

COVID-19: DRDO's Contribution



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Microwave steriliser to disintegrate novel Coronavirus developed

Defence Institute of Advanced Technology, Pune, a deemed university supported by Defence Research and Development Organisation has developed a microwave steriliser named as '**ATULYA**' to disintegrate (COVID-19). The virus gets disintegrated by differential heating in the range of 56⁰ to 60⁰ Celsius temperatures.

The product is cost effective solution, which can be operated in portable or fixed installations. This system was tested for human/operator safety and has been found to be safe. Depending upon size and shape of various objects, time of sterilisation is from 30 seconds to one minute. Approximate weight of the system is three kilogrammes and it can be used for non-metallic objects only.



ABB/SS/Nampi/KA/DK/Savvy/ADA

(Release ID: 1619643)

<https://pib.gov.in/PressReleasePage.aspx?PRID=1619643>



नोवेल कोरोना वायरस को विघटित करने वाला माइक्रोवेव स्टरलाइजर विकसित

रक्षा अनुसंधान एवं विकास संगठन द्वारा समर्थित एक मानद विश्वविद्यालय, डिफेंस इंस्टीट्यूट ऑफ एडवांस्ड टेक्नोलॉजी ने कोविड-19 को विघटित करने के लिए 'अतुल्य' नामक एक माइक्रोवेव स्टरलाइजर का विकास किया है। यह वायरस 56 डिग्री से 60 डिग्री सेल्सियस तापमान में विभेदकारी ऊष्माप्यन द्वारा विघटित हो जाता है।

यह उत्पाद एक किफायती सॉल्यूशन है जिसे पोर्टेबल या फिक्स्ड इंस्टोलेशन में प्रचालित किया जा सकता है। इस सिस्टम का मानव/प्रचालक सुरक्षा के लिए परीक्षण किया एवं इसे सुरक्षित पाया गया। भिन्न-भिन्न वस्तुओं के आकार और ढांचे के अनुसार, स्टरलाइजेशन का समय 30 सेकेंड से एक मिनट तक रहता है। सिस्टम का वजन लगभग तीन किलोग्राम है और इसका उपयोग केवल गैर-मेटैलिक वस्तुओं के लिए किया जा सकता है।



एएम/एसकेजे

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నవ్య కరోనా వైరస్ విచ్చిన్నం చేయడానికి మైక్రోవేవ్

స్టెరిలైజర్ అభివృద్ధి

'డిఫెన్స్ రీసెర్చ్ అండ్ డెవలప్‌మెంట్ ఆర్గనైజేషన్' మద్దతుతో పని చేస్తున్న పూణేలోని 'డిఫెన్స్ ఇన్‌స్టిట్యూట్ ఆఫ్ అడ్వాన్స్డ్ టెక్నాలజీ' సంస్థ కోవిడ్-19 వైరస్ విచ్చిన్నం చేయడానికి 'అతులియా' అనే మైక్రోవేవ్ స్టెరిలైజర్‌ను అభివృద్ధి చేసింది. 'అతులియా' అనే మైక్రోవేవ్ స్టెరిలైజర్ 560 నుండి 600 సెల్సియస్ ఉష్ణోగ్రతల పరిధిలో అవకలన తాపన ద్వారా వైరస్ విచ్చిన్నమవుతుంది. సరసమైన ధరలో అందుబాటులో ఉండేలా 'అతులియా' అనే మైక్రోవేవ్ స్టెరిలైజర్‌ను రూపొందించడం జరిగింది. ఇది పోర్టబుల్ లేదా స్థిర సంస్థాపన విధానంలో ఏర్పాటు చేసుకొని వినియోగించేలా దీనిని రూపొందించారు. ఈ స్టెరిలైజర్ వ్యవస్థ మానవ / ఆపరేటర్ భద్రత అంశాలను పరీక్షిస్తూ సురక్షితంగా ఉండేలా అభివృద్ధి చేయడమైంది. స్టెరిలైజ్ చేసే వివిధ వస్తువుల పరిమాణం మరియు ఆకారాన్ని బట్టి కేవలం 30 సెకన్ల నుండి నిమిషం వ్యవధిలో 'అతులియా' వాటిని క్రిమిరహితం చేస్తుంది. ఈ స్టెరిలైజర్ సుమారు మూడు కిలోగ్రాముల బరువు ఉంటుంది. లోహరహిత వస్తువుల స్టెరిలైజేషన్‌కు కూడా ఉపయోగించేందుకు వీలుగా దీనిని తయారు చేశారు.



