ABSTRACT

NURJAYANAH ISLAMI. Primary Test of *fim-C* Genes *Salmonella typhi* and *Shigella dysenteriae* Bacteria Using *Real-time Polymerase Chain Reaction* Method. Under supervised by Muktiningsih Nurjayadi, Vira Saamia.

Salmonella typhi and *Shigella dysenteriae* are foodborne pathogens that cause many food poisoning. Therefore, the bacterial detection method continues develop to overcome the limitations of conventional methods that require a longer analysis time. The fast and specific method which currently being developed is the real-time PCR method. The real-time method of PCR is a technique of DNA synthesis and amplification in vitro as well as its quantification. This method requires a pair of forward and reverse primers that are used as the boundaries of target DNA fragments which will amplified. Previous research that conducted by Muktiningsih *et al*. 2017 has succeeded in designing the primary pair of fim-C genes for *Salmonella typhi* bacteria with the length of amplicon 95 pb. However, those primer have not known for sensitivity and specificity. Therefore, this research is to test the ability, sensitivity and specificity of primer in amplifying the fem-C genes *Salmonella typhi* and *Shigella dysenteriae.* The results showed that the primary pair of fim-C gene *Salmonella typhi* bacteria can amplify the target DNA on 14th cycle, has good specificity because can not amplify *Shigella dysenteriae* as non-target bacteria and does not form a primer-dimer. Primary sensitivity can recognize DNA up to concentration of DNA 4.528pg / µL. Meanwhile the primary pair of *Shigella dysenteriae* bacterial fim-C genes amplified the target DNA readable on the 25th and 30th cycles and results of visualization show a ± 100 bp DNA band that should be 153 bp, while the BLASTN results show a fragmented primer in a 153 bp sequence. Based on the results obtained, it can be assumed that the *Salmonella typhi fim-C* gene primer has good specificity and sensitivity while the *Shigella dysenteriae fim-C* primary genes exhibit a fragmented primer.

Keywords: *Shigella dysenteriae*, *Salmonella typhi*, Primary Tests, Real-time PCR