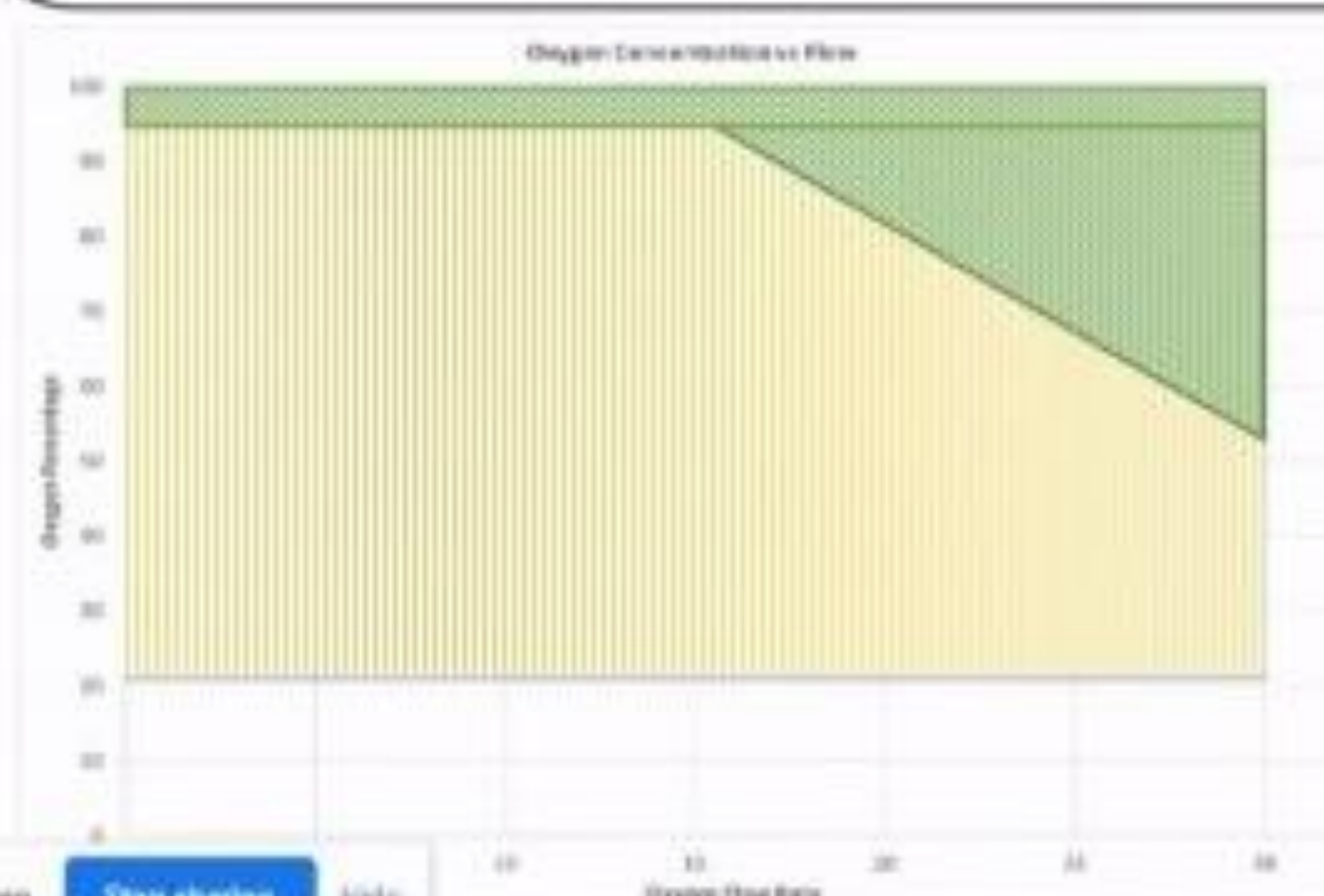
Home Usage

1. Flow @ O₂ %: 1-15 LPM @ 21-93%, 16-30lpm as per graph below
2. Independent control of Flow and FiO₂ Control
3. Integrated SPO₂ Sensor
4. Modes Available: HFNC, CPAP



