FORMULATION AND EVALUATION OF TRAMADOL HYDROCHLORIDE MICROSPHERES BY EMULSION SOLVENT EVAPORATION METHOD USING DIFFERENT POLYMERS.

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ABSTRACT:

In this work, an effort was made to formulate microspheres of tramadol hydrochloride. Prepared microspheres were found to be discrete, spherica1 and free flowing and have nearly uniform size in SEM. Among all formulations the formulation F6 showed maximum percentage yield and F3 formulation showed highest drug entrapment .The IR spectra of the pure drug and microspheres with polymers were compared and the characteristic peak for microspheres in spectra was found to be super imposable to that of the pure drug and no extra peaks were found which gave evidence that there was no drug polymer interaction. Maximum release of tramadol hydrochloride from various formulations was achieved within 12 hours and maximum retardation of drug release was in microspheres with the polymer ethyl cellulose i.e. formulation F3.The release mechanism of the tramadol hydrochloride formulation was determined by comparing their respective correlation coefficients. Drug release from microspheres prepared by using ethyl cellulose gave good sustained release when compared to other polymers. From the release profiles it can be understood that the polymer used influences the rate of release of the drug. The formulation followed zero order release kinetics, Higuchi's and Peppas release plots stated non-fickian and diffusion controlled release. SEM demonstrated the spherical nature of the microspheres and the presence of the drug particles on the surface.

KEYWORDS- Entrapment efficiency, Microspheres, Polymer, SEM

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