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Fri, 01 May 2020

कोरोना वायरस को खत्म करने के लिए DRDO का 'अतुल्य' तैयार, ऐसे करता है काम

नीरज राजपूत

- कोरोना वायरस महामारी फैलने के बाद से ही डीआरडीओ के सभी वैज्ञानिक और लैब कोविड-19 के खिलाफ तकनीक और खास प्रोजेक्ट बनाने में जुटे हैं।
- डीआरडीओ की यूनिवर्सिटी ने तापमान के जरिए कोविड-19 वायरस को खत्म करने की तकनीक ईजाद की है जिसमें कुर्सी, मेज, सोफे तक को भी डिसइंफेक्ट किया जा सकता है।

नई दिल्ली: कोरोना वायरस से लड़ने के लिए डीआरडीओ ने एक और माइक्रोवेव-स्ट्रेलाइजर तैयार किया है। 'अतुल्य' नाम का ये खास माइक्रोवेव तापमान तकनीक पर काम करता है, जिसके जरिए दावा किया गया है कि ये कोविड-19 वायरस को मार सकता है।

रक्षा मंत्रालय ने बयान जारी कर दावा किया है कि डीआरडीओ की पुणे स्थित डीमड यूनिवर्सिटी, डिफेंस इंस्टीट्यूट ऑफ एडवांस टेक्नोलॉजी ने इस माइक्रोवेव स्ट्रेलाइजर को तैयार किया है। अतुल्य नाम की इस मशीन के जरिए 56 से 60 डिग्री सेल्सियस तापमान पर कोरोना वायरस को खत्म करने का दावा किया गया है। रक्षा मंत्रालय के मुताबिक, ये प्रोजेक्ट काफी किफायती है और प्रोटेबल रूप में भी मिल सकता है और इसे एक जगह पर फिक्स भी किया जा सकता है। इस सिस्टम को टेस्ट करके पूरी तरह सुरक्षित पाया गया है। जिस सामान को स्ट्रेलाइज करना है उसके साइज के हिसाब से 30 सेकेंड से करीब एक मिनट तक इसके सामने रखने से वायरस को मारा जा सकता है। इसके लिए अतुल्य को किसी भी सोफे, कुर्सी या मेज इत्यादि पर एक मिनट के लिए घुमाना है और कोविड-19 के कीटाणु मर जाएंगे।

आपको बता दें कि जबसे देश में कोरोना वायरस फैला है तभी से देश की प्रतिष्ठित रक्षा संस्थान, डीआरडीओ यानि डिफेंस रिसर्च एंड डेवलपमेंट ऑर्गेनाइजेशन कोविड-19 के खिलाफ नई-नई तकनीक तैयार कर रही है। इससे पहले भी डीआरडीओ के वैज्ञानिक और अलग-अलग लैब कोरोना वायरस से लड़ने की तकनीक और सामान तैयार कर चुके हैं। हालांकि, डीआरडीओ को मुख्य चार्टर देश की सशस्त्र सेनाओं के लिए हथियार, मिसाइल और दूसरे सैन्य साजो सामान तैयार करना है।

हाल ही में डीआरडीओ की अहमनगर स्थित लैब ने एक सैनेटाइजेशन-एन्कलोजर (टनल) तैयार की थी। इस टनल के जरिए ऑफिस, हॉस्पिटल या फिर किसी अपार्टमेंट के एंट्री-प्वाइंट पर लगाने से आने-जाने वालों के ऊपरी शरीर को सैनेटाइज किया जा सकता है। इसके अलावा दिल्ली स्थित दो संस्थानों ने अल्ट्रा-वायलेट तकनीक से काम करने वाला माइक्रोवेव सैनेटाइजेशन-बॉक्स तैयार किया था।

