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Preparation and evaluation of mefenamic acid microspheres using natural and synthetic polymers

Mefenamic acid is a widely prescribed NSAID and used as first line therapy for the treatment of ailments such as Arthritis and Dysmonorrhoea. It is considered to be a BCS Class II drug (low soluble and high permeable). Mefenamic acid has less biological life $t_{1/2}$ 1.5-2hrs. Frequent administration of drug to maintain the desired steady state level. Formulating such drug into controlled drug delivery system i.e.; microspheres using different polymers is expected to increase the sustain release action and to improve patient compliance by reducing the dosing frequency. The present investigation was undertaken to prepare mefenamic acid loaded microspheres for sustained release using different polymers ethyl cellulose as synthetic polymer and sodium alginate as natural polymer and compare and selecting best suitable polymer among them. Mefenamic acid microspheres using ethyl cellulose as synthetic polymer prepared by solvent evaporation method and using sodium alginate as natural polymer prepared by inotropic gelation technique. All formulations were prepared by varying the drug and polymer concentrations. The obtained microspheres were characterized for surface morphology, stability and evaluated for percentage yield, drug content, entrapment efficiency and Invitro drug release. Comparative study was performed between the best formulations of Ethyl cellulose and sodium alginate polymers. The higher zeta potential value -78.2mv, entrapment efficiency 92.5%, drug content (93.4%) was obtained with F4 formulation (1:2.5) that is microspheres prepared using ethyl cellulose as a polymer by solvent evaporation method. And the drug release is sustained for 12hours with drug release rate of 90.4% following first order rate constant with fickian diffusion.



Dr. A. Krishna sailaja

RBVRR Women's college of pharmacy, India

Biography

Dr. A. Krishna sailaja published more than 140 research papers in national and International journals of high repute. She delivered more than 20 lectures in national and International conferences and webinars. Filed 4 patents in novel drug delivery system. Published 5 books. Received best scientist award and best faculty award for her Professional contribution. Currently working as Associate Professor and Head, Department of Pharmaceutics, RBVRR Women's college of pharmacy, affiliated to Osmania University, Hyderabad.

shailaja1234@rediffmail.com