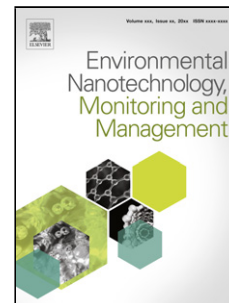


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Author: Yana Bagbi Ankur Sarswat Sachchidanand Tiwari
Dinesh Mohan Arvind Pandey Pratima R. Solanki



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L-cysteine stabilized Zero valent iron nanoparticle and their application for remediation of lead ions from water

Yana Bagbi^{1, 3}, Ankur Sarswat², Sachchidanand Tiwari¹, Dinesh Mohan²,
Arvind Pandey³, Pratima R. Solanki^{1*}

¹Special Centre for Nanosciences, Jawaharlal Nehru University, New Delhi-110067, India

²Department of Physics, North Eastern Regional Institute of Science and Technology, Nirjuli Arunachal Pradesh-791109, India.

³School of Environmental Science, Jawaharlal Nehru University, New Delhi-110067, India

Corresponding author Email: Pratima R. Solanki: pratimarsolanki@gmail.com; Ph: 91-11-26 704740.

Highlights

- L-cyst-NZVI was synthesized by a simple chemical method using ferric chloride as a reducer and L-cyst as a stabilized agent under closed nitrogen atmosphere.
- L-cyst stabilized on NZVI effectively prevents it from oxidation, reduced aggregation, and increased its biocompatibility in-addition increased removal efficiency of Pb²⁺ ions from water.
- The obtained results show 99.9% of Pb²⁺ removal within 25 min.
- Pseudo-second-order kinetic model give the best fitted data. The highest coefficient of determination obtained as $R^2 = 0.99339$.
- Thermodynamic studies illustrate that adsorption process was endothermic in nature.
- FTIR and EDX analyses further illustrated the adsorption of lead onto L-cyst-NZVI.

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