

Enhancement of Drug Solubility: Review Abstract Articles

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Abstract

Introduction: Poor water-solubility is a common characteristic of drug candidates in pharmaceutical development pipelines today. Various processes have been developed to increase the solubility, dissolution rate and bioavailability of these active ingredients belonging to BCS II and IV classifications. Therefore, enhancement in the solubility of such drugs would be important to the pharmaceutical industry. There is a number of formulation approaches to resolve the problems of low solubility and low bioavailability of drugs. These techniques for solubility enhancement have some limitations and hence have limited utility in solubility enhancement. Nanotechnology can be used to resolve the problems associated with these conventional approaches for solubility and bioavailability enhancement

Methods and Results: There are many techniques which are used to enhance the aqueous solubility. The ability to increase aqueous solubility can thus be a valuable aid to increase efficiency and/or reducing side effects of drugs. This is true for parenterally, topically and orally administered solutions. Hence various techniques are used for the improvement of the solubility of poorly water soluble drugs including hydrotrophy, use of salt form, use of precipitation inhibitors, alteration of pH of the drug micro-environment, solvent deposition, precipitation pH adjustment, co-solvency, micellar solubilization, super critical fluid techniques, solid dispersions, complexation, micro-emulsions, solid solutions, eutectic mixtures, selective adsorption on insoluble carriers, evaporative precipitation into aqueous solutions, use of surfactants, use of amorphous, anhydrates, solvates and nanonisation.

Conclusions:

Solubility is a major challenge for formulation scientist. Any drug to be absorbed must be present in the form of solution at the site of absorption. Various techniques used for the enhancement of the solubility of poorly soluble drugs like physical and chemical modification of have specific advantages and draw backs. Selection of solubility improving method depends on drug property, site of absorption, and required dosage form characteristics

Key words: Novel methods, Solubility, Solubility enhancement, Poorly water-soluble drugs