

CSIR IN MEDIA



CSIR

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CSIR conducting sero-survey in 38 labs to check presence of COVID-19 antibodies

CSIR-IGIB

25th August, 2020



The Council of Scientific and Industrial Research (CSIR) is conducting a survey in its 38 laboratories and institutes across India to gauge the serological prevalence among its employees and also understand how long antibodies against COVID-19 remain active, officials said. The exercise aims to target 10,000 CSIR employees and their family members in the age group of 19-60 years, said Shantanu Sengupta, a scientist with CSIR's Institute for Genomics and Integrative Biology (IGIB) in Delhi, which is coordinating the sero-survey. Sengupta said the exercise has already begun and it is expected to get completed by September. The exercise, he said, will be repeated in the next six months.

All people will be monitored using Omic technology, which involves the analysis of the entire set of molecules such as proteins, lipids or metabolites in a cell, organ or organism. "Different research talk about how long the antibodies stay in the body. Another serological survey in the next six months will help us understand this better," Sengupta added. IGIB director Anurag Agrawal told PTI that the CSIR through its network of constituent laboratories has the geographical diversity and scientific expertise to accelerate the generation of such knowledge. The 38 laboratories and institutes are located in east, west, south, north, northeast and central India. "As a first step, CSIR has started a national sero-survey amongst a cohort of its employees and their families, which will be continued in the future. Using this as a starting point, the scientists expect to be able to identify the infection trends in parts of the nation where CSIR labs are located, and to develop a better understanding of susceptibility to infections and its consequences," Agrawal said.

Such work will greatly complement and enhance the national efforts of population based cross-sectional sero-surveys, Agrawal noted. "Sero-surveys have been conducted in different cities but with the geographical diversity the CSIR offers, this pan-India sero-survey will give a better understanding of the antibodies present among people across the country," Sengupta said.

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[Mint](#)

CSIR-IITR tests over 50,000 Covid samples in UP

CSIR-IITR

24th August, 2020

CSIR-IITR, an ICMR and Uttar Pradesh government, approved COVID19 testing facility in the state capital, has created a sort of record by testing over 50,000 samples since May 4. The CSIR- IITR has accomplished a landmark of testing over 50,000 samples for COVID-19 using Real Time-PCR based quantitative assay in the last 16 weeks, a IITR press statement here on Monday claimed. CSIR-IITR is receiving samples from different districts of Uttar Pradesh.

While the COVID-19 cases were shooting to an alarming stage during the second phase of lockdown, as an emergency response, CSIR-IITR created state-of-the-art facility for COVID-19 testing as per national norms. According to the press release, initially the institute had testing capacity of 50 samples per day which is now ramped upto 1,200 samples per day. In a short span of less than four months, CSIR-IITR reached a major landmark by finishing over 50,000 tests. CSIR-IITR is the first CSIR laboratory to reach this milestone.

This was made possible only by the untiring and persistent effort of numerous scientists, technical and various other staff, who have been working continuously for seven days a week. CSIR-IITR is also contributing in capacity building. CSIR-IITR is providing training on various aspects of COVID-19 testing to staff of other CSIR labs and state medical colleges. CSIR-IITR is committed to serve at its best capability during this crucial time of national crisis.

In a meeting held with UP Chief Secretary, as well as with Minister of Medical Education, Suresh Khanna, Director CSIR-IITR Professor Alok Dhawan, had recently apprised of full preparedness for testing and assured support to the State to enhance the testing capacity for COVID-19.

The cell-culture facility of the institute was repurposed to BSL2+ laboratory to serve as COVID-19 testing facility. CSIR-IITR formulated standard operating procedure (SOP) and obtained approval from CSIR, ICMR and state authorities. A team of about 10 personnel had been imparted training by Department of Microbiology, King George Medical University (KGMU) on bio safety measures, sample receiving, real time PCR based testing, data analysis and data reporting.

