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IIT-M develops steam-based sterilisation system for dental tools

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Developing new way of sterilisation using portable steam cylinders charged by renewable energy-based stations



A team of researchers at the Indian Institute of Technology Madras (IIT-M) has developed a solar-thermal steam-based sterilisation system for dental tools to help conduct medical campus in remote and rural areas, where access to electricity and water could be an issue.

This social project was funded by the Climate Change and Clean Energy (C3E) Division, Department of Science and Technology, Government of India.

In the project, a team from IIT-M developed a new way to sterilise medical equipment using portable steam cylinders charged by renewable energy-based stations (like solar energy) that are placed strategically in rural areas for power generation, steam generation and other uses. The team also designed special sterilisation chambers to utilise such portably stored steam and effectively sterilise the tools.

This project was demonstrated during a medical camp at IIT-M campus on 14th October 2023 and is all set for further trials, following which it is intended to be deployed in the field.

Further, Prof. M. S Ramachandra Rao, Professor, Department of Physics, IIT Madras said, “We have already tested the steam sterilisation unit for sterilising infected dental equipment and the results were found successful. Pilot activities will be scheduled to supply portable steam cylinders for remote areas during the dental camp activities.”

Prof. T. Sundararajan, Visiting Professor, Department of Mechanical Engineering, IIT Palakkad, said, “A techno-economic feasibility of the developed prototype system will be further evaluated before transferring for commercialisation. We have already applied for two patents through the IP Cell at Office of Industrial Consultancy and Sponsored Research in IIT Madras.”