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### Nano-Bioremediation : Fundamentals and Applications

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## 4 - Applications, classification, potential routes, and adverse effects of nanomaterial as environmental contaminant/pollutant

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## Abstract

Nanomaterials (NMs) have various applications in many manufacturing industries such as pharmaceuticals, textiles, dyes, biomedical, food packaging, and fuel additives due to their oxidative, catalytic, and antimicrobial properties. To meet the demand of the dense population across the globe, different countries have improved both the quantity and quality of production via the application of nanotechnology. In view of these, there is possible persistence of NMs in environmental media (air, water, soil, and sediment) from agricultural runoff, domestic wastewater, and industrial effluents released into the environment. Hence, the potential solubility and association of metallic NMs with inorganic and organic matter in the environment may form new compounds or complexes that could cause serious threats or ill health to humans and aquatic biota.

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