REVIEW ARTICLE

NAVIGATING NANO LANDSCAPE: A COMPREHENSIVE REVIEW OF CUBOSOMES IN DRUG DELIVERY AND BEYOND

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ABSTRACT

Cubosomes are nanostructured liquid crystalline particles formed from specific combinations of amphiphilic lipids, and they are used as biocompatible drug delivery vehicles. Cubosomes typically have a diameter of about 200 nm. making them suitable for various biomedical applications. They are composed of amphiphilic lipids, which have both hydrophilic and hydrophobic parts, stabilizers to maintain their structure, and water. The specific ratios of these components are crucial for forming and stabilizing the cubosomal structure. Cubosomal preparations often exhibit a viscous yet transparent appearance, which can be advantageous for their ease of handling and potential applications. The unique three-dimensional honeycomb structure of cubosomes provides them with a large surface area. This is beneficial for loading a significant amount of bioactive substances, enhancing their therapeutic potential. Cubosomes can be prepared using relatively straightforward methods, which is advantageous for scalability and industrial production. This review article provides an overview of cubosomes, their types, composition as well as pharmaceutical applicability.