

Toxicity and degradation of chlorinated nitroaromatic compounds

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Chlorinated nitroaromatic compounds (CNAs) are persistent environmental pollutants that are used for the manufacturing of drugs, herbicides, pesticides and dyes. Due to their wide range of applications, CNAs have been distributed in the soil and water. Some common examples of CNAs are chloronitrobenzenes, chloronitrophenols and chloronitrobenzoic acids.

The toxic nature of the CNAs has been attributed and they may cause series problems to human health due to their hematotoxicity, immunotoxicity, splenotoxicity, genotoxicity, hepatotoxicity, nephrotoxicity and carcinogenicity. CNAs have been declared as 'priority pollutants' by United State Environmental Protection Agency.

Due to electron withdrawing properties of chloro and nitro groups, CNAs are considered to be recalcitrance to microbial degradation. A few bacteria that utilized CNAs as a sole source of carbon and energy have been isolated and used for biodegradation. Bacteria also adopt detoxification mechanism to minimize the toxic effects CNAs by transforming highly toxic CNAs into less toxic compounds. The biodegradation of CNAs may proceed through biotransformation, detoxification, mineralization and co-metabolism.

Biography

Dr. Pankaj Kumar Arora has completed his Ph.D at the age of 30 years from Jawaharlal Nehru University, New Delhi and his postdoctoral studies from University of Hyderabad, Hyderabad. He has good publications in the area of Environmental sciences in a short span of time and serving as an editorial board member of the E3 Journal of Environmental Science and Management.

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