They in turn trained the other staff of CSIR-IITR involved in institutional COVID-19 testing facility. Procurement of consumables such as testing kits, PPE, plastic ware were made at rapid pace. The scientists of CSIR-IITR standardized procedures, performed mock testing and initiated sample testing by themselves. Later the institute hired dedicated manpower to run the facility funded by CSIR. UP State Government provided full support by deputing a medical microbiologist and two technicians at the CSIR-IITR COVID-19 testing facility

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[United News of India](#)

Pune: NCL's big leap in fight against MDR-malaria

CSIR-NCL

23rd August, 2020



As the world races to find a suitable drug to combat Covid-19, Pune-based CSIR-National Chemical Laboratory (CSIRNCL) researchers have claimed a potential breakthrough in anti-malarial medicine research by inventing a robust drug candidate to combat multidrug-resistant (MDR) 'Plasmodium falciparum' strains, the parasites that cause malaria. The new drug candidate was recently granted a world patent, CSIR-NCL researchers. The researchers involved in the study said the new compounds had shown better efficacy than the presently used anti-malarial drugs, such as chloroquine and artemisinin, against the malaria-causing parasite. The NCL researchers, in collaboration with the International Centre for Genetic

Engineering and Biotechnology, New Delhi, developed the new drug candidate by combining artemisinin with other molecules. NCL's big leap in fight against MDR-malaria. Lead researcher Asish Bhattacharya from the Organic Chemistry Division of CSIR-NCL, Pune, told TOI, "The new compound effectively inhibits the survival of the ring-stage parasite and shows its complete clearance by cutting its food source and killing it by inhibiting falcipain-2, which is an enzyme that helps the parasite to degrade the infected human's haemoglobin to make its own food. The discovery will contribute significantly towards the global effort to eradicate malaria. These lead compounds can be developed as effective antimalarials to prevent the spread of resistance to currently available anti-malarials." Bhattacharya said, "After artemisinin, no new anti-malarial drug has come into the market or is undergoing clinical trials at present worldwide. The fear is that since the parasite is very clever and can mutate in the course of years, it can develop resistance against this drug as well. We designed and synthesized a hybrid molecule of artemisinin with another molecule, which kills the parasite by cutting its food source. In this scenario, since the new drug candidate cuts off the parasite's food source by stopping haemoglobin degradation, it also effectively

undertakes complete parasite clearance. Due to its novel mode of action, it can prevent the spread of resistance,” he said. Bhattacharya said the new candidate can be used as an effective drug to prevent resistance to current anti-malarials.

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North-western India facing groundwater crisis: Experts

CSIR-NGRI

22nd August, 2020

The over exploitation of groundwater resources in northwest India by inefficient irrigation practices has created a groundwater crisis, Scientific experts said on Saturday. A team of researchers from the University of Delhi, IIT Kanpur, Banaras Hindu University, National Geophysical Research Institute and Durham University has assessed the future of the groundwater crisis of the NW India and the impact of Government of India proposed 20 per cent improvement in irrigation water use efficiency in the article entitled “Modelling water levels of northwestern India in response to improved irrigation use efficiency”, published in the journal Scientific Reports, a nature publication journal recently. The northwestern India is known as one of the largest hotspots of groundwater depletion in the world and the rates of groundwater depletion has been extraordinary during the last few decades. A major part of the reason has been the excessive pumping to support the agricultural demands in this region, often known as the food basket of India. However, the indiscriminate use of groundwater in this region has created a very critical situation, the report said. "The groundwater levels have been going deeper and deeper and they are no longer recharged enough from the current rainfall. It is important therefore to assess the current situation and predict the future trends of groundwater level through simulation studies so that sustainable strategies can be formulated," say Prof. Rajiv Sinha of IIT Kanpur, the co-author of this paper here on Saturday. Using a calibrated and validated groundwater flow model, the study published in Scientific Reports predicts that in comparison to the groundwater levels of year 2017, the groundwater levels by year 2028 will decline further by about 28 meter in Kurukshetra district of Haryana at the rate of 2.8 meter per year if the present level of abstraction continues. Professor Shashank Shekhar, the lead author of this paper from University of Delhi, says that this is an absolutely disastrous situation and this must be arrested urgently by adopting suitable measures. Although this decline would be relatively smaller in the range of 12 to 24 meters at the rate of 1.2 to 2.4 meter per year in Patiala, Sangrur, Fatehgarh Sahib

