Nanoparticles in Food Chains: Bioaccumulation and Trophic Transfer

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- The original version of the chapter has been revised. A correction to this chapter can be found at https://doi.org/10.1007/978-3-031-54154-4_17

Abstract

This chapter attempts to understudy the extent of nanoparticle transfer within the food chains, as well as factors determining trophic transfer, bioaccumulation, distribution, and toxic effects on predators. With the creation of several NPs, nanotechnology has gained popularity and provided the agriculture business with new tools. The specific benefits and drawbacks of using NPs need to be better understood, and this knowledge and understanding must be increased immediately. Significant levels of produced NPs have been introduced into the agro-environment due to the development of nanotechnologies. Although this technique has several advantages, researchers and industry professionals are concerned about the harmful disposal of different NPs in significant quantities (a few hundred tons annually). It appears that utilizing nanoagrochemicals is essential for advancing contemporary agriculture. The fundamental trophic level in the environment is represented by plants, which are also the primary producers and the main component of the food chain. However, the food chain may be impacted by the plants' overtime contact with NPs and bioaccumulation of those NPs. Understanding trophic transfer potential and biomagnification of nanoparticles is imperative in order to thoroughly evaluate environmental risks linked with these nanoparticles and by extension nanomaterials.

Change history

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