

Development of Antimicrobial Alginate Beads using Lysosome from Egg White

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We have successfully developed antimicrobial beads by encapsulating lysosome from egg white. Alginate is a natural polysaccharide extracted from brown algae. It is generally known non-toxic and biocompatible that has been reported as a delivery tools for food, drug and as a material in biomedical engineering. As a antimicrobial material, we selected lysosome, which is cell organelle, has been studied possible replacements for chemical antimicrobial agents because they are simply isolated from egg white and safe from chemical resistance. Using this antimicrobial bead, we successfully demonstrated its ability in *Escherichia coli* with their growth kinetics in terms of pH and lysosome contents. Moreover, it has been evaluated the long-term antimicrobial activity with immobilized lysosome. This simple, easy and safe antimicrobial composite should be widely and practically used for the application of food, pharmaceutical and livestock industries as well as environmental toxicity assessment in future.