



EDITORIAL

GREEN NANOTECHNOLOGY: TOWARD SUSTAINABLE PHARMACEUTICAL INNOVATION

Nanotechnology has revolutionized drug delivery, but conventional synthesis techniques frequently raise environmental concerns related to dependence on toxic solvents, energy intensive procedures, and long-term effects on the environment. Green nanotechnology is a more sustainable, green alternative that uses phytochemical extracts from plants, renewable biopolymers, or green solvent/nanoparticle stabilizer to produce nanoparticles with less toxicity and better biocompatibility. Many of these innovations are already evidenced in serial publications on phytochemical-mediated metallic nanoparticles, biodegradable nanopolymers, and greener ways of making liposomes and nanogels.

Because green nanotechnology combines therapeutic effectiveness with patient-centered environmental sustainability, it is addressing two major obstacles: improving patient care while minimizing environmental harm. Regardless of the advantages of green nanotechnology, challenges related to commercial viability, scaling up production, reproducibility, and regulatory acceptance will need to be unlocked to achieve commercial clinical implementation. We welcome research at the IRJPS, that harnesses innovation, sustainability and importantly puts in perspective the rapid growth of green nanomanufacturing, bioinspired nanosystems, and environmentally conscious drug delivery platforms. By adhering to rigorous peer-review and interdisciplinary collaboration, the IRJPS will continue to help provide advances in nanotechnology that are embraced not only for the scientific robustness but also by demonstrating responsible stewardship.

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