

this coating is the first step. General inclination is towards petroleum-based packaging materials. This is because petroleum-derived products show higher performance than renewable/recyclable-based products. The production cost is also lower in the former case. However, the petro-based packaging unfortunately renders more nuisance than use. Commercializing eco-friendly packaging material that is made up of biodegradable elements has a huge positive impact on countries that depend upon landfill as their major means of waste management. However, considering the lesser environmental impact, development of renewable material-based packages should be encouraged and popularized among people. Over the last few years, there have been many changes and development in the field of food packaging. For affordability, alginate, a commonly expensive biopolymer, could be mixed with other biopolymers; while nanocomposites of biopolymers are under development [100].

Although there are a good number of studies on the development of alginate packaging for foods, there is still a hesitation among the consumer, and awareness in the public is much needed regarding the benefits of biopolymers over plastics. Alginate packaging enhances the utilization of biodegradable package and provides food safety. Moreover, for some food products, alginate packaging helps to retain the preferred quality of the food product.

11.11 Conclusion

Biopolymers are eco-friendly, biodegradable, and less hazardous; no harmful ingredients are added during their preparation, and they safeguard food safety and quality. Numerous developments have been made recently in the fields of biopolymer packaging, manufacturing techniques such as gelation formation, film development, and coating on the food material. Alginate packaging has emerged to be the most promising. The benefits of alginate as packaging material for foods are many, with few challenges compared with petrochemical-based polymers, due to tensility, water permeability, heat, environment abrasion, and a few other external factors. However, research shows the gains outweigh the concerns. Despite the advantages, more studies are needed in biopolymers area for development of packaging material, with incorporation of intelligent packaging systems. Nanotechnology could be employed by applying nanoparticles into the packaging materials, averting microbial spoilage and oxidative deterioration.