

## ABSTRACT

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### **DEVELOPMENT OF CLOVE (*Syzygium aromaticum*) BASED FOOD SANITIZER**

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(xiv + 54 pages: 13 figures, 10 tables, and 9 appendices)

Clove, which is a widely cultivated spices in Indonesia, has been known to have a strong antimicrobial activity towards a wide range of microorganisms, including fungi. In this research, clove was used as the antimicrobial agent in the developed food sanitizer that were used to wash food, such as fresh produce. This research was aimed to investigate the efficiency of clove bud extracts as the antimicrobial agent in a food sanitizer. Two types of extract were used in this research, which were clove essential oil obtained from distillation method and clove extract, which were obtained from maceration method. Results showed that there was a significant difference between distillation method and maceration method on the yield and the Minimal Inhibitory Concentration (MIC) of its extracts on all tested microorganisms, except for *S. aureus*. Furthermore, the sanitizer was added with the extracts (clove oil or clove extract) then applied against fresh fruits. Both types of sanitizers were applied using several dilution (3x, 5x, and 10x). Results showed that clove oil sanitizer with pH 6,  $L^*$   $46.25 \pm 0.75$ , and  $^{\circ}\text{Hue}$   $55.74^{\circ}$  (yellow red) was the selected sanitizer. While the selected dilution was 3x dilution, as it was able to decrease highest bacteria and yeast/mold count ( $1.75 \pm 0.07$  log CFU/g bacteria and  $1.77 \pm 0.23$  log CFU/g yeast/mold). Both clove oil sanitizer and clove extract sanitizer shows good efficiency in decreasing microbial count with clove oil sanitizer as the treatment that has higher antimicrobial activity.

Keyword: Antibacterial, antifungal, antimicrobial, clove extract, clove oil, *Syzygium aromaticum*.

References: 68 (1991-2018)