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CSIR-IMMT researchers use gold to detect lead contamination

13 September 2017 | News

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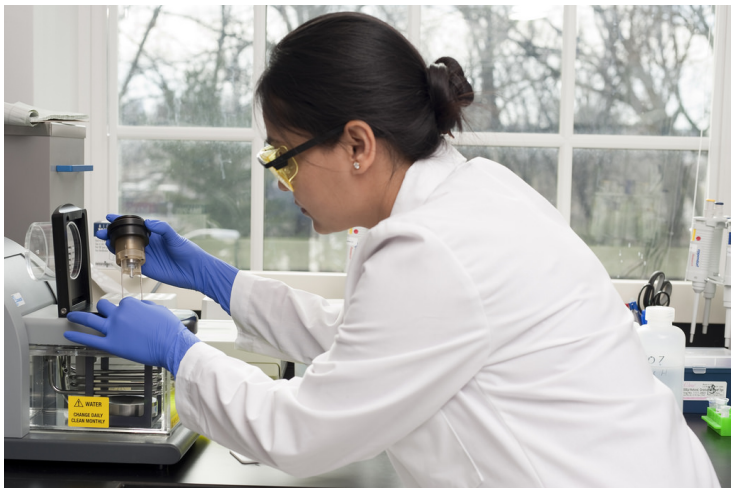

A group of scientists at the CSIR-Institute of Minerals and Materials Technology, Bhubaneswar have used gold nanoparticles to develop a simple method to detect lead in wastewater.

The new technique makes of specially-produced miniscule particles of the yellow metal, and the property of gold nanoparticles to change colour when they ‘bunch-up’ in the presence of metal particles such as lead because of their optical properties.

This method of detecting lead particles using specially-produced gold nanoparticles is a rapid, one-step method. It is a cost-effective method as compared to the more traditional methods of lead detection.

Exposure to lead is known to cause severe and irreversible damage to the brain and nervous system in children, and to the kidneys in adults. It can also result in complications during pregnancy and lead to birth defects.

Though there is a maximum acceptable limit of lead in wastewater, there is no known ‘safe’ level for humans. According to the World Health Organisation, lead poisoning is completely preventable. Therefore, there is a need for a simple and rapid method for detecting lead that is cost-effective and easily administered in lieu of the existing expensive and time-consuming methods.