

## ABSTRACT

Maintaining food safety is crucial for the health and well-being of individuals. By incorporating food-grade KCl and Chitosan, the antimicrobial properties of food can be significantly improved, leading to better overall health for consumers. That is why this project focuses on studying and investigating their effects on the growth of *Salmonella* spp. in chicken meat and includes a sensory analysis of the samples' texture, appearance, and aroma. Proper planning and execution are crucial to success. The tasks involved in the trial are categorized into three parts. These include preparing treatment samples consisting of KCl and Chitosan, preparing meat samples, and preparing for the analysis phase. The analysis preparation phase includes using Buffered Peptone Water, Shigella Salmonella Agar, and Tetrathionate Broth. All of these tasks are conducted before the examination. After the material preparation, the microbial study was undertaken to evaluate KCl and Chitosan impact on *Salmonella's* growth. At the same time, meat samples' pH and sensory qualities are analyzed using various techniques to focus on the effect of the texture, appearance, and color. KCl works on Premium Chicken by lowering pH, inhibiting Histone Nucleoid like Structure (H-NS) expression, and interrupting ATP transportation, leading to microorganism death. The high concentration of 0.64% KCl needed for Grade chicken causes positive *Salmonella* to appear on the agar surface, making it ineffective. Chitosan can reduce *Salmonella* in chicken by inhibiting enzyme activity and oxidative stress, which cause negative salmonella content but can affect meat aroma. The pH level is crucial to meat's texture, color, and bacteria. Both KCl and Chitosan have an impact on the pH level since the sample becomes more acidic. However, Chitosan has shown no significant difference, whereas KCl revealed distinct aroma differences in sensory analysis. Notably, appearance and texture did not show any significant differences either. Overall, the results demonstrate that KCl and Chitosan can inhibit *Salmonella* spp. growth and affect the meat's properties.

**Keywords:** Chitosan, Electrostatic attractive, Histone Nucleoid like Structure (H-NS), Horizontal Gene Transfer (HGT), Potassium Chloride (KCl)