Hospital Usage

1. Flow @ O₂ %: 1-30 LPM @ 21-99% for full scale
2. Auxiliary port for input of additional oxygen
3. Independent control of Flow and FiO₂ Control
4. Integrated SPO₂ Sensor
5. Modes Available: HFNC, CPAP, BiPAP



Prof. Harish Hirani, Director, CSIR-CMERI, cited that as per scientific reports our inhalation process consumes only 1/3rd time of the entire breathing process. However, Oxygen is continuously supplied to patients without any consideration of this aspect. This translates to the fact that 2/3rd of the Oxygen supplied to the patients are usually wasted, as per the current practice. Besides, as per available Medical Journals, the usage of Nasal Cannula without Masks leads to transmission of viral load to people present nearby. Even wearing N95 masks can be uncomfortable for patients having lung issues. Besides, exposing a patient from 21% natural air oxygen to a 100% oxygen supply load might be deteriorating for the patient. Thus, there is an inevitable need for seeking a Decentralised Solutions for providing oxygen to patients. Most of the Oxygen Technologies available in the Market are for therapeutic usage of Oxygen instead of treating Transmittable diseases.

A need was felt for an additional Innovative technology for seeking an alternative methodology. Keeping this in mind, CSIR-CMERI developed the Oxygen Enrichment Technology, which is the next technological step to Oxygen Concentrators. The CSIR-CMERI Oxygen Enrichment Technology checks many advantages which some of its existing competitors either does not possess, or is not as efficient.

N.N. Estolkar, Jt. Director, Br MSME-DI, Aurangabad, delivered the Welcome Address for the Webinar and shared the great experience of learning about the CMERI Technology development. A.R. Gokhe, Director, MSME-DI, Mumbai shared that the entire world is undergoing a hard time and it is in these moments that Technologies such as these can go a long way in providing relief to the society. MSMEs are bearing the brunt of the current scenario and thus indigenous technological breakthroughs will not only provide the MSMEs an avenue for economic progress but it will also strengthen the indigenous technological capabilities of the nation.

H.D. Kapse, Managing Director, Indo-German Tool Room, Aurangabad, thanked Prof. Harish Hirani for the efforts CSIR-CMERI is undertaking to reach out to the MSMEs across the country. MSMEs are extremely eager to learn and adopt such indigenous technology developments. He asserted that Indo-German Tool Room will provide all possible technical assistance to the MSMEs with the available Infrastructure at their disposal. IGTR also expressed their willingness to collaborate with CSIR-CMERI for the sake of the society and the MSMEs of the Nation.

Bhagwan Chandanani, AGM, SIDBI, Aurangabad, gave an elaborate presentation on the Government of India Financial Assistance Schemes for the MSMEs such as SAFE, SHWAS and AROG so that same may be augmented by them for assisting the deployment of technologies across the Nation.

Published in:

Punekarnews



CSIR-NCL

28th May, 2021

CeNS is an autonomous research institute under the Department of Science and Technology (DST), Government of India.

Presently, Prasad is working as chairman of the CSIR-NCL division. He had his schooling and early education in Vijayawada, in Andhra Pradesh. He obtained a master's in Science and PhD in Chemistry from Hyderabad Central University. After two post-doctoral stints, one at Tokyo Institute of Technology, Japan, and the second at the Kansas State University, United States, he joined CSIR-NCL in 2003. His department actively works in the general area of material synthesis and in particular nanoparticles and nanoscale materials.

Prasad has been recognised with several awards that include the most recent Prof CNR Rao national prize for Chemical research, MRSI-ICSC Materials Science Annual Prize for 2020, a Young Career Award from the DST Nano Mission, a bronze medal from the Chemical Research Society of India in 2013, and the Raman Research Fellowship (CSIR) in 2012. He was admitted as a fellow of the Royal Society of Chemistry (London) in 2016.

