

عنوان مقاله:

Novel formulations of alginate and its derivatives in microbial infections, biomedical implants, and cancers

محل انتشار:

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خلاصه مقاله:

Biopolymers or natural polymers are synthesized by living organisms such as plants, bacteria, and fungi with biocompatibility and biologically degradable properties. New investigations are critical for the development of new composite polymers with appropriate therapeutic applications. Several biopolymers such as alginate, cellulose, and chitosan have been employed as promising antibacterial, antifungal, antiviral, and anticancer agents and biomedical implants. Among these natural polymers, amphiphilic alginate polymer is a biocompatible and biodegradable carrier, suitable to encapsulate hydrophilic active substances in various forms of formulations such as hydrogels and nanogels. Introducing hydrophobic constituents such as hydrophobic polymers and alkyl chains can be used to prepare alginate derivatives. Improved solubilization, sustained release, and prolonged half-time are required for clinical translation of alginate-based therapies. Advantages and limitations of alginate formulations in micro and nanoscale, as well as possibilities to improve the field, will be discussed in this mini-review.

کلمات کلیدی:

Hydrophobic polymers, Amphiphilic alginate, Biodegradable carriers, hydrogels, Nanogels, Alkyl chains

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