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Design and development of ethosomes for enhanced transdermal delivery of Thiocolchicoside

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Aim of present investigation is to design ethosome as novel vesicular system as potential transdermal drug delivery of thiocolchicoside. Ethosome as novel vascular system has recently been used to increase permeation of drug through the skin. Ethosome was prepared by cold method. Ethosome was prepared using different concentrations of phospholipid 90G, Ethanol, Cholesterol and Propylene glycol. The formulation was optimized by applying 4-factor 3- level Box-Behnken design. Concentrations of Phospholipid 90G (X1), Ethanol (X2), Cholesterol (X3) and Propylene glycol (X4) were selected as independent variables, whereas Vesicle size (Y1), % Entrapment Efficiency (Y2) and %Q24 (drug permeated after 24hrs) was selected as dependent variables. The results of the study indicated ethosomes had a lower vesicle size in the range of 200 to 700 mm, had a high entrapment efficiency up to 96%, and had enhanced permeation of drug up to 95% after 24hrs. Results of in-vitro skin permeation study indicated that ethosomes were having high permeation rate through skin and had high permeability co-efficient (27*10-3 to 34.54*10-3 cm/hr.). Evaluation and characterization of ethosome indicated lower vesicular size in nm and high entrapment efficiency of drug in to vesicles. *In-vitro* skin permeation study demonstrated that novel vesicular drug delivery system ethosome could be the potential carrier for enhanced transdermal drug delivery of drugs like thiocolchicoside.

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