



7th International Iranian Congress Of Clinical Microbiology

October 19-21, 2013

The 68th Comprehensive Collection of books in RASANEH TAKHLASSOSI



O-69

Study of survival and activity of lux marked *Escherichia coli* SM10S1 under different antibacterial treatments in lettuce

Zahedi Zohrabad A, Mashreghi M, Bahreini M

Department of biology, Faculty of science, Ferdowsi University Of Mashhad, Iran

Introduction and Objectives: The role of food borne bacteria, as one of the commonest causes of gastro-enteritis has long been approved, but safety of food contaminated by these pathogenic bacteria still remains a major public health problem. Therefore, finding a safe procedure will be in first priority. However, a fast screening method has to be established to evaluate the efficiency of its bactericidal properties. Since luminescence light output is in direct contact with metabolic activity of cells, lux-reporter gene can be used to monitor the activity of bacteria in defined conditions applied to eradicate pathogenic bacteria.

Material and Methods: In this study, we used lux marked *Escherichia coli* SM10S1, as standard strain, to study the survival and activity of bacteria in lettuce under different antibacterial treatments. After preparation of lettuce samples and inoculation of bacterial suspension, lettuce samples were treated by 50,100 and 200ppm of sodium hypochlorite concentrations and 5% and 10% hydrogen peroxide concentrations in three times of 5, 10 and 20 minutes.

Results: Results showed that when concentration and contact time of sodium hypochlorite and hydrogen peroxide increased, number of bacterial decreased. Similarly, luminescence light output intensity decreased in accordance with cell number.

Conclusion: Although further experiments is underway, present results indicate that bioluminescence marker system can be used as a fast, real time, efficient and sensitive method to study of bacterial survival and activity in food samples.

Keywords: food borne pathogens, lettuce, bioluminescence, hydrogen peroxide, sodium hypochlorite