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Spectrophotometric methods for the determination of Zolpidem Tartrate in acetate buffer

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Two simple, rapid and sensitive spectrophotometric methods were developed for the determination of Zolpidem tartrate in pharmaceutical dosage forms in acetate buffer. Zolpidem tartrate is a Imidazopyridine-derivative sedative and hypnotic structurally unrelated to benzodiazepines and other sedatives and hypnotics. The hypnotic actions of Zolpidem, like benzodiazepine hypnotics, are mediated at the benzodiazepine recognition site of the GABA receptor complex. Chemically, Zolpidem is N, N, 6-trimethyl-2-p-tolylimidazo[1,2-a] pyridine-3-acetamide L-(+)-tartrate (2:1). A double beam UV-VIS spectrophotometer (UV-1800, Shimadzu) connected to computer loaded with spectra manager software UV Probe was employed with spectral bandwidth of 1nm and wavelength accuracy of ± 0.3 nm with a pair of 10 mm matched quartz cells. Method A is a zero order and Method B is a first order (derivative) spectroscopy developed in acetate buffer. In Method A the absorption maximum was observed at 273.53 nm and in Method B the amplitude was recorded (273.53 - 318.07 nm). A graph was drawn with concentration of the drug on the x-axis and the corresponding absorbance and amplitude on the y- axis in Method A and B respectively. Beer-Lambert's law was obeyed over the concentration range of 0.5-60 µg/ml for Method A and 5.0-60 µg/ml for Method B with correlation coefficient 0.999. The % RSD in precision and accuracy studies was found to be less than 2.0. The proposed methods were validated and can be successfully applied for the determination of Zolpidem tartrate in pharmaceutical formulations.

Enhancement of bioavailability of Rosuvastatin calcium tablet using nanocrystal technology

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The nanocrystal formulation of rosuvastatin calcium was prepared by top down and bottom up techniques; the top down technique produced particles in the nanometer size range of below 1000nm. The nanocrystal formulations F-3 , F-4 ,F-5 prepared by top down technique using polymeric and surfactant stabilizers shows that particles size was within the nanometer range, and release of the drug was found to be in a better manner than the formulation F-1, F-2, F-6, F-7. Formulations containing PVP, SLS, Poloxamer 188, Tween 80: PVP, and Tween 80: HPC as polymeric and surfactant stabilizers were prepared and compared. HPC and HPMC containing formulations were found to give better release of drug. The bioavailability studies show that formulation F-5 has increased by 1.8 fold in bioavailability, when compared to the M-1 formulation.

The HPMC stabilizer is a water soluble polymer (Hydrophilic) which has good adequate surface active characteristic when compared to the other polymeric stabilizer of PVP, HPC, and surfactant stabilizers such as a sodium lauryl sulphate, Poloxmer-188, Tween 80. HPMC is a high melting point grade polymeric stabilizer. So it can be made use of in fluidized bed processor or spray drier, for large scale production of nanocrystals formulation of rosuvastatin calcium, to enhance the bioavailability

Design, characterization and evaluation of repaglinide mucoadhesive microcapsule for type-ii diabetes

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The goal of any drug delivery system is to provide a therapeutic amount of drug to the proper site in the body and also to achieve and maintain the desired drug concentration. Microencapsulation is a process where by small discrete solid particles or small liquid droplets are surrounded or enclosed by an intact shell. Repaglinide is an antidiabetic agent used in the treatment of type II diabetes mellitus. The plasma halflife of repaglinide is about 1 hour. An attempt is made to microencapsulate repaglinide by ionotropic gelation technique with a view to prevent the gastric side effects and to achieve an oral controlled release of the drug. Polymers used in this technique are HPMC, carbopol, calcium chloride as a crosslinking agent and sodium alginate as a viscosity builder. In the present study five formulations were formulated by using HPMC and carbopol in various proportions. All the formulations were subjected for evaluation results of preformulation studies, granulometric study, angle of repose, entrapment efficiency, in-vitro dissolution study have shown satisfactory results. The in-vitro release study of formulations F1 to F5 shows retarded release with increase percentage of HPMC and carbopol. On the basis of release data and graphical analysis formulation F1 and F4 showed a good controlled release profile with maximum entrapment efficiency.