

CHAPTER V

CONCLUSION

RT-PCR technique was developed in this study for the detection and enumeration of *E. coli* and *Salmonella* spp. in agricultural samples. When it was compared with BAM and 3M Petrifilm methods with reference cultures; *E. coli* ATCC 25922 (Lot. 1896) and *S. typhimurium* ATCC 13311 (Lot. 1894), there was highly significant result similar to plate count technique. All agricultural samples could be detected for *E. coli* contamination by RT-PCR. However, their quantity had significant correlation with BAM and 3M Petrifilm assays, although it seemed to be higher population. RT-PCR method could be also used to determine the *Salmonella* spp. contaminated in agricultural samples but the BAM method could not have the efficiency for enumeration. The advantage of RT-PCR is high sensitivity and it enable to reduce materials, area, labor, time, and device. Additionally, it could be used to manage for many samples in one day for laboratory service. Although, it had low specificity but it will possibly be improved for new design primers and develop some more appropriate techniques.

The effect of composting poultry layer and cow feces on dynamic population of *E. coli* and *Salmonella* spp., the composting of both of materials affected descending population of both pathogenic bacteria. Both pathogens were not detected in composted poultry layer and cow feces at 70 and 98 days after incubation, respectively. The decreasing of both pathogens was significantly correlated with the changing of C:N ratio, EC, OM, temperature and pH values in the materials.

Application of composted cow manure compared with non-composted cow manure and without manure in some export vegetables; asparagus, kale, coriander, stink weed, and peppermint resulted that the absolute composted cow manure help decreasing of *E. coli* and *Salmonella* spp. contamination on vegetables. Thus, before using animal feces or manures as organic fertilizer for vegetable growing, composting manipulation should be at least 70 to 98 days.

Moreover, the appropriate managed composting is not only decontamination of both pathogens, but also safe for the producers and consumers, and the qualities of products are acceptable for export as well.