इस यूवीसी-बॉक्स के जरिए आप अपने निजी सामान जैसे पर्स, मोबाइल, घड़ी आदि को सैनेटाइज कर सकते हैं। इसी तरह यूवीसी-लैंप से भी कुर्सी, मेज, सब्जी या फिर फूड-पैकेट्स को कीटाणु-मुक्त किया जा सकता है। साथ ही डीआरडीओ ने पैराशूट बनाने वाले मैटेरियल से डॉक्टर्स, नर्स और पैरा-मेडिक स्टाफ के लिए पीपीई-सूट तैयार किया गया है। कोरोना वायरस से लड़ने के लिए खास एन-99 मास्क और सैनेटाइजर भी डीआरडीओ की लैब तैयार कर रही हैं।

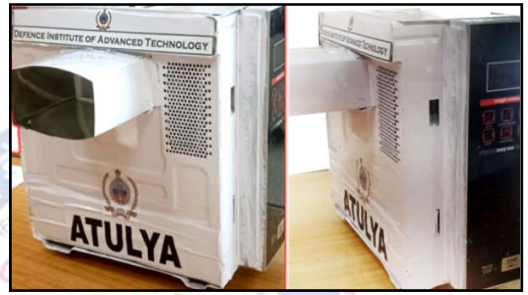
<https://www.abplive.com/news/india/coronavirus-drdo-microwave-stabilizer-atulya-ready-to-eliminate-corona-virus-ann-1366646>

कोरोना के खात्मे के लिए DRDO और डिफेंस इंस्टीट्यूट ने मिलकर तैयार किया ये खास उपकरण

आशुतोष तिवारी

नई दिल्ली: कोरोना वायरस के खिलाफ पूरा देश एकजुट होकर लड़ाई लड़ रहा है। वहीं अब इस लड़ाई में स्वास्थ्य मंत्रालय को रक्षा मंत्रालय का भी साथ मिल गया है। कोरोना के खात्मे के लिए डिफेंस इंस्टीट्यूट ऑफ एडवांस टेक्नोलॉजी पुणे और डीआरडीओ ने मिलकर एक माइक्रोवेव स्टरलाइजर का निर्माण किया है, जिसकी मदद से कोरोना का खात्मा हो सकेगा। इस उपकरण का नाम अतुल्य रखा गया है। वहीं ये उपकरण काफी हल्का है, जिस वजह से उसको कहीं पर भी सेट किया जा सकता है।

मामले में रक्षा मंत्रालय ने जानकारी देते हुए बताया कि कोरोना वायरस 560-600 डिग्री तापमान में खत्म हो जाता है। इसी के आधार पर डिफेंस इंस्टीट्यूट ऑफ एडवांस टेक्नोलॉजी पुणे ने माइक्रोवेव स्टरलाइजर तैयार किया है। ये उपकरण पोर्टेबल है, इसको कहीं पर भी आसानी से स्थापित किया जा सकता है। रक्षा मंत्रालय के मुताबिक इसका परीक्षण कर लिया गया है, जो इंसानों के लिए पूरी तरह से सुरक्षित है। ये सिर्फ तीन किलोग्राम का है, ऐसे में इसे आसानी से कहीं पर ले जाया जा सकता है। वहीं किसी चीज को संक्रमण मुक्त करने के लिए इसे 30 सेकेंड से एक मिनट तक का वक्त लगेगा। ये वक्त उस चीज के साइज पर निर्भर करेगा। रक्षा मंत्रालय के मुताबिक इसका उपयोग नॉन मेटैलिक चीजों के लिए ही किया जा सकता है।



आपको बता दें कि देश में कोरोना संक्रमित मरीजों की संख्या 33 हजार के पार पहुंच गई है। जिसमें से एक हजार से ज्यादा लोगों की जान जा चुकी है। वहीं रक्षा मंत्रालय से जुड़ी तमाम संस्थाएं लगातार स्वास्थ्य सेवाओं को हाईटेक बनाने के लिए काम कर रही हैं। इससे पहले रक्षा मंत्रालय मास्क, पीपीई किट, टेस्टिंग लैब आदि तैयार करवा चुका है।

<https://hindi.oneindia.com/news/india/defence-institute-of-advanced-technology-and-drdo-has-developed-microwave-steriliser-for-coronavirus-558105.html>

hindustantimes

Fri, 01 May 2020

Pune-based institute DIAT develops microwave steriliser to kill coronavirus

New Delhi: The Pune-based Defence Institute of Advanced Technology has developed a microwave steriliser to kill the coronavirus and named it Atulya, the defence ministry said on Thursday. DIAT is a deemed university supported by the Defence Research and Development Organisation (DRDO), which is among the several government agencies that have been at the forefront of the fight against the coronavirus disease (Covid-19).

