

## RAKSHA MANTRI UNVEILS FIRST BATCH OF ANTI-COVID DRUG DEVELOPED BY DRDO



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JUNE 2021  
VOLUME 41 | ISSUE 6  
ISSN: 0971-4391

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## 41st Year of Publication

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Distribution: Tapesh Sinha

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# RAKSHA MANTRI UNVEILS FIRST BATCH OF ANTI-COVID DRUG DEVELOPED BY DRDO

The first batch of the adjunct COVID therapy anti-COVID drug, 2-deoxy-D-glucose (2-DG), was released by Raksha Mantri Shri Rajnath Singh and handed over to Minister for Health & Family Welfare, Science & Tech and Earth Sciences Dr Harsh Vardhan in New Delhi on 17 May 2021. One box each of the sachets of the drug was handed over to Director, All India Institute of Medical Sciences (AIIMS) Dr Randeep Guleria and Lt Gen Sunil Kant of Armed Forces Medical Services (AFMS). More will be handed over to different hospitals across the country for

emergency use. An anti-COVID-19 therapeutic application of the drug 2-deoxy-D-glucose (2-DG) has been developed by Institute of Nuclear Medicine and Allied Sciences (INMAS), DRDO along with Dr Reddy's Laboratories (DRL), Hyderabad.

Speaking on the occasion, the Raksha Mantri congratulated DRDO and DRL, Hyderabad for manufacturing the drug that will help the COVID patients to reduce oxygen dependency and recover quickly. He described the drug as a perfect example of the country's scientific prowess and a milestone in the efforts towards

self-reliance. "2-DG drug is a new ray of hope in these challenging times," said Shri Singh, expressing confidence that the medicine will play a crucial role in winning the fight against COVID-19. He said the development and production of the drug is a shining example of public-private sector partnership to help the nation in these challenging times.

The Raksha Mantri commended DRDO for setting up medical oxygen plants at various hospitals across the country under PM Cares Fund, besides constructing Covid hospitals, with ICU, oxygen and ventilators,





in Delhi, Ahmedabad, Lucknow, Varanasi and Gandhinagar. Work is in progress to set up similar hospitals in Haldwani, Rishikesh, Jammu and Srinagar. He also appreciated the passion of retired AFMS doctors who have answered the nation's call and joined the medical fraternity in providing medical care to the needy.

The Raksha Mantri reiterated the Government's resolve to provide medical care to every citizen of the country, saying that the Prime Minister has directed officials to conduct door-to-door testing, equip ASHA & Anganwadi workers with all necessary tools and provide all facilities in remote areas. He urged all stakeholders to walk shoulder to shoulder in the country's ongoing fight against the pandemic, expressing

confidence that the country will emerge victorious against this invisible enemy. "We will not be at ease. We will not be tired. We will keep fighting and win against COVID-19," he emphasized.

In his address, Health Minister Dr Harsh Vardhan termed 2-DG as an important development by DRDO and DRL, Hyderabad that will reduce the recovery time & oxygen dependency in COVID-19 patients. He hoped that the drug will go a long way in defeating the virus in not just India but across the globe. He congratulated DRDO and its scientists for playing an important role in the fight against COVID-19.

Secretary Department of Defence R&D and Chairman DRDO Dr G Satheesh Reddy expressed confidence that the anti-

COVID drug will help the patients recover from the deadly virus, hoping that DRL, Hyderabad will take it forward and soon make the drug available for the patients. He also thanked Raksha Mantri for his continuous guidance and support.

Joining the event virtually, Chairman, DRL Shri Kallam Satish Reddy said, "Dr. Reddy's is glad to have partnered with DRDO in the development of 2-DG. This is a re-affirmation of our company's efforts to address COVID through a host of therapeutics and vaccine."

