Formulation and Evaluation of Ethosomal Gel of Antiscabetic Agent

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Abstract

Scabies is an intensely pruritic skin infestation caused by the host-specific mite, *Sarcoptes scabiei* var *hominis.* The main treatment is the application of topical antiscabetic agents, with repeated application for 7 days. Crotamiton is the drug used in treatment of Scabies. The most common problem of marketed preparation of Crotamiton is low intradermal absorption. The aim of present study was to formulate and evaluate the ethosomal topical gel of Crotamiton for the treatment of scabies which could enhance the permeation of the drug through skin reducing its dosing frequency and enhancing its efficacy. The drug excipient compatibility was determined using FTIR. The ethosomes were prepared by modified cold method using phospholipon 90G (soya lecithin), ethanol and cholesterol as main components. The ethosomes were characterized for particle size, zeta potential, % entrapment efficiency and in-vitro drug release study. The optimized ethosomes were loaded in to structured vehicle like carbopol. The ethosomal gel loaded in carbopol gel base was further evaluated for viscosity, pH, spreadibility and in-vitro skin permeation drug study. No incompatibility between drug and excipients was observed by the FTIR study. The vesicle size, zeta potential, % entrapment efficiency and % drug release of ethosomes were found to be 217.8 nm, -24.3 mV, 73.25 % and 69.63% respectively. The pH, viscosity and spreadability of ethosomal gel were found to be 6.02, 11648 cp and 4.84 gm.cm/sec respectively. The in-vitro skin permeation was found to be 68.34 % after 24 hours. The ethosomal gel was stable at refrigeration temperature. Comparison of ethosomal gel with the free drug loaded gel revealed that ethosomal gel gives release of drug over prolong period of time and shows higher skin permeation.

Hence the developed ethosomal gel could provide a better approach for improved permeation of drug through the skin, for the treatment of scabies.

Keywords: ethosomes, ethosomal gel, scabies