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Influence of microplastic on soil properties

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Abstract

Microplastics (MPs) (plastic particles smaller than 5 mm) pollution is a growing concern. Due to their hazardous compounds and ability to carry additional contaminants, MPs are typically regarded as an emergent environmental concern. Solid waste that has been composted is used as a source of organic matter and nutrients in agricultural soils. Additionally, by using it, the principles of the circular economy are followed, and landfilling or incineration is avoided. Despite being the primary source of MP entering aquatic habitats, land-based sources of these particles, such as solid waste, have gotten very little attention. Sludge, food waste, and landfill debris are the primary sources of solid waste. The majority of the MPs were in the form of fibers and fragments, showing that the widespread use of agricultural films is currently the main factor impacting soil MP pollution. The considerable alterations in soil phosphatase and plant root biomass further indicated the possible influence of MP on the cycle of soil nutrients and geochemical elements. The aim and objective of this research are to investigate MP toxicity, contamination in soil, and the significant effects of MP contamination in soil from solid waste. In order to investigate the causes, effects, and present perspective of MP pollution of soil, plants, the human food chain, and other living environments, numerous scientific databases of identification, occurrences, and impacts were examined for pertinent material and citations. Search engines like Google Scholar, Springer Link, Elsevier, Frontiers, etc. were used to find this scholarly literature. This review evaluates the toxicity, major effects on living things and the environment, production, pathway, contamination of the source of MP, MPs in landfill leachate, contamination pathway from solid waste to agricultural soil, and life cycles of MP. This study also discusses the laws, rules, and many forms of advanced treatment methods for mitigation linked to MP.

Key Words: *Microplastics, Contamination, Soil, Landfill, Agricultural soil*