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Formulation and characterization of Ethyl cellulose microspheres loaded with Lornoxicam

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The aim of this work was to study the potential of delivering lornoxicam as an efficient potent analgesic drug into more absorbed, small polymeric sustained release microspheres. The emulsification and solvent evaporation method are most successful methods for drugs that are insoluble in the aqueous medium. Otherwise, the drug will favorably partition into the aqueous phase resulting in low core loading. Lornoxicam was dissolved into ethyl cellulose in methylene chloride. For emulsification Tween-80 and carboxy-methylcellulose were used as emulsifiers. The emulsion was stirred using Homogenizer Branson 450 for 30 minutes in order to reduce the particles size. Encapsulation efficiency EE%, size and weight of Microspheres loaded with Lornoxicam were determined. Furthermore, the release profiles of Lornoxicam from ethyl cellulose Microspheres were measured in phosphate buffer pH 7.4, as it's the media required for releasing of ethyl cellulose. The results showed that EE% for all forms of microspheres was decreased with the decrease in drug: polymer ratios. SEM showed synthesized NPs in different shapes such as cubes, rods, and triangles for the LOR coated with glycerin as nanoparticles. Moreover, higher EE% was observed within the GNPs reaching about 83%. The Microspheres had a mean diameter of 50±5 μm. The release rate of lornoxicam from Microspheres was strikingly higher than that from drug itself, confirming that the release was enhanced with controlling for the release. The here presented microspheres formulations serve as promising platform to improve the solubility, absorption and sustained release of lornoxicam.

Biography

Gamal Zayed has completed his PhD from Al-Azhar University, Egypt. Presently he is a Faculty at Al-Azhar University and published more than 5 papers in reputed journals.

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