Published in:

Hindustantimes

CSIR-CMERI

25th May, 2021

सीएसआईआर -सीएमआईआरआई की ऑक्सीजन संवर्धन तकनीक पर वेबिनार देश की मेडिकल ऑक्सीजन आवश्यकताओं के लिए है वरदान सूक्ष्म -लघु और माध्यम उद्योगों के लिए महत्वपूर्ण अवसर

आवाज प्रतिनिधि। 25 मई

रांची। सूक्ष्म, लघु और माध्यम उद्योग विकास संस्थान (एमएसएमई - डीआई) रांची और सीएसआईआर केन्द्रीय मैकेनिकल इंजीनियरिंग शोध संस्थान (सीएमआईआरआई), दुर्गापुर के द्वारा ऑक्सीजन संवर्धन यूनिट सम्बन्धी तकनीक और एमएसएमईएस द्वारा इनके उत्पादन के विषय पर स्वास्थ्य क्षेत्र, उद्योगों और अन्य सम्बन्धित प्रतिनिधियों के लिए संयुक्त रूप से एक वेबिनार का आयोजन किया गया। इस कार्यक्रम में मूलतः झारखण्ड के सूक्ष्म और लघु उद्योगों तथा उनके संगठनों के प्रतिनिधि, चिकित्सकों, वैज्ञानिकों और स्टार्ट अप के लिए इच्छुक लगभग 100 प्रतिभागियों ने भाग लिया। इस कार्यक्रम को सीएसआईआर -सीएमआईआरआई के निदेशक प्रो हरीश हिरानी ने मुख्य वक्त के रूप में सम्बोधित किया।

सीएसआईआर -सीएमआईआरआई के निदेशक प्रो (डॉ)हरीश हिरानी ने संस्थान द्वारा विकसित तकनीकों खासकर ऑक्सीजन संवर्धन तकनीकों पर एक विस्तृत वैज्ञानिक और तार्किक प्रजेंटेशन प्रस्तुत किया। उन्होंने बताया की इन दिनों देश में मेडिकल ग्रेड ऑक्सीजन की मांग कई गुना बढ़ गई और इस दौरान ऑक्सीजन कॉन्सेंट्रटर की भी भारी मांग देखी गई। जैसा कि सामान्यतः होता है, संकट काल में हमें अनेक उत्पादों का आयात करना पड़ता है, इस बार भी ऐसा ही हुआ। इस दौरान औद्योगिक ग्रेड ऑक्सीजन के मेडिकल उपयोग का भी सहारा लिया गया, यद्यपि इस उपयोग से अनेक कठिनाइयां होने की संभावना रहती है। प्राकृतिक रूप से श्वसन के दौरान ऑक्सीजन इन्हेल करने



वेबिनार में वार्ता करते विशेषज्ञ

में पूरी प्रक्रिया का एक तिहाई समय लगता है परन्तु मरीजों को एक नियत फ्लो रेट पर अनवरत ऑक्सीजन दिया गया, जिससे लगभग दो तिहाई ऑक्सीजन की बर्बादी की संभावना से इंकार नहीं किया जा सकता। इसलिए ऑक्सीजन चिकित्सा को अधिक प्रभावी बनाने और बर्बादी को काम करने के लिए इस दौरान वैज्ञानिक तरीके से तालमेल और देश के अंदर इनोवेशन की आवश्यकता है।

प्रो हिरानी ने बताया कि वर्तमान में देश में उपलब्ध अथवा आयातित ऑक्सीजन कॉन्सेंट्रटर मूलतः नेसल केनुला के साथ उपयोग के लिए बने थे, यद्यपि वर्तमान दौर में इनकी महत्वपूर्ण उपयोगिता देखी गई देखी गई, फिर भी इनके अधिक प्रभावी उपयोग के लिए नए प्रकार के डिजाइन परिवर्तन की आवश्यकता है। देश के स्वास्थ्य क्षेत्र की आवश्यकताओं के अनुरूप सीएसआईआर -सीएमआईआरआई ने ऑक्सीजन कॉन्सेंट्रटर के उत्पादन के लिए महत्वपूर्ण