Secretary (Health & Family Welfare) Dr Rajesh Bhushan and DG Health Services Dr Sunil Kumar were also among the dignitaries who attended the event. Besides Chairman, DRL, Director, Centre for Cellular and Molecular Biology Dr Rakesh Mishra and many doctors, hospitals & labs across the country joined the event virtually.

# DRDO DEVELOPS SINGLE CRYSTAL BLADES FOR HELICOPTER ENGINE APPLICATION

**D**efence Research and Development Organisation (DRDO) has developed single crystal blades technology and supplied 60 of these blades to Hindustan Aeronautics Limited (HAL) as part of their indigenous helicopter development program for helicopter engine application. It is part of a program taken up by Defence Metallurgical Research Laboratory (DMRL), a premium laboratory of DRDO, to develop five sets (300 in number) of single crystal High Pressure Turbine (HPT) blades using a nickel-based super alloy. The supply of remaining four sets will be completed in due course.

Helicopters used in strategic and defence applications need compact and powerful aero-engines for their reliable operation at extreme conditions. To achieve this, state-of-the-art Single Crystal Blades having complex shape and geometry, manufactured out of Nickel-based superalloys capable of withstanding high temperatures of operation are used. Very few countries in the world such as USA, UK, France and Russia have the capability to design and manufacture such Single Crystal (SX) components.

The DMRL undertook this task based on its expertise gained during the development of such a technology for an aero-engine project earlier. Complete vacuum investment casting process to realise the blades, including die design, wax patterning, ceramic moulding, actual casting of





components Non-Destructive Evaluation (NDE), heat treatment and dimensional measurement, has been established at DMRL.

Special ceramic composition had to be formulated for making strong ceramic moulds which can withstand metallostatic pressure of liquid CMSX-4 alloy at 1500°C and above during casting operation. The challenge of maintaining the required temperature gradient has

also been overcome by optimising the casting parameters. A multi-step vacuum solutionising heat treatment schedule for complex CMSX-4 superalloy to achieve the required microstructure and mechanical properties has also been established. Further, a stringent (NDE) methodology for the blades along with the technique for determining their crystallographic orientations has

been developed.

Raksha Mantri Shri Rajnath Singh congratulated DRDO, HAL and the industry involved in the development of such critical technology.

Secretary Department of Defence R&D and Chairman DRDO, Dr G Satheesh Reddy congratulated and appreciated the efforts involved in the indigenous development of this vital technology.

## DCGI APPROVES ANTI-COVID DRUG DEVELOPED BY DRDO FOR EMERGENCY USE

An anti-COVID-19 therapeutic application of the drug 2-deoxy-D-glucose (2-DG) has been developed by the Institute of Nuclear Medicine and Allied Sciences (INMAS), DRDO in collaboration with Dr Reddy's Laboratories (DRL), Hyderabad. Clinical trial results have shown that this molecule helps in faster recovery of hospitalised patients and reduces supplemental oxygen dependence. The higher proportion of patients treated with 2-DG showed RT-PCR negative conversion in COVID patients. The drug will be of immense benefit to the people suffering from COVID-19.

Pursuing Prime Minister Shri Narendra Modi's call for preparedness against the pandemic, DRDO took the initiative of developing anti-COVID therapeutic application of 2-DG. In April 2020, during the first wave of the pandemic, INMAS-DRDO scientists conducted laboratory experiments with the help of the Centre for Cellular and Molecular Biology (CCMB), Hyderabad and

found that this molecule works effectively against the SARS-CoV-2 virus and inhibits viral growth. Based on these results, the Drugs Controller General of India's (DCGI) Central Drugs Standard Control Organization (CDSO) permitted a Phase-II clinical trial of 2-DG in COVID-19 patients in May 2020.

The DRDO, along with its industry partner DRL, Hyderabad, started clinical trials to test the safety and efficacy of the drug in COVID-19 patients. In Phase-II trials (including dose-ranging) conducted from May to October 2020, the drug was found to be safe in COVID-19 patients and showed significant improvement in their recovery. Phase IIa was conducted in six hospitals and Phase IIb (dose-ranging) clinical trial was conducted at 11 hospitals all over the country. Phase-II trial was conducted on 110 patients.

