SRDHS
SOCIETY FOR RESEARCH DEVELOPMENT IN HEALTH SCIENCE

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Sponsored

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"Invigorating Research in Pharmaceuticals: Reasonable Industrial Approach"

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Souvenir and Abstract Book

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NANOEMULSION BASED TRANSDERMAL DELIVERY OF CURCUMIN AND CAPSAICIN: AN INNOVATIVE APPROACH FOR THE TREATMENT OF RHEUMATOID ARTHRITIS

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ABSTRACT

Nanoemulsion is one of the good examples of novel colloidal carrier system which is convenient for solubilization of poorly soluble drugs to enhance the transdermal permeation. The aim of the present study was to develop and evaluate the topical nanoemulsion formulation containing plant actives like Curcumin and Capsaicin and incorporated the same emulsion into hydrophilic patch. Different blends of the primary/secondary surfactant mixtures were used with appropriate amount of lipid phase. Final concentrations were determined using pseudo ternary phase diagram. Only those oil/surfactant mixtures were chosen which does not undergo phase separation depending upon the solubilizing capacity of plant actives. The resultant stable nanoemulsion was loaded into patch prepared by solvent casting method using soluplus (a novel hydrophilic film former and solubilizer). Scanning electron microscopy and particle size analysis showed nano size globules in the range of 30- 38 nm. In-vitro drug diffusion study showed the release of 85 % of curcumin and 78% of capsaicin at the end of 6 h. Nanoemulsion patch showed better anti-inflammatory activity in animals. Stability and freeze thaw study showed no physical and chemical changes, retaining very good anti-inflammatory activity. Based on the results it could be concluded that nanoemulsion based transdermal patch formulation can be used as a possible alternative to traditional topical formulations of curcumin and capsaicin to improve transdermal permeation for rheumatoid arthritis.

Keywords Nanoemulsion, curcumin, capsaicin, soluplus, transdermal patch.

FORMULATION DEVELOPMENT AND EVALUATION OF DELAYED RELEASE PELLETS OF ESOMEPRAZOLE

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ABSTRACT

The aim of present study is the formulation, development and evaluation of delayed release pellets of Esomeprazole. The objective of the current study is to formulate and evaluate delayed release capsules of proton pump inhibitors comparable to the innovator, which is expected to Treat gastro-esophageal reflux disease (GERD) and bypass the acidic pH of the stomach. Solution or suspension layering techniques which are used for the preparation of final pellets. Formulation was planned and performed in 4 different stages: seal coating (5% HPC), drug layering (35% HPC was used as binder), barrier coating (25% HPC as the film forming agent) and enteric coating (55% Eudragit L30 D55 as enteric coating polymer). The pellets were manufactured on GPGC 1.1 and evaluation like flow property, product yield, dissolution, assay, weight variation etc. The drug-excipient compatibility of esomeprazole which carried out using excipient and there no any impurity was found. Particle size of enteric coated pellets was perform using sieve shaker and 95% pellets was in-between 16-20# ASTM sieve. Dissolution profile of pellets was perform using 0.1 N HCL and 6.8pH phosphate buffer and f2 value was observe 69 and 75 respectively. Assay was found 98% against reference product and assay limit 92-110%. It was found that prepared formulation gave satisfactory results compared with marketed sample dissolution profile. Hence prepared formulation by-pass the degradation of Esomeprazole in acidic environment by enteric coating approach and can be used as single unit dosage for the treatment of acid-related diseases. Thus a pharmaceutically equivalent, robust formulation of Esomeprazole delayed release pellets was developed.

Keywords Proton Pump Inhibitors,gastro-esophageal reflux disease,Eudragit L 30 D55, Gastric pH.