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Fri, 08 May 2020

Baggage at Kochi airport to get UV bath via DRDO's disinfection system

By Anantha Krishnan M

Bengaluru: When the first batch of passengers land at the Cochin International Airport Ltd (CIAL) on Thursday night at 9.340 pm (IST), their baggage will pass through a UV (ultraviolet) disinfection chamber.

Developed by the Naval Physical & Oceanographic Laboratory (NPOL), a top-notch Defence Research and Development Organisation (DRDO) wing situated at Thrikkakara near Kochi, the UV system has completed all installation checks ahead of its first test.

NPOL is one of the leading labs of DRDO undertaking several Sonar-linked-technologies for the defence use, especially Indian Navy.

The need for such disinfection system was felt soon after the Centre decided to fly back the stranded Indians from different parts of the world.

CIAL officials felt that disinfecting the baggage in different and sizes using chemical spray wouldn't be an effective idea.

"We are absolutely happy within the shortest possible time the NPOL scientists developed a system that can take care of our current needs. We have already completed the installation of the UV system to disinfect the baggage. We wanted a safe and efficient system and NPOL has delivered it satisfactorily," CIAL Director ACK Nair told Onmanorama.

He said the airport staffs have been already trained about the protocols of the use of the UV system.

"Everything is set and our staffs are fully aware of the process, which is simple. The baggage will be shifted from the aircraft ramp to the UV tunnel before they go through the regular scanners ahead of the Customs hold," says Nair.

Stop Imports

NPOL Director S Vijayan Pillai told Onmanorama that his team grabbed the opportunity to deliver a system that was already being prepared for the use for naval ships and submarines.

"What is being set up at CIAL is an extension of a UV baggage scanner developed for our own use and for Indian Navy as well. Post-COVID, we were ready with a UV system to disinfect the baggage of vendors coming to NPOL," says Pillai.

According to him, NPOL will be installing a similar system at the entry gate as a precautionary measure.

The scientists had already readied a UV system for ships and submarines to disinfect the ration packs/ baggage before they got on-board.

"For CIAL we made modifications so that it suited the conditions there. The UV bath to the baggage is an additional step before the X-ray scanner. We wanted to install this at the ramp itself that opens out from an aircraft. Owing to vibration issues on the ramp, we decided to fix the UV chamber at the first point soon after the luggage gets unloaded," Pillai said.

Intensity Trials

He said a prototype of the UV chamber has been already given to the Ernakulum Medical College (EMC), a designated COVID hospital, for intensity trials.

“The doctors at EMC have been tasked to guide us accurately as to how much UV rays are needed to disinfect a piece of baggage so as to combat coronavirus. We are awaiting the results and accordingly will make the modifications,” Pillai said.

He said the private industries in India will be playing a key role in large-scale production of the system.

“Hopefully, a firm like KELTRON should be able to take up the mass production of these systems. The idea is to avoid our dependency on imported systems. We are keen to make Indian products available,” Pillai added.

Based on the inputs from the EMC officials, NPOL will decide on the intensity of UV rays, distance and the number of lamps to be used in the system.

Kannur International Airport officials too have approached NPOL to install a similar device for baggage disinfection.

“We have proved our technology and installed the system within a day. It is now the turn of the industry to call the shots and make this in bulk so that we don’t have to depend on import,” says Pillai.

NPOL has been at the forefront of developing many products to fight coronavirus in the last two months.

The sanitizers made at NPOL are being used by the entire Kochi City Police force. The Southern Naval Command too had received NPOL’s hand sanitizers.

(The writer is an independent aerospace and defence journalist, who blogs at Tarmak007 and tweets @writetake)

<https://english.manoramaonline.com/news/kerala/2020/05/07/kochi-airport-baggage-scan-drdo-system.html>

THE TIMES OF INDIA

Fri, 08 May 2020

DRDO lab fits UV light facility to disinfect luggage at CIAL

By Sudha Nambudiri

Kochi: All passenger luggage coming out of the flights from today at Cochin international airport (CIAL) will be exposed to ultra violet light before reaching the passengers at the conveyor belt.

This facility has been set up by the scientists of DRDO’s Naval physical and oceanographic laboratory (NPOL), Kochi after the CIAL officials sought help in disinfecting luggage which will expose many of their staff to possible infection.

On Wednesday, a team of scientists from NPOL fixed a UV light scanner at the entry point of the luggage conveyor belt towards the aircraft-end.

“We had to do in one day because authorities said that they wanted it ready by the time the flights land with passengers on Thursday afternoon,” said Sameer Abdul Azeed, project coordinator, NPOL.

He said that the UV light facility was put at the entry point as there is a two-day tunnel after that. So before it even reaches the Customs, the luggage gets disinfected. We have also suggested that they spray sodium hypochlorite solution on the luggage cargo as it is brought out of the aircraft. After that this UV light exposure will ensure that any person handling the luggage after that will be safe from this aspect.”



As of now, it has been fitted on one belt only because of the limited number of passengers. This can be fitted in others too when more passengers start coming in over the next few days.

Meanwhile, NPOL is readying an automated luggage disinfector using UV-Bath which officials said would be ready in a month and can become a permanent facility at airports. This consists of a roller-based conveyor belt with a chamber that is configured with ultraviolet bath of calibrated dosage. The items to be disinfected are carried on the conveyor and their entire surface area is exposed to the UV rays. "It is with the production agency and will be ready soon," officials said.

Another DRDO laboratory has developed an Ultra Violet (UV) Disinfection Tower for rapid and chemical free disinfection of high infection prone areas. The equipment named UV blaster is a UV based area sanitiser designed and developed by laser science & technology centre (LASTEC), Delhi with the help of M/s New Age Instruments and Materials Private Limited, Gurugram.

The UV blaster is useful for high tech surfaces like electronic equipment, computers and other gadgets in laboratories and offices that are not suitable for disinfection with chemical methods. The product is also effective for areas with large flow of people such as airports, shopping malls, metros, hotels, factories, offices, etc.

The UV based area sanitiser may be used by remote operation through laptop/mobile phone using wifi link. This sanitiser switches off on accidental opening of room or human intervention. One more salient safety feature of the product is the key to arm operation.

<https://timesofindia.indiatimes.com/city/kochi/drdo-lab-fits-uv-light-facility-to-disinfect-luggage-at-cial/articleshow/75595056.cms>

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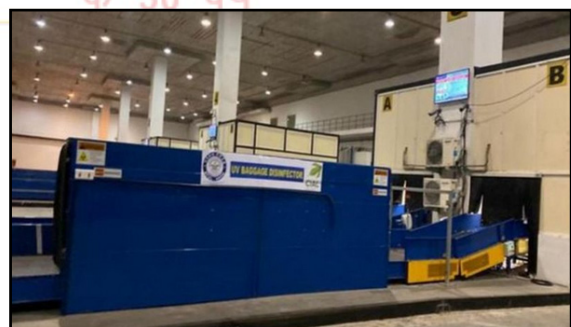
DRDO installs UV disinfection chamber at Cochin international airport

DRDO officials said that the UV disinfection chamber uses a solution that is known to kill COVID-19 and will help in controlling the spread of coronavirus

In order to screen and disinfect the bags of the passengers that will be arriving in the country, Defence Research and Development Organisation (DRDO) has installed a disinfection chamber at Cochin airport. The aim, the authorities said, is to ensure that there is no virus on the bags.

DRDO installs disinfectant for bags

"DRDO has installed its Ultra Violet disinfection chamber at the Cochin International Airport in Kerala. The chamber would be used to disinfect the baggage coming at the airport. The chamber has been developed by a laboratory in Cochin. The chamber uses a solution that is known to kill COVID-19 and will help in controlling the spread of coronavirus," DRDO officials said."



On May 4, the Central government announced that the DRDO had developed an Ultra Violet (UV) Disinfection Tower for rapid and chemical free disinfection of high infection prone areas. The equipment named UV blaster is a UV based area sanitiser designed and developed by Laser Science & Technology Centre (LASTEC), the Delhi based premier laboratory of DRDO.

The UV Blaster is useful for high tech surfaces like electronic equipment, computers and other gadgets in laboratories and offices that are not suitable for disinfection with chemical methods. The

product is also effective for areas with large flow of people such as airports, shopping malls, metros, etc.

The first Air India Express flight carrying Indian citizens from Abu Dhabi landed at the airport in Kochi on Thursday night as India launched its biggest ever repatriation exercise in its history to bring back its nationals stranded abroad amid the international travel lockdown over the COVID-19 pandemic.

Meanwhile, SmartCity Kochi has disinfected its IT building and premises in accordance with a recent Kerala government direction that requires IT companies to clean up premises as part of preventive measures against COVID-19. The disinfection exercise was carried out as per the guidelines of the Health Department in the wake of the partial relaxation to IT firms to operate with 50 per cent of workforce, a release said.

<https://www.republicworld.com/india-news/general-news/drdo-installs-uv-disinfection-chamber-at-cochin-international-airport.html>



Thu, 07 May 2020

Cochin International Airport to welcome expatriates: DRDO for disinfection

പ്രവാസികളെ സ്വീകരിക്കാൻ

നെടുമ്ബാശേരി വിമാനത്താവളം ഒരുങ്ങി; അണുനശീകരണത്തിന് ഡിആർഡിയും

കൊച്ചി: കൊവിഡ് ബാധയുടെ പശ്ചാത്തലത്തിൽ ഗൾഫിൽ നിന്ന് മടങ്ങിവരുന്ന പ്രവാസികളെ സ്വീകരിക്കാൻ നെടുമ്ബാശേരി വിമാനത്താവളം ഒരുങ്ങി. ബാഗേജുകളെ അണുനശീകരണം നടത്താൻ ഡിഫൻസ് റിസർച്ച് ഡവലപ്മെന്റ് ഓർഗനൈസേഷൻ(ഡിആർഡിഒ)ന്റെ സഹായമുൾപ്പെടെ വിപുലമായ സന്നാഹമാണ് വിമാനത്താവളത്തിൽ ഒരുക്കിയിട്ടുള്ളത്. നിലവിലെ സമയപ്പട്ടികയനുസരിച്ച് അബുദാബിയിൽ നിന്നുള്ള എയർ ഇന്ത്യ എക്സ്പ്രസ് വിമാനം വ്യാഴാഴ്ച രാത്രി 9.40 ഓടെ നെടുമ്ബാശേരി വിമാനത്താവളത്തിലെത്തും. 179 യാത്രക്കാർ ഇതിലുണ്ടാകും. വ്യാഴാഴ്ച നിശ്ചയിച്ചിരുന്ന രണ്ടാം വിമാനമായ ദോഹ-കൊച്ചി സർവീസ് ശനിയാഴ്ചത്തേക്ക് മാറ്റിയിട്ടുണ്ട്.

