

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Volume 4, Issue 1, December 2024

## **Advantages of Nasal Drug Delivery System**

Mr. Sunil Uttam Sakhare<sup>1</sup> and Mr. Vishal Singh Solanki<sup>2</sup>

Student, Vardhaman College of Pharmacy, Karanja (Lad), Maharashtra, India<sup>1</sup> Associate Professor, Vardhaman College of Pharmacy, Karanja (Lad), Maharashtra, India<sup>2</sup>

Abstract: The nasal drug delivery system has received a lot of interest as a non-invasive and effective way to provide medications. Its distinct benefits include quick absorption due to the nasal mucosa's extensive vascularization, bypassing first-pass metabolism, and increased bioavailability when compared to oral administration. This approach is especially useful for administering medications that have little gastrointestinal stability or are destroyed by hepatic enzymes. The nasal route offers an alternative to systemic medication administration, particularly for individuals who have difficulties swallowing pills or injections.

Furthermore, the nasal cavity's closeness to the brain makes it an appealing alternative for treating central nervous system problems, as medications can traverse the blood-brain barrier via the olfactory and trigeminal pathways. Nasal administration is also simple, patient-friendly, and inexpensive, with minimum pain. Advances in formulation technology, such as nanoparticles and mucoadhesive compounds, have improved medication retention and effectiveness. Despite its potential, issues including mucosal irritation and low medication volume must be addressed. Overall, the nasal medication delivery system is a potential tool for increasing treatment results and patient compliance.

Keywords: Systemic bioavailability, Patient compliance, First pass effect, Absorption enhancer, Intranasal drug delivery