districts of Punjab and Ambala district of Haryana, the overall picture is still quite grim. Similar prediction for other parts of Punjab like Bhatinda, Mansa, Sirsa, Ludhiana and parts of Haryana such as Kaithal, Jind, Hisar, Bhiwani, Parts of Rohtak, Yamuna Ngar, Sonipat and Panipat suggests that the water-level will decline further by 5–10 meter in about a decade. This study has also carried out computer model based simulation with a 20 per cent reduction in groundwater abstraction and the results show spatially varied aquifer response across the region. The maximum positive impact is observed in the critically overexploited districts of Kurukshetra, Patiala, Sangrur, Fatehgarh Sahib and parts of Ambala. In these districts, 20 per cent reduction in abstraction of groundwater could slow down the water-level decline rate from about 0.6–2.5 m/year at present to 0.2–1.6 m/year in these areas by 2028 – this translates into a net change of 36–67 percent which could save a huge amount of the valuable groundwater resource in this region. The study suggests that although increasing irrigation use efficiency provides tangible benefits, an integrated approach to agricultural water management practice that incorporates use efficiency along with other measures like water-efficient cropping patterns and rainwater harvesting may yield better results in a shorter period. The findings of this study has wider implications and applicability in most parts of the Gangetic plains, Prof. Rajiv Sinha, the co-author of this paper from IIT Kanpur says. Many parts of UP and Bihar have also been exploiting the groundwater at unsustainable rates and this is likely to lead to a similar situation as in Haryana and Punjab where apart from depleted groundwater levels, serious problems of soil salinity and loss of agriculture productivity have been reported. Prof. Sinha has also been working in Bundelkhand covering parts of UP and similar findings have been reported from this region which is already known as a water scarce region in the country. A national debate on this issue has been going on for quite some time but it is time to put together a management plan based on rigorous scientific studies.

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[United News of India](#)

India has "best" COVID-19 recovery rate, lowest mortality rate: Harsh Vardhan

CSIR-CBRI

22nd August, 2020

India has the "best" COVID-19 recovery rate of about 75 per cent, which is improving every day, and the "lowest" mortality rate of 1.87 per cent in the world, Union Health Minister Harsh Vardhan said on Saturday. After inaugurating a 10-bed make-shift hospital of the National Disaster Response Force (NDRF) in Ghaziabad near Delhi, he said India began formulating its strategy against coronavirus from January 8 as soon as the world came to know about the outbreak of the disease. Vardhan said "many intelligent people, scientists and naysayers" had estimated that India, with a population of about 135 crore, will see 300 million COVID-19 cases and about 5-6 million people will die by July-August, and the country's healthcare system was "incapable" to combat the disease.

"However, I am happy to say that in the eighth month of the battle, India has the best recovery rate of 75 per cent and against an estimate of 300 million affected we have not even reached 3 million cases." "In fact, 2.2 million patients have recovered and gone home and another seven lakh are going to be cured very soon," he said. The minister said these successes were achieved due to the "coordinated" efforts with the participation of everyone -- the government and the people. India has the lowest mortality rate of 1.87 per cent in the world, he said, adding the recovery rate was improved every day.

"We started with only one testing laboratory in Pune but we scaled up our diagnostic capabilities and strengthened our testing capacity. "Today, India has 1,511 testing labs for COVID-19 and on Friday we tested over one million samples... that was about 10.23 lakh samples," the minister said. In such a little time, 15,000 dedicated COVID care hospitals with 15 lakh beds were set up across the country and if the quarantine facilities are added to it there are 25 lakh beds, Vardhan said. The minister congratulated the NDRF for its contribution in the COVID-19 battle as well as in disaster management.

In a statement, the NDRF said the hospital inaugurated by the minister is located at its eighth battalion camp in Ghaziabad and has been developed in collaboration with CSIR's constituent laboratory called the Central Building Research Institute (CSIR-CBRI), Roorkee. "The makeshift hospital is designed to provide a primary health facility with safety, security and a comfortable living environment."