ജില്ലാ അധികൃതർ, സംസ്ഥാന സർക്കാർ ആരോഗ്യവകുപ്പ്, പോലീസ്, തദ്ദേശ സ്ഥാപനങ്ങൾ, സിഐഎസ്എഫ് എന്നീ വിഭാഗങ്ങളുടെ ഏകോപനത്തോടെ കൊവിഡ്-19 പ്രോട്ടോക്കോൾ പാലിച്ചുകൊണ്ടുള്ള പദ്ധതിയാണ് വിമാനത്താവളത്തിൽ നടപ്പിലാക്കുന്നത്. ഉച്ചയ്ക്ക് പന്ത്രണ്ട് മണിയോടെ എയർ ഇന്ത്യ എക്സ്പ്രസ് വിമാനം കൊച്ചിയിൽ നിന്ന് അബുദാബിയിലേക്ക് പറക്കും. വൈകുന്നേരം അഞ്ചരയോടെയാകും അവിടെ നിന്നും യാത്രക്കാരുമായി മടക്കയാത്ര. വിമാനം അണുവിമുക്തമാക്കൽ നടപടികള് പൂർത്തിയായി. യാത്രക്കാർ പൂരിപ്പിച്ചുനൽകേണ്ട സത്യവാങ്മൂലം ഉൾപ്പെടെയുള്ള ഫോറങ്ങള് ഈ

വിമാനത്തിൽ കൊടുത്തുവിടും. യാത്രക്കാരുമായി തിരികെയെത്തുന്ന വിമാനത്തിന് പ്രത്യേക പാർക്കിങ് ബേ, എയറോബ്രിഡ്ജുകൾ എന്നിവ ലഭ്യമാക്കും. യാത്രക്കാർക്കാർക്ക് പുറത്തിറങ്ങാനുള്ള മാർഗം പലതവണയായി നടത്തിയ മോക് ഡ്രില്ലിലൂടെ നിശ്ചയിച്ചിട്ടുണ്ട്.

ടെർമിനലിലേയ്ക്ക് പ്രവേശിക്കുമ്പോൾ തന്നെ ടെർമിനലിലേയ്ക്ക് ഗണ്ട്, തെർമൽ സ്കാനർ ഇവ ഉപയോഗിച്ച് യാത്രക്കാരുടെ താപനില പരിശോധിക്കും. രോഗലക്ഷണമുള്ളവരെ പ്രത്യേക പാതയിലൂടെ ആംബുലൻസിലേയ്ക്ക് മാറ്റും. അവിടെ നിന്ന് ആലുവ ആശുപത്രിയിലേയ്ക്ക് കൊണ്ടുപോകും. രോഗലക്ഷണമില്ലാത്തവർക്ക് ഹെൽത്ത് കൗണ്ടറുകളിൽ വീണ്ടും ആരോഗ്യ പരിശോധന നടത്തും. തുടർന്ന് ഇവരെ ഇമിഗ്രേഷൻ കൗണ്ടറിൽ എത്തിക്കും. പത്തു ഉദ്യോഗസ്ഥർക്ക് ജോലി ചെയ്യാൻ പാകത്തിൽ ഇമിഗ്രേഷൻ കൗണ്ടറുകളിൽ ഗ്ലാസ് മറകളെ സ്ഥാപിച്ചിട്ടുണ്ട്. തുടർന്ന് ഇവരെ ബാഗേജ് ഏരിയയിലേയ്ക്ക് കൊണ്ടുപോകും. ഇമിഗ്രേഷൻ കൗണ്ടറുകൾക്ക് മുൻബിലും കൺവെയർ ബെൽറ്റിന് വശങ്ങളിലും സാമൂഹിക അകലം പാലിച്ച് നിൽക്കാനുള്ള പ്രത്യേക അടയാളങ്ങളെ വച്ചിട്ടുണ്ട്. അഞ്ചാം നമ്പർ ബെൽറ്റാണ് ഇതിനായി അനുവദിച്ചിട്ടുള്ളത്.

ബാഗേജ് പരിശോധനയ്ക്ക് അൾട്രാവയലറ്റ്

ഡിഫൻസ് റിസർച്ച് ഡവലപ്മെന്റ് ഓർഗനൈസേഷന്റെ എൻപിഒ. ലാബ് വികസിപ്പിച്ചെടുത്ത അൾട്രാവയലറ്റ് അണുനാശിനി ഉപകരണം വിമാനത്താവളത്തിൽ സ്ഥാപിച്ചുവരികയാണ്. വിമാനത്തിൽ നിന്ന് ബാഗേജ് പുനർവിന്യാസ സംവിധാനത്തിലെത്തുന്ന ബാഗുകളെ ആദ്യം സോഡിയം ഹൈപ്പോക്ലോറേറ്റ് ഉപയോഗിച്ച് അണുവിമുക്തമാക്കും. തുടർന്ന് ബെൽറ്റിലൂടെ നീങ്ങുന്ന ബാഗേജുകളെ രണ്ട് ടണലുകളിലൂടെ കടന്നുപോകും. ഓരോ ടണലിന് മുൻബിലും ബാഗിന്റെ ഓരോ വശത്തും അൾട്രാവയലറ്റ് രശ്മികളെ പതിപ്പിക്കും. ഇത് ഓട്ടോമാറ്റിക് സംവിധാനമാണ്. ഇതിനുശേഷമാകും യാത്രക്കാർ ബാഗുകളെടുക്കുന്ന കെറോസൽ ഭാഗത്തേയ്ക്ക് ഇവയെത്തുക.

കളമശ്ശേരി മെഡിക്കൽ കോളജിന്റെ സഹായത്തോടെയാണ് എൻപിഒഎൽ ഈ സംവിധാനം വികസിപ്പിച്ചത്. ഓരോ ബാഗിലും വൈറസ് ഉണ്ടെങ്കിൽ എത്ര അളവിലെ അൾട്രാവയലറ്റ് രശ്മി പതിപ്പിക്കണമെന്നതുമായി ബന്ധപ്പെട്ട പരീക്ഷണങ്ങൾ വിജയകരമായി പൂർത്തിയാക്കിയിട്ടുണ്ട്. വ്യാഴാഴ്ച രാവിലെയോടെ ഈ സംവിധാനം പ്രവർത്തനക്ഷമമാകും. ഈ വിമാനത്തിലെ യാത്രക്കാർക്ക് ഉപയോഗിക്കാനായി 500 ട്രോളികളെ സജ്ജമാക്കിയിട്ടുണ്ട്. യാത്രക്കാരുമായി നേരിട്ട് ബന്ധപ്പെടുന്ന ജീവിനക്കാർക്കായി പിപിഇ കിറ്റുകൾ ലഭ്യമാക്കിയിട്ടുണ്ട്. എല്ലാ യാത്രക്കാർക്കും കയ്യുറകളെ, ഭക്ഷണം, വെള്ളം എന്നിവയടങ്ങിയ പായ്ക്കറ്റ് വിമാനത്താവളം അധികൃതർ നൽകും.

ഇവിടുത്തെ അമ്ബതോളം എജൻസികളിലെ ജീവനക്കാർക്ക് സാമൂഹിക അകലം പാലിക്കലുമായി ബന്ധപ്പെട്ട നിർദ്ദേശങ്ങളെ

നൽകിക്കഴിഞ്ഞു. സിന്ററ്റിക്, തൂണി, ലെതർ എന്നീ ആവരണമുള്ള ഫർണിച്ചർ എല്ലാം മാറ്റിയിട്ടുണ്ട്. രണ്ടായിരത്തോളം പ്ലാസ്റ്റിക് കസേര താൽക്കാലികമായി ഒരുക്കിക്കഴിഞ്ഞു. ടെർമിനലും ഉപകരണങ്ങളും മൂന്നുഘട്ടങ്ങളിലായി അണുനാശനം വരുത്തിക്കഴിഞ്ഞു. ഓരോ സർവീസിന് ശേഷവും ഈ പ്രക്രിയ ആവർത്തിക്കും. ബാഗേജുമായി പുറത്തുവരുന്ന യാത്രക്കാരെ ജില്ലതിരിച്ചുള്ള പ്രത്യേക മേഖലയിലേക്ക് മാറ്റും. തുടർന്ന് പുറത്ത് ഒരുക്കിയിട്ടുള്ള ബസ്സുകളിലേക്ക് ഇവരെ നയിക്കും. രോഗലക്ഷണമില്ലാത്തവർക്ക് പ്രത്യേക ക്വാറന്റൈൻ കേന്ദ്രം ജില്ലാ ഭരണകൂടം ഒരുക്കിയിട്ടുണ്ട്.

<https://m.dailyhunt.in/news/india/malayalam/thejas+news-epaper-thnews/pravasikale+sveekarikkan+nedumbasheri+vimanathavalam+orungi+anunasheekaranathin+diaardioyum-newsid-182936880?ss=wsp&s=pa>

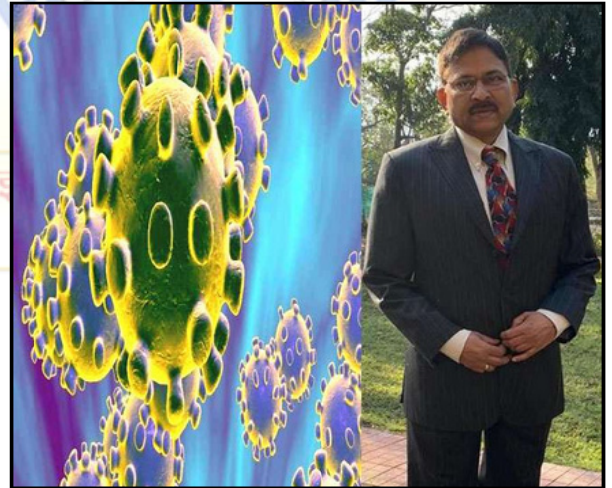


Fri, 08 May 2020

Kill Corona: DRDO ने बनाया हाईपावर स्ट्रेलाइजर, कोरोना वायरस को 30 सेकेंड में खत्म करेगा

