

Nuclear Analytical Techniques: Connecting Environment, Polymeric Materials and Public Health

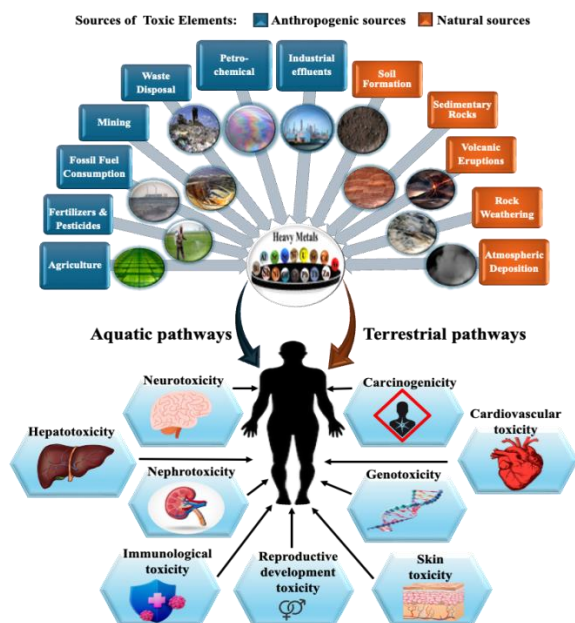
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Keywords: Toxic Elements, Polymeric Materials, Nuclear Reactors, Gamma Ray and Alpha Spectrometry, Activation Techniques, Mobilization in Terrestrial and Aquatic Ecosystems.

Nuclear Analytical Techniques have played a significant role in addressing issues related to environmental and public health by providing reliable data at levels as low as sub parts per billion (ppb) besides offering multi-elemental characterization of complex matrices. The invited talk will highlight the role of nuclear analytical techniques along with conventional analytical techniques in investigating distribution, mobility and human exposure pathways of toxic as well as potentially toxic elements present in aquatic and terrestrial ecosystems as shown in Graphical Abstract. The data obtained by my research group from different research projects undertaken over last two decades on environmentally significant toxic elements and radionuclides such as selenium, arsenic, nickel, chromium, lead, cadmium, polonium and uranium etc. will be discussed in terms of their mobilization behaviour in different types of aquatic and terrestrial ecosystems along with their detrimental effects on human body.



The significance of research work on polymeric materials using nuclear technologies and nuclear analytical techniques in conjunction with conventional analytical techniques will also be discussed to highlight its importance for development of better understanding of physicochemical processes that drive fragmentation of macroplastics into microplastics in natural environment as well as to enable a more comprehensive assessment of their distribution, movement and final fate in different environmental systems.

Graphical Abstract of Sources of Toxic Elements, their mobilization through aquatic and terrestrial pathways to the human body causing detrimental health effect