"This fully air-conditioned pre-fabricated makeshift hospital is equipped with various modern facilities like paramonitors, defibrillators and ECG machines," the NDRF said. The hospital is planned to serve in disaster stage including for use in a long pandemic or emergency situations, it said. NDRF Director General S N Pradhan said the force is planning "to procure all its disaster response equipment and tools from the DRDO and CSIR to promote the Make in India campaign."

The force was raised in 2006 and has its 12 battalions, comprising about 13,000 personnel, based at various locations in the country. PTI NES SKL NSD NSD

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[Outlook](#)

Dr RK Ranjan plants tree at CSIR-NEIST campus

CSIR-NEIST

22nd August, 2020

Dr RK Ranjan Singh, MP, (Inner) Manipur planted tree saplings at the campus of CSIR-NEIST Branch Laboratory, Lamphelpat, in the presence of Dr Huidrom Birkumar Singh, Senior Principal Scientist, today. Currently, CSIR-NEIST Branch Lab is establishing a mini botanic garden or germplasm bank for collection and conservation of indigenous, traditionally associated, economically important and vanishing plants with special reference to Manipur, said a press release issued by CSIR-NEIST Branch Laboratory, Lamphelpat. Dr Ranjan planted traditional plants like Ureirom (*Bixa orellana*), Kekru (*Sapindus mukorossi*), etc. which were used widely in the past in the state, it said and added that the MP also appreciated the efforts of the Laboratory to conserve the indigenous and economically important species. He also highlighted the importance of biodiversity in the survival of human beings which provide food, shelter, medicine, good environment by mitigating global warming and emphasized the need for conservation of traditionally associated plant species. Dr Huidrom Birkumar mentioned the importance of botanic gardens and germplasm banks. The statement continued that altogether 66 different plant species are being conserved in the garden of the Laboratory which is now regularly visited by many students and teachers for the study of biodiversity. On the occasion, 55 units of alcohol-based herbal hand sanitizer formulated by CSIR-NEIST Branch Lab, Lamphelpat were handed over to Dr RK Ranjan for distribution to COVID-19 worriers. Dr Birkumar also highlighted technology of mosquito repellent body lotion currently being developed by the Laboratory, which will have a significant contribution to the society as mosquitoes are highly prevalent in the region.

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[The Sangai Express](#)

CSIR-NEIST organized panel discussion on Indian Science in post-COVID-19 period

CSIR-NEIST

22nd August, 2020



CSIR NEIST

CSIR-North East Institute of Science and Technology organized a panel discussion as a part of Online CSIR-Summer Research Training Programme 2020 on the topic 'Indian Science Post COVID Period: Challenges and Opportunities', on Thursday. A vigorous and brainstorming discussion held by a team of eminent scientist and panellists i.e. Dr. G Narahari Sastry, director CSIR-NEIST, expert in Computational Biology and Computational Chemistry; Shiva Umpathy Director IISER, Bhopal who is an Indian laser spectroscopist; Prof. Swagata Dasgupta, IIT Kharagpur, who has been the part of teaching and research for more than 20-25 years. Royal Society of Chemistry India (Moderator) Rajesh Parishwad explained

his role as an India Representative at Royal Society of Chemistry. Talking about the Indian sciences in post COVID period: Challenges and Opportunities, he said, this pandemic has disrupted the fundamentals of global the society and global economy is steering at the severe hardship in recession, stated a press release.

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[The Sentinel Assam](#)

Scientists recommend at least 40 pc humidity in public buildings to curb covid-19 spread

CSIR-NPL

21th August, 2020



In addition to measures like social distancing and wearing masks, an Indian-German team of scientists recommend controlling indoor humidity conditions to contain the spread of the novel coronavirus which causes COVID-19.