सुनील सोनी

तोरपा (खूंटी): Kill Coronavirus पूरी दुनिया के लिए अभिशाप बने कोरोना वायरस के संक्रमण को खत्म करने के लिए खूंटी जिले के तोरपा प्रखंड अंतर्गत एक छोटे से गांव रायशिमला के रहने वाले वैज्ञानिक डा. कमला प्रसन्न राय तथा उनकी टीम द्वारा पुणे में कोरोना वायरस से लड़ने के लिए हाई पावर माइक्रोवेव-स्ट्रेलाइजर सिस्टम तैयार किया गया है, जिसका नाम अतुल्या रखा गया है। यह माइक्रोवेव सिस्टम तापमान तकनीक पर काम करता है। दावा किया गया है कि ये कोविड-19 वायरस को मार सकता है।



DRDO India कोरोना के खिलाफ जंग में खूंटी के तोरपा का बेटा डीआरडीओ वैज्ञानिक डा कमला प्रसन्न राय

वैज्ञानिक कमला प्रसन्न राय ने बताया है कि महाराष्ट्र के पुणे स्थित डीआरडीओ की डीमड यूनिवर्सिटी, डिफेंस इंस्टीट्यूट ऑफ एडवांस टेक्नोलॉजी ने इस माइक्रोवेव स्ट्रेलाइजर को तैयार किया है। अतुल्या नाम की इस मशीन के जरिए 56 से 60 डिग्री सेल्सियस तापमान पर कोरोना वायरस को खत्म करने का दावा किया गया है। उन्होंने बताया कि ये प्रोडक्ट काफी किफायती है और पोर्टेबल रूप में भी मिल सकता है। साथ ही इसे एक जगह पर फिक्स भी किया जा सकता है।

टेस्ट किए जाने पर यह सिस्टम पूरी तरह सुरक्षित पाया गया है। जिस सामान को सैनिटाइज करना है उसके साइज के हिसाब से करीब 30 सेकेंड से एक मिनट तक उसके सामने रखने से वायरस मर जाता है। इसके लिए अतुल्या को किसी भी सोफे, कुर्सी या मेज इत्यादि पर एक मिनट के लिए घुमाना है और

कोविड-19 के वायरस मर जाएंगे। बताया गया कि जबसे देश में कोरोना वायरस फैला है तभी से देश के प्रतिष्ठित रक्षा संस्थान डीआरडीओ कोविड-19 के खिलाफ नई-नई तकनीक तैयार करने में जुटा है।

डा कमला को मिल चुके हैं कई अवार्ड

वैज्ञानिक डा. कमला प्रसन्न राय द्वारा इससे पूर्व भी कई अनोखी तकनीकी वस्तुओं का अविष्कार किया जा चुका है। इनके द्वारा 430 रिसर्च पेपर देश विदेश में प्रकाशित हो चुके हैं। इन्होंने इंडस्ट्रियल अप्लीकेशन ऑफ माइक्रोवेव रिसर्च, रडार रिसर्च सहित कई रिसर्च किए। उनकी सर्वश्रेष्ठ रिसर्च पर वर्ष-2003 में उन्हें संस्थान द्वारा सम्मानित किया गया था। वहीं 2014 में आइईटीई मेंरंजना पाल मेमोरियल अवार्ड मिला।

संत जोसेफ हाईस्कूल में रहे थे जिला टॉपर

रायशिमला गांव के रहने वाले नागवंशी किसान परिवार के वंशज स्व. जगदीश नाथ राय के तीसरे पुत्र कमला प्रसन्न राय ने आरसी बालक प्राइमरी विद्यालय से पांचवीं करने के बाद संत जोसेफ उच्च विद्यालय तोरपा में पढ़ाई की। यहां वे मैट्रिक की परीक्षा में जिला टॉपर रहे थे। इसके बाद संत जेवियर कॉलेज रांची से स्नातक की पढ़ाई की। यहां भी वे मेधा सूची में रहे।

इसके बाद उन्होंने दिल्ली यूनिवर्सिटी से एमएससी व एमटेक किया। आइआइटी मुंबई से पीएचडी किया। वे यूएस में आइईईई के सदस्य भी रह चुके हैं। उन्होंने पुणे के इलेक्ट्रॉनिक्स इंजीनियरिंग और कम्प्यूटर साइंस रक्षा इंस्टीट्यूट ऑफ एडवांस टेक्नोलॉजी के प्रोफेसर डीन की जिम्मेदारी संभाली। इसके बाद डीआरडीओ में कई प्रमुख रिसर्च अभियान में भी वे शामिल हुए।

<https://www.jagran.com/jharkhand/ranchi-drdo-india-defence-research-and-development-organisation-built-high-power-sterilizer-to-kill-coronavirus-in-30-seconds-coronavirus-india-20252762.html>

COVID-19: DRDO/Indian Navy Contribution

hindustantimes

Fri, 08 May 2020

PPE kits developed by Indian Navy cleared by DRDO testing agency

The cost of the PPE is significantly lower than those commercially available and can be produced by basic gown manufacturing units, a navy spokesperson said

New Delhi: In its latest contribution to the fight against the coronavirus pandemic (Covid-19), the Indian Navy is ready to help the industry mass-produce personal protective equipment (PPE) kits, with a top testing agency approving the equipment designed and developed by it, a navy spokesperson said on Thursday.

The navy's PPE kits have been tested and approved by the Institute of Nuclear Medicine and Allied Sciences (INMAS), which is a laboratory of the Defence Research and Development Organisation. The PPE has been certified to be mass produced and used in clinical Covid-19 situations, he said.

“Shortage of PPE during the ongoing Covid-19 pandemic is of serious concern as it imperils the well-being and availability of the healthcare workforce, apart from adversely impacting their

security and morale...The Indian Navy has risen to this challenge of making available this critical resource in the fight against Covid-19,” navy spokesperson Commander Vivek Madhwal said.

A team formed by the Innovation Cell, Institute of Naval Medicine, Mumbai and the Naval Dockyard Mumbai collaborated to design the PPE.

The cost of the PPE is significantly lower than those commercially available and can be produced by basic gown manufacturing units, he said.

“The PPE passed with 6/6 synthetic blood penetration resistance test pressure. (Government mandates minimum 3/6 and above level as per ISO 16603 standard),” the official said.

Three weeks ago, the DRDO shifted a key testing facility for carrying out quality checks on PPE from Gwalior to New Delhi to cut down delays and ensure faster delivery of the safety gear to healthcare workers.

At a time when the country is facing a shortage of PPE kits, the testing facility was shifted from Gwalior-based Defence Research Development Establishment (DRDE) to the Delhi-based INMAS.

<https://www.hindustantimes.com/india-news/ppe-kits-developed-by-indian-navy-cleared-by-drdo-testing-agency/story-ewgzXHpSYIAXi5fSVvRrMI.html>

DE The Statesman

Fri, 08 May 2020

PPE designed by Indian Navy gets approval of INAMS for mass production

NAMS (Institute of Nuclear Medicine and Allied Sciences) is a DRDO organisation tasked with the testing and certification of PPE

New Delhi: In a significant move, the Personal Protective Equipment (PPE) designed and produced by Indian Navy has been tested by INMAS, Delhi and approved for mass production and use in clinical situations.

INAMS (Institute of Nuclear Medicine and Allied Sciences) is a DRDO organisation tasked with the testing and certification of PPE.

The shortage of PPE was so much in news and the development will help a lot to tackle the issue. The shortage of PPEs imperils the well-being and availability of the Healthcare Workforce, apart from adversely impacting their security and morale.

“The Indian Navy has risen to this challenge of making available this critical resource in the fight against COVID. A team formed by the Innovation Cell, Institute of Naval Medicine, Mumbai and the Naval Dockyard Mumbai collaborated to design and produce PPE. The PPE has been tested by INMAS (Institute of Nuclear Medicine and Allied Sciences) Delhi, a DRDO organization tasked with the testing and certification of PPE,” Ministry of Defence said in a statement.

The PPE passed with 6/6 Synthetic blood penetration resistance test pressure. (GoI mandate minimum 3/6 and above level as per ISO 16603 standard) and is thus certified to be mass-produced and used in clinical COVID situations, it added.

“The outstanding features of the PPE are its simple, innovative and cost-effective design; thus it can be made by basic gown manufacturing facilities. The PPE is noteworthy for the innovative choice of fabric used, which gives the PPE its ‘breathability’ and penetration resistance rendering it both comfortable and safe for the user,” it said.

The cost for this PPE is significantly lower than those commercially available.

<https://www.thestatesman.com/coronavirus/ppe-designed-by-indian-navy-gets-approval-of-inams-for-mass-production-1502885485.html>

Fighting COVID-19: Indian Navy's PPE gets certification by INMAS

The PPE passed with 6/6 Synthetic blood penetration resistance test pressure at INMAS. The government has mandated minimum 3/6 and above level as per ISO 16603 standard. And after getting approval is getting ready for mass production
By Huma Siddiqui

Designed and produced by the Indian Navy, Personal Protective Equipment (PPE) after successfully completing tests INMAS (Institute of Nuclear Medicine and Allied Sciences) Delhi, a DRDO organization, is set to start mass production. "INMAS has recently been given the additional task of testing and giving certification for PPE. These PPEs are going to be used in clinical COVID-19 situations at the Naval Facilities as well will be handed over to the local authorities who are fighting the spread of the global pandemic," said the Indian Navy.

Despite the bulk production of the PPEs by the OFB and DRDO lab testing the final product, the huge shortage of PPE in the market is of serious concern. This impacts the well-being and availability of the Healthcare Workforce, apart from adversely impacting their security and morale.

A team formed by the Innovation Cell, Institute of Naval Medicine, Mumbai and the Naval Dockyard Mumbai has collaborated to design and produce the PPE.

The PPE passed with 6/6 Synthetic blood penetration resistance test pressure at INMAS. The government has mandated minimum 3/6 and above level as per ISO 16603 standard and after getting approval is getting ready for mass production.

More about the PPE designed by the Indian Navy:

- It is simple, innovative and cost-effective design
- It can be made by basic gown manufacturing facilities.
- The innovative choice of fabric used gives the PPE its 'breathability' and penetration resistance as per the specifications laid down.
- It is comfortable and safe for the user.
- The cost is much cheaper than those commercially available.
- The PPE has met the criteria on testing and the benchmarks of the same which have been set by the ICMR and the MoHFW.



