Chapter - II

AIM AND OBJECTIVE

Fungal infections are the most common diseases found in tropical countries like India, but these infections are neglected and hence spread to other parts of the body. The most commonly used antifungal agents are Ketoconazole and Miconazole, both these molecules being imidazole derivatives with high lipophilicity. They act against most pathogenic fungi and some Gram-positive bacteria. Usually they are well tolerated and their low toxicity allows them to be safely used for treating several cutaneous or systemic infections. However, anaphylactic reactions and cardio respiratory toxicity of Miconazole and alteration of hepatic function by Ketoconazole, which have been fatal in several cases, have led to premature cessation of therapy in some cases. Apart from these defects, Ketoconazole has got relatively shorter half life and hence frequent dosing may be required. Similarly, the bioactivity of Miconazole is found to be lower than the Ketoconazole. Encouraging results have been obtained on the treatment of topical fungal infections with liposomal or novel vesicular formulations of these antifungal drugs, but due to their size and rigid lipid bilayer they were not able to penetrate efficiently across the skin layer. However, ethosomes with high alcohol content are capable of enhancing penetration into deep tissues and systemic circulation. After nearly ten years of extensive research, ethosomes have proved to be good delivery carriers in transdermal field and their penetration enhancement capability has been widely accepted. The ethosomal preparations containing Ketoconazole and Miconazole are conceptually sophisticated; they are characterized by simplicity in their preparation, good stability, safety and efficacy-
OBJECTIVE OF STUDY

The purpose of the present investigation is aimed at:

- Designing the ethosomes containing Antifungal agents (Ketoconazole, Miconazole) using different concentrations of ethanol.

- Characterization for
  - Size and shape,
  - Entrapment efficiency
  - Transition temperature
  - Stability study

- In-vitro skin permeation studies of drug from ethosomal formulations
- Release studies from formulated creams
- In-vivo studies