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Alginate in Biomedical Applications

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Abstract
In the last decades, alginates, multifunctional biopolymers, have increasingly drawn attention as attractive compounds for biomedical and pharmaceutical applications due to their unique physicochemical properties and versatile biological activities. The focus of the actual use of alginates is biological and pharmacological as a tool in drug formulation. The recent technological advancements with using alginates, issues related to alginates' suitability as a matrix for membranes, beads and three-dimensional tissue cultures, adjuvants of antibiotics, and antiviral agents in cell transplantation in disorder or neurodegenerative diseases treatment, and an update on the antimicrobial and antiviral therapy of alginate-based drugs are also highlighted.

Keywords: Biomedical applications, biocomposites, drug delivery, health, natural source

5.1 Introduction

Natural compounds and materials, biocompatible and nontoxic as polysaccharides, are an important source for utilization as an ingredient for formulations of biological applications both individually and in composition. Accordingly, they are widely used in drug delivery and other biomedical applications [1–5]. A bioactive component is covalently bound to the polysaccharide basis spontaneously or by the use of another binding substance through insertion. Polysaccharides have remarkable advantages because they are abundant in nature, e.g., obtained by different algae (alginate and

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