The PPE passed with 6/6 Synthetic blood penetration resistance test pressure at INMAS. (Image: Indian Navy)

<https://www.financialexpress.com/defence/fighting-covid-19-indian-navys-ppe-gets-certification-by-inmas/1951590/>

UAV for Armed Forces: Boost to Make in India initiative, MSMEs can get UAV projects

MSMEs in drone manufacturing have found the going difficult and with the pandemic melt down of the manufacturing in India, may require impetus more than ever to remain commercially viable

By Huma Siddiqui

Once again Indian security forces after intense fire exchanges killed four terrorists in Jammu and Kashmir, highlighting the need for higher automation in activities like Intelligence, Surveillance and Reconnaissance (ISR) and Unmanned Aerial Vehicles (UAVs) especially for a real-time tactical operation. Aerial systems like UAVs or drones are known to be most cost effective solutions and have potent lethality, when weaponized.

Each of the Armed Forces services have their own UAV arms operational for last two decades, as the UAVs had already evolved as future warfare technology world over in 1990's itself, especially in the asymmetric warfare.

A UAV can range from MALE (Medium altitude Long Endurance) which can be in air for whole day/night operations, to smaller versions in the category of Mini/Micro or Nano drones. However, the drone technology in use by three services since 1990s has been imported, though expensive but highly reliable aerial bodies.

While the Defence Research and Development Organisation (DRDO) has been trying to indigenize these, the private sector UAV industry has been growing. Unfortunately the evolution of technology has been restricted due to ambiguity in implementation of Drone Regulations promulgated by Airport Authority of India (AAI).

MSMEs in drone manufacturing have found the going difficult and with the pandemic melt down of the manufacturing in India, may require impetus more than ever to remain commercially viable.

Time to share some projects with the private sector, especially MSMEs

As has been reported last week by Financial Express Online, in a letter to the Ministry of Defence (MoD) Society of Indian Defence Manufacturers (SIDM) has requested for a directive to be issued to the DRDO, OFB, DPSUs and the Services to prepare a list of projects that can shared with the private sector companies and the MSMEs.

DRDOs Indigenization of UAVs

DRDO's long range multi-mission drone, Rustom-2 has been under development since 2011, even after realizing multiple airframes and Design Validation Flights (DVF) by 2017 itself, there have been delays to meet the User's requirements. As per CAG report of 2018, the non-availability of critical UAV system has adversely affected the aerial surveillance capability of the Indian Army.

The Rustom-2 UAV was a follow up of previous 2009 project version called Rustom-1, which was a composite fiber material 800 kg class Short Range Remotely Piloted Aircraft System (SR-RPAS). During the long project development phase, DRDO planned various up-gradations like Automatic Take-off & Landing (ATOL), Synthetic Aperture Radar (SAR) and Store carrying capability. However, the Rustom-1 service, and the knowledge and learnings gained could only be translated to consequent UAV projects and was not inducted by the Services.

In the mini UAVs category, Netra is a Quadcopter developed by DRDO with Private industry Partnership and could be supplied to Police and Para military services, even Indian Army exploited these drones but technological advancement pushed for upgradation of these miniUAVS.

Unmanned Combat Aerial Vehicles (UCAVs)

UCAVs are UAVs capable to launch missiles, bombs and precision-guided munition. UCAVs are effectively used world over for Search and Attack role, safeguarding own soldier's from risks. However, due to restrictions in Explosive Ordnance handling by commercial agencies, the design and development of these have been limited in India. The Autonomous Unmanned Research Aircraft (AURA) project launched by DRDO shall form the basis of indigenous UCAV in the future. India's first weaponized drone was undertaken by National Security Guards (NSG) in 2018. As already reported earlier by Financial Express Online, a private MSME completed the successful development and subsequent manufacture trials of 'Kamikaze' explosive laden mini-Quadcopter drones. However, due to complicated procurement procedures has not been inducted yet.

Overall, the armed forces are still dependent on import of UAVs for operational missions, and is spending dollars for maintenance like spares, AMCs signed with the OEMs etc. as India has not been able to manufacture any indigenous UAVs.

"To give a push to the Make in India initiative, now is the time the MoD can balance its investments in DRDO UAVs/UCAVs and private MSMEs. The private sector in Defence has a highly skilled manpower available without any work in hand and they need to be given work to survive," stated an industry source.

<https://www.financialexpress.com/defence/uav-for-armed-forces-boost-to-make-in-india-initiative-msmes-can-get-uav-projects/1951412/>



Fri, 08 May 2020

DRDO planning to doubling the range of MRSAM

After its Developmental Partner, Israel Aerospace Industries (IAI) showcased Barak-8ER (Extended-Range) surface to air missile system with a range of 150 km which is extended variant of the Medium-range surface-to-air missile (MRSAM) named in Indian Air Force (IAF) and offered it to India, DRDO its Indian partner has decided to develop a local version of it with inhouse technologies instead of relying on the IAI.

DRDO has planned to test MRSAM missile system with an additional rocket booster which could have doubled its range from its current 70-80km to 140-150 km for the Air Force version which also requires minor changes to the mobile launch canister design and tweaking to the phased-array radars, command, and control system of the missile.

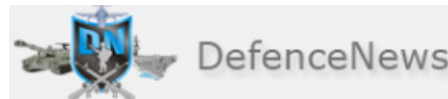
DRDO is also working on Surface to Air Missile which it calls as XRSAM and has a range of 250km and is designed to work with MRSAM-ER for the Air force along with MRSAM (70km). Official Renders of the XRSAM confirms that it has taken design cues from the IAI-DRDO developed MRSAM air defense system and probably will be using the same enhanced missile frame of the MRSAM missile and electronics like Active seeker and dual pulse motor which it has developed for the MRSAM program.

XRSAM was also seen with an additional rocket booster which leads to questions if the MRSAM-ER will be called XRSAM and the range will be bumped to 250km instead of 150km as rumored to be. Both Naval, Army, and Air force variants of XRSAM will be developed, XRSAM will have higher local content than the MRSAM which has many Israeli components in it including its Radar and command and control systems.

DRDO has confirmed the development of XRSAM but has been mum on development of MRSAM-ER, Sources close to idrw.org have confirmed that one of the MRSAM missile launches was delayed due to lockdown in recent weeks.

(Note: Article cannot be reproduced without written permission of idrw.org in any form even for YouTube Videos to avoid Copy right strikes)

<https://idrw.org/drdo-planning-to-doubling-the-range-of-mrsam/#more-226975>



Fri, 08 May 2020

Indian Navy wants to launch twin seat fighters from its aircraft carriers: US media

At 10:02 A.M. over the Arabian Sea on January 11, 2020, Commodore Jaideep Maolankar extended the arrestor hook on his delta-wing Tejas single-engine jet fighter and powered towards INS Vikramaditya, a former Soviet aircraft carrier refitted at great expense and commissioned into Indian Navy service in 2013.

The thirteen-ton jet's reinforced landing gear absorbed the shock as it hit the flight deck, and its arrestor hook snagged the first of three wire cables.

The cable stretched forward, arresting the Tejas's momentum and then yanked back the first domestically-built Indian aircraft to land on an aircraft carrier. You can see pictures and a recording of the moment here.

The following day, the same jet performed its first launch off the Vikramaditya's curved "ski jump" ramp. The Tejas Naval-Light Combat Aircraft prototype piloted by Maolankar was developed by India's Defence Research and Development Organization and the company Hindustan Aeronautics Limited.

But don't expect to see the Tejas Mark I enter service with the Indian Navy. After Tejas undergoing three decades of development, the Indian Navy rejected it in 2016, finding its performance mediocre due to its F404 turbofan engine lacking adequate thrust to propel the light jet off the deck of a carrier with a full fuel and weapon load.

Here's where things get complicated. Despite its own misgivings, the Indian Air Force did order 123 land-based Tejas Mark I jets and is looking forward to a major avionics upgrade variant, the Mark 1A.

HAL wanted to next develop a more powerful Tejas Mark 2 Medium Weight Fighter with F414 turbofans, boosting thrust by 20 percent. The hope was that the resulting performance improvement would rope in interest from both Navy and Air Force.

But in November 2019, Indian Navy made clear any single-engine fighter simply wouldn't be satisfactory. The service wants a more powerful twin-engine fighter that can still make it back to the carrier even after losing an engine. This notional aircraft is designated the Twin Engine Deck-Based Fighter (TE-DBF), and would eventually replace the forty-four twin-engine MiG-29Ks currently in Indian Navy service.

TE-DFB would be separate from the current competition to procure an additional fifty-seven new carrier-based fighters, likely either Boeing Super Hornets or Dassault Rafale-Ms. India will also commission its first domestically built aircraft carrier, the ski-jump deck INS Vikrant, around 2022, and plans to begin the construction of a new flat-deck carrier with electromagnetic catapults.

<https://www.defencenews.in/article/Indian-Navy-Wants-To-Launch-Twin-Seat-Fighters-From-Its-Aircraft-Carriers-US-Media-830483>

Fri, 08 May 2020

CDS hits out at those who criticised armed forces' salute to COVID warriors

Hitting out at those who had criticised the armed forces' gesture of thanking corona warriors, Chief of Defence Staff (CDS) General Bipin Rawat on Thursday said that some "educated" people behave like they lack wisdom and intellect

New Delhi: Hitting out at those who had criticised the armed forces' gesture of thanking corona warriors, Chief of Defence Staff (CDS) General Bipin Rawat on Thursday said that some "educated" people behave like they lack wisdom and intellect. Rawat emphasised on the importance of motivating frontline corona warriors who were working for the safety and security of people.

"Every person has a right to his comment and speech. Armed Forces are known to motivate the soldiers. Motivation is one aspect which forms an essential part of our training. If we have this capability and potential we think it was important to motivate our frontline corona warriors who were working for the safety and security of people," Rawat told ANI. The CDS was responding to criticism of the thanksgiving exercise on May 3 by the Defence Forces who paid tribute to those fighting coronavirus from the frontlines.



General Bipin Rawat speaking to ANI in New Delhi on Thursday.. Image Credit: ANI

Indian Air Force aircrafts showered flower petals over hospitals treating Covid-19 patients and also held flypast of by fighter and transport aircraft of the Indian Air Force (IAF) from Srinagar to Thiruvananthapuram and another one from Dibrugarh in Assam to Kutch in Gujarat. The Navy's ships lit up and military bands played outside some hospitals treating COVID-19 patients all to express gratitude towards coronavirus warriors including doctors, sanitation workers, media and policemen who are battling the pandemic. Those who were critical of the exercise felt that the resources and efforts could have been better used.