तकनीक विकसित किया और अब तक 13 एमएसएमई इकाइयों को हस्तांतरित किया है, जहां इसके उत्पादन की प्रक्रिया जारी है। आवश्यकता इस बात की है कि ऑक्सीजन संवर्धन की तकनीक ऐसी हो जिससे इनका उपयोग अधिक वैज्ञानिक तरीके से किया जा सके जिससे वह मरीजों के स्वास्थ्य के लिए उपयोगी हो साथ ही डॉक्टरों के पास इनके वैज्ञानिक उपयोग का निर्वहण उपलब्ध हो। उन्होंने बताया कि ऑक्सीजन चिकित्सा में यदि चिकित्सकों के पास फ्लो रेट (एलपीएम) और ऑक्सीजन प्रतिशत (एफआईओ₂) दोनों का स्वतंत्र निर्वहण हो तो यह अधिक उपयोगी हो सकता है। वर्तमान में उपलब्ध ऑक्सीजन कॉन्सेंट्रटर में सिर्फ फ्लो रेट को निर्वहित किया जा सकता है, सीएसआईआर -सीएमआईआरआई ऑक्सीजन संवर्धन इकाई का विकास कर रहा है जिसके द्वारा इन दोनों को निर्वहित किया जा सकेगा। प्रो हिरानी ने बताया कि उनके संस्थान द्वारा विकसित

ऑक्सीजन संवर्धन इकाई (ओईयू) वर्तमान में उपलब्ध और आयातित इकाइयों की तुलना में नई तकनीकी विशेषताओं से लैस है। इस इकाई को पहाड़ी क्षेत्रों और देश की रक्षा में दुर्गम स्थानों पर तैनात सैनिकों के उपयोग में भी लाया जा सकता है।

संस्थान द्वारा विकसित 50 एलपीएम के ऑक्सीजन संवर्धन यूनिट को 10 बिस्तरों के अस्पतालों के लिए आसानी से उपयोग में लाया जा सकेगा जहां प्रति बेड 1-5 एलपीएम क्षमता से ऑक्सीजन आपूर्ति हो सकेगी। यदि उद्योग चाहें और यदि चिकित्सा क्षेत्र के विशेषज्ञों की जरूरत महसूस हो तो संस्थान एक इंटीग्रेटेड योजना के तहत मिनी आईसीयू स्थापित करने के लिए स्वस्थ वायु प्रकल्प विकसित कर सकती है। प्रो उन्होंने मेडिकल क्षेत्र के विशेषज्ञों से आग्रह किया कि तकनीकी आवश्यकताओं के विषय में सीएसआईआर -सीएमआईआरआई को बताएं जिससे उनकी आवश्यकता के अनुरूप उन्नत तकनीकों का विकास किया जा सके। प्रो. हिरानी ने इस कार्यक्रम के आयोजन और एमएसएमई एस को दिए जा रहे सहयोग के लिए एमएसएमई - डीआई रांची की सराहना की। कार्यक्रम के दौरान एमएसएमई - डीआई रांची के संयुक्त निदेशक डॉ एस के साहू ने सूक्ष्म, लघु और माध्यम उद्योगों के लिए आरम्भ किए गए भारत सरकार के विभिन्न प्रोत्साहन कार्यक्रमों की विस्तार से जानकारी दी। उन्होंने बताया की सीएसआईआर -सीएमआईआरआई जैसे शोध संस्थान अनेक महत्वपूर्ण तकनीकों का विकास कर रहे हैं तथा विशेषकर टर्स्ट इकाइयों को हस्तांतरित कर रहे हैं, वे तकनीक एमएसएमई उद्योगों के लिए

