

AN OVERVIEW ON CUBOSOMES AS REMARKABLE NANOCARRIER FOR DRUG DELIVERY

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ABSTRACT

Lipids have been extensively used as main ingredients in various drug delivery systems, such as liposomes, solid lipid nanoparticles, nanostructured lipid carriers and lipid-based lyotropic liquid crystals. Over the past few years, lipid-based lyotropic, bicontinuous cubic phase liquid crystals have been investigated for their applicability to controlled delivery of active ingredients. Lipid-based lyotropic liquid crystals have highly ordered, thermodynamically stable internal nanostructure, thereby offering the potential as a sustained drug release matrix. The emulsification of cubic lipid phases in water results in the production of cubosomes that can be defined as nanoparticulate disperse systems characterised by high biocompatibility and bioadhesivity. The unique microstructure of cubosomes have the potentials to control the release of active ingredients, improve drug bioavailability and reduce toxicity, enhance the stability of drugs and to increase the penetrability of drug after topical application. This reflection will provide an overview of the lipids used to prepare cubic phase at physiological temperature, as well as the influencing factors on the phase transition of liquid crystals. In particular, the most current research progresses on cubic phase as drug delivery systems and its applications will be discussed. It might act as smart lipid nanoparticles for drug delivery.

Keywords: Cubosome, Cubic phase, Pluronic F127, Liquid crystalline, Bicontinuous

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