CHAPTER 5
CONCLUSION

The objective of this work was to select the high potential hard wood that found in the Northern Thailand for enhancement of wine aroma and to study the chemical compositions especially flavor and aroma substances, in wine as well as some special active compounds produced after aging. The research focused on several important essential substances and antioxidation activity from the selected wood chips. The wood chips used that use for aging were prepared for wine aging process. Each aged wine, using different wood chips, was analyzed for its organoleptic qualities and determined for the antioxidation activity.

5.1 Wine sensory tasting

Fresh wine from Mae Chan Winery, Chiang Rai province, Thailand, was used in wine aging with different wood chips for 120 days. The wood chips used in this research include Luna nut wood (*Lepisanthes fruticosa* Leenh.), Longan wood (*Dimocarpus longan* Lour.), Black poum wood (*Cleistocalyx nervosum* var. paniala), Neem wood (*Azadirachta indica*), Drumstick wood (*Moringa oleifera* Lam.) and Oak wood (*Quercus* sp.). The wine sample taste examination had been done by 50 volunteers sensory examiners in order to evaluate the organoleptic quality. The results showed that the highest score of organoleptic quality of wine was observed in Longan wood aged wine, with the score of 18.50, compared to other wood chips by paired t-test method. The t-test analysis, showed that Longan wood aged wine had the most acceptable score.

5.2 Volatile compound analysis

The results showed the presence of β-caryophyllene, humulene and eugenol in Longan wood aged wine. While eugenol and ethyl octanoate were only found in Drumstick wood aged wine. Both β-carryophyllene and α- humulene may be released from the used wood and gave the wine to most acceptable score.

5.3 Antioxidant activity of wine samples

The antioxidant activity of all wood aging wines were determined by DPPH scarvenging technique. Wine aging with Longan wood, Neem wood and Black poum showed antioxidant

activity with IC_{50} of 1.62%, 5.40% and 6.76%v/v, respectively. The results indicated that higher quality of Longan wood aged wine corresponding to the test of organoleptic acceptance.

In conclusion, Longan tree which is called “Economic Northern plant” is valuable to apply for wine aging. In addition, Longan tree is pruned every year as useless waste or use only as firewood. This research present that Longan wood can be used in wine aging process. Moreover, Longan wood aged wine showed the presence of β-caryophyllene and humulene which were also found in hop oil with wood flavor. It is high possibility to take this results applicable for other alcoholic beverage production, such as beer, brandy and whiskey. Beside that, Longan wood could reduce the cost compared to importing oak from aboard.