

REVIEW ARTICLE

THERAPEUTIC POTENTIAL OF NANO-FORMULATIONS FOR THE TREATMENT OF VARIOUS RENAL DISORDERS

Jatin Kumar^{a*}, Amit Chaudhary^a, Komal Thapa^a, Vishakha Saini^b and Neha Jain^c

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ABSTRACT

Kidney diseases pose a significant health burden worldwide, necessitating the creation of creative therapeutic approaches. Using nano-formulations in the realm of medicine has become a promising strategy, offering potential solutions for various diseases, including renal disorders. Medical advancements made possible by nanotechnology include the tailored delivery of medications to specific tissues. Few nano-formulations specifically target renal diseases, despite considerable interest in them for the treatment, diagnosis and research of illnesses. This comprehensive review aims to explore the potential for medicine with nano-formulations in renal diseases and the unique properties of nanoparticles, their role and mechanism in the management of various kidney disorders, therapies and related challenges associated with their implementation. This article also focuses on various nano-formulations used for the management of renal disorders, like renal fibrosis, chronic and acute kidney disease. Furthermore, we delve into the mechanisms underlying the therapeutic effects of nano-formulations, including targeted drug delivery, enhanced drug bioavailability, tissue regeneration and clinical trials.