

**Topically Applied Ultradeformable Transferosomal Based Gel for the Treatment of Psoriasis****Submitted By**

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**Abstract**

Psoriasis is a chronic inflammatory genetic disease of the immune system which affects the skin and/or joints. Tazarotene belongs to class of retinoic acid receptor. Tazarotene targets the keratinocytes and modulates the major causes of psoriasis. However, the most common side effects of tazarotene are burning sensation and skin irritation at application site, which prompt for development of novel carrier that could effectively target tazarotene to site of action without producing undesirable side effects. The aim of present investigation was to prepare and characterize tazarotene encapsulated transferosomal gel for the treatment of psoriasis with least burning sensation and irritation. Drug excipients compatibility was determined using FTIR. Transferosomes were prepared by thin film hydration method using HSPC and surfactant. Prepared transferosomes were characterized for vesicle size, zeta potential and percent drug entrapment. Optimized transferosomal formulation was incorporated in structured vehicle such as HPMCK100M to formulate the gel. Transferosomal gel was evaluated for viscosity, spreadability, pH, *in vitro* drug release study, *ex vivo* permeation study, skin irritation study and stability study. No incompatibility between drug and excipients was observed that indicated by FTIR. The vesicle size, zeta potential & percent entrapment was found to be  $130\pm 0.53$  nm,  $-10\pm 0.21$  mV and  $75.23\pm 0.96$  % respectively. The pH and viscosity of transferosomal gel was found to be 6.5 and  $32000\pm 0.023$  cps respectively with good spreadability. The cumulative

percentage drug release of tazarotene from transferosomal gel and marketed gel (0.05%) was found to be  $85\pm 0.21\%$  and  $79.81\pm 0.43\%$  respectively. Percentage of drug permeated of tazarotene from transferosomal gel and marketed gel was found to be  $74.01\pm 0.65\%$  and  $61.27\pm 0.56\%$  respectively at the end of 24 hr. Skin irritation of transferosomal gel was found to be less compare to marketed gel. Tazarotene loaded transferosomal gel was stable at refrigerator condition. The present investigation provides a practical approach for topical delivery of tazarotene encapsulated in transferosomes with least side effects such as burning and skin irritation.

*Keywords:* Tazarotene; Transferosomes; Psoriasis.