"While some people who are uneducated possess wisdom and intelligence, there are others who are educated but behave as if they lack wisdom and intellect," the chief of the defence staff said. (ANI)

<https://www.devdiscourse.com/article/law-order/1040749-cds-hits-out-at-those-who-criticised-armed-forces-salute-to-covid-warriors>

Navy ship to bring back 750 Indians from Maldives tomorrow as military kicks off repatriation

INS Jalashwa reached Male for the first round of military repatriations Thursday. Each of the passengers will have to pay approx. Rs 3,000 for the exercise
By Amrita Nayak Dutta

New Delhi: The Indian military will begin the repatriation of stranded Indians Friday as a Navy ship sets sail from the Maldives with at least 750 people onboard.

Beginning Thursday, the Indian government set in motion a massive repatriation exercise, named the Vande Bharat Mission, to bring back citizens who found themselves stranded abroad amid travel suspensions announced around the world amid the Covid-19 pandemic.

The first two Air India flights deployed for the exercise took off from the UAE Thursday with over 300 passengers, with another 62 scheduled over the coming week.



INS Jalashwa enters Male port Thursday. It will set off for India with 750 stranded Indians Friday | ANI

The military is also involved in the exercise, with the Indian Navy deploying four ships as part of Operation Samudra Setu under the Vande Bharat Mission. The first of these, INS Jalashwa, will return with hundreds of passengers Friday, a Navy officer said. The ship had reached Male Thursday morning.

Each of the passengers aboard Jalashwa will be charged \$40 (approx. Rs 3,000), a first for a military vessel.

The director general of the Armed Forces Medical Services told ThePrint that all precautions and steps had been taken to ensure the crew's isolation and quarantine.

Two ships stationed off West Asia

The repatriation exercise is being conducted in keeping with a standard operating procedure (SOP) prepared by the central government.

Under the first phase of Operation Samudra Setu, INS Jalashwa is set to bring back 750 Indians from Maldives, followed by another 250 repatriations by INS Magar.

Sources in the military said there are nearly 3,500 Indians stranded in the Maldives, a tourist paradise that lies to India's southwest in the Indian Ocean. A call is yet to be taken on the repatriation of the remaining 2,500 Indians, the sources added.

Meanwhile, the sources said, two other Naval ships are waiting off West Asia, which hosts the largest share of Indian citizens abroad. Since the area is also being served by the Air India repatriation flights, the sources added, the Ministry of External Affairs (MEA) has not decided which country they will need to enter to undertake the exercise.

Thousands of Indians — students, workers and tourists — are stranded in countries like Saudi Arabia, Kuwait, UAE, and Bahrain, as well as Malaysia, Singapore, and the US, among others. Their repatriation follows a growing clamour from families seeking their return, a request the Indian government had refused to fulfil through April owing to Covid-19 transmission concerns.

In March, the government had stepped in to bring back Indians in Italy and China, but suspended the exercise once the nationwide lockdown kicked in 25 March.

Air India is conducting the bulk of the repatriations, and will operate 64 flights Thursday onwards to get back Indians from Europe, Singapore, Malaysia and Saudi Arabia, among other countries. The repatriations are all on a paid basis.

Sources had earlier told ThePrint that at least 30 aircraft of the Indian Air Force, along with 11 more ships of the Navy, are on standby for deployment to various countries for repatriation.

How are armed forces ensuring safety?

A top military officer told ThePrint that the armed forces have factored in all possible contingencies for the repatriation exercise.

“Policies for infection control on ships, disinfection of aircraft in conjunction with isolation and quarantine protocols for crew, are already in place,” Lt General Anup Banerji, the director general of the Armed Forces Medical Services (AFMS), said.

Meanwhile, as the Indians begin to be brought back, sources in the military clarified that the onus for the evacuees’ quarantine and isolation would be on states, since the facilities set up by the Army, the Navy and the Indian Air Force may not be able to accommodate them.

“They will be handed over to the state government, who will decide the next course of action. The military isolation facilities can accommodate a certain number of people, but the number of evacuees will be much more,” one of the sources said.

“So, the state government is likely to decide on the quarantining and other issues.”

<https://theprint.in/india/navy-ship-to-bring-back-750-indians-from-maldives-tomorrow-as-military-kicks-off-repatriation/416705/>



Fri, 08 May 2020

Indian Armed Forces dispatch naval ships with medical teams, aid to IOR region

The evacuees will undergo mandatory quarantine as per the SOPs in the following quarantine facilities, run by the Army, Navy and Air Force after which further necessary action will be taken for their onward journey as per the approved SOPs

New Delhi: Indian Armed Forces have dispatched Naval ships with medical teams and aid supplies to several countries in the IOR region. In return journey, the Ships will bring back Indian national evacuees from this region.

Further, Armed Forces have kept in readiness six quarantine facilities that can accommodate up to 2,100 Indians being evacuated from several countries in coordination with the Ministry of External Affairs and Ministry of Civil Aviation. The Indian National evacuees stranded due to COVID19 in Saudi Arabia, Kuwait, United Arab Emirates, Bahrain and Malaysia will be housed in the quarantine facilities maintained by the three Services- Indian Army, Indian Navy and Indian Air Force- in Jodhpur, Jaisalmer, Bhopal, Kochi, Vishakhapatnam and Chennai.



Earlier, INS Jalashwa sailed to the Maldives for evacuating stranded Indian nationals. Image Credit: Twitter(@DefencePRO_Guj)

The evacuees will undergo mandatory quarantine as per the SOPs in the following quarantine facilities, run by the Army, Navy and Air Force after which further necessary action will be taken for their onward journey as per the approved SOPs.

Besides, naval ships have sailed with food grains, medical teams, medicines to Indian Ocean Region (IOR) countries and they will evacuate Indians during the return journey. Indian Naval Ship (INS) Kesari has proceeded on deployment to Southern Indian Ocean Region from yesterday (May 6) till June 29, 2020. The ship will visit Madagascar, Comoros, Maldives and Seychelles. It will deliver 10-12 tonnes of medicines each to all these countries. It will also provide 660 tonnes of food grains to the Maldives. Medical teams comprising of 14 personnel (eight doctors and six paramedics) and 13 personnel (four doctors and nine paramedics) have been dispatched to Mauritius and Comoros respectively.

Earlier, INS Jalashwa sailed to the Maldives for evacuating stranded Indian nationals. It reached Male earlier today. The ship will start for Kochi tomorrow with evacuee Indians. The INS Magar has also sailed to the Maldives and is on the way to Male. The INS Airawat and INS Shardul are likely to proceed to the Gulf region for the evacuation of Indian nationals. (With Inputs from PIB)

<https://www.devdiscourse.com/article/health/1040163-indian-armed-forces-dispatch-naval-ships-with-medical-teams-aid-to-ior-region>

Business Standard

Fri, 08 May 2020

With lessons from 2004 tsunami, Indian Navy launches Covid-19 outreach to help Indian Ocean countries

INS Jalashwa in the Bay of Bengal saluting the Corona Warriors

By Ajai Shukla

The Indian Navy, which earned worldwide recognition for the aid it provided to Indian Ocean Region (IOR) countries devastated by the earthquake-cum-tsunami of December 2004, has again launched a major naval diplomacy initiative to assist littoral countries in combating the Covid-19 pandemic.

As part of its humanitarian aid and disaster relief (HADR) outreach, five of the navy's biggest amphibious warfare vessels have been designated on a mission to convey food grains, medical teams and medicines to friendly IOR island states. On their return journey, they will bring back Indians stranded in those countries, as part of the larger Vande Bharat mission to repatriate Indian nationals.

On Wednesday, Indian Naval Ship (INS) Kesari – a 5,600-tonne vessel designed to land army tanks and soldiers on hostile shores -- set sail for the Southern Indian Ocean. Over the next two months, INS Kesari will deliver aid, turn by turn, to Madagascar, Comoros, Maldives and the Seychelles.

Each of those countries will be presented 10-12 tonnes of medicines, while the Maldives will also receive 660 tonnes of food grains. 27 Indian Navy medical personnel will treat patients in Mauritius and the Comoros.

On Thursday, as a part of Operation Samudra Setu (ocean bridge), INS Jalashwa arrived in the Maldives on a mission to evacuate stranded Indian nationals to Kochi on Friday. Jalashwa, a 16,600-tonne amphibious landing ship, is the navy's second largest warship after the aircraft carrier, INS Vikramaditya.

Capable of carrying over 1,000 civilians, the Jalashwa will embark only 750 due to Covid-19-related distancing norms. The vessel is equipped with extensive medical facilities including four operation theatres, a 12-bed ward, a laboratory and a dental centre. The Jalashwa, which is the only Indian warship procured from the US, also embarks six helicopters.

Under Operation Samudra Setu, a second amphibious warship, INS Magar, will arrive in the Maldives on Thursday to evacuate Indian civilians.

Two more amphibious warfare ships – INS Airawat and INS Shardul – have been earmarked to proceed to West Asia for evacuating Indian nationals stranded in the Gulf countries.

Meanwhile, under Operation Vande Bharat, the army, navy and air force have prepared six quarantine facilities that can accommodate up to 2,100 Indians being evacuated from Saudi Arabia, Kuwait, United Arab Emirates, Bahrain and Malaysia. These facilities have been established in Jodhpur, Jaisalmer, Bhopal, Kochi, Vishakhapatnam and Chennai.

The Indian citizens, who will be evacuated under the auspices of the Ministry of External Affairs and Ministry of Civil Aviation, will undergo mandatory quarantine in these military facilities, before being permitted to return to their homes.

<http://ajaishukla.blogspot.com/2020/05/with-lessons-from-2004-tsunami-indian.html>



Fri, 08 May 2020

समंदर के सिकंदर बनेंगे संकटमोचक!

