



Editorial

The Nano Revolution in Pharmacognosy: Unlocking the Therapeutic Potential of Nature

Natural products are an integral source of therapeutics and continue to provide viable options for the current era of drug discovery. However, many phytoconstituents suffer from problems like poor aqueous solubility, poor bioavailability, chemical instability, fast metabolism, and low target specificity. As a result, many promising natural products fail to achieve their true therapeutic potentials. Nanotechnology integration in pharmacognosy emerges as a very effective approach to overcome these problems. Nano-based drug delivery systems, including liposomes, polymeric nanoparticles, solid lipid nanoparticles, nanogels, nanoemulsions, and phytosomes, may enhance the properties of plant bioactives, such as solubility, stability, bioavailability, sustained release, and targetability. This way, they could be developed for phytoconstituents that are suitable for use in the treatment of cancers, inflammatory diseases, metabolic disorders, infectious diseases, and neurological disorders. Another important approach is green nanotechnology, where medicinal plants and their bioactives contribute to nanoparticle fabrication or surface modification. Thus, natural product science is being combined with environmentally safe nanomaterials production. Also, stimuli-responsive and targeted nanoparticles can be considered as ways of controlled drug delivery. Though much progress has been achieved, many problems are still persisting, including botanical standardization, consistency of the batches, nanomaterial characterization, upscaling, stability, toxicity assessment, and harmonized regulation. The increased collaboration of pharmacognosy, pharmaceutical technology, nanoscience, and pharmacology seem to be required. Through this issue, the Indian Research Journal of Pharmacy and Science (IRJPS) welcomes innovative research exploring the interface of pharmacognosy and nanotechnology. Continued interdisciplinary efforts can help transform promising natural products into scientifically validated, safer, and more effective next generation nanotherapeutics.

Prof. (Dr.) Saumendu Deb Roy
Dean Academics
Mata Gujri University
Kishanganj, Bihar, 855107, India
E-mail: baharu75@gmail.com

Indian Research Journal of Pharmacy and Science; 48(2026); 3591
Journal Home Page: <https://www.irjps.in>