

## NOVEL DRUG DELIVERY APPROACHES FOR ENHANCING THE THERAPEUTIC PERFORMANCE OF HERBAL DRUGS”

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### Abstract

Herbal medicines have been widely used in traditional healthcare systems due to their natural origin, therapeutic potential, and relatively low incidence of adverse effects. However, despite these advantages, many herbal drugs fail to produce consistent therapeutic outcomes when administered through conventional dosage forms. This limitation is mainly attributed to poor solubility, low bioavailability, instability in the gastrointestinal tract, and inadequate absorption at the target site. As a result, higher doses are often required, which may reduce patient compliance and therapeutic efficiency. Novel Drug Delivery Systems (NDDS) have emerged as an effective approach to overcome these challenges and enhance the clinical performance of herbal drugs. NDDS are designed to improve drug solubility, protect active phytoconstituents from degradation, and facilitate targeted or controlled drug release. Delivery systems such as nanoparticles, liposomes, phytosomes, transdermal systems, and other carrier-based approaches have shown significant potential in improving the absorption and bioavailability of herbal formulations. This e-poster reviews recent advances in novel drug delivery approaches applied to herbal drugs, with a focus on their role in enhancing therapeutic efficacy and reducing side effects. The use of NDDS allows better drug targeting, reduced dosing frequency, improved stability, and enhanced patient compliance. By integrating traditional herbal medicine with modern drug delivery technologies, NDDS provide a promising platform for maximizing the therapeutic benefits of herbal drugs. Overall, the application of novel drug delivery systems represents a significant advancement in herbal drug development and offers a future-oriented strategy for improving the safety, effectiveness, and clinical acceptance of herbal therapies.

**Keywords:** Herbal drugs, Novel drug delivery, Bioavailability enhancement, Targeted drug delivery, Reduced side effects