

Sardar Patel University

Vallabh Vidyanagar-388120

Final Report of the work done on the Inter Disciplinary Research Project

1. University Reference No. : G/No.DST Purse/12-13/1674
2. Period of report: From : 06/06/2012 to 31/03/2013
3. Title of Research Project: Hydrogel Thickened Microemulsion of Methotrexate for the Treatment of Psoriasis: Formulation and Clinical Implications
4. (a) Name of the Principal Investigator: Dr. Tapan R. Shah

(b) Deptt. Where work has progressed: Post Graduate Department of Pharmaceutical Sciences.
5. Effective date of starting the project : 08/08/2012
6. Grant Approved and expenditure incurred during the period of the report:
 - a. Total amount approved: Rs. 1,00000/ (Rs. One lakh only)
 - b. Total expenditure Rs. Rs. 20,000/-
 - c. Report of the work done:
 - i. Brief objective of the project

Psoriasis is a quintessential chronic skin disorder known to affect a wide segment of population (nearly 2.5% of total world population) across the different age groups globally. Management of this disease requires knowledge regarding its occurrence, causative factors and behaviour of disease in different individuals.

Methotrexate is a folic acid antagonist with anti psoriatic as well as anti neoplastic activity. It is also effective in controlling recalcitrant psoriasis when administered by oral or parenteral route for long term. However, the systemic use of this drug unleashes number of adverse reactions including serious adverse reactions like hepatotoxicity. To reduce these systemic side effects, clinical studies with topical methotrexate have been undertaken for treating a plethora of cutaneous conditions and were approved by FDA in 1971 for treating severe psoriasis. However, one of the major limitations associated with currently available marketed preparation of methotrexate is limited diffusion and subsequent absorption of drug across the skin as it remains hydrosoluble and mostly in ionized form at physiological pH. One of the formulation strategies to enhance the penetration of drug across the skin in a non invasive manner is to formulate the drug in microemulsion based system.

