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FORMULATION AND EVALUATION OF CONJUGATED MUCOADHESIVE MATRIX TABLETS CONTAINING ESOMEPRAZOLE PREPARED BY TIMERx TECHNOLOGY

Mr.Eby George*[1],Anjali K Biju[2],Fathima Meethian[3],Linta Benny[4],Suvarna Varghese[5]
Nirmala College Of Pharmacy,Muvattupuzha,Ernakulam,Kerala-686661

Abstract

Background: The recent advances in the emergence of gastro retentive controlled drug delivery systems envisages the development of mucoadhesive controlled release tablets for the treatment of gastric ulcers.Objective:This work deals with the formulation and evaluation of mucoadhesive controlled release tablets containing Esomeprazole magnesium hydrochloride prepared by TIMERxtechnology.The blend of TIMERx polymers Xanthan gum and Locust bean gum enhanced the duration of drug release in more controlled way.A total of 6 formulations namely F1,F2,F3,F4,F5 and F6 tablets were prepared by TIMERx technology containing bioadhesive polymers Chitosan,Carbopol 974P,Polyvinyl pyrrolidine,SodiumCMC,Sodium Alginate and Polaxomerrespectively.Materials and Methods:The prepared tablets were subjected to pre and post compression evaluation studies.The flow properties were shown to be excellent for all powder blends assessed from their Carr's Index values.F4 shown maximum hardness whereas F4 and F5 shown maximum mucoadhesion time with minimum swelling.Conclusion:Consideringmucoadhesiontime,swelling index and mucoadhesive strength F5 was selected and subjected to invitro dissolution studies and kinetic data analysis,which are compared with the marketed controlled release tablets of Esomeprazole.F5 showed the maximum cumulative percentage release of 64.20% following zero order release pattern,whereas marketed formulation showed a release of 36.62%.F5 had proved to be the best candidate considering maximum percentage drug release in controlled pattern.Mucoadhesion time and strength are prerequisites for Esomeprazole intended to be released on stomach and upper part of gastrointestinal tract,potentially decreasing gastric acid secretion in peptic ulcer patients.

Keywords: TIMERx, Esomeprazole ,Locust bean gum ,Xanthan gum,Controlled Drug Delivery System

Corresponding Author:
Mr.Eby George
Associate Professor
Nirmala College Of Pharmacy
ebykunnappillil@gmail.com
Mob:9544546813

FORMULATION AND EVALUATION OF TOPICAL GEL INCORPORATED WITH NIMESULIDE LOADED MAGNETITE NANOPARTICLES

Ms. Sophymol P E*[1], Ms. Melgi shaji[2], Mr. Jeffin James[3], Mr. Gheevarghese Devasia[4], Mr. Dhanish Joseph[5]
Nirmala College of Pharmacy Muvattupuzha, Ernakulam, Kerala-686661

Abstract

Nimesulide is a relatively COX-2 selective, non-steroidal and anti-inflammatory drug(NSAIDS) with analgesic and pyretic properties. It is used for the treatment of acute pain, inflammation and for the symptomatic treatment of osteoarthritis. But nimesulide is banned in many countries due to liver failure. Thus the present study was aimed to develop a suitable dosage form to apply topically at inflammatory conditions, without affecting internal organs. This study covert nimesulide into magnetically modulated topical gel for topical application. The magnetic field over the applied field helps to retard the movement of drug into the deeper tissues. This results in accumulation of dosage form and delivery of drug at controlled rate in the target site. Nanosized magnetite particles using HPMC K15M, PVP and HPMC E5 rate controlling polymers. The polymer and its concentrations were optimized. The prepared drug loaded magnetite particles were converted into topical gel preparation.

Keywords: Magnetite nanoparticles, nimesulide gel, co-precipitation, powder coating.

Corresponding Authour:
Ms. Sophymol P E
Fourth Year B Pharm
Nirmala College Of Pharmacy, Muvattupuzha
Ernakulam District, Kerala, India-686661
Phone No:8547707170
Email:sophypariyarathu98@gmail.com

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NIRMALA COLLEGE OF PHARMACY Muvattupuzha Ernakulam Dist. Kerala