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Preparation and In-Vitro Evaluation of Itraconazole Loaded Nanosponges for Topical Drug Delivery

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Abstract: *Nanosponges are a novel class of hyper cross -linked polymer based colloidal structure made of sub -microscopic particle with cavities a few nanometers wide. Itraconazole is an Imidazole derivative and used for the treatment of local and systemic fungal infection. There has been significant progress in recent years in resolving the clinical and pharmacological limitations of hydro gel for drug delivery application. The Nano sponges are one of the effective drug carriers for drug having the low solubility and high permeability. Hydro gel is the 3D porous structure produced with hydrophobic polymer synthesized by cross linking water soluble polymer. Nanosponges are a type of nanoparticle, often a synthesized carbon-containing polymer. They are porous in structure, pores being about 1–2 nanometer in size, and can therefore be targeted to absorb small amounts of matter. Hydro-gels is natural/synthetic polymer chains that are connected to each other by cross-linkers to produce a hydrophilic material with the macro molecular structure of a gel. Besides hydro gel entrapment, directly using nanoparticle as cross-linkers to construct 3D hydro gel network offers another approach for nanoparticle assembly to acquire hydro gel-like properties (i.e., nanoparticle colloidal hydro-gel .Nanosponges, a recently created colloidal system, have the potential to overcome issues with medication toxicity, decreased bio-availability, and drug release over a wide area because they can be modified to work with both hydrophilic and hydrophobic types of drugs*

Keywords: Nanosponges, Hydrogel, Anti-fungal Drug

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