

TITLE

ENHANCING ORAL BIOAVAILABILITY OF DRUGS USING SELF-EMULSIFYING DRUG DELIVERY SYSTEMS

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Delivery of nearly one-half of the drug compounds through gastrointestinal (GI) tract gets thwarted owing to their high lipophilicity and consequently, poor aqueous solubility. Oral bioavailability of such drugs, being primarily a function of their solubility and dissolution, has been found to exhibit inadequate magnitude with high intra- and inter-subject variability. The standard formulation manipulations aiming at bioavailability enhancement have usually been found to be inadequate, ineffective or impracticable for the purpose. Self-emulsifying drug delivery systems (SEDDS), in this regard, are relatively newer lipid-based technological innovations with immense promise in oral bioavailability enhancement of drugs. Self-emulsifying formulations are isotropic mixtures of drug, lipids (natural or synthetic) and emulsifiers (solid or liquid), usually with one or more of hydrophilic co-emulsifiers which form a clear micro- or nano-emulsion instantaneously in the GI tract that remains stable on dilution. These formulations have shown immense promise in augmenting the bioavailability of drugs not only by improving upon their slow and incomplete dissolution, but also by increasing intestinal lymphatic transport, bypassing P-gp efflux and improving resistance to metabolism by cytochrome P450 present in gut enterocytes and liver hepatocytes. Besides endeavoring to provide an updated bird's eye view on the requisite vistas of the self-emulsifying formulations, the current presentation will embark upon our research work on various types of SEDDS including their formulation optimization, and drug bioavailability enhancement as witnessed by their pharmacokinetic and pharmacodynamic evaluation.