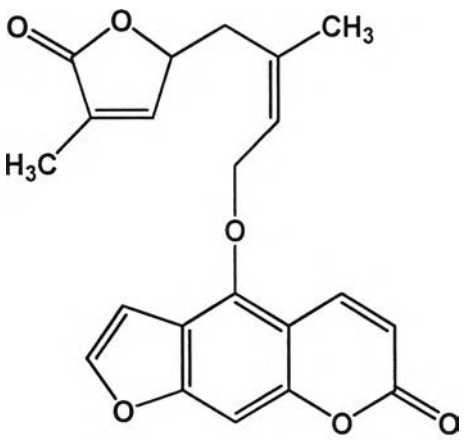
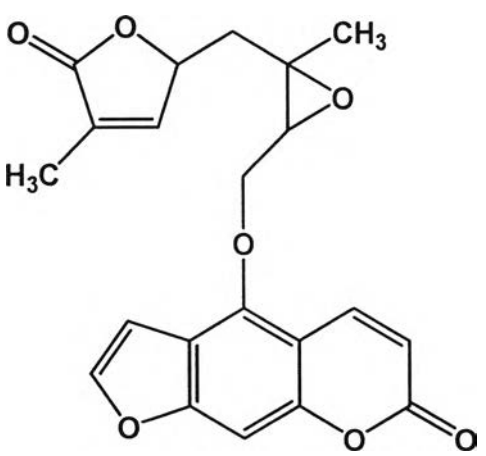
CHAPTER IV

Conclusion

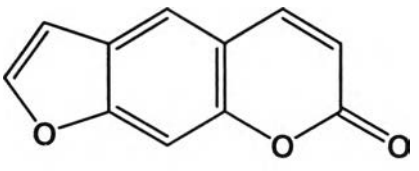
The isolation of dichloromethane extract obtained eleven furanocoumarins which were three new and eight known furanocoumarins. The structural elucidations of new furanocoumarins were based on spectroscopic data and known furaonocoumarins were compared to literatures. These furanocoumarins were anisolactone (**1**), 2″, 3″-epoxyanisolactone (**2**), psoralen (**3**), bergapten (**4**), isopimpinellin (**5**), marmesin (**6**), ferniellin A (**7**), oxypeucedanin hydrate (**8**), feroniellin C (**9**), 2″, 3″-dihydroxyanisolactone (**10**) and feroniellin B (**11**). The structures of the isolated furanocounarins were summarized as followed.



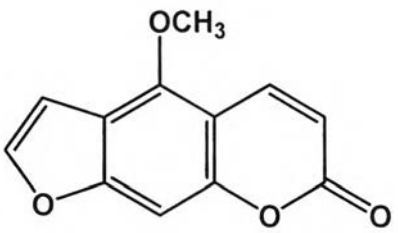
Anisolactone (**1**)



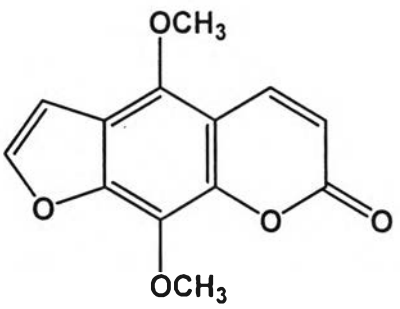
2″, 3″-Epoxyanisolactone (**2**)



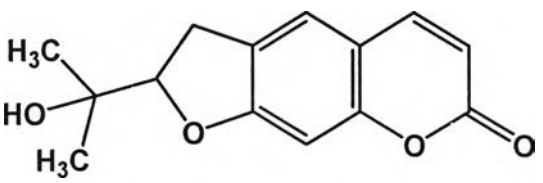
Psoralen (**3**)



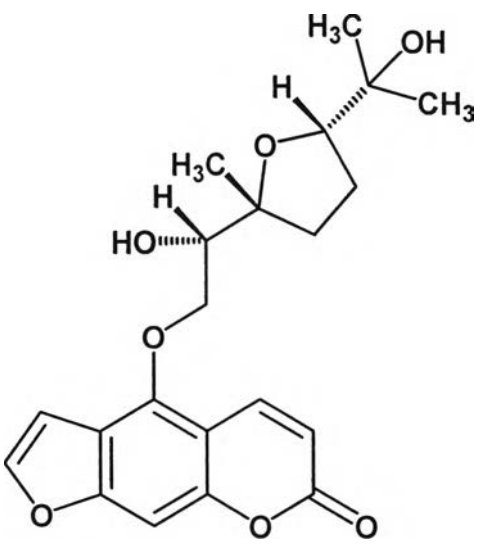
Bergapten (**4**)