महत्वपूर्ण अवसर की तरह है, जिन्हें प्राप्त करके सरकार की प्रोत्साहन योजनाओं का लाभ उठाया जाना चाहिए। डॉ साहू ने सूक्ष्म, लघु और माध्यम उद्योग मंत्रालय के क्लस्टर विकास कार्यक्रम (सीडीपी) के बारे में जानकारी दी जिसके तहत मसम इकाइयों को अवसरचानात्मक सहयोग प्रदान किया जाता है। इसके तहत कॉमन फैसिलिटी केंद्र की स्थापना द्वारा इकाइयों को 20 करोड़ रुपये तक का ग्रांट भारत सरकार उपलब्ध करा सकती है साथ ही अवसरचना विकास, मार्केटिंग हब इत्यादि की स्थापना में भी सहयोग प्रदान किया जा सकता है। इसके अतिरिक्त, एमएसएमई इकाइयों के लिए उपलब्ध सिडबी की योजनाओं के बारे में भी बताया। डॉ साहू ने कहा की एमएसएमई - डीआई रांची या उनके धनबाद स्थित कार्यालय से उद्यमी संपर्क करके उन योजनाओं की अधिक जानकारी और लाभ प्राप्त कर सकते हैं। कार्यक्रम को झारखण्ड ट्रेडर्स एसोसिएशन के महासचिव राजीव शर्मा तथा मसम एसोसिएशन ऑफ झारखण्ड के अध्यक्ष शशिभूषण ने भी सम्बोधित किया तथा सीएसआईआर -सीएमआईआरआई द्वारा किये जा रहे तकनीकी विकास और वैज्ञानिक प्रगति तथा देश के अंदर आत्मनिर्भर औद्योगिक विकास की दिशा में योगदान की प्रशंसा। कार्यक्रम के दौरान अनेक छोटे उद्योगों के प्रतिनिधियों ने इस तरह के तकनीकी सहयोग के लिए उत्प्रेरणा की प्रशंसा की, तथा उम्मीद व्यक्त किया की भारत सरकार की विभिन्न योजनाओं का लाभ उठाते हुये वे इन तकनीकों के उत्पादन की दिशा में प्रयास कर सकेंगे।

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CSIR-CMERI

25th May, 2021

CSIR-CMERI opening avenues for the MSMEs in Oxygen Technology

MI NEWS SERVICE

RANCHI: A webinar on 'Technology of Oxygen Enrichment Manufacturing Unit for Healthcare Sector and other Stakeholders' was organised by the MSME, DI, Ranchi today. Prof. Harish Hirani, Director, CSIR-CMERI, was invited as the Chief Guest to deliver the key address on the latest developments in CSIR-CMERI Oxygen Technology. The webinar was attended by doctors and numerous MSMEs representatives.

Prof. Harish Hirani, Director, CSIR-CMERI, gave an elaborate Scientific and Analytical presentation on the current scenario and shared that deploying Research-based technologies is the key to development. As



per Scientific Understanding, the process of Inhalation consumes 1/3rd of the time of the entire breathing process, however, Oxygen is supplied continuously to the patients at a particular flow-rate. This implies that 2/3rd of the Oxygen Supplied is wasted in a number of products cur-

rently used in practice. As reported in different Medical Journals, the usage of Nasal Cannula without masks should be discouraged, as, during the process of Exhalation, there are chances of massive transmission of Viral Load to adjacent patients or family members.

He further emphasized a Decentralised Solution to the entire Oxygen Issue. The Private Clinics, Mohalla Clinics and Small Hospital should also be roped in for enhancing the patient treatment outreach.

The CSIR-CMERI developed Oxygen Enrichment Technology is an advanced version of the Oxygen Concentrator Technology available in the markets. The modular design of the Unit helps boost its multi-utility aspect. A comparative statement of the Conventional Oxygen Concentrators and the CSIR-CMERI Oxygen Enrichment Unit was presented, which showcased the outright advantages of the technology over others.

An advanced version of the Oxygen Enrichment Unit

is also being steadily developed at CSIR-CMERI, which will have independent control of FiO₂ and Flow Rate, with a capacity ranging from 1-15 LPM.

It can reduce the Oxygen Load by upto 66%. This system is a sort of a Hybrid System, utilising existing Infrastructure based on Oxygen Cylinders.

Dr. S.K. Sahoo, Jt. Director and HOO, MSME-DI, Ranchi, encouraged the MSMEs to implement the CSIR-CMERI Oxygen Technology. He shared the various Government of India schemes for the MSMEs and elaborated the modus operandi for the same.

He also appreciated the efforts taken by CSIR-CMERI in disseminating the Technology to the MSMEs

across the country.

Rajiv Sharma, General Secretary, Jharkhand Trader's Association, thanked Prof. Harish Hirani for sharing such a promising technology with the MSMEs of the region. He urged the MSMEs to urge the Government for facilitating the setting-up of Common Facility Centres for manufacturing this technology in Jharkhand.

Shri Sharma also committed to increase the number of Sale Points for the technology once it hits the market in the near future.

He stated that such technologies are bound to be relevant in the future for the purpose of Oxygen Therapy and thus requested the Local businesses to look forward to the technology.

