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Estimation of intestinal permeability of E and Z guggulsterone using Mandin Darby Canine Kidney (MDCK) cell line

Rajbir Singh[1], Jagadeesh Panduri[2], Y.S Chhonker[1], Devendra Kumar[1], Deepak Kumar[1], Pankaj Shrivastava1, Vijay Kumar[2] and R.S. Bhatta[1]

[1]Pharmacokinetics and Metabolism Division, Central Drug Research Institute, Lucknow, India
[2]Department of Pharmaceutics, National Institute of Pharmaceutical Education and Research, Raebareli, India

The gum resin of the tree Commiphora mukul has been used in Ayurvedic medicine to treat a variety of ailments, including obesity, arthritis, inflammation, and lipid disorders. The active compounds in this resin are the cis and trans isomers of guggulsterone (GS) (4,17(20)-pregnadiene-3,16-dione). Intestinal absorption potential of E & Z isomers across the Mandin Darby Canine Kidney (MDCK) was calculated using HPLC-UV method. Method was validated in terms of accuracy, precision, selectivity, sensitivity, recovery. Apparent permeability coefficient of E isomer from apical to basal and basal to apical was 9.24 ± 0.013×10^{-5} cm/sec and 1.07 ± 0.08×10^{-4} cm/sec respectively. Similarly apparent permeability coefficient of Z isomer from apical to basal and basal to apical was 7.84 ± 0.093 $\times10^{-5}$cm/sec and 8.45 ± 0.3 $\times10^{-5}$cm/sec. Lucifer yellow and Rhodamine 123 were used as paracellular and P-gp marker substrate and apparent permeability coefficient was measured.

Development and optimization of Triamcinolone acetonide Niogel

Sanjeevani R. Desai, Durgacharan A. Bhagwat and John I. Disouza

J.J.T. University, Rajasthan, India

Skin is a widely used route of delivery for local and systemic drugs and is potentially a route for their delivery as non ionic surfactant vesicle. Drug delivery by topical route is effective only by better skin penetration to the required layer of skin. The skin provides a natural physical barrier against particle penetration, but there are opportunities to deliver therapeutic nano vesicle, especially in diseased skin and to the openings of hair follicles.

Triamcinolone acetonide (TA) is a corticosteroid that is used in the systemic and topical treatment of many inflammatory diseases. The molecular weight of Triamcinolone acetonide is 434.51 and it is lipophilic in nature, so its dissolution is very slow results very low amount of absorption. By considering these problems we have encapsulated the drug into the non-ionic surfactant vesicles (niosomes) for delivery of drug to the site of action. Niosomes were prepared by modified "Ether injection method" using nonionic surfactant and cholesterol (CH) as important variable in the formulation. The developed niosomal formulations were optimized by using 3^2 factorial design approach.

Conventional anti-inflammatory formulation creamy and sticky formulation it is not patient friendly. So aim of research is to develop niosomal gel formulation with increase permeation and therapeutic efficiency. Further topical applicability of drug is enhanced by development of the niosomal gel. Optimized nanodispersion batch was incorporated in to Carbopol as a polymer. Stable niosomal gel was evaluated for the various parameters like drug content, pH, spredability, viscosity, microscopic evaluation. The stability studies of the developed gel were carried out.