CHAPTER 5

CONCLUSIONS

Extraction of guava (*Psidium guajava* L.) leaves by various solvents indicated that methanol extract possessed the highest free radical scavenging activity against DPPH with the IC_{50} value of 2.11 ± 0.01 µg/ml. Activity-guided repeated methanolic fraction on column chromatography, yielded three main active compounds (Compounds 1, 2, and 3). The DPPH and ABTS antioxidant tests revealed that compound 1 was the most potent antioxidant with the IC_{50} and TEAC values of 1.20 ± 0.02 µg/ml and 57.54 ± 0.07 mM/mg, respectively. Compounds 2 and 3 showed obviously lower scavenging activities with the IC_{50} values of 3.58 ± 0.05 and 5.41 ± 0.20 µg/ml and the TEAC values of 32.35 ± 0.12 and 14.59 ± 0.62 mM/mg, respectively. Comparative reducing power of the three compounds by FRAP assay indicated that Compound 1 was the strongest reducing agent with the EC value of 72.69 ± 1.06 mM/mg followed by Compounds 2 and 3 with the EC values of 42.51 ± 1.08 and 8.56 ± 0.33 mM/mg, respectively. Based on spectroscopic analysis, compounds 1, 2, and 3 were identified as quercetin, quercetin-3-*O*-glucopyranoside and morin.

In conclusion, the antioxidant compounds were isolated from guava leaves against free radical mainly depended on scavenger activity and chelating property which rely on its structure several hydroxyl groups. Antioxidants are naturally present in combinations and antioxidant interaction seems important for their effect. The

combination effects of using quercetin with quercetin-3-*O*-glucopyranoside and morin should be further investigated. In addition, more other biological activities and mechanism of action against *in vivo* cellular oxidative damage as well as health applications should be further studied. Moreover, topical route of application has a great potential as an effective and safe way to administer guava leaves extract for cosmetics.