Triacetin based self emulsifying formulation of a poorly water soluble drug

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The present study deals with formulation of a Triacetin based Self emulsifying formulation of a poorly water soluble drug. Triacetin is a water miscible solvent with high capacity for solubilizing lipophilic agents. This property of triacetin makes it an interesting excipient to work with especially in case of self-emulsifying formulations.

The present research work describes a Self Emulsifying Formulation (SEF) of furosemide using triacetin as a co-solvent. Furosemide is a high loop diuretic with limited water solubility. Hence, the main objective of study was to formulate SEF of furosemide in order to achieve a better dissolution rate to help in enhancing oral bioavailability.

Pseudo-ternary phase diagrams were plotted to check for the micro-emulsification range and also to evaluate the effect of triacetin on the emulsification behavior of the phases. The mixtures consisting of Maisine or Labrafac hydro (HLB value > 4) with Tween 80, PEG 400 and Triacetin) were found to be optimum formulations. Increasing triacetin concentration in the formulation resulted in a wider micro-emulsion existence field as compared to combinations containing no or lower amounts of triacetin. Particle size of the developed formulation was found to be <100nm with poly dispersibility index of 0.0876. Freeze thaw cycling and centrifugation studies were carried out to confirm the stability of the formed SEF. The formulation was found to show a significant improvement in terms of the drug release with complete release of drug within 15 minutes. Thus, Self microemulsifying formulation of furosemide was successfully developed.