Based on successful results, DCGI further permitted the Phase-III clinical trials in November 2020. The Phase-III clinical trial was conducted on 220 patients

between December 2020 to March 2021 at 27 COVID hospitals in Delhi, Uttar Pradesh, West Bengal, Gujarat, Rajasthan, Maharashtra, Andhra Pradesh, Telangana, Karnataka and Tamil Nadu. The detailed data of the phase-III clinical trial was presented to DCGI. In 2-DG arm, a significantly higher proportion of patients improved symptomatically and became free from supplemental oxygen dependence (42% vs 31%) by Day-3 in comparison to SoC, indicating an early relief from Oxygen therapy/dependence.

A similar trend was observed in patients aged more than 65 years. On May 01, 2021, DCGI granted permission for the Emergency Use of this drug as an adjunct therapy in moderate to severe COVID-19 patients. The drug comes in powder form in the sachet, which is taken orally by dissolving it in water. It accumulates in the virus-infected cells and prevents virus growth by stopping viral synthesis and energy production. Its selective accumulation in virally infected cells makes this drug unique.

# TBRL SIGNS MOU WITH HUMAN SPACE FLIGHT CENTRE OF ISRO

A Memorandum of Understanding (MoU) was signed between TBRL and Human Space Flight Centre (HSFC) on 31 March 2021 for conducting hypervelocity impact studies on Gaganyaan Crew Module material specimens against Micro-Meteoroid and Orbital Debris (MMOD).

Keeping in view the current situation of the COVID-19 pandemic in the country, the ceremony was held through video conferencing.

Dr Unnikrishnan Nair, Director, Human Space Flight Centre stressed the importance of hypervelocity impact studies

to ensure the safety of crew members during the space mission. He highlighted the threat of space debris impact due to the exponential increase in MMOD around the earth in the last 60 years of space exploration. This orbital debris is moving at such high velocities that the impact of even a paint flake can cause significant damage to the crew module in the absence of appropriate shielding.

Shri Tapan Khilariwal, DRDO Coordinator for Gaganyaan Mission, informed that more than 50 hypervelocity impact tests have been envisaged in the MoU to evaluate critical components of the crew module against MMOD

impact.

Shri Prateek Kishore, OS and Director TBRL, promised full commitment to provide necessary scientific assistance from TBRL for India's first human space mission. A two-stage light gas gun facility at TBRL, which is the only test facility in India to achieve a velocity of more than 5000 m/s, will be utilized to conduct the hypervelocity impact studies. Some feasibility tests have already been conducted on dummy targets to establish the internal ballistics parameters and high-speed diagnostics to meet the stringent timelines of the human space mission.



**Director TBRL signing the MoU document at TBRL.  
Director HSFC attended the ceremony through video conferencing.**



## VACCINATION DRIVE AGAINST COVID-19

**D**efence Research Laboratory (DRL) Tezpur in collaboration with State Health Department and Dekargaon SD Primary Health Centre, Tezpur has conducted extensive COVID-19 vaccination drive for all of its employees, research scholars, families and contractual staffs.

A special camp for the purpose was organised on 30 April, 2021. For smooth execution of the vaccination drive, Director, DRL constituted a committee comprised

of Dr P. Chattopadhyay, Sc 'F', Shri Ashok Naglot, Sc 'E' (Coordinator), Shri Vijay Pal, TO 'A' and Shri Sunil Kumar Singh, STA 'B'. The local health authority deputed four staffs for smooth execution of the vaccination programme. A total of 126 employees along with contractual staff, research scholars and family members took second dose of Covishield vaccine during the drive. In addition total 93 employees were given the first dose of Covishield vaccine. Total 219 DRL staffs were vaccinated

successfully during the drive. The vaccination drive against COVID-19 for the employees was successfully executed by the constituted committee following the COVID-19 protocol. In the end Director, DRL along with committee members felicitated the staffs of the local health authority. This initiative will provide safety of all DRL employees and to play active role in fighting COVID-19 in the region.



