

CHAPTER VII

CONCLUSION

Pandan (*Pandanus amaryllifolius* Roxb.) is a herb, widely distributed in tropic zone including South Asia, Africa and Australia. Its leaves are used for cooking, aromatherapy and medical industry due to abundant availability of essential oil, carotenoid, vitamin E and other bioactive compounds such as antioxidants. In this study, pandan leaves were investigated regarding TPCs, antioxidant capacities, anti-AD properties and phytochemicals. Besides, the effects of extraction conditions, particle sizes and cultivated locations were examined. Lastly, the products including tea and juice from pandan leaves were prepared and analyzed regarding their TPCs, antioxidant capacities and anti-AD properties.

As results, TPCs and antioxidant capacities from pandan leaves were optimized using extraction conditions of (1) 15 minutes of extraction time, (2) 30°C of extraction temperature, (3) 75% (v/v) aqueous ethanol and (4) 1:65 w/v solid-to-liquid ratio. Likewise, anti-AD properties were optimized under extraction conditions of (1) 15 minutes of extraction time, (2) 30°C of extraction temperature, (3) 0% (v/v) aqueous ethanol and (4) 1:20 w/v solid-to-liquid ratio. Interestingly, samples with smaller particles possessed higher antioxidant activities and inhibitions of enzymes relevant to AD than those of samples with larger particle sizes. Besides, the samples from the South of Thailand exhibited the highest antioxidant activities, while the samples from the North efficiently inhibited cholinesterases with the lowest IC₅₀ values. Phytochemicals including volatile compounds, phenolic acids, flavonoids and carotenoids in pandan leaves were varied according to different cultivated locations. Finally, the product applications from pandan leaves suggested that tea provided higher TPCs, antioxidant capacities and anti-AD properties than juice.

The TPCs, antioxidant capacities and anti-AD properties might be varied according to different particle sizes and cultivated locations of pandan, which, in turn, provided different concentrations of bioactive compounds. These results suggested

that sample surface area and environments were significant factors that affected TPCs, antioxidants and anti-AD properties. Among all regions in Thailand, the samples from the South provided the highest contents of phenolics, caffeic acid and sinapic acid. These results were corresponded to the highest TPCs and antioxidant activities being detected in the samples from the South. Conversely, the samples from the North with the lowest TPCs and antioxidant activities exhibited the highest anti-AD properties. Thus, anti-AD agents might not fall into the same category as anti-oxidative agents. Additionally, tea processing could maintain antioxidants and anti-AD properties rather than juice processing. Therefore, pandan leaves might be potential natural sources of diet to prevent AD occurrence. The information of this study can provide fundamental knowledge to promote pandan leave ability to prevent AD.