

The composition of chitin, chitosan and its derivatives in the context of preparation and usability- a review

ABSTRACT

The demand for chitosan polymer in domestic and industrial use is increasingly rising. The applications are widely used in the fields of nutrition, cosmetics, biomedical, pharmaceutical, water treatment and agriculture. Normally, the preparation of chitin comes from a bio-waste source and requires three chemical processes including demineralization, deproteinization, and discoloration. Meanwhile, the preparation of chitosan from chitin is through the process of deacetylation. The production of chitosan and its derivatives have covered various fields, including synthetic polymers. It has also become a medium and alternative material helping to solve many problems including being able to save time, cost and energy in the production of a material. Then, there will be a positive impact on environmental sustainability and biomedical engineering. The chitin derivatives resulting from deacetylation of chitosan are also flexible enough to be lysosomal enzymes, which can be used as carriers of active drug substances in the body system. Various efforts and research have been carried out on the development of chitosan-based polymeric materials, in particular organic polymers. Chitosanbased polymers can be used as an alternative to replace petroleum and natural gas resources. Besides, it is easy to dispose of, degrades quickly, has a short shelf life and is environmentally friendly. It is proven as many previous reports and studies on the synthesis, characteristics and use of these polymers around the world. The purpose of this review is to explain the properties, methods of preparation and use of chitin, chitosan and its derivatives.