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Preparation and Evaluation of Controlled Release Parenteral Nanosuspensions of Anastrazole

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Abstract : Anastrazole is a class of medication called non steroidal aromatase inhibitors. It works by decreasing the amount of estrogen in the body makes this can slow or stop the growth of many types of breast cancer cells that need estrogen to grow. As it is having poor water solubility and poor wettability, anastrazole leads to poor dissolution and hence shows poor bioavailability. The present study is aimed at increasing dissolution rate/solubility of drug and its sustained release property of drug, used as parenteral nanosuspension. Nanosuspension formulations of anastrazole were prepared by anti-solvent solvent precipitation technique. The formulations were characterized by scanning electron microscopy, zeta potential, powder X-ray diffractometry, saturation solubility and in-vitro drug release. The evaluation studies were performed by using optimum formulation based on the particle size and saturation solubility, formulations were selected and further studies with the formulation were conducted. As a result of this method, it was found that the dissolution rate and saturation solubility of the nanosuspension formulation was significantly higher compared to the conventional suspension formulation. Further, the optimum formulation controls the drug release for 24 hours. Therefore, in this study a parenteral nanosuspension formulation of anastrazole were successfully developed and evaluated. The formulation is intended for controlled release delivery of the drug after i.v. administration with enhanced C_{max}.The formulation can be successfully used in breast cancer as it reduces the production of estrogen after intravenous administration.

Keywords : Nanosuspension, anastrazole, tween-80, solvent-antisolvent precipitation method.

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