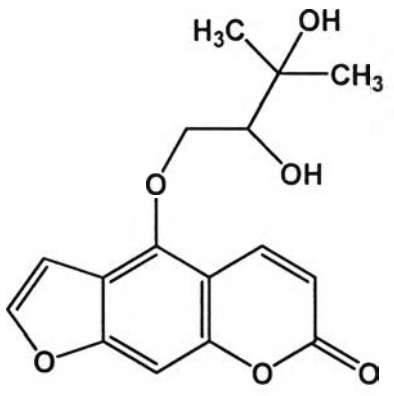
Isopimpinellin (**5**)



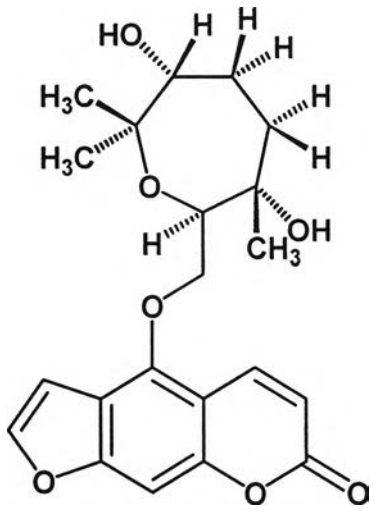
Marmesin (**6**)



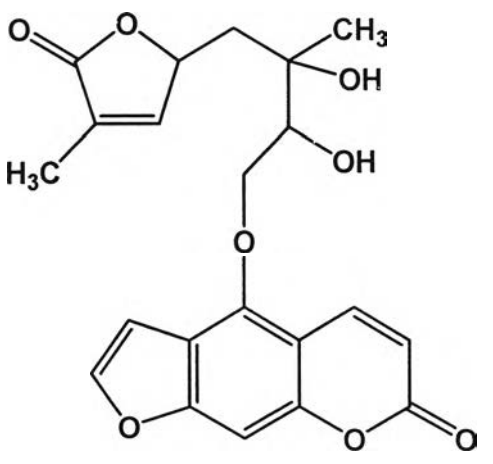
Feroniellin A (**7**)



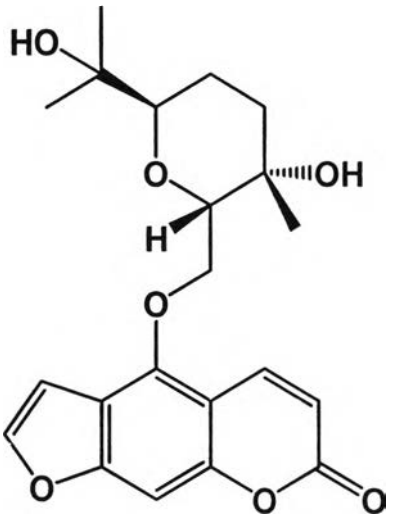
Oxypeucedanin hydrate (**8**)



Feroniellin C (**9**)



2″, 3″-Dihydroxyanisolactone (**10**)



Feroniellin B (**11**)

As for the chemical investigation from the roots of *Feroniella lucida*, we were firstly reported anisolactone and 2″, 3″-epoxyanisolactone from the subtribe Balsamocitrinae, tribe Citrinae, as reported form tribe Clausenae (Lakshmi *et al*, 1984). In this research we reported 2″, 3″-dihydroxyanisolactone as a new natural product. Moreover, we found that psoralen, bergapten, isopimpinellin and marmesin were also previous reported from *Feronia limonia* (Talapatra *et al*, 1973; Gupta *et al*, 1979; Rahman and Gray, 2002) and psoralen and marmesin were also reported from *Aegle marmelos* (Shoeb *et al*, 1973). Most importantly, feroniellin A, feniellin B and feroniellin C were reported as new compounds.

The investigation and evaluation for anti-platelet aggregation using ADP as aggregating agent indicated that feroniellin B was the most effective compound in inhibiting platelet aggregation among the isolated furanocoumarins. Furthermore, the IC_{50} value of feroniellin B was thirty-nine times lower than ibuprofen standard drug. The result indicates that feroniellin B more potent than Ibuprofen.

Proposal for the Future Work

According to the limitation of solubility, most of the isolated furanocoumarins failed to exhibit anti-platelet activity. In order to solve this limitation, using other appropriate organic solvent or adding some detergents, which not interfere platelet aggregation, to dissolve non-polar furanocoumarins might be successfully evaluated for anti-platelet activity of these compounds.

Concerning the anti-platelet activity, this research determined in vitro assay using ADP as the aggregating agent. It was suggested that other agonists should be additionally examined such as arachidonic acid, collagen, thrombin, etc. Furthermore, the in vivo assay model of most effective compound, feroniellin B, should be determined to fulfill of this research.