

CHAPTER IV

CONCLUSIONS

Total polyphenolic contents in 28 varieties of Thai fruits were screened by using gallic acid as a standard in Folin-Ciocalteu method. The data showed that the polyphenolic content in these fruits varied greatly from 3.243 ± 0.303 to 2120.526 ± 141.244 mg GAE/g wet weight. Low levels (< 30 mg GAE/g wet weight) were found in watermelon, rose apple, fragrant banana, grape pulp, lemon juice, mango (Rad), papaya, rambutan, pineapple, banana (Kai), jackfruit, durian, orange juice, mango (Kiow-Sa-Wooei), pomelo, and sa-la. Moderate levels (30-80 mg GAE/g wet weight) were found in mangosteen pulp, longan, mango (Nam-Dok-Mai), ma-fai, zalacca, indian mulberry, apple, litchi, guava, longkong pulp, orange, carambola, custard apple, jujube, santol (white pulp), plum mango, and grape skin (White Malaca). High levels (> 80 mg GAE/g wet weight) were found in grape skin (White Spain), banana (Nam-Var), longkong seed, grape skin (Pok-Dum), santol (brown pulp), and mangosteen hull.

The ability of fruit extracts to scavenge the DPPH radicals measured as IC_{50} varied greatly from 0.149 to 513.974 mg/ml. Mangosteen hull, grape skin, santol, banana (Nam-Var), plum mango, mango, longkong seed, carambola, guava, ma-fai, litchi, apple, jujube, zalacca, sa-la, mangosteen pulp, longan, indian mulberry, custard apple, orange, and pomelo showed the highest DPPH radical scavenging activities ($IC_{50} < 20$ mg/ml). Durian, longkong pulp, grape pulp, banana (Kai), papaya, rambutan, orange juice, pineapple, fragrant banana, rose apple, and lemon juice showed moderate DPPH radical scavenging activities (IC_{50} from 20 - 100 mg/ml). Jackfruit and watermelon showed the lowest DPPH radical scavenging activities ($IC_{50} > 100$ mg/ml).

The data showed an inverse correlation between the amount of polyphenolic compound and the IC_{50} value of DPPH test (correlation coefficient $R^2 = 0.8434$).

The superoxide scavenging abilities of six fruit extracts are investigated. The degree of the potency to scavenge superoxide radical is followed: mango (Nam-Dok-Mai) $>$ longkong seed $>$ longkong pulp $>$ guava $>$ banana (Nam-Var) $>$ durian. Mango (Nam-Dok-Mai) exhibited the strongest superoxide radical scavenging activity

($IC_{50} = 0.045 \pm 0.002$) while durian has the least ability to scavenge superoxide radical ($IC_{50} = 2.273 \pm 0.194$ mg/ml).

The hydroxyl scavenging abilities of six fruit extracts are as following: mango (Nam-Dok-Mai) > longkong pulp > banana (Nam-Var) > longkong seed > guava > durian. Mango (Nam-Dok-Mai) exhibited the strongest hydroxyl radical scavenging activity while durian has the least ability to scavenge hydroxyl radical.

The effects of fruit extracts on human erythrocyte hemolysis induced by AAPH were studied. Among the six fruit extracts, mango (Nam-Dok-Mai) possesses the strongest effect to protect human erythrocyte membrane from hemolysis while durian has the weakest scavenger to quench the oxyradical caused by AAPH. Mango (Nam-Dok-Mai) extract (at 0.6 mg/ml) can inhibit human erythrocyte hemolysis up to 91%. Banana, guava, longkong pulp, and longkong seed have moderate antioxidant capability (71-81% inhibition, at 0.6 mg/ml) to prevent human erythrocyte membrane hemolysis. Durian has the lowest effective (58% inhibition, at 0.6 mg/ml) against hemolysis on human erythrocyte membrane.



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