OMICS Group Conferences
Accelerating Scientific Discovery

3rd World Congress on
Bioavailability & Bioequivalence

March 26-28, 2012 Marriott Hotel & Convention Centre, Hyderabad, India

Formulation and evaluation of Terbinafine Hydrochloride Microsponge Gel [THMG]

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The microsponge delivery system (MDS) is a best technology for the controlled release of topical agents. MDS consists of micro porous beads with 10-25 microns diameter. Terbinafine hydrochloride is an anti fungal agent used to treat nail antifungal infections (onychomycosis), but shows some side effects.

The purpose of the present research work was to formulate and evaluate Terbinafine hydrochloride microsponges using quasi emulsion solvent diffusion technique and microsponge gel by using carbopol. Microsponges containing Terbinafine hydrochloride were obtained successfully with six different proportions of ethyl cellulose polymer. The formulations were studied for particle size and physical characterization. The physical characterization of two of the microsponge formulations showed better loading efficiency and production yield. These two formulations were prepared as gel in 0.35%w/w carbopol and studied for pH, viscosity, spreadability, drug content, and in vitro release and anti fungal activity.

Among the two microsponge gel formulations one (i.e. MTHG-II) showed better results like pH 6.4, viscosity 4105, spreadability of 18.01g cm/s and drug content of 87.6%. The anti fungal studies showed zone of inhibition with 13.5mm when compared to pure drug, zone of inhibition 17.9mm and showed better anti fungal activity when compared to normal drug. In this study we found that controlled release of Terbinafine hydrochloride from the microsponge gel reduced side effects and remarkable decrease on gel application for fungal treatment.

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