ऐसा नहीं है कि विदेशी आबो-हवा में कोरोना संकट का सामना कर रहे भारतीयों को वापस लाने के लिए सिर्फ एयर इंडिया ने ही ज़िम्मा उठाया है। दरअसल, भारतीय नौसेना भी इस काम में बढ़-चढ़कर शरीक हो रही है। आपको ऑपरेशन 'समुद्र-सेतु' के बारे में बताते हैं।

नई दिल्ली: कोरोना काल में विदेशों में फंसे हिन्दुस्तानियों की वतन वापसी का कार्यक्रम चल रहा है। भारतीय नौसेना का युद्धपोत INS जलाश्व मालदीव की राजधानी माले में फंसे करीब एक हजार भारतीयों की वापसी के लिए बड़ा संकटमोचक साबित होगा।

समंदर के सिकंदर बनेंगे संकटमोचक

समंदर की लहरों से उम्मीद लेकर विदेश पहुंचने वाला भारतीय नौसेना का 'INS जलाश्व' वो युद्धपोत है जो मुसीबत की इस घड़ी में मालदीव में फंसे भारतीयों के लिए एक बड़ा संकटमोचक साबित होगा। इस बीच इस नीचे दिए इस वीडियो में हर कोई देख सकता है कि कैसे 'INS जलाश्व' को सैनेटाइज किया जा रहा है।

कोरोना से जूझती दुनिया के बीच भारत नभ हो या फिर जल दोनों जगहों से भारतीयों को लाने की तैयारी हो चुकी है। आकाश के साथ-साथ जल मार्ग से भी विदेश में फंसे भारतीयों को वापस लाने की शुरुआत हो चुकी है जिसकी कड़ी में INS जलाश्व मालदीव पहुंच भी चुका है।

युद्धपोत करेंगे भारतीयों का रेस्क्यू

करीब एक हजार भारतीय जो कोरोना काल में विदेशों में फंसे हुए हैं। भारतीय नौसेना ने उन्हें, वतन वापस लाने के लिए ऑपरेशन 'समुद्र-सेतु' को लॉन्च किया। ऐसे में जल और नभ दोनों ही रास्तों से भारतीयों को घर वापस लाने का अभियान चल रहा है। समुद्र सेतु ऑपरेशन के तहत भारतीय नौसेना अपने तीन बड़े युद्धपोतों का इस्तेमाल करेगी। आपको उन तीनों के बारे में बताते हैं।

आईएनएस जलश्व, आईएनएस मगर और आईएनएस शार्दुल

INS जलाश्व और INS मगर मालदीव की राजधानी माले से लोगों को निकालेंगे। जबकि INS शार्दुल दुबई में फंसे लोगों को लेने के लिए रवाना हुआ है।

समंदर के जरिए भारत के इस रेस्क्यू ऑपरेशन के पहले चरण में करीब 1 हजार भारतीय वापस लाए जाएंगे। लेकिन वापस आने वाले भारतीयों को ज़रूरी मेडिकल स्क्रीनिंग के बाद ही वापस भेजा जाएगा।

युद्धपोत में कू और लोगों के लिए जरूरी राशन और सामान

जानकारी के अनुसार INS जलाश्व और INS मगर के जरिए माले से सभी भारतीयों को कोच्चि लाने का प्लान है। खास बात ये है कि कू और लोगों के लिए दोनों ही युद्धपोत में जरूरी सामान एवं राशन मौजूद है। इसके अलावा स्वास्थ्य-सुविधाएं और सोशल-डिस्टेंसिंग समेत कोरोना वायरस से जुड़े सभी प्रोटोकॉल का पालन करना अनिवार्य है। दोनों युद्धपोतों में कू के अलावा कम से कम 500 लोगों को और ले जाया जा सकता है।

माले से कोच्चि की दूरी करीब 900 किलोमीटर है। आपको बता दें कि जिन युद्धपोतों को मालद्वीप भेजा गया है वो तीनों ही भारतीय नौसेना की शान हैं। ये तीनों ही एम्फीबियस जहाज हैं। यानी समंदर के साथ साथ ये जमीन पर आ सकते हैं।

आईएनएस जलाश्व की खासियत

आपको इसी कड़ी में INS जलाश्व के बारे में कुछ जानकारी दे देते हैं। ये पूर्व अमेरिकी नौसेना जहाज है, जिसको भारतीय नौसेना ने 2007 में अधिग्रहित किया था। 16,000 टन से ज्यादा वजन के साथ INS जलाश्व टैंकों को ले जाने में सक्षम है। इसके अलावा इसमें 1,000 तक सैनिक रह सकते हैं।

इनमें से आईएनएस मगर तो 80 के दशक में श्रीलंका में ऑपरेशन पवन के दौरान भारतीय सैनिकों को पहुंचाने के काम आया था। खास बात तो ये है हाल के वर्षों में भारतीय नौसेना की ओर से ये तीसरा बड़ा ऑपरेशन है, जब विदेशों में फंसे हिंदुस्तानियों को वतन वापस लाया जा रहा है।

वर्ष 2015 में भारतीय नौसेना ने यमन में हुए गृहयुद्ध के दौरान ऑपरेशन राहत के तहत मिशन को अंजाम दिया था। इससे पहले वर्ष 2006 में भी ऑपरेशन सुकून के जरिए लेबनान से भारतीयों और दूसरे दक्षिण एशियाई नागरिकों को निकालने का काम किया था। अब ऑपरेशन सेतु विदेशों में फंसे लोगों के लिए एक बड़ी राहत की तरह बनकर सामने आया है।

<https://zeenews.india.com/hindi/zee-hindustan/national/ins-jalashwa-of-indian-navy-being-sanitized-the-ship-arrived-at-mal%C3%A8-yesterday-will-be-ferrying-back-indian-citizens-stranded-at-maldives/678137>

TIMESNOWNEWS.COM

Fri, 08 May 2020

Indian Navy provides life-saving medical equipment to Vizag hospital for treatment of gas leak patients

The Indian Navy provided key life support equipment to Vizag hospital for the treatment of styrene gas leak victims

New Delhi: The Indian Navy has pitched in with key life-saving medical equipment for the treatment of styrene gas leak patients admitted at Vizag's King George Hospital (KGH).

It provided 5 more Portable Multifeed Oxygen Manifolds sets to KGH and technical teams from Naval Dockyard Visakhapatnam (NDV) reached the hospital to assist in quick installation to provide oxygen to a large number of patients affected in the gas leak on Thursday.

In a statement, the navy said, "the Portable Multifeed Oxygen Manifold system was designed by NDV to enable one jumbo size Oxygen Bottle to supply Oxygen to six patients concurrently for COVID-19 Pandemic. 25 such sets were provided to District Administration for use in COVID Designated hospitals earlier.

As many as 10 people including a child were killed due to a Styrene gas leak at LG Polymer chemical plant near Vizag at 2.30 am on Thursday. More than 250 have been hospitalised after the incident in Andhra Pradesh's RR Venkatapuram village in Visakhapatnam.

Vizag Styrene gas leak neutralised

The National Disaster Relief Force (NDRF) and State Disaster Relief Force (SDRF) teams were pressed into rescue work along with district authorities who conducted a door-to-door survey and evacuated the village.

The leak was "neutralised" later, it's maximum impact was witnessed in a 1.5 km radius of the ground zero and odour was felt till 2-2.5 km, RK Meena, CP Visakhapatnam City told ANI.

PM Narendra Modi chaired a meeting of National Disaster Management Authority (NDMA) to take stock of the situation and plan a response. After this meeting, the National Crisis Management Committee met to chalk out the steps needed to be taken for the same.

Meanwhile, the National Human Rights Commission (NHRC) notice to Andhra Pradesh Government and Centre over deaths and sufferings to several people due to styrene gas leakage in Vizag District.

<https://www.timesnownews.com/india/article/indian-navy-provides-life-saving-medical-equipment-to-vizag-hospital-for-treatment-of-gas-leak-patients/588414>



Indian Navy provides life-saving medical equipment to Vizag hospital for treatment of gas leak patients | Photo Credit: Times Now

Defence Strategic: National/International

Outlook
THE FULLY LOADED MAGAZINE

Fri, 08 May 2020

Defence Ministry abolishes 9,304 military engineering services posts

Military Engineer Services is the premier construction agency and one of the pillars of Corps of Engineers of the Indian Army which provides rear line engineering support to the Armed Forces

Defence Minister Rajnath Singh approved abolition of 9,304 posts in military engineering services on Thursday.

Singh approved the proposal of engineer-in-chief of Military Engineering Services (MES) for optimisation of more than 9,300 posts in the basic and industrial workforce.

"It is in line with the recommendations of the Committee of Experts, headed by Lieutenant General Shekatkar, which had recommended measures to enhance combat capability and rebalance defence expenditure of the Armed Forces," the Defence Ministry said.

One of the recommendations made by the Committee was to restructure the civilian workforce in a manner that the work of MES could be partly done by departmentally employed staff and other work could be outsourced.

In line with the recommendations made by the Committee, based on the proposal of engineer-in-chief, MES, the proposal of abolition of 9,304 posts in MES out of the total 13,157 vacancies of the basic and industrial staff has been approved.

The recommendation was aimed at making MES an effective organisation with a "leaner workforce, well equipped to handle complex issues in the emerging scenario in an efficient and cost effective manner".

Role of MES

Military Engineer Services is the premier construction agency and one of the pillars of Corps of Engineers of the Indian Army which provides rear line engineering support to the Armed Forces.

It is one of largest construction and maintenance agencies in India with a total annual budget of approximately Rs 13,000 crores.

It is responsible for creating the strategic and the operational infrastructure other than major roads, as also the administrative habitat for all three Services and the associated organisations of the Ministry of Defence.

It has a pan-India footprint to provide engineering support to various formations of the Army, Air Force, Navy and DRDO.

For this, the MES has over six hundred stations spread across the main land and the island territories of India.

The MES is a military organisation but has both Army and Civilian component of officers and other subordinate staff.

The organization was created over 200 years ago to execute both civil and military infrastructure.

In the 18th century, the construction organisation was a part of the Army as the Public Works Department (PWD) manned by the Indian Corps of Engineers was created under the control of a Military Board.

By 1851, the PWD came under the civil control but was responsible for both civil and military works.

In 1881, The Military Works branch of PWD was segregated and transferred to the Military Department.

The Military Works Services headed by a Director General came into being in 1889.

The "Army in India" Committee (1919-20) placed the Military Works under the Quarter Master General and the Sappers and Miners under the Chief of the General Staff.

The two engineering wings were combined under the Engineer-in- Chief. The MES was formed in December 1923 with the Engineer-in- Chief as the Head.

Initially, it comprised of personnel exclusively from Corps of Engineers, but later attained composite character by inducting civilians.

The MES functions under the overall control of the Engineer-in- Chief, who is the advisor to the Ministry of Defence and the three Services on operational and peace time construction activities.

The Military Engineering Services are responsible for the design, construction and maintenance of all infrastructure assets of the Army, Navy and Air Force.

It is structured to design works which are executed through contracts under the supervision of officers and staff consisting of both civilians and combatants from the Corps of Engineers. It has an integral multi-disciplinary team of architects, civil, electrical and mechanical engineers, structural designers, quantity surveyors and contract specialists for planning, designing and supervision of works.

The civilian cadres consists of four main cadre that is Engineering, Surveyor cadre, Architect and BSO (all being qualified engineers) and an Administrative cadre.