# NATIONAL SCIENCE DAY CELEBRATIONS

## ACEM, NASIK

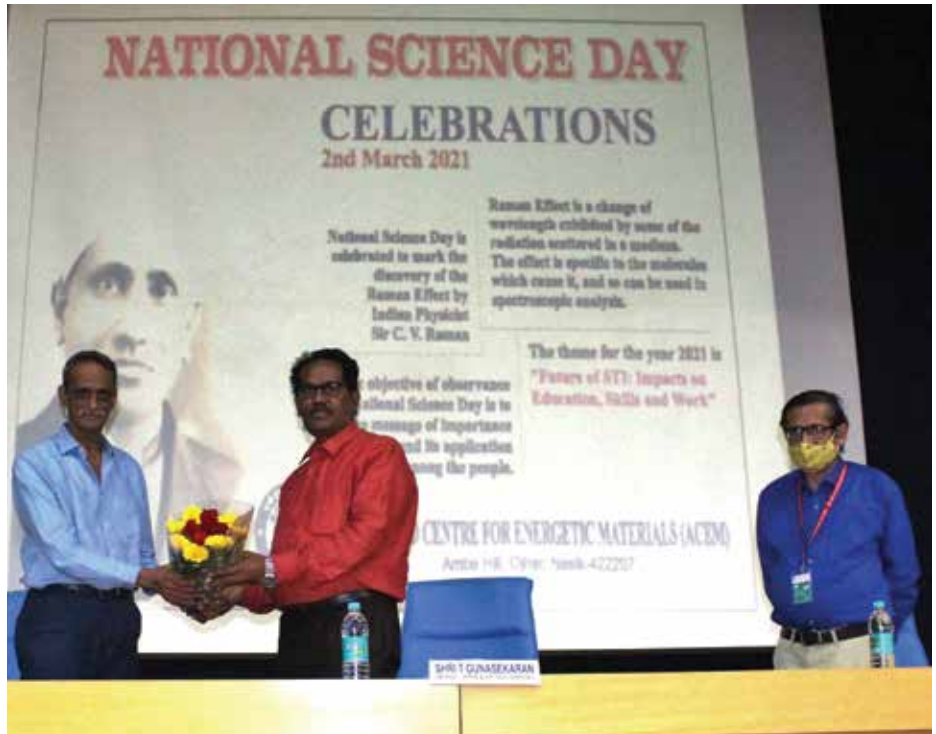
**A**dvanced Centre for Energetic Materials (ACEM) celebrated National Science Day (NSD) on 2 March 2021. Shri T Gunasekaran, General Manager (Retd.) SPROB & SPP, SDSC SHAR/ISRO was the Chief Guest on the occasion. Shri Srinivasan Seshadri, OS & General Manager, ACEM addressed the gathering and highlighted the significance of the day.

The Science Day presentation was delivered by Shri R S Patil, Sc 'E' on "Advanced Energetic Binder for Solid Rocket Propellant System" and by Shri Pankaj Negi, Sc 'C' on "Numerical Study for Determination of Cone Angle".

Shri Gunasekaran, delivered a keynote address on "Challenges in the Manufacture of S200 Rocket Motor". He brought into detail the various requirements of a composite propellant processing facility for processing large-sized Solid Rocket Motors from concept to commissioning. Science day Essay writing Competition was also conducted and the winners were awarded. Dr S C Bhattacharyya, Sc 'G' & Associate Director proposed a vote of thanks.

