FS-26

Antimicrobial effects on starch based films incorporated with lysozymes

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An antimicrobial (AM) Active Packaging can be made by incorporating and immobilizing suitable AM agents into food packages and applying a bio switch concept. A starch-based film was prepared and incorporated with antimicrobial agents, i.e. lysozyme and EDTA as chelating agent. This film was then inoculated with the bacteria *Escherichia coli* and *Bacillus subtilis* to carry out the microbial contamination study. The inhibition of both *E. coli* and *B. subtilis* by the AM film was clearly observed in the broth and culture agar test. The decreased of optical density (O.D600nm) showed the inhibition of both *E coli* and *B. subtilis* growth. While, the clear zones formed on the film appearance showed that AM agents give good inhibition to the growth of *E. coli* and *B. subtilis* with satisfying inhibition rate. The mechanical properties of the starch based film such as moisture content, FTIR and SEM were analyzed.
Keywords: Antimicrobial film, antimicrobial agent, lysozyme, SEM,FTIR, moisture content

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