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A purifier that yields arsenic-free water

T. Nandakumar

IIT-Madras getting ready for its commercial launch

Scientists at the Indian Institute of Technology, Madras (IIT-M) are gearing up for commercial release of an affordable nanotechnology-based water purifier that can address the problem of arsenic contamination, a threat to drinking water sources and an emerging health hazard in several parts of the country.

The Arsenic Task Force of the West Bengal government has certified and approved the purifier developed by the IIT-M. "The pilot phase is over, and we are now preparing to take it to the market," T. Pradeep, Professor, Department of Chemistry, who heads the research group working on water purifiers, said.

The team has incubated a company at the IIT-M to commercialise the technology, Dr. Pradeep told *The Hindu* here on the sidelines of the Nano India conference organised by the Department of Science and Technology and the National Institute for Interdisciplinary Science and Technology (NIIST) this week.

The purifier developed by the IIT-M uses iron oxyhydroxide, a nanostructured material, to remove arsenic from drinking water. It functions without electricity or piped water supply. Dr. Pradeep said it could provide arsenic-free water at an approximate cost of five paise a litre. "Over the next few years, we hope it will benefit at least 10 per cent of the people living in arsenic-contaminated areas."

The IIT-M-incubated company will commercialise the technology with partners who can take up distribution.

The research group has also come up with a nanomaterial-based fluoride water purifier. "It will take some more work for field implementation of this purifier. We expect the technology to be ready in six months."

Praveer Asthana, Director of the Nano Mission under the Union Department of Science and Technology, said the water purifiers developed by the IIT-M highlighted the relevance of industry-institution projects in the nanotechnology sector to deliver affordable, efficient solutions.

Dr. Pradeep said nanomaterials could play a key role in low-cost solutions to remove water contaminants. "They

interact with the contaminant to remove it within a very small contact time. It is also possible to tune the chemistry of any of these materials so that they can attack a wide spectrum of contaminants.”

The IIT-M has already developed and commercialised a nano silver-based water purifier that breaks down pesticide residue.

The research team is working on an all-inclusive water purifier to address a wide spectrum of contaminants such as pesticides, mercury, cadmium, lead, fluoride, and arsenic. The group is collaborating with scientists working on other methods of water purification such as reverse osmosis, membranes, and solar and thermal technologies.

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