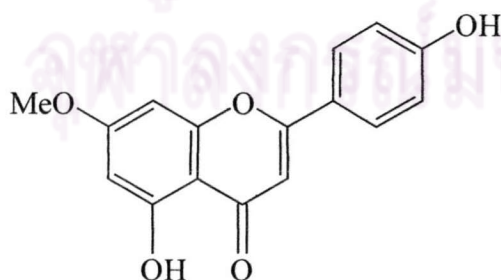


CHAPTER IV

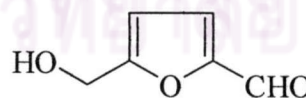
CONCLUSION

This research has been focused on searching for agrochemicals from *Hyptis suaveolens* Poit., weed in the family Labiatae. The preliminary results revealed that the crude extract of the aerial parts of *H. suaveolens* Poit. displayed interesting biological activities. Further solvent fractionation of *H. suaveolens* Poit. and biological test exhibited that hexane and dichloromethane extracts showed root growth inhibition activity 100 % against *E. crus-galli* at concentration 1.0 g.

During the course of this research, thirteen substances were isolated and purified from *H. suaveolens* Poit. Eight compounds including a mixture of two steroids (**HS-1**), oleanolic acid (**HS-2**), genkwanin (**HS-3**), 5-hydroxy methyl furfuraldehyde (**HS-4**), a mixture of two steroidal glycosides (**HS-5**), a mixture of two triterpenoids (**HS-6**), a mixture of long chain alcohols (**HS-7**) and a mixture of long chain esters (**HS-8**) were isolated from dichloromethane crude extract. While β -amyrin (**HS-9**), α -amyrin (**HS-10**), lupeol (**HS-11**), betulinic acid (**HS-12**) and ursolic acid (**HS-13**) were isolated from hexane crude extract. This is the first report for genkwanin (**HS-3**) and 5-hydroxy methyl furfuraldehyde (**HS-4**) in this particular species.



Compound **HS-3**: genkwanin



Compound **HS-4** : 5-hydroxy methyl furfuraldehyde

The preliminary bioassay towards *Echinochloa crus-galli* Beauv. seedling for plant growth inhibition activity was conducted. 5-Hydroxy methyl furfuraldehyde (**HS-4**) possessed the highest percent inhibition against the root growth of *E. crus-galli* Beauv., 82.13 % at dose level 1000 ppm. Betulinic acid (**HS-13**) and 4',5-dihydroxy-7-methoxy flavone (**HS-3**) gave 52.01 and 45.61 % root inhibition at dose 1000 ppm *E. crus-galli* Beauv., respectively.

From the result of plant growth inhibition activity it might be concluded that 5-hydroxy methyl furfuraldehyde (**HS-4**) was the most active compound of this extract.

According to the results of allelopathic effect of isolated substances from *H. suaveolens* Poit. on other plants, most substances can inhibit monocotyledon plants more than dicotyledon ones. In particular, 5-hydroxy methyl furfuraldehyde (**HS-4**) possessed the highest activity against root growth inhibition of both monocotyledon and dicotyledon seedlings.

Proposal for Future Work

From the results of weed growth inhibition, 5-hydroxy methyl furfuraldehyde (**HS-4**) showed the highest % plant growth activity. All of isolated compounds might be worthwhile to study. The possibly future work related to this research would be to test further for other plants that caused problems in Thai agriculture. Moreover, the investigation of plant growth inhibition activity was well known as a preliminary indicator that could be used for further study on other material methods such as pot test and field test. The interesting SAR study of these natural molecules such as, 5-hydroxy methyl furfuraldehyde may be interesting for other researchers to develop as of a natural herbicide. Furthermore, isolated compounds from this plant were less effective than crude extracts. Crude extracts could probably be used as commercial product without isolated and purification.