The researchers, including those from CSIR National Physical Laboratory in New Delhi, said in order to contain the pandemic, it is extremely important to implement standards for indoor air humidity in rooms with many people, such as hospitals, open-plan offices, or public transport. In their review of studies, published in the journal *Aerosol and Air Quality Research*, the scientists specifically drew focus on relative humidity, which is a measure of water vapour in the air compared to the total

saturation of vapour that can exist in the air at its current temperature. According to the study, a relative humidity of 40 to 60 percent could reduce the spread of viruses and their absorption through the nasal mucous membrane. The scientists said tiny drops of five micrometres in diameter, such as those produced when speaking, can float in the air for up to nine minutes. "In aerosol research, it has long been known that air humidity plays a major role -- The more humid the air is, the more water adheres to the particles and so they can grow faster. So, we were curious -- what studies have already been conducted on this," explained Ajit Ahlawat, a co-author of the study from the Leibniz Institute for Tropospheric Research (TROPOS) in Germany. According to the scientists, humidity affects the behaviour of microorganisms within the virus droplets, and the survival or inactivation of the virus on the surfaces. They said it also influences the role of dry indoor air in the airborne transmission of viruses. "If the relative humidity of indoor air is below 40 per cent, the particles emitted by infected people absorb less water, remain lighter, fly further through the room and are more likely to be inhaled by healthy people," Ahlawat explained. "In addition, dry air also makes the mucous membranes in our noses dry and more permeable to viruses," he said.

The scientists believe the new findings are particularly important for the upcoming winter season in the northern hemisphere, when millions of people will be staying in heated rooms. "Heating the fresh air also ensures that it dries. In cold and temperate climate zones, therefore, the indoor climate is usually very dry during the heating season. This could encourage the spread of coronaviruses," said study co-author Alfred Wiedensohler of TROPOS. At a higher humidity, the scientists said droplets grow faster, fall to the ground earlier, and can be inhaled less by healthy people. "A humidity level of at least 40 per cent in public buildings and local transport would therefore not only reduce the effects of COVID-19, but also of other viral diseases such as seasonal flu. Authorities should include the humidity factor in future indoor guidelines," added study co-author Sumit Kumar Mishra of CSIR - National Physical Laboratory in New Delhi.

For countries in cool climates, the scientists recommend a minimum indoor humidity. They said countries in tropical and hot climates, on the other hand, should take care that indoor rooms are not extremely undercooled by air conditioning systems. When air is extremely cooled, it dries out the air and the particles in it, making people inside the room feel comfortable, but the dry particles will remain in the air for longer duration, the researchers warned.

They added that the measures already known, such as social distancing, having as few people per room as possible, and wearing masks should also be practised to lower the risk of infection.

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बड़ा बदलाव : सीरी, पिलानी के नवनियुक्त निदेशक डॉ. पी.सी. पंचारिया से खास बातचीत

'विदेश की नौकरी छोड़ देश में रिसर्च का मन बना रहे हैं युवा वैज्ञानिक'

उत्पल शर्मा
jatrika.com

पिलानी केन्द्रीय इलेक्ट्रॉनिकी अभियांत्रिकी अनुसंधान संस्थान (सीरी) के नवनियुक्त निदेशक डॉ. पी.सी. पंचारिया का मानना है कि केन्द्र सरकार के मेक इन इंडिया अभियान के सुखद परिणाम अब आने लगे हैं। भारत में ऐसे उपकरणों का निर्माण होने लगा है जो सस्ते होने के साथ जनोपयोगी भी हैं। इस अभियान से युवा अब वापस शोध की तरफ रुख करने लगे हैं। अनेक युवा विदेशों में नौकरी छोड़कर अपने देश में लौटने लगे हैं। सीरी पिलानी, वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद की एक संघटक प्रयोगशाला है। इसकी स्थापना 1953 में हुई।

नागौर जिले के मेड़ता सिटी कस्बे में 17 किन्मीटर दूर अरावली गांव में जन्मे किसान परिवार से जुड़े पंचारिया से हुई विशेष बातचीत के प्रमुख अंश...

सवाल : देश के वैज्ञानिक अनुसंधान के बारे में बताएं?