<https://www.outlookindia.com/website/story/india-news-defence-ministry-abolishes-9304-military-engineering-services-posts/352263>

Rajnath Singh approves abolition of 9,304 posts in Military Engineer Services

The abolition of the posts is one of the direct outcomes of the recommendations made by the Lt Gen DB Shekatkar committee report on enhancing the army's combat potential and trimming its revenue expenditure.

New Delhi: More than 9,300 posts in the Military Engineer Services (MES) are set to be abolished, after defence minister Rajnath Singh on Thursday approved a proposal made by the army's Engineer-in-Chief, the defence ministry said in a statement. The MES is a construction and maintenance agency of the armed forces and has annual budget of around Rs 13,000 crore.

The abolition of the posts is one of the direct outcomes of the recommendations made by the Lt Gen DB Shekatkar committee report on enhancing the army's combat potential and trimming its revenue expenditure.

"One of the recommendations made by the committee was to restructure the civilian workforce in a manner that the work of MES could be partly done by departmentally employed staff and other works could be outsourced," said the ministry statement on the abolition of 9,304 posts out of the total 13,157 vacancies of the basic and industrial staff of the MES.

The ministry said the recommendation to cut the posts was aimed at making the MES an effective organisation, with leaner workforce and well equipped to handle complex issues in an efficient and cost effective manner.

Welcoming the move to abolish the posts, Shekatkar said this was an important step towards the progressive reduction of the workforce in the coming years.

"The MES is a World War II concept. It's a drain on our resources. It's very important to spend our resources judiciously. There will be no increase in the defence budget for the next two to three years because of the situation created by Covid-19. We have to use our money wisely as our adversaries will not wait for us to build capabilities," Shekatkar told Hindustan Times.

The MES is responsible for the design, construction and maintenance of all army, navy and air force infrastructure but experts believe outsourcing these works is a better and cheaper option.

The Shekatkar panel made 188 suggestions of which 99 have been accepted by the ministry and others are under consideration.

The recommendations relate to several organisations including the MES, Defence Research and Development Organisation, Directorate General of Quality Assurance, Directorate General of Defence Estates, the Ordnance Factory Board and defence accounts.

<https://www.hindustantimes.com/education/rajnath-singh-approves-abolition-of-9-304-posts-in-military-engineering-service/story-V8tInCzGgVaX6CWxWHvc1O.html>

Tata Motors' defence monster blows all other 6x6s to smithereens

By Arun Prakash

Now we all know that Tata Motors has been a prime defence supplier to the Armed and Paramilitary Forces of the country for a long time now. Infact, the Tata Group's history with the Defence sector goes way back to the 1940s when the Group supplied armoured steel to support the World War II effort. However, the Tata Group's first official association with an Independent Indian government started in 1958. The Tata Group also developed a Wheeled Armoured Carrier – Indian Pattern or ACV-IP, better known as the 'Tatanagar'. From India's independence in 1947 till present, the Indian Auto giant has contributed to serving India's defence needs in the mobility segment.

It has a huge range of products divided into a number of categories such as Logistics, Aid & Development, Armoured, Combat Support and Combat. Tata Motors has also developed India's first indigenous Armoured Amphibious wheeled infantry combat vehicle which is designed and developed jointly with the Defence Research and Development Organisation (DRDO).



Featured here is Tata Motors' Defence 6x6 combat support truck with a new militarized cab suitable for up armoring with tiltable arrangement, coil and armouring. Tata Motors had won a contract to supply 1239 number of its indigenously developed 6x6 high mobility, multi-axle vehicles in March, 2015 from the Indian Army- the single largest order awarded to an Indian private OEM in land systems. Tata Motors have named the product as LPTA 2038 6x6.

The 6x6 combat support from Tata Motors' Defence is powered by a Cummins ISLE, 6-cylinder engine which generates 375 bhp of power and a humongous 1550 Nm of peak torque, mated to a 9-speed manual transmission. As you must have noticed, it sends power to all its six wheels, and is equipped with differential locks in all the three inter-axle differentials and the one centre differential. This makes it an all-terrain truck with impeccable off-roading capabilities as is expected from military combat support vehicles.

It weighs a massive 23 tonnes and has a nominal payload capacity of 8500 kg. Its imposing figure can intimidate anyone and that is what the design purpose has been, to create something which looks menacing and badass, which can send shivers down the spine, especially across the enemy lines!

Tata Motors' mobility solutions portfolio has grown from strength to strength to include all classes of vehicles – from light to heavy and across the entire Defence, Paramilitary and Police mobility segment. In addition to being a leading supplier of mobility solutions to the Indian Army, Navy, Air Force and various Paramilitary forces, the company also exports its range of specialized Defence vehicles to SAARC, ASEAN, African nations and the UN peacekeeping forces in conflict zones in Africa.

<https://www.motoroids.com/news/tvs-eurogrip-introduces-e-ordering-facility-for-retailers/>

Russia receives India's request for additional batch of Ka-31 helicopters - Official

Russia has received from India a request for an additional batch of the Ka-31 helicopters for the country's Navy, the head of the Federal Service of Military-Technical Cooperation, Dmitry Shugayev, has said.

India's Economic Times newspaper reported earlier this spring that the Indian Navy would purchase six more Ka-31 helicopters from Russia. The Indian Navy uses the helicopters for radar surveillance.

"We have recently received a request for an additional delivery of Ka-31 naval helicopters," Shugayev told the National Defense magazine.

He expressed hope that Russia would implement by the end of the year the contract for delivering the Iglas portable surface-to-air missile to India, and organizing its licensed production in the country.

"We do not exclude an additional delivery of the MiG-29UPG [destroyers]. We will certainly participate in India's tender for 110 destroyers," Shugayev said.

<https://www.defencenews.in/article/Russia-Receives-Indias-Request-For-Additional-Batch-Of-Ka-31-Helicopters---Official-830501>



Science & Technology

India based Spacetech startup Vesta Space lands \$10 million from Next Capital

India has made major strides in the field of space exploration after ISRO's history making conquests. The Space agency's story of success has cultivated a market for space technology, which led to the birth of startups like VestaSpace. And the company has now found capital for furthering its vision, through a \$10Mn capital raise from Next Capital.

Founded in 2018 by space engineer Arun Kumar Sureban, VestaSpace brings satellite solutions for small and medium scale companies, and provides them the opportunity to access small satellites, satellite communication, sensors, and connected devices.

The company plans to use these funds in expansion of its growth, both in India and global markets. Sureban is optimistic about the company's future, and predicts that the investment will help VestaSpace to scale up its operations by 300%. This growth



will be achieved by acquiring new ground station for geo based satellites and development of Geo satellites for broadcasting.

This is the company's first investment since its inception, as it had been operating with a \$3 million seed funding that Sureban's drone software accrued.

The company builds CubeSat and nanosatellite projects, which are like normal satellites but smaller, and operate exclusively in low orbit of Earth, providing help in remote sensing or communications. The company's first CubeSat satellite was developed recently, in March 2020, which took two satellites into Earth's orbit. The company says, "CubeSat and nanosatellites has spurred the growth of the utilization of small satellites for industrial application," adding that, "At VestaSpace, we build application-agnostic Small Satellite platforms." VestaSpace says that its goal is to "offer Small Satellite/s coupled with Earth Station/s and Launch Service as an integrated solution or individually, as a technology solution for our prospective customers."

VestaSpace recently added mission analysis and design as its newest offering. It said in a linkedin post, "It (their newest offering) essentially is the analysis of satellite orbits to determine how best to achieve the objectives of a space mission. This is an end-to-end solution right from the definition, development and preparation phases of each project. We design satellites, recommend modifications, and simulations are done for the same too."

VestaSpace is already working with ISRO, which had recently announced incubators for Space technology startups based in India.

[https://www.defencenews.in/article/India-based-Spacetech-startup-Vesta-Space-lands-\\$10-million-from-Next-Capital-830487](https://www.defencenews.in/article/India-based-Spacetech-startup-Vesta-Space-lands-$10-million-from-Next-Capital-830487)



Fri, 08 May 2020

Scientists measured electrical conductivity of pure interfacial water

Skoltech scientists in collaboration with researchers from the University of Stuttgart, the Karlsruhe Institute of Technology and the Russian Quantum Center achieved the first systematic experimental measurements of the electrical conductivity of pure interfacial water, hence producing new results significantly extending our knowledge of interfacial water.

Interfacial water may be found everywhere around us. Biological systems, electrochemical devices, food preservation methods, climate-related processes to name a few, all depend on the properties of water near interfaces. However, direct access to the physical-chemical properties of pure interfacial water is arduous and explains why much remains to be discovered and understood.

The results obtained by the scientists from the Skoltech Center for Energy Science and Technology (CEST) in collaboration with German researchers provide new and detailed insights into complex fluids. The discovery of new electrical properties of interfacial water will clearly have impact on the future development of electrochemical systems, both for electrical power generation and storage.

"We used diamond-based ceramics with open-pore structure filled with water. By consistent reduction of the pore size from 500 nm to 5 nm, we increased the interfacial-to-bulk-water ratio up to its maximum, at which point the interfacial water showed anomalous DC conductivity, five

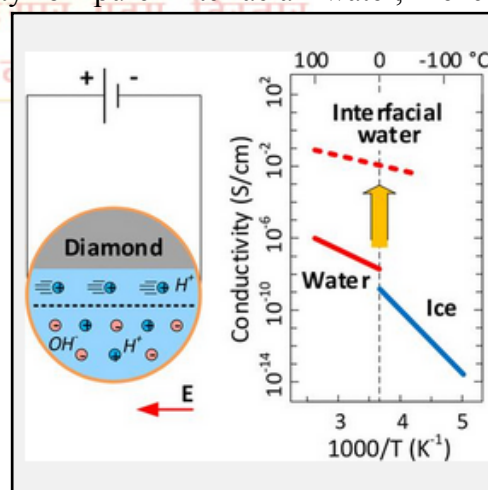


IMAGE: Graphical abstract [view more](#)

orders of magnitude higher than that of the bulk water. Our analysis shows that this unusual conductivity is a genuine intrinsic property of the interfacial water, as the surface chemistry contribution clearly appears not to be the dominant one," explains Vasily Artemov, Senior Research Scientist in the group of Skoltech professor Henni Ouerdane.

"The topic of interfacial water is of immense interest to a wide audience of physicists, electrochemists, climate researchers, geologists and biologists, and we anticipate that the research we report will be influential across a diverse range of scientific and technological fields, such as electrochemical energy systems, membrane technologies and nanofluidics," said Henni Ouerdane.