## ADE, BANGALURU

**N**ational Science Day was celebrated in Aeronautical Development Establishment (ADE) on 9 March 2021 at Sameeksha Auditorium, ADE. Ms. Deepa Jain, Sc 'E' of ADE delivered a talk on "Evaluation of Automatic Take-off and Landing Mechanism for UAVs".





Ms. Jain in her oration spoke on the various Automatic Take off and Landing (ATOL) systems being used worldwide for UAVs, GNSS (GPS-GAGAN) and radio altimeter based ATOL system for UAV.

She also discussed the Indian SBAS system, i.e., GAGAN in totality, its evaluation in phased manner and finally, its utilization for ADE UAV ATOL applications. She also presented results of IRNSS evaluation and its utilization for UAVs.

### INMAS, DELHI

**D**r Ratnesh Singh Kanwar, Sc 'F', delivered NSD oration-2021 on the topic 'COVID-19: A Major Challenge

to Humanity' at the Institute of Nuclear Medicine & Allied Sciences (INMAS), Delhi. In his oration, Dr Kanwar highlighted the importance of science for society and how Sir C V Raman pursued his scientific career despite scarcities. He focused on the current pandemic of coronavirus. He covered all the aspects of COVID-19 including epidemiology, microbiology, clinical presentation, diagnosis and treatment guidelines issued by MOH&FW. He also imparted knowledge on the current vaccination drive by Government and motivated everyone in the audience for the vaccination against COVID-19. His experience in working as a Hospital

administrator at a makeshift hospital set up by DRDO (Sardar Vallabhbhai Patel Covid Hospital, Delhi Cantt) is invaluable and he shared his thoughts on the management of pandemic in the clinical setting as well as at the public health level. The development of herd immunity and its protective effect on the population was also emphasized. According to him, the whole world at present is hoping that the fight against COVID-19 will be successful through immunization and herd immunity.

Dr Anil Kumar Mishra, Sc 'G' INMAS Delhi, presented the NSD medal and certificate to Dr Kanwar, in the function organized by HRD INMAS.



# NATIONAL SAFETY DAY CELEBRATION

## NPOL, KOCHI

**N**aval Physical and Oceanographic Laboratory (NPOL) celebrated National Safety Day on 4 March 2021 to promote safety awareness among all the employees in the organization. In this connection, Cartoon and Essay writing competitions on safety were organized to strengthen the safety awareness at NPOL.

Various events were organized to mark the occasion. The safety flag was hoisted by the senior-most Technician. This was followed by a safety day pledge by the NPOL fraternity led by Shri Radhakrishnan Nair GS, Sc 'F', Chairman- Safety Committee. Shri PV Jose, Sc 'H' & Officiating Director NPOL, addressed the gathering and emphasized the



importance of following safe practices at the office and home. This was followed by a live demonstration and practical training session by the Fire Safety department of NPOL, describing the different types of fires, specific

extinguishing methods and precautions while handling the different types of fire extinguishers. These programs were very well received by the employees and helped to enhance safety awareness in the organization.

# INTERNATIONAL WOMEN'S DAY CELEBRATION

## CABS, BANGALURU

**T**he International Women's Day (IWD) was celebrated on 15 March 2021, during which Ms Nemi Chandra, GM (Retd.) from HAL, the Guest of Honour, delivered a talk on "Challenges Faced by Women".



## DESIDOC, DELHI

Defence Scientific Information and Documentation Centre (DESIDOC) celebrated International Women's Day

(IWD) on 8 March 2021. On this occasion, DESIDOC organised a workshop with the theme 'Cultivating Resilience & Adaptability: Women's Pursuit towards Success during Covid'.





Smt Sumati Sharma, Sc 'G', gave opening remarks and highlighted the significance of the theme of the workshop. Dr Mridula Tandon, Managing Director, Sakshi NGO was the Chief Guest of the workshop. She emphasised the empowerment of women and the need for self-awareness among women. Dr Alka Suri, Director, DESIDOC, elaborated on how women have successfully faced the challenges of Covid and DRDO's achievements during the Pandemic period. Ms. Geeta Singh, DCDA was a special invitee for the occasion. She appreciated the role and efforts made by DRDO women personnel during the pandemic.

