



Water-Soluble Chitosan Derivatives-Based Materials: From Synthesis to Applications

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Message from the Guest Editors

Chitosan is classified as a weak cationic polyelectrolyte due to the presence of ionizable primary amino groups with a pKa value of 6.4. The solubility of chitosan in an aqueous environment is dictated by the level of protonated amino groups in the glucosamine unit. Thus, chitosan is insoluble at the physiological pH of ~7.4, which represents a major inherent drawback for using chitosan in applications requiring solubility or polyelectrolyte complex formation in a neutral aqueous environment. In this regard, the chemical modification of the chitosan by introducing new functional groups to its structure can significantly increase the solubility of chitosan in neutral aqueous solutions. In this Special Issue, we call for papers concerning the synthesis and characterization of water-soluble chitosan derivatives, in addition to their potential applications in different areas of technology and sciences, such as pharmaceutical industries, food industries, tissue engineering, delivery systems for macromolecules, wound dressing, cosmetics, agricultural materials, water purification, drug delivery, gene therapy, and treatment of infections.





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