

## CHAPTER V

### CONCLUSION

Thai shallot extracts that were prepared from three procedures; in crude-, water-, or hexane extraction had the antioxidant activity higher than the garlic extracts. In part of shallot from hexane extraction showed the highest antioxidant containing compounds and it also protected and scavenged the protein and lipid hydroperoxide formation from hydroxyl radical generated by  $\gamma$ -irradiation. This extract showed the ability of protection of glutathione in human erythrocytes from external oxidants such as  $H_2O_2$ , AAPH, or protein hydroperoxide.

This study also showed the activity of whole shallot extracts to inhibit intracellular peroxide formation and increase intracellular GSH levels in monocytic U937 cells.

Hexane extract of shallot had very high activity on protection of oxidative stress from  $H_2O_2$  or irradiation, and inhibited LPS-stimulated inflammation via production of nitric oxide. The mechanisms of antioxidant activity of this shallot extract involved the GSH synthesis system, standard diallyl disulfide (DADS), N-acetylcysteine (NAC), and quercetin.

Finally, this study showed the benefit of shallot extract, which contained both total phenolics and diallyl disulfide (DADS) can induce GSH synthesis within the cells and protects them from oxidative stress and inflammation.