



Nanoparticles as Bio-Remediator for Environmental Pollutants

Mahender Singh Rawat, Saumya Singh, Mehak Aggarwal, Sahil Srivastav, Sudha Srivastava *

Department of Biotechnology, Jaypee Institute of Information Technology, A-10, Sector-62, Noida, Uttar Pradesh-201307, India

Address for Correspondance: Sudha Srivastava, sudha.srivastava@jiit.ac.in

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ABSTRACT: With the alarmingly increasing levels of environmental pollutants, alternative sustainable technologies for remediation are being explored. We present a review of current *in-situ* or *ex-situ* technologies exploiting nanomaterials for development of sorptive, reductive and reactive barrier remediation technologies. Zero-valent iron nanoparticles have received major attention over the last few years for remediation of organic and inorganic pollutants including heavy metals like Zn, Arsenic and Cobalt. In addition to these, iron oxyhydroxide based substrates are employed for removal of harmful metals like arsenic as well as radionucleotides from contaminated water resources. Photocatalytic property of nanomaterials has also been presented for remediation of environmental pollutants by nanomaterials. In addition of these, antimicrobial nature of iron nanoparticles has also been presented for ground water treatment. Nano scale metallic iron pertains to subsurface remediation of heavy metals and other such contaminants so it helps in the reduction of subsurface contaminants such as PCBs, heavy metals and chlorinated solvents. It has high potential and shows promise in future environmental related technologies due to its high reactivity with contaminant metals along with its efficacy. In the end we conclude by presenting the toxicological effect of various nanoparticles themselves and hence the need for thorough evaluation of fate of the nanoparticles before using them in widespread technologies. © 2016 iGlobal Research and Publishing Foundation. All rights reserved.

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