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Preparation and Physicochemical Characterization of Non-ionic Surfactant Vesicles Containing Itraconazole

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Abstract : Drug delivery systems using colloidal particulate carriers such as niosomes or liposomes have distinct advantages over conventional dosage forms because the particles can act as drug-containing reservoirs. These carriers play an increasingly important role in drug delivery. Niosomes are vesicular delivery systems which result from the self-assembly of hydrated surfactant. Niosomes are now widely studied as an attractive to liposomes because they alleviate the disadvantages associated with liposomes, such as chemical instability, variable purity of phospholipids and high cost. The encapsulation of drugs in niosomes can decrease drug toxicity, increase the stability of drug and increase the penetrability of drug in the location of application, and may reduce the dose and systemic side effect. Nowadays, Niosomes are used by the pharmaceutical industry in manufacturing skin medications, eye medication, in cosmetic formulas and these vesicular systems can be used to deliver aspiratory drugs. One way of improving dispersion in the water phase and solubility of the hydrophobic drug is to formulate in into niosomes. Itraconazole (ITZ) was chosen as a model hydrophobic drug. This drug is water insoluble (solubility ~ 1 ng/ml at neutral pH), is a broad-spectrum triazole antifungal agent and is used to treat various fungal disease. This study aims to investigate the capability of forming itraconazole niosomes with Spans, Tweens, Brijs as non-ionic surfactants. To this end, various formulations of niosomes have been studied with regard to parameters such as the degree of containment and particle size.

Keywords : physicochemical, non-ionic surfactant vesicles, itraconazole
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