The virus gets disintegrated by differential heating in the range of 56 to 60 degrees Celsius, the ministry said in a statement. "The product is a cost-effective solution and can be operated in portable or fixed installations. This system was tested for human/operator safety and has been found to be safe," it said.

The sterilisation time can range from 30 to 60 seconds depending on the size and shape of objects. Weighing three kilos, it can be used for sterilising non-metallic objects only.

Different wings of the defence ministry including the armed forces, the DRDO and the Ordnance Factory Board, have designed and developed a wide range of products to support the country's effort to contain the spread of the pandemic.

The DRDO has developed several products to combat the pandemic including ventilators, personal protective equipment (PPE) kits, large area sanitisation solutions and Covid-19 sample collection kiosks. Last week, the DRDO stepped forward to provide medical oxygen plants to hospitals in far-flung areas to generate their own oxygen supply.

As reported by Hindustan Times on April 15, the armed forces have also come up with a raft of innovations to combat the pandemic --- from modifying quadcopters to spray disinfectants over large areas to ultra-violet light sanitisers, assisted respiratory systems and 3-D printed masks.

<https://www.hindustantimes.com/india-news/pune-based-institute-diat-develops-microwave-steriliser-to-kill-coronavirus/story-ooTjT5ThyQAYPjZUWOb8LM.html>

DESIDOC

Outlook
THE FULLY LOADED MAGAZINE

Fri, 01 May 2020

Microwave steriliser to disintegrate coronavirus developed

New Delhi: The Defence Institute of Advanced Technology (DIAT) in Pune has developed a microwave steriliser named "Atulya" to deal with coronavirus, which gets disintegrated by differential heating in the range of 560-600 degrees Celsius.

All the trials carried out by the DIAT, a deemed university, supported by Defence Research and Development Organisation (DRDO), of the microwave steriliser was successful.

"The product is a cost-effective solution, which can be operated in portable or fixed installations. This system was tested for human/operator safety and has been found to be safe," the DRDO said.

Depending upon size and shape of various objects, the time of sterilisation is from 30 seconds to one minute.

Approximate weight of the system is three kgs and it can be used for non-metallic objects only.

Also, a mobile viral research laboratory (MVRL) was developed by the DRDO earlier this month in association with Employees' State Insurance Corporation (ESIC) Hospital and private industry

The laboratory was developed by Research Centre Imarat (RCI), the Hyderabad based laboratory of the DRDO in consultation with ESIC Hospital, Hyderabad.

Unveiling the laboratory through video conference, Defence Minister Rajnath Singh had appreciated the setting up of this bio-safety Level 2 and Level 3 lab in a record time of 15 days, against the usual time of six months.

He had stated said this testing facility, which can process more than 1,000 samples in a day, will enhance the country's capabilities in fighting Covid.

The minister said that the government had taken several timely decisions due which the spread of Covid in the country is far less compared to many other countries.

He said the armed forces are contributing in many ways - such as setting up of quarantine centres, providing healthcare facilities, evacuating Indians from other countries etc - to fight Covid and these efforts will continue.

(Disclaimer: This story has not been edited by Outlook staff and is auto-generated from news agency feeds. Source: IANS)

<https://www.outlookindia.com/newscroll/microwave-steriliser-to-disintegrate-coronavirus-developed/1819840>

COVID-19: DRDO/ IIT Contribution



Fri, 01 May 2020

IIT Guwahati students' venture develops low-cost intubation boxes to shield doctors against COVID-19

By Sumir Karmakar

Guwahati: IIT Guwahati students' venture has designed low-cost intubation boxes that promise to obstruct the flow of virus-laden droplets from COVID-19 positive persons to doctors, thereby reducing the chances of their infection.