During the occasion, Ms. Samira Gupta, Image Consultant, gave a lecture on Communication Skill, Importance of Body Language and Professional Etiquette for Women'. In the session on 'Power of Clothing' and 'Team Building' Ms. Geeta Sharma, Image Consultant, Aura, elaborated on the importance of dressing for women in a professional environment and in another session on 'Team Building', the participants together had team-building exercises. Smt Alka Bansal, Sc 'F' gave the vote of thanks. The event was a great success and everyone was delighted to attend the workshop.

## DRL, TEZPUR

**D**efence Research Laboratory (DRL), celebrated IWD on 8 March 2021. An eminent cardiologist of Tezpur Dr Deepti Rekha Barua, MD, DIP, CARD, FEAC graced the event as Chief Guest. She encouraged all women scientists, researchers to take up the challenge and work hard with high dreams, determination,

dedication, discipline and direction. Dr S K Dwivedi, Director, DRL welcomed the guest and narrated the role of women in balancing both families as well as work. A poster on the women force of DRL was designed and released during the occasion. Dr Rashmi Rekha Devi, Sc 'E' presented an overview on activities of women's cell of DRL. A cultural programme



was also organized where female trainees of DRL also participated enthusiastically. Award was distributed to the winners of various competitions on "Women in Science & Technology" organized among female trainees of DRL. The guest also visited DRL Exhibition Hall where DRL Products and Technologies were showcased.

## NPOL, KOCHI

**N**aval Physical and Oceanographic Laboratory (NPOL) celebrated IWD on 8 March 2021. Dr V G Jayakumari, Sc 'G', Coordinator of the Women's Cell, welcomed the gathering and highlighted the importance of IWD. Shri S Vijayan Pillai, OS & Director, NPOL acknowledged the significant contributions made by women employees of NPOL and congratulated them on the occasion of IWD 2021. A video on the significant role played by Women employees of NPOL, highlighting the challenging work environment, constraint breaking initiatives was displayed on this occasion.

Smt. Seema Girija Lal, Eminent Mental Consultant, International Council to Enrich Empower and

Enable (ICE) and Founder of a registered public charitable trust (Together We Can) was the Chief Guest for the programme.

In her address, she elaborated on the various dimensions of women empowerment, challenges of working women and solutions to effectively balance professional and personal lives. The talk was attended by all the women employees of NPOL and was also webcast on NPOL intranet for the benefit of all employees.



## DISTRIBUTION OF SANITIZER AS A PREVENTIVE MEASURE AGAINST COVID-19

In the light of increasing COVID cases in Maharashtra, Naval Materials Research Laboratory (NMRL), Ambarnath has taken a proactive step to prepare and distribute the sanitizer as a measure against the spread of COVID. Under the guidance and motivation of Shri PT Rojatkar, Director NMRL, approximately 200 liters of sanitizer were prepared as per the guidelines of WHO sanitizer technology. The same was distributed to all the departments and employees for sanitization of their workplace and personal hygiene. In addition to this, disinfection of the NMRL campus is also being regularly carried out to curb the spread of COVID. All employees were grateful for the preventive measure taken towards combating the spread of the virus.



## ACEM BAGS THE SKOCH AWARD- 2021

Advanced Centre for Energetic Materials (ACEM), Nasik has received the coveted SKOCH Award for the year 2021. ACEM bagged both the SKOCH Order of Merit and SKOCH Award-2021-Silver in Defence category for “A Faster, Reliable & digital Non-Destructive Evaluation Method for Acceptance of Solid Rocket Motors for Strategic Application”. Dr S C Bhattacharyya, Sc ‘G’ & Associate Director and his team including Mrs. Lubna Khan, Sc ‘D’, Shri Umesh Mali, TO ‘B’ and





Shri Naba Kumar Ghosh, TO 'A' received the award for significant contribution in the critical defence sector.

