Psoriasis is a disease of skin that is characterized by chronic relapsing nature and variable clinical features, it affects 2% to 3% of the northern hemisphere. Treatment of psoriasis is passed on symptomatic therapy that is able to induce remission of the disease, no therapy is yet able to induce permanent remission. The mechanism of action of methotrexate is based on its behavior as a competitive inhibitor of dihydrofolate reductase (DHFR), which is essential for the reduction of dihydrofolate to tetrahydrofolate. Thus, by blocking thymidylate synthesis methotrexate blocks DNA but not RNA synthesis and thus inhibits cellular replication. The drug is cell-cycle specific and active in the S phase of the cell cycle. In this work, methotrexate was not used in the free state but as gel-encapsulated methotrexate (Gel-LMTX). The gel-encapsulated methotrexate, LMTX, was subjected to laser irradiations of energies 30, 60, and 80 joules to increase the rate of release of the drug. The stability of the drug was investigated by measuring Fourier transform infrared (FTIR) spectra and that of liposomes by thermal analysis (DSC). Liposomal methotrexate has been formulated in a gel formulation, a technique developed in this work, to facilitate the drug penetration into the skin. In this work a new strategy has been developed for the use of MTX as a treatment for psoriasis; the LMTX in gel formulation is used as a topical treatment. This new strategy has led to the exclusion of almost all the side effects of the use of MTX. To start with, gel-methotrexate was applied to albino mice. Clinical and pathological investigation indicated clearly that drug did penetrate into the skin.

Keywords