CSIR-NGRI

25th May, 2021

Research to detect earthquakes in advance

భూకంపాలను ముందుగానే గుర్తించడానికి పరిశోధనలు

కాలిఫోర్నియా భూకంపాల
అధ్యయన కో ఆర్డినేటర్ సుసెన్

ఉప్పల్: భూకంపాలను ముందుగానే గుర్తించడానికి ప్రపంచ వ్యాప్తంగా అనేక పరిశోధనలు జరుగుతున్నాయని, గత అనుభవాలను దృష్టిలో ఉంచుకుని అర్థీపిషల్ ఇంటలీజెన్సీ అండ్ మిషన్ లెర్నింగ్ అండ్ శంపై అనేక చర్యలు జరుగుతున్నట్లు యూఎస్ జియాలజికల్ సర్వే సౌత్ కాలిఫోర్నియా భూకంపాల అధ్యయన కో ఆర్డినేటర్ సుసెన్-ఇ హాఫ్ అన్నారు. భారత భూభౌతిక పరిశోధన సంస్థ (ఎన్ జీఆర్ఐ) డైమండ్ జూబ్లీ ఉత్సవాల్లో భాగంగా నిర్వహించిన వెబ్నార్లో ముఖ్య వక్తగా ప్రసంగించారు. ఈ సందర్భంగా ఆమె మాట్లాడుతూ.. భూకంపాలను ముందుగానే పసిగట్టేందుకు అనేక అంశాలను నిశితంగా పరిశీలిస్తే సాధ్యమేనంటున్నారు. భూకంపాలు వచ్చే ముందు భూమిలో నీటి మట్టంలో అనేక మార్పులు చోటు చేసుకుంటాయని, అక్కడ అక్కడ భూమి పగుళ్లు పడి అందులో నుంచి రెడాన్ అనే గ్యాస్ విడుదల అవుతుందని, ఆ గ్యాస్ వాసన ద్వారా పసిగట్ట వచ్చని, ఒక్కోసారి

చిన్న చిన్న భూకంపాల తర్వాత కూడా పెద్దవి ఏర్పడ వచ్చని అభిప్రాయపడ్డారు. కాలిఫోర్నియాలో ఫాన్ యాండ్రీయా ప్రాంతం చాలా పెద్దదని, అక్కడ చిన్న చిన్న భూకంపాలు వస్తుంటాయన్నారు. అయినా పెద్ద భూకంపాలు వస్తాయా అంటే కరక్టుగా చెప్పలేమన్నారు. అందుకు 'అర్థీపిషల్ ఇంటలీజెన్సీ అండ్ మిషన్ లెర్నింగ్' ద్వారా డాటాలను సేకరించి ఆధునిక టెక్నాలిజీ ద్వారా భూకంపాలను గుర్తించే ప్రయత్నం చేస్తున్నట్లు తెలిపారు. వీటితో పాటు వాతావరణంలో ఉన్న ఐనో స్పీయర్ లేయర్కు ప్రత్యేక చార్జీ ఉంటుందని భూకంపాలు సంభవించే ముందు ఈ చార్జీ పేరుగడం గమనిస్తే సులభంగా గుర్తించే అవకాశాలున్నట్లు తెలిపారు. ఇలా భూకంపాలను ముందుగానే గుర్తించడానికి ప్రపంచ వ్యాప్తంగా అనేక శాస్త్ర వేత్తలు పరిశోధనలో మునిగి తేలుతున్నారని చెప్పారు. ఈ వెబ్నార్ కార్యక్రమంలో ఎన్జీఆర్ఐ డైరెక్టర్ డాక్టర్ వీఎం తివారి, డాక్టర్ పూర్ణచందర్ రావు చీఫ్ సైంటిస్టు, ఎన్ జీఆర్ఐ డైమండ్ జూబ్లీ కమిటీ చైర్మన్, ఎన్జీఆర్ఐ మాజీ డైరెక్టర్ ప్రొఫెసర్ హర్షగుప్త, ఎన్జీఆర్ఐ రిసర్చ్ కౌన్సిల్ చైర్మన్ గోహల్ పాల్గొన్నారు.

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