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Mometasone furoate-loaded aspasomal gel for topical treatment of psoriasis: formulation, optimization, in vitro and in vivo performance

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Abstract: Background Present investigation was aimed to develop aspasomal gel of Mometasone Furoate for the treatment of Psoriasis that are biologically active and deliver drug at controlled rate and decrease dosing frequency.

Methods The vesicles were fabricated using film hydration method and optimized using 32 factorial Design. Prepared formulations were evaluated for percent drug loading, vesicle size, Zeta potential, polydispersity index and morphological studies. Gel was prepared using carbopol by loading optimized drug loaded asposomes and was evaluated for drug content, pH, viscosity and spreadability. The drug release study from the gel was done using dialysis membrane and goat skin. Anti- oxidant potency of the prepared aspasomal gel was determined by Ferric Reducing Assay whereas, in-vivo performance for inflammation and skin irritation was carried out using Wistar rats.

Results Optimized aspasomes demonstrated desired properties for entrapment efficiency (74.72 ± 1.8), vesicle size (282.9 ± 1.7), polydispersity index (0.2), zeta potential (-20.2 mV) with spherical shape. The results recorded for drug release from the optimized aspasomal gel exhibited sustained release (24h) compared to the marketed cream (5h). Depot formation of Mometasone furoate loaded aspasomal gel in the epidermis was confirmed by ex vivo skin penetration study by using fluorescent marker. In-vivo study revealed no any irritation and inflammation to the skin promoting drug delivery system to treat psoriasis.

Conclusion In conclusion, Mometasone furoate loaded aspasomal gel releases the drug for longer duration of time and reduce dosing frequency, providing the new dimension for the treatment of psoriasis.

Key words: Mometasone furoate, vesicles, aspasomes, ascorbyl palmitate, psoriasis, carbopol

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