

A Brief Overview on Bio Polymer Based Nano composites

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Commentary

Biopolymers, similar as proteins, nucleic acids, or polysaccharides (which are the most abundant family of naturally being polymers), have gained considerable attention in recent decades as a source of innovative bio-based accoutrements. Biopolymers are intriguing and worth of study due to their biocompatibility and biodegradability. In addition, the combination of biopolymers with inorganic nanoparticles (oxides, metal oxides, silicates, phosphates, etc.) results in biopolymer-grounded Nano composites (so called also as bionanocomposites) with bettered mechanical and thermal parcels. These bionanocomposites also offer intriguing functional properties that allow for their use in a wide range of advanced operations, including detectors, bio plastics, environmental remediation, catalysis, and biomedical purposes (similar as medicine delivery, tissue engineering, regenerative drug, and other health care operations).

The factual environmental policy, together with the strong interest to develop new accoutrements with better performances, makes the neweco-friendly and biodegradable mixes a veritably seductive exploration field. Also, in this branch of compound accoutrements, substantial attention is concentrated on the biopolymers made from “Nano composites” particles that were considered both at academic position and artificial plant. The biopolymer-grounded Nano composites give an occasion to replace the conventional on-biodegradable polymers, due to their user-friendliness, great biodegradability, and fairly good mechanical properties. This chapter contains a robust overview of a new class of biopolymers Nano composites.

Polymeric Nano composites have entered significant attention in both scientific and artificial exploration in recent times. The demand for new methods of food preservation to insure high-quality, healthy foods with an extended shelf life has increased. Packaging, a pivotal point of the food assiduity, plays a vital part in satisfying this demand. Polymeric Nano composites parade remarkably advanced packaging properties, including hedge parcels, oxygen permeability, solvent resistance, humidity permeability, thermal stability, and antimicrobial characteristics. Bio-based polymers have drawn considerable interest to alleviate the influence and operation of petroleum-deducted polymeric accoutrements and affiliated environmental enterprises. The integration of nanotechnology in food packaging systems has shown pledge for enhancing the quality and shelf life of food. This composition provides general overview of bio-based polymeric Nano composites comprising polymer matrices and inorganic nanoparticles, and describes their bracket, fabrication, parcels, and operations for active food packaging systems with future perspectives.

Biopolymer Nano composites features a logical association and approach that make it easy for compendiums to take full advantage of the latest wisdom and technology in designing these accoutrements and developing new products and operations. It begins with a chapter reviewing our current understanding of bionanocomposites. Next, the book covers similar topics as

- Morphological and thermal examinations of chitin-grounded Nano composites

- Operations of starch nanoparticle and starch-grounded bionanocomposites
- Spectroscopic characterization of renewable nanoparticles and their composites
- Nano cellulosic products and their applications
- Protein-grounded Nano composites for food packaging

The conception of smart food packaging grounded on biosensors and biopolymer-grounded Nano composites has been attracting further and more interest to the artificial community because of the enterprises of food quality and safety. A biosensor with food packaging has a compass to enable real-time monitoring of microbial breakdown products of packaged foods. Biopolymer-grounded Nano composites (bionanocomposites) have been considerably studied over the once many decades due to their excellent mechanical, thermal, optical, and antimicrobial parcels. Despite significant progress made in different studies regarding the uses of biosensors and bionanocomposites, the implicit challenges and openings of them in developing smart food packaging haven't been duly addressed. The idea of integrating bionanocomposites and using them as a biosensor in food packaging can be a corner for developing smart food packaging industries. Thus, it's important to know further about biosensors and bionanocomposites for developing sustainable and affordable smart packaging materials. The focus of this review is to outline being exploration and developments (R&D) on biosensors and bionanocomposites and give some perspectives of their implicit challenges and openings in unborn smart food packaging diligence.

Biopolymers are accoutrements attained from a natural origin, similar as plants, creatures, microorganisms, or other living beings; they're flexible, elastic, or stringy accoutrements. Polysaccharides and proteins are some of the natural polymers that are widely used in wound dressing operations. In this review paper, we will provide an overview of biopolymers and synthetic polymer-grounded Nano composites, which have promising applications in the biomedical exploration field, such as crack dressings, crack mending, tissue engineering, drug delivery, and medical implants. Since these polymers have natural biocompatibility, low immunogenicity, on-toxicity, and biodegradable properties, they can be used for various clinical applications.

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Conflict of Interest

The authors declare that they are no conflict of interest.

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