CHITOSAN AND O-HTCC NANOPARTICLES

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Abstract

Chitosan is the N-deacetylated product of chitin, the second most abundant polysaccharide in nature, and possesses favorable characteristics: non-toxicity, biocompatibility, biodegradability, cationic and hydrophilic. In addition, chitosan possesses amine and hydroxyl groups, suitable for nanoparticles (NPs) functionalization with targeting, imaging, and therapeutic agents. However, chitosan is insoluble in physiological pH, making it unsuitable for use in a physiological environment without further treatment. To maintain chitosan properties and remove the solubility issue, we will use O-HTCC (O-(2-hydroxyl) propyl-3-trimethyl ammonium chitosan chloride), an ammonium quaternary derivative of chitosan soluble in a wide range of pH, including physiological conditions. In this study, a comparison was made between the chitosan and O-HTCC nanoparticles regarding to their physicochemical properties. In addition, the influence of the molecular weight of the polymer was also evaluated.

References


Figures

Figure 1 – Chemical structure of chitosan (left image) and O-HTCC (right image).