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A Technique to Improve the Bioavailabiligy of Poorly Water Soluble Drugs: Solid Dispersion

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Oral bioavailability of a drugdepends on its solubility and/or dissolution rate, therefore efforts to increase dissolution of drugs with limited water solubility is often needed.Improving oral bioavailability of drugs those given as solid dosage forms remains a challenge for the formulation scientists due to solubility problems. The dissolution rate could be the rate-limiting process in the absorption of a drug from a solid dosage form of relatively insoluble drugs. By improvement of drug release profiles of these drugs, it is possible to improve its bioavailability andreduce side effects. When delivering an active agent orally,it must first dissolve in gastric fluids and/or intestinal fluids before it can then permeate the membranes of (GI) gastro intestinal tract to reach systemic circulation.Many methods are available to improve these characteristics including salt formation, micronization and addition of solvent or surface-active agents. Solid dispersions are the most successful strategies to improve drug release of poorly soluble drugs. These can be defined as molecular mixtures of poorly water soluble drugs in hydrophilic carriers, which present a drug release profile that is driven by polymer properties. It consists of two different components i.e.hydrophilicmatix and hydrophobic drug. The matrix can be either crystalline or amorphous. The drugs can be dispersed molecularly, in amorphous particles or in crystalline particles.

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