

Environmental pollution poses a significant threat to human health and well-being, with exposure to toxic substances leading to various adverse health outcomes such as cancer, respiratory diseases, neurological disorders, and reproductive problems. Environmental toxicology plays a crucial role in understanding the complex interactions between environmental contaminants and human health. By investigating the sources, pathways, and mechanisms of toxicity, environmental toxicologists aim to identify and mitigate the risks associated with exposure to hazardous substances. In recent decades, the escalating concern over environmental pollution and its potential impact on human health has propelled the field of environmental toxicology to the forefront of scientific inquiry. Environmental toxicology, a multidisciplinary science, investigates the adverse effects of various chemical, biological, and physical agents present in the environment on living organisms, with a particular focus on human health. This comprehensive review seeks to elucidate the intricate relationship between environmental toxicology and human health, providing insights into the sources, routes of exposure, mechanisms of toxicity, health effects, and risk assessment and management strategies associated with environmental pollutants. The health implications of environmental pollution are profound and multifaceted, spanning a spectrum of diseases and disorders, from respiratory ailments and neurological impairments to reproductive complications and cancer. As human activities continue to alter the composition and quality of the environment, the need to understand and mitigate the adverse effects of environmental toxins has become increasingly urgent. Environmental toxicology serves as a critical tool in this endeavor, offering invaluable insights into the complex interactions between environmental contaminants and human biology. At the heart of environmental toxicology lies the quest to identify and assess the myriad sources of environmental contamination, ranging from industrial emissions and agricultural runoff to vehicular exhaust and household chemicals. By elucidating the pathways through which pollutants enter the environment and subsequently interact with living organisms, researchers can develop a more comprehensive understanding of the factors contributing to environmental toxicity. Moreover, the mechanisms through which environmental toxins exert their deleterious effects on human health are diverse and intricate, encompassing genotoxicity, oxidative stress, endocrine disruption, and immune dysregulation, among others. Through rigorous experimentation and analysis, environmental toxicologists endeavor to unravel the molecular and cellular mechanisms underlying toxicity, shedding light on the biological processes disrupted by environmental pollutants.

In addition to elucidating the mechanisms of toxicity, environmental toxicology plays a pivotal role in assessing the health risks posed by environmental contaminants and implementing strategies to mitigate these risks. By integrating data on exposure levels, toxicity profiles, and population susceptibility, risk assessment frameworks provide valuable insights into the potential health impacts of environmental pollution,

