ABSTRACT

Name : Ardiya Nugraha

Study Program : Food Science

Title : The Effect of Cold Plasma Technology on The Physical and Chemical Properties of Low-Fat Mayonnaise Product

Thesis Advisor : Yohanes Raditya Wardhana, M. Sc.

Low-fat mayonnaise is one of the food condiment that has been widely consumed in the world. However, as mayonnaise is an egg-based product, it is susceptible to contamination caused by foodborne pathogen. Current method of sterilization is unable to fully sanitized egg product because of temperature factor. Cold plasma technology is a new emerging technology that use low temperature and free radical to sterilize food borne pathogen present in the food process. On the other hand, commercial low-fat mayonnaise contains at least 40-45% of fat in its total content and fat is prompt to oxidized by free radical. Oxidation of fats can lead to the production of malondialdehdye (MDA) and this compound is highly toxic and dangerous for human consumption. Despite this, there are no current research for lipid oxidation in mayonnaise product. Therefore, this research is conducted to evaluate the changes in the physical and chemical properties in low fat mayonnaise treated with cold plasma system. The result shown no significant difference observed on pH and water activity. However, moderately significant changes in color with ΔE of 2,29 was observed between before and after treatment. Despite of this, there was no overall significant difference for acid value and thiobarbituric acid. But, noteable differences was found for BHT sample in day 7, 21 and 28 when compared to control and plasma. Overall analysis shown that plasma technology does not affect the quality properties of low-fat mayonnaise.

Keywords: Cold Plasma, Egg Product, Low-Fat Mayonnaise, Lipid Oxidation.