



Hind Abdellaoui

Mohammed VI Polytechnic University
Morocco

The impact of microplastics on the Environment and health: Reduction and Remediation approaches

Abstract:

Microplastics, plastic particles smaller than 5 mm, pose a serious environmental and public health problem. These particles are found everywhere, from oceans to soils, and even in the air we breathe. Their impact on the environment is considerable: they contaminate marine ecosystems, disrupt food chains and harm biodiversity. Marine animals ingest these microplastics, leading to toxic effects that can pass back to humans through seafood consumption. On human health, microplastics are associated with potential risks, including inflammation, endocrine disruption and other toxic effects that are still largely unknown. This presentation will take an in-depth look at the sources and effects of microplastics on the environment and health. We will explore the latest research on contamination mechanisms and ecotoxicological impacts. Next, we will discuss innovative strategies to reduce the presence of microplastics, such as improving wastewater filtration techniques, banning single-use plastics, and developing biodegradable materials. We will also showcase remediation approaches, such as bioremediation technologies using microorganisms to break down microplastics, and large-scale ocean cleanup efforts. Finally, the presentation will highlight policy initiatives and international collaborations needed to strengthen microplastics regulation and research. Case studies will illustrate the successes and challenges of mitigation and remediation efforts, providing a holistic perspective on combating this environmental scourge.

Biography

Hind Abdellaoui, Ph.D. in Mechanical Engineering, specializes in composite and nanocomposite materials. She is the co-founder of Moroccan Nanotech Corporation (MONACOR), a green engineering startup, and has over nine years of teaching experience in Mechanical Engineering, Entrepreneurship, and Quality Management (ISO 9001). With a decade of R&D experience in composites, nanocomposites, natural fibers, and manufacturing processes, Dr. Abdellaoui is also well-versed in the incubation and startup ecosystems. Her enthusiastic, entrepreneurial mindset and strong initiative have significantly contributed to her professional achievements.