The collaborative study was led by Dr. Vasily Artemov who joined professor Ouerdane's research group in November 2018. Thanks to the strong support from Skoltech, professor Ouerdane and Dr. Artemov succeeded in designing and building the Dielectric Lab Setup at CEST in a record time and producing world-class results. The setup now attracts local and international students for short research stays in the framework of the Global Campus program. Research projects in physical chemistry, materials science, biology and across these disciplines are sure to benefit from the new facility. Professor Ouerdane and Dr. Artemov are set on further fostering the broadband dielectric spectroscopy research at their lab.

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https://www.eurekalert.org/pub_releases/2020-05/sios-sme050720.php

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Celebrating
50 years

Fri, 08 May 2020

Plasma electrons can be used to produce metallic films

Computers, mobile phones and all other electronic devices contain thousands of transistors, linked together by thin films of metal. Scientists at Linköping University, Sweden, have developed a method that can use the electrons in a plasma to produce these films.

The processors used in today's computers and phones consist of billions of tiny transistors connected by thin metallic films. Scientists at Linköping University, LiU, have now shown that it is possible to create thin films of metals by allowing the free electrons in a plasma take an active role. A plasma forms when energy is supplied that tears away electrons from the atoms and molecules in a gas, to produce an ionised gas. In our everyday life, plasmas are used in fluorescent lamps and in plasma displays. The method developed by the LiU researchers using plasma electrons to produce metallic films is described in an article in the *Journal of Vacuum Science & Technology*.

"We can see several exciting areas of application, such as the manufacture of processors and similar components. With our method it is no longer necessary to move the substrate on which the transistors are created backwards and forwards between the vacuum chamber and a water bath, which happens around 15 times per processor," says Henrik Pedersen, professor of inorganic chemistry in the Department of Physics, Chemistry and Biology at Linköping University.

A common method of creating thin films is to introduce molecular vapours containing the atoms that are required for the film into a vacuum chamber. There they react with each other and the surface on which the thin film is to be formed. This well-established method is known as chemical vapour deposition (CVD). In order to produce films of pure metal by CVD, a volatile precursor molecule is required that contains the metal of interest. When the precursor molecules have become absorbed onto the surface, surface chemical reactions involving another molecule are required to create a metal film. These reactions require molecules that readily donate electrons to

the metal ions in the precursor molecules, such that they are reduced to metal atoms, in what is known as a "reduction reaction." The LiU scientists instead turned their attention to plasmas.

"We reasoned that what the surface chemistry reactions needed was free electrons, and these are available in a plasma. We started to experiment with allowing the precursor molecules and the metal ions to land on a surface and then attract electrons from a plasma to the surface," says Henrik Pedersen.

Researchers in inorganic chemistry and in plasma physics at IFM have collaborated and demonstrated that it is possible to create thin metallic films on a surface using the free electrons in an argon plasma discharge for the reduction reactions. In order to attract the negatively charged electrons to the surface, they applied a positive potential across it.

The study describes work with non-noble metals such as iron, cobalt and nickel, which are difficult to reduce to metal. Traditional CVD has been compelled to use powerful molecular reducing agents in these cases. Such reducing agents are difficult to manufacture, manage and control, since their tendency to donate electrons to other molecules makes them very reactive and unstable. At the same time, the molecules must be sufficiently stable to be vaporised and introduced in gaseous form into the vacuum chamber in which the metallic films are being deposited.

"What may make the method using plasma electrons better is that it removes the need to develop and manage unstable reducing agents. The development of CVD of non-noble metals is hampered due to a lack of suitable molecular reducing agents that function sufficiently well," says Henrik Pedersen.

The scientists are now continuing with measurements that will help them understand and be able to demonstrate how the chemical reactions take place on the surface where the metallic film forms. They are also investigating the optimal properties of the plasma. They would also like to test different precursor molecules to find ways of making the metallic films purer.

The research has obtained financial support from the Swedish Research Council, and has been carried out in collaboration with Daniel Lundin, guest professor at IFM.

Story Source

Materials provided by [Linköping University](#).

Note: Content may be edited for style and length.

Journal Reference

1. Hama Nadhom, Daniel Lundin, Polla Rouf, Henrik Pedersen. Chemical vapor deposition of metallic films using plasma electrons as reducing agents. *Journal of Vacuum Science & Technology A*, 2020; 38 (3): 033402 DOI: [10.1116/1.5142850](https://doi.org/10.1116/1.5142850)
<https://www.sciencedaily.com/releases/2020/05/200507103640.htm>



Fri, 08 May 2020

NTU scientists develop sustainable way to extract chitin from prawn shells by fermenting it with fruit waste

Scientists at Nanyang Technological University, Singapore (NTU Singapore) have developed a green way to create chitin, by using two forms of food waste – prawn shells and discarded fruit – and fermenting them.

Chitin serves a wide variety of uses in the food industry, such as food thickeners and stabilisers, and as anti-microbial food packaging.

The NTU method is more sustainable than current approaches that chemically extract chitin from marine waste, which is costly, consumes large amounts of energy and leads to chemical by-products that may be discharged in industrial wastewater.

Six to eight million tons of crustacean waste are generated annually around the world, with 45 to 60 per cent of shrimp shells discarded as processing by-products.

Professor William Chen, Director of the Food Science and Technology programme at NTU, who led the research, said, “The huge amount of shrimp waste has sparked industrial interest as it is an abundant source of chitin. However, there is a problem in the extraction method, which is both unsustainable and harmful to the environment.

“Our new method takes crustacean waste and discarded fruit waste and uses natural fermentation processes to extract chitin. This is not only cost-effective, but also environmentally-friendly and sustainable, and helps to reduce overall waste,” said Prof Chen.

The team’s findings were published in peer-reviewed journal *AMB Express* in January 2020.

The NTU team tested ten sources of common fruit waste such as white and red grape pomace, mango and apple peels, and pineapple cores, in various fermentation experiments. They found that fruit waste contained enough sugar content to power the fermentation process that breaks prawn shells down into chitin.

They used ‘X-ray diffraction’ technique to determine the atomic and molecular structure of the chitin created using the new method and its level of purity was measured using a ‘crystallinity index’. The extracted crude chitin samples from prawn shells fermented using fruit waste gave a crystallinity index of 98.16 per cent, which compared to commercial chitin samples with an index of 87.56 per cent. The fermentation process using the sugar content from the fruit waste produced higher quality chitin than the commercial one.

Prof Chen said, “Our research has led to not only higher quality chitin but a more sustainable and environmentally-friendly process too. While the various types of fruit waste produced good results, the sugar from the pomace of red grapes had the best performance. This is also a cost-effective method for industry-scale operations, which could be of potential interest to wineries looking to reduce and upcycle their waste.”

“This research also echoes NTU’s translational research focus, which aims to develop sustainable innovations that benefit society and industry and create a greener future.”

Mr Loo Yuen Meng, Managing Director of Integrated Aqua Singapore Pte. Ltd., who was not involved in the study, said, “The latest innovations developed by Prof William Chen from the Food Science and Technology programme at NTU, is an excellent example of how the expertise from an institute of higher learning can be applied to improve operational efficiency of the food industry while reducing food processing waste. Through a simple fermentation process, the high-value chitin and chitosan recovered from the prawn shells are environment-friendly, and the products can be re-connected back to the food industry.”

By leaving chitin to undergo further stages of fermentation the NTU research team also found they could ferment it further into chitosan, which can be used as a growth enhancer in plant fertilisers, or as a controlled drug delivery system in pharmaceutical treatments.

The NTU team is now exploring ways to use chitosan to enhance previous research innovations such as food packaging created using soybean residue or Okara. This could potentially lead to the development of a more durable cellulose film with anti-microbial and anti-bacterial properties.

Prof Chen is also working with multiple companies to spur the adoption of greener industrial methods in producing chitin and chitosan.

<https://www.miragenews.com/ntu-scientists-develop-sustainable-way-to-extract-chitin-from-prawn-shells-by-fermenting-it-with-fruit-waste/>

Fri, 08 May 2020

Coronavirus: Ganga Water For COVID-19 Treatment? ICMR Nixes Call For Study

One of the proposals received by NMCG claimed that the waters of Ganga have "ninja virus" which scientists call bacteriophages.

New Delhi: The Indian Council for Medical Research (ICMR) has decided not to go ahead with the proposals forwarded by the Jal Shakti Ministry to undertake clinical studies for treatment of COVID-19 patients with Ganga water, saying it needs more scientific data.

Dr Y K Gupta, who chairs the committee for Evaluation of Research Proposals at ICMR, said the evidence and data available at the moment are not strong enough to start the clinical studies by different routes/forms of Ganga water for treatment of coronavirus.

The National Mission for Clean Ganga (NMCG), an arm of the Jal Shakti Ministry that deals with the rejuvenation programme for the river, had received a number of proposals, including from people and NGOs working on Ganga, to undertake clinical studies for treatment of coronavirus patients with the river water, officials said.

The proposals were accordingly sent to the ICMR on April 28.

Mr Gupta, who is also a former dean of the AIIMS, said, "At present the proposals need much scientific data, proof of concept and a strong background hypothesis. This has been conveyed to them (NMCG)."

NMCG officials said the proposals were discussed with the scientists of the National Environmental Engineering Research Institute (NEERI), which had earlier conducted a study "Assessment of Water Quality and Sediment to understand the special properties of River Ganga".

According to the NEERI study, Ganga water has a higher number of bacteriophages as against pathogenic bacteria. During consultations that were held between the NMCG and NEERI, the scientists also said there was still no proof that Ganga water or sediment had anti-viral properties.

"We forwarded the proposals to the ICMR as received," said a senior official of the NMCG.

One of the proposals received by NMCG claimed that the waters of Ganga have "ninja virus" which scientists call bacteriophages.

Another proposal claimed that pure Ganga water boosts immunity which helps fight the virus.

The third proposal, a detailed one, sought more research on Ganga water's anti-viral properties and its ability to boost immunity in fighting diseases. It also suggested this study can be conducted upstream of Tehri on the Bhagirathi river and upstream of Srinagar on the Alaknanda river.

NMCG officials said they have not received any official communication on the status of their proposals from the ICMR.

(Except for the headline, this story has not been edited by NDTV staff and is published from a syndicated feed.)

<https://www.ndtv.com/india-news/coronavirus-ganga-water-for-covid-19-treatment-icmr-nixes-call-for-study-2225076>