CHAPTER VI

CONCLUSION

This study aimed to find the antimutagenicity of chloroform and ethanol extracts from vegetables, namely Pak Chee Lao, Pak Ka Yang, Pak Pai, Pak Gud, and Pak Krad Hua Wan, on *S. typhimurium* TA98 and TA100. The positive controls used in the experiment were nitrite treated 1-aminopyrene and nitrite treated beef extract.

The results showed that all of the chloroform and ethanol extracts from vegetables in this study showed no mutagenicity. The exception was detected on the chloroform extract of Pak Ka Yang, which showed a mutagenic response on *S. typhimurium* strain TA98 in the absence of metabolic activation. Effects of chloroform and ethanol extracts from vegetables were investigated on mutagenicity induced by nitrite treated 1-aminopyrene or beef extract. This study confirms the possibility that some of vegetables have antimutagenic activity because they reduced number of *S. typhimurium* both strains revertants induced by nitrite treated 1-aminopyrene and beef extract. The chloroform and ethanol extracts of Pak Chee Lao, Pak Gud and Pak Krad Hua Wan showed inhibitory effect only on nitrite treated 1-aminopyrene, but the chloroform and ethanol extracts of Pak Ka Yang and Pak Pai inhibited the mutagenicity of the both models. It might be due to different compounds in each vegetable. Antimutagenicity of compounds in vegetable extracts might counteract the direct acting mutagenicity of nitrite treated 1-aminopyrene and beef extract in many ways such as trapping; thus, it limited the cellular uptake of mutagens, modifying the permeability of mutagens across bacterial membranes, inhibiting enzymatic activation of direct mutagens or forming the complex with mutagens that limited the bioavailability.

However, some chloroform and ethanol extracts from vegetables showed mutagenicity because they increased number of *S. typhimurium* TA98 revertants induced by nitrite treated beef extract. It may due to the property of anitmutagen that may also act as co-mutagen. The findings from this experiment suggested that

consumption of nitrite-containing foods with vegetables such as Pak Chee Lao, Pak Ka Yang, Pak Pai, Pak Gud and Pak Krad Hua Wan should prevent the mutagenicity of direct mutagen in gastric liked condition, but the prevention from nitrite treated beef extract should be more investigated.