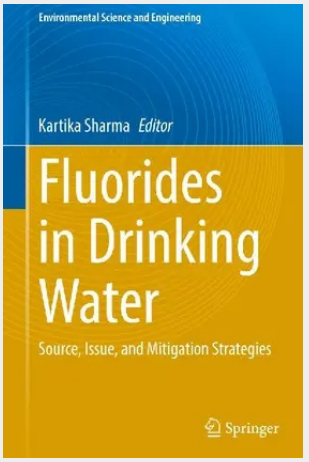
Sharma

Fluorides in Drinking Water

Source, Issue, and Mitigation Strategies



This book brings together a diverse group of researchers to address the challenges posed by global mass poisoning caused by fluoride contamination of water bodies. The book sheds light on this global environmental issue and proposes solutions to contamination through multi-disciplinary approaches. Water is considered a vital resource because it is necessary for all aspects of human and ecosystem survival. However, due to natural processes and anthropogenic activities, various pollutants have been added to the water system. Among these, fluoride and fluorocarbons (fluorinated carbon) are some of the most serious pollutants. It occurs naturally in several minerals and in trace quantities in water. Due to its characteristics, it is very widely used in medicine, dentistry, industry, or agriculture. Fluoride content in drinking water is very important from health point of view as because it has long been recognized as a constituents of bones, teeth, soft tissues, and body fluids. On the other hand, its universality possesses a real threat to the human body in the form of acute and chronic poisoning. There are reports that excessive fluoride intake for extended period causes adverse effects of health such as fluorosis, cancer, arthritis, and other diseases. It has also been observed that fluoride in excess affects human intelligence, especially in children, who are most susceptible to early fluoride toxicity.

This book contains three sections. The first section describes the different sources and distribution of fluoride in water ecosystem. The second section explains the health risks linked to fluoride poisoning. The third section addresses sustainable fluoride toxicity mitigation strategies and the potential applications of recent biological technology in providing solutions. This book is a valuable resource to students, academics, researchers, and environmental professionals doing fieldwork on fluoride and fluorocarbons contamination throughout the world.

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