डॉ. पंचारिया : देश के वैज्ञानिक समुदाय द्वारा किए जा रहे अनुसंधानों से विश्व में भारत का सम्मान बढ़ा है। मेक इन इंडिया अभियान के सुखद परिणाम मिल रहे हैं। इसी से प्रेरित होकर देश में आत्मनिर्भर भारत की मुहिम चल रही है। हाल ही में सरकार ने एक सौ एक दशक उत्पादों के आयात पर रोक लगाने का निर्णय करते हुए उन्हें देश में ही विकसित करने की घोषणा की है। इसको लेकर बड़े पैमाने पर तैयारियां चल रही हैं। देश को रक्षा क्षेत्र में आत्मनिर्भर बनाने के

लिए देश का वैज्ञानिक समुदाय जुटा है जिसके अच्छे परिणाम मिल रहे हैं।

सवाल : तकनीक की वृद्धि से विश्व समुदाय में हम कहां खड़े हैं ?

डॉ. पंचारिया : प्राचीन काल से ही विश्व में भारत के ज्ञान का डंका बजता रहा है। पिछले कुछ दशकों में भारतीय तकनीक को विश्व में सराहना मिली है। पिछले दिनों हमारे इंसरों ने दुनिया के 101 उपग्रहों को अंतरिक्ष में स्थापित कर इतिहास बनाया।

सवाल : युवाओं को रिसर्च से जोड़ने के लिए किस तरह के प्रयास किए जा रहे हैं?

डॉ. पंचारिया : स्कूली शिक्षा से ही बच्चों को विज्ञान से जोड़ने की दिशा में काम चल रहा है। बीच के कुछ समय में युवाओं का रिसर्च क्षेत्र के प्रति रुझान कम रहा। अब कई रसरों से प्रयास किए जा रहे हैं, जिसके चलते सलिया प्रयासों के बेहतर परिणाम आ रहे हैं। विदेशों से भी हमारे वैज्ञानिक स्वदेश लौटने का मन बना रहे हैं।

सवाल : नई शिक्षा नीति को किस प्रकार देखते हैं?

डॉ. पंचारिया : हाल ही में घोषित नई राष्ट्रीय शिक्षा नीति में विज्ञान विषय के साथ कला का जो

दूसरे विषय चुनने की आजादी के नवाचार से विज्ञान एवं समाज के बीच की दूरी कम होगी तथा मानव उपयोगी अनुसंधानों को धल मिलेगा।

सवाल : रिकल इंडिया के क्या परिणाम रहे?

डॉ. पंचारिया : रिकल इंडिया अभियान को लेकर सीरी संस्थान की ओर से जयपुर में संघालित सेंटर ने अच्छा काम किया है। विशेष प्रकार के प्रोजेक्ट जादि के माध्यम से युवा शक्ति में छुपी क्षमता को जगने का प्रयास किया गया।

सवाल : सीरी में हुए अनुसंधानों के बारे में बताएं?

डॉ. पंचारिया : सीएसआईआर के तहत देश भर में 38 प्रयोगशालाएं हैं। सीरी पिलानी भी उनमें से एक है। देश के वैज्ञानिक समूह-समूह पर बड़ा अनुसंधान, खगोल विज्ञान एवं मानव स्वास्थ्य सहित कई क्षेत्रों में अनुसंधान कर देश का गौरव बढ़ा रहे हैं। संस्थान की ओर से पिछले दिनों दूर सेंटर, केंसर जांच उपकरण, सस्ते बिजली निर्माण पर्यावरण प्रदूषण को रोकथाम, जल शुद्धिकरण के लिए पारा मुक्त यूवी सैम्प जैसे अनेक उपकरण बनाए हैं। संस्थान के वैज्ञानिकों ने पहला स्वदेशी श्वेत-श्याम टीवी,

धन्धान प्रथम के लिए धनि संवेदक निर्माण का इजाजत कर विश्व में देश को गौरव दिलाया है।

सवाल : युवा पीढ़ी को क्या संदेश देना चाहेंगे?

डॉ. पंचारिया : हमारे देश के युवा ऊर्जा का भंडार है। नया करने की इच्छाशक्ति भी है मगर सपनों में रंग भरने के लिए आवश्यकता के अनुसार साधना नहीं करते। आधे-अधूरे मन से किए गए प्रयासों से सफलता नहीं मिलती। सपनों को पछ लगाते के लिए योजनाबद्ध तरीके से मेहनत की जाए तो मजिल जरूर मिलती है।

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