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Studying the effect of concentration of surfactants on the release of Ofloxacin from niosomes

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Non-ionic surfactant vesicles (niosomes) containing an antibacterial drug ofloxacin were prepared by thin film evaporation by sonication method in different molar ratios of cholesterol and surfactant. The niosomes were prepared by using various nonionic surfactants such as Span 40, Span 80, Tween 20 and Tween 80. The prepared niosomes were characterized with respect to size distribution, drug entrapment efficiency, osmatic shrinkage and in vitro drug release profile. Niosomes were spherical with a size range of 0.5 to 5µm. The oleate chain (C_{18}) non-ionic surfactant vesicles showed highest entrapment efficiency than the lauryl chain(C_{12}) non-ionic surfactant vesicles. The cholesterol at 1:1 molar ratio found to have the highest entrapment efficiency. The in vitro results revealed that the release of the drug from niosomes by a diffusion controlled mechanism. The slow release observed from these formulations is beneficial for reducing the toxic side effects of ofloxacin. The methods employed for the preparation of the niosomes were reproducible with respect to the size distribution and percent drug loading values.

High performance liquid chromatographic method for the determination of Raloxifene hydrochloride in pharmaceutical formulations

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Raloxifene hydrochloride is a new anti-osteoporotic agent, with a chemical name 6-Hydroxy-2- (4-hydroxy phenyl) benzo {b} thien-3-yl] [4-{2-(1-piperidinyl)-ethoxy}-phenyl] methanone. Clinically it is effective in the treatment of breast cancer. An isocratic RP-HPLC method was proposed for the determination of Raloxifene hydrochloride in pharmaceutical formulations (Tablets). Isocratic elution was performed using sodium acetate and methanol as mobile phase. The overall run time was 10 min. and UV detection was carried at 287 nm. 20 µL of sample was injected into the HPLC system. In the present work chromatographic separation was achieved by using a C-18 (250mm × 4.6mm i.d., 5 µm particle size) column of Shimadzu Model CBM-20A/20 Alite, equipped with SPD M20A prominence photodiode array detector, maintained at 25 °C. Linearity was observed in the concentration range of 1–250 µg/mL (R^2 = 0.999) and the method was validated as per ICH guidelines. The RSD for intra-day and inter-day precision were found to be less than 2 %. The percentage recovery was in good agreement with the labeled amount in the pharmaceutical formulations and the method is simple, precise, accurate and robust for the determination of Raloxifene hydrochloride.

Derivative spectrophotometric methods for the determination of Rizatriptan Benzoate

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Rizatriptan benzoate is chemically described as 3-[2-(dimethylamino) ethyl] - 5-(1H-1, 2, 4-triazol-1-ylmethyl) indole monobenzoate. It is a selective serotonin 5-HT1B/1D receptor agonist which is used in the acute treatment of migraine headaches. The literature survey reveals that various methods include Liquid chromatography, LC-MS/MS, were developed for the determination of Rizatriptan benzoate. A double beam UV-VIS spectrophotometer (UV-1800, Shimadzu, Japan) 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 was developed in 0.1N HCl and the absorption maximum (λ_{max}) was recorded at 226 nm. In Method B the drug has shown absorption maximum (λ_{max}) at 225 nm in distilled water. Rizatriptan benzoate follows Beer-Lambert's law over the concentration range of 0.5-30 µg/ml (r^2= 0.999) for Method A and 1.0-30 µg/ml (r^2= 0.998) for Method B respectively. The % RSD in precision and accuracy studies was found to be less than 2.0. The proposed methods were validated as per the ICH guidelines. The developed methods can be successfully applied for the determination of Rizatriptan benzoate in pharmaceutical formulations.