The device will function as an aerosol obstruction box which is placed atop the patient bed on the head-side, limiting the flow of droplets from the patient to the doctor, especially during the process of intubation.

"As in the case of COVID-19, patients develop respiratory failure thus requiring assistance in the form of endotracheal intubation. Given the nature of this process, healthcare providers are at risk of contracting the virus via droplets either exhaled or coughed out by the patient," said a statement issued by IIT Guwahati on Thursday.

It said the device was inspired by the design of Dr. Hsien Yung Lai, an anesthesiologist from Taiwan.

The box has been developed and designed by Mitochondrial, a student venture for medical innovation mentored by S. Kanagaraj and Sajan Kapil of the department of Mechanical Engineering. It is a low-cost alternative to intubation boxes and is easier to manufacture and deliver amid the lockdown. The projected cost of a box is about Rs. 2,000, which is

significantly lower than alternatives, it said.

The team has received assistance from the DRDO for prototyping and testing at the Solid State Physics Laboratory, New Delhi.

As opposed to other PPEs, this box works effectively for multiple doctors and nurses serving the patient. While the transparent material allows visual access to the head of the patient inside, the arm-holes on the box allow for the care-provider to perform any necessary tasks including intubation and extubation, which are both processes known to be cough inducing. Further, the



The intubation box developed by IIT Guwahati students' venture. (Photo credit: IIT Guwahati)

boxes are reusable, as they may be cleaned thoroughly with 70% alcohol or bleach, to allow use for the next patient, the statement said.

"We feel that it is our responsibility to contribute to this fight against a global pandemic," Umang Mathur said.

The primary prototype of the design has been completed at DRDO, New Delhi, and the box is being reviewed in the field in major COVID-19 care centres, such as AIIMS, New Delhi. Based on the feedback, the design will be further optimised for improved efficacy, before the first batch is manufactured in Gurgaon, Haryana, it said.

<https://www.deccanherald.com/national/iit-guwahati-students-venture-develops-low-cost-intubation-boxes-to-shield-doctors-against-covid-19-831900.html>

The Telegraph
— online edition —

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IIT Guwahati develops intubation boxes

The team has started a crowdfunding campaign in order to manufacture these boxes and provide them to government hospitals for free

By Rokibuz Zaman

Guwahati: Indian Institute of Technology Guwahati students have designed and developed a low-cost intubation boxes.

The device functions as an aerosol obstruction box which is placed atop the patient's bed on the head side, limiting the flow of virus-laden droplets from the patient to the doctor, especially during the process of intubation.

As in the case of Covid-19, patients develop respiratory failure thus requiring assistance in the form of endotracheal intubation.

Given the nature of this process, healthcare providers are at risk of contracting the virus via droplets either exhaled or coughed out by the patient. The device is inspired by the design of Dr Hsien Yung Lai, an anaesthesiologist from Taiwan.



An intubation box Telegraph picture

"It is developed and designed by a student venture for medical innovation named Mitochondrial. Mitochondrial is mentored by Dr S. Kanagaraj and Dr Sajan Kapil of the department of mechanical engineering, IIT Guwahati. It is a low-cost alternative to intubation box and is easier to manufacture and deliver amid the lockdown. The projected cost per box is Rs 2,000, which is significantly lower than existing alternatives," said an IIT statement released on Thursday.

The team has started a crowdfunding campaign in order to manufacture these boxes and provide them to government hospitals for free. The campaign raised a record Rs 50,000 within six hours of launching.

The team has received assistance from the DRDO for prototyping and testing at the Solid State Physics Laboratory, New Delhi, and is consulting Dr Johann Christopher of Care Hospitals, Hyderabad, and Dr Abhijeet Bhatia of NEIGRIHMMS Shillong, to ensure the efficacy of the design.

The primary prototype of the design has been completed at DRDO, New Delhi, and the box is currently being reviewed in the field at major Covid-19 care centres, such as AIIMS, New Delhi.

<https://www.telegraphindia.com/states/north-east/iit-guwahati-develops-intubation-boxes/cid/1769371>