Biochemistry: An Indian Journal

BioChemistry
ISSN: 0974-7427

**Editorial** | Vol 15 Iss 2

# Drug Delivery System: Matrix

**Nima Kizaki***

Editorial office, Biochemistry: An Indian Journal, India

***Corresponding author:** Nima Kizaki, Editorial office, Biochemistry: An Indian Journal, India, E-Mail: chemicalinformatics@chemjournals.org

**Received:** February 19, 2021; **Accepted:** February 23, 2021; **Published:** February 30, 2021

## Editorial

These are the types of controlled drug delivery systems that use both dissolution and diffusion control mechanisms to continuously release the drug. The drug is disseminated in swellable hydrophilic substances, an insoluble matrix of rigid non-swellable hydrophobic materials, or plastic materials to control the release of medications with various solubility qualities. Direct compression of a blend of a drug, retardant material, and additives to make a tablet in which the drug is embedded in a matrix of the retardant material is one of the simplest techniques to the fabrication of sustained-release dosage forms. Before compression, the medication and retardant blend could be granulated. Both hydrophilic and hydrophobic polymers are commonly employed in the creation of matrix systems. Hydroxypropylmethylcellulose (HPMC), Hydroxypropylcellulose (HPC), Hydroxyethylcellulose (HEC), Xanthan gum, Sodium alginate, Poly (ethylene oxide), and cross-linked homopolymers and copolymers of Acrylic acid are all common hydrophilic polymers. Because small particle size is crucial for the quick creation of a gelatinous layer on the tablet surface, it is normally supplied in micronized form. In the world of pharmaceutical technology, the introduction of the matrix tablet as a sustained-release (SR) has provided a fresh breakthrough for novel drug delivery systems (NDDS). The drug release rate from the dosage form is primarily controlled by the kind and percentage of polymer employed in the preparations, which excludes sophisticated manufacturing operations such as coating and pelletization. The use of a hydrophilic polymer matrix in the formulation of an SR dosage form is common. Because of the rising complexity and price of launching new pharmacological entities, the development of sustained-release or controlled release drug delivery systems has received more attention. Matrix systems are commonly utilized to achieve long-term release. It is the release system that controls and prolongs the release of the dissolved or dispersed medication. A matrix is a well-mixed mixture containing one or more pharmaceuticals and a gelling agent, such as hydrophilic polymers. Our sustained-release approach allows for therapeutically effective concentration in the systemic circulation over an extended period, resulting in higher patient compliance. Many SR oral dosage forms have been created, including membrane-controlled systems, matrices with water-soluble/insoluble polymers or waxes, and osmotic systems; however, recent research has concentrated on the designation of SR systems for weakly water-soluble medications. Controlled release medication delivery has recently become the gold standard in modern pharmaceutical design, with extensive research being conducted to improve medicinal product effectiveness, reliability, and safety. The largest proportion of drug delivery systems will continue to be oral sustained release drug delivery medicines. As a result, the goal of this research is to develop tablets that bypass first-pass metabolism and boost bioavailability. As a result, an attempt was undertaken in this work to construct a sustained release method to produce a consistent plasma concentration profile for up to 24 hours. As a result of the foregoing discussion, it is easy to deduce that sustained-release formulations aid in enhancing dose efficiency while also improving patient compatibility. Furthermore, all of this is available at a fair price. The dosage form is simple to adjust and quite useful in the case of antibiotics.

**Citation:** Kizaki N. Drug Delivery System: Matrix. Biochem Ind J. 2021; 15(2):151.