The team is credited with critical technology development for self-reliance and digital transformation in defence sector. A novel technique was established

and implemented in the non-Destructive inspection of large-sized solid rocket motors. The technique offers added advantages of faster inspection, reliability and portability of the data and archiving. The technique is the first of its kind to be established in the country for Nondestructive

Inspection of Solid Rocket Motors. The Award ceremony was held recently during the day-long SKOCH Summit through a video conference. Delegates, participants, domain experts were present during the summit.

## CONDUCT OF COUNTER TERRORIST EXERCISE AT ARDE

A counter terrorist mock drill was conducted by the commandos of 26 Special Composite Group, National Security Guard, Mumbai hub on 15 March 2021 at Armament Research & Development Establishment (ARDE) ranges. The commandos exhibited a high level of preparedness and use of

new technologies for countering the terrorist threats in urban scenarios. The exercise was supervised by Group Commander of Mumbai hub, Col Nitesh Kumar and second-in-command, Rajesh Kumar Langeh. Necessary support was provided by Lt Col Ambrish Kumar, Head of Security & Fire Fighting and his team. A QRT of

Pune Police (Special Branch) and Bomb Disposal Team also jointly participated with NSG during the mock drill. On 16 March 2021, a demonstration under practice firing of new development SA weapon was organised, which was highly appreciated by NSG.



Dr. V Venkateswara Rao, OS & Director, ARDE felicitating NSG Officers

# SKILL DEVELOPMENT PROGRAMME ON MUSHROOM FARMING AND SPAWN PRODUCTION TECHNOLOGY

The Mushroom Task Group comprising of Ashok Naglot, Sc 'E', Vijay Pal, TO 'A', Nipu Jyoti Kalita, Tech 'C' and Balam Das, ALS – I of Defence Research Laboratory (DRL), Tezpur conducted a three-day skill development programme on “Mushroom Farming and Spawn Production Technology” at DRL with the aim to groom youths, women and young entrepreneurs of the Northeast India in the

identified technologies so that they become self-reliant and boost the economy of this region. DRL has identified mushroom farming as the potential source of income generation for unemployed youths and women of this region because it is low-cost technology requiring little inputs in terms of investment but maximum output in terms of profitability. Total 30 participants from Arunachal Pradesh, Meghalaya and Assam registered

for this training programme. The training programme was divided into two parts - Lecture session and Practical session. The lectures were delivered on various aspects of Oyster mushroom technology and spawn production. The participants were fully engaged in practical demonstration and involved in interaction session to know about the minute details of the technology. Each participant was given mushroom technology protocols for their ready reference.







## APPOINTMENT

### Director, INMAS, Delhi



Dr Anil Kumar Mishra obtained his M.Sc in Chemistry, in 1984, from Gorakhpur University, and Ph.D. in Chemistry, in 1988 from Banaras Hindu University, India. During his illustrious scientific career, he has held positions as a Post-doctorate fellow at Universite de Bourgogne, Dijon, France, a research scientist at the University of California, Davis, USA, senior scientist at INSERM

U-463, Nantes, France and visiting Professor at Max-Planck Institute, Germany.

Dr Mishra joined INMAS, Delhi on 9 July 1997 and worked in the Division of Radiopharmaceuticals. His research interests include Molecular Imaging Agents, Radiochemistry, Specific MR Contrast Agents, Optical Imaging Agents, Coordination Chemistry, Synthetic Chemistry, Radiopharmaceuticals and Bioconjugate Chemistry.

At INMAS he has contributed towards the creation of a state-of-the-art infrastructure for advancing the area of radiopharmaceuticals and nuclear imaging which is known as the Molecular Imaging and Research Centre (MIRC).

