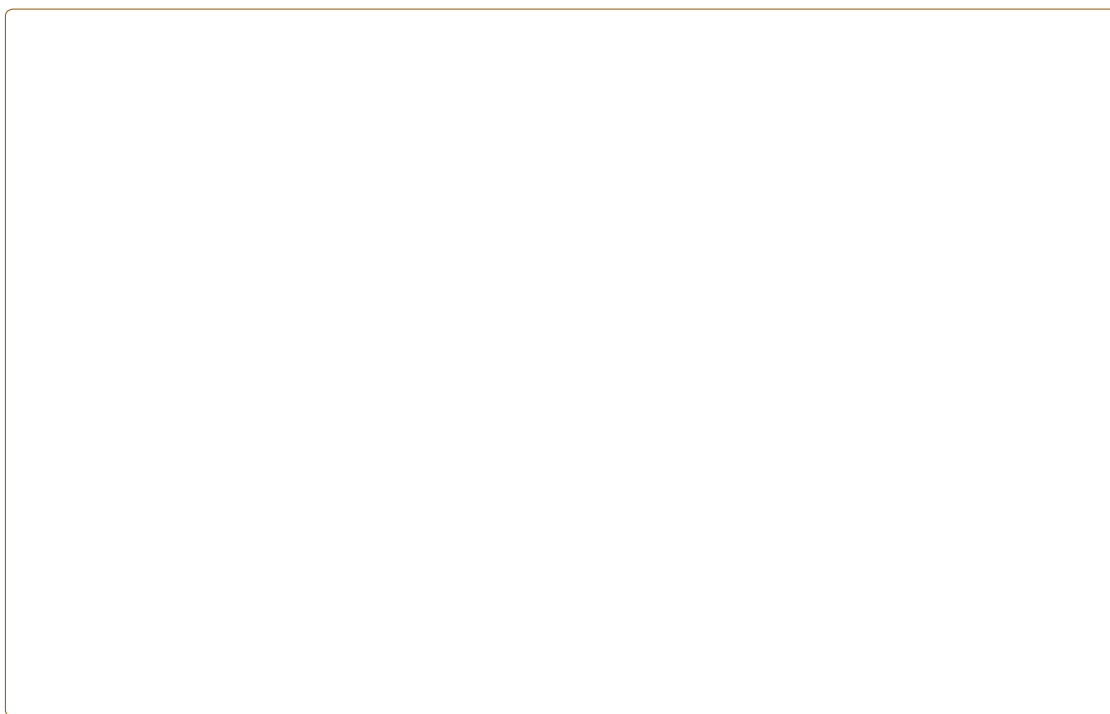


Biopolymers Research



Keywords: Biopolymer-based drug delivery systems; Polysaccharides; Biodegradability

Abstract

Drug delivery systems play a critical role in the field of medicine

Biopolymers are natural polymers derived from living organisms. They are biodegradable and biocompatible, making them ideal for drug delivery systems. Polysaccharides, a class of biopolymers, are particularly promising due to their ability to form hydrogels and their natural affinity for various drugs. This review discusses the latest advancements in polysaccharide-based drug delivery systems, focusing on their synthesis, characterization, and applications. The challenges and future perspectives in this field are also discussed.

The biopolymer-based drug delivery systems showed minimal cytotoxic effects on cells, as indicated by high cell viability (>X%) in various cell lines. Cell proliferation assays demonstrated that the drug delivery systems did not significantly affect cell growth or induce cell death.

4.3. Cellular Uptake

The biopolymer-based drug delivery systems exhibited efficient cellular uptake in target cells compared to non-targeted cells. Confocal microscopy or flow cytometry analysis showed increased fluorescence intensity or quantifiable internalization of the drug delivery systems in the target cells, indicating successful cellular uptake.

4.4. In Vivo Studies

In animal studies, the biopolymer-based drug delivery systems demonstrated favorable pharmacokinetics, such as prolonged circulation time and enhanced bioavailability, as reflected by a higher area under the curve (AUC) compared to the free drug administration.

Biodistribution in 6(h)4(e)-15(li51 3(a un)4(der)T]ne)13(o)nen4.9(l)-3(af)9(o)-(nimac5.9(h)4() llutrati1rader tee (io)12(219)]T0.051 Tw 0 drug d

