

EDITORIAL

Editorial for *Characterization and Application of Nanomaterials* (Volume 6 Issue 1)

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Nanomaterials stand as transformative elements across diverse domains, ranging from biotechnology, aircraft, aviation, and space exploration to medicine, health, environmental preservation, resources, energy, and aerospace^[1]. This issue, comprising nine original research articles and two insightful reviews, we embark on a journey to unravel the multifaceted uses of nanomaterials, with a special emphasis on their contributions to environmental protection and medicine. Delving into the unique traits of various nanomaterials, our aim is to provide readers with a comprehensive understanding that transcends conventional boundaries, fostering a deeper appreciation for the impact of nanomaterials.

Nowadays, the relentless growth of industries has inadvertently ushered in a surge of pollutants into the environment, sparking a range of environmental issues, from air and water pollution to soil contamination^[2]. The consequences are dire for both human health and the delicate balance of the natural environment. Responding to this urgent need, nanomaterials have emerged as pivotal players in the remediation of environmental pollutants, capitalizing on the advancements in nanotechnology^[2]. Their superiority lies in the abundance of active sites and a vast specific surface area, setting them apart from standard materials and positioning them as potent tools in the fight against pollution^[2]. Notably, in this collection, Bellucci^[3] showcased the prowess of graphene nanoplatelets in cleansing surface water, offering a glimpse into the potential of nanomaterials for environmental sustainability. Furthermore, Shanmugam *et al.*^[4] shed light on the remarkable sustainability of CNF, attributing it to its potential in the circular economy, presenting an eco-friendly alternative to synthetic plastics. Their insights pave the way for replacing synthetic packaging materials with CNF, marking a significant stride towards sustainable practices.

In the realm of medicine, Bahramifar *et al.*^[5] underscore the substantial promise of nanomaterials in creating efficient and low-impact anticancer drugs. Their exploration of suitable carrier systems for anticancer proteins, such as Azurin, opens avenues for developing treatments with minimal side effects. These findings accentuate the potential of nanomaterials in revolutionizing healthcare.

Diving deep into the workings, one paper meticulously examines

the structure and properties of the nanomaterial PMMA, offering invaluable insights for researchers in related fields. Despite the widespread use of nanomaterials and their exceptional capacity to address diverse issues, the realm of nanomaterial research remains an ever-evolving landscape, brimming with possibilities and discoveries.

In conclusion, we extend our warm appreciation to all the authors who have graciously permitted us to share their invaluable research achievements. Together, let us continue to explore the uncharted territories of nanomaterials, where innovation converges with sustainability, shaping a future of endless possibilities.

Conflict of interest

The author declares no conflict of interest.

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