Dr Mishra has more than 300 papers, in various journals and has multiple US, European and

Indian patents to his credit. He also has affiliation to several professional societies to name a few he is a Fellow Indian College of Nuclear Medicine and a member of the Indian College of Nuclear Medicine. He has also worked as a consultant with International Atomic Energy. His professional memberships include the American Chemical Society, World Molecular Imaging, European Association of Nuclear Medicine, Society of Nuclear Medicine, N. Chapter, Society of Magnetic Resonance Imaging, Society of Nuclear Medicine, India.

Dr Mishra has also delivered a talk at the British Nuclear Medicine Society, United Kingdom (BNMS-UK) in 2014 and has received several awards including the prestigious DRDO-Young Scientist award, by the Prime Minister of India, in 1999.

## AWARDS

### AFSTI –Fellow Award

Dr Anil Dutt Semwal, Director & Sc 'G', Defence Food Research Laboratory (DFRL), Mysuru was conferred with Fellow of Association of Food Scientists and Technologists (India) award in recognition of his multifaceted contribution to Food Science Technology at AFSTI Award Ceremony held at DFRL, Mysuru on 22 April 2021.



# DRDO TO SET UP 500 MEDICAL OXYGEN PLANTS WITHIN THREE MONTHS UNDER PM CARES FUND

The Medical Oxygen Plant (MOP) technology, developed by DRDO for On-Board Oxygen Generation for LCA, Tejas by Defence Bioengineering and Electromedical Laboratory (DEBEL) DRDO will now help in fighting the current crisis of oxygen for COVID-19 patients. The oxygen plant is designed for a capacity of 1,000 liters per minute (LPM). The system can cater to 190 patients at a flow rate of 5 LPM and charge 195 cylinders per day. Transfer of Technology (ToT) has been done to M/s Tata Advanced Systems Limited, Bengaluru and M/s Trident Pneumatics Pvt. Ltd., Coimbatore, who will be producing 380 plants for installation across various hospitals in the country. 120 plants of 500 LPM capacity will be produced by industries working with the Indian Institute of Petroleum, Dehradun, belonging to CSIR.

Oxygen is a very important clinical gas in health care centers and hospitals for the treatment of COVID-19 Patients. MOP

technology is capable of generating oxygen with  $93\pm 3\%$  concentration which can be directly supplied to hospital beds or can be used to fill medical oxygen cylinders. It utilizes the Pressure Swing Adsorption (PSA) technique and Molecular Sieve (Zeolite) technology to generate oxygen directly from atmospheric air.

The MOP technology will be useful to provide oxygen supply during Corona pandemic in hospitals in urban and rural areas. Hospitals will be able to generate on-site medical oxygen, cost-effectively with this oxygen plant rather than depending upon sourcing it from other places.

The installation of this plant helps in avoiding hospital dependency on scarce oxygen cylinders especially at high altitudes and inaccessible remote areas. MOP has already been installed at some of the Army sites in the North East and Leh-Ladakh region. The plant complies with International Standards like ISO 1008, European, US and Indian

Pharmacopeia. Site preparation for 5 plants to be installed in Delhi/NCR region has already been initiated.

The DRDO has initiated the fabrication of 380 numbers of MOP with the release of Supply Orders for 332 numbers on M/s Tata Advanced Systems Limited, Bengaluru and 48 numbers on M/s Trident Pneumatics Pvt. Ltd., Coimbatore with a target of producing 125 plants per month under PM CARES Fund. With this, it is expected that 500 Medical Oxygen Plants will be installed within three months.

Raksha Mantri Shri Rajnath Singh has appreciated DRDO for using the MOP technology to generate much-needed oxygen for COVID-19 patients which will help in overcoming the present crisis. Secretary Department of Defence R&D & Chairman DRDO Dr G Satheesh Reddy has assured the support of DRDO for use of the technology by hospitals and other health agencies.

**Please send your suggestions to:  
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