CHAPTER IV

CONCLUSION

In this research, the 5kg fresh rhizomes of *Kaempferia parviflora* were extracted with methanol. The crude methanol extract was extracted with hexane and ethyl acetate, respectively, to obtain three different crude extracts; crude hexane extract (10.64 g, 0.2128 % wt. by wt. of the fresh rhizome), crude ethyl acetate extract (7.38 g, 0.1476 % wt. by wt. of the fresh rhizome), crude methanol extract (21.34 g, 0.4268 % wt. by wt. of the fresh rhizome). Eleven substances were isolated from the rhizome using traditional chromatoghaphic techniques. The structures were determined from physical, chemical properties, and spectroscopic properties as well as by comparison with the spectral data which those previously reported. Their structures were established as 3, 5, 7 - trimethoxyflavone (1), 5, 7 - dimethoxyflavone (2), 5, 7, 4' - trimethoxyflavone (3), 4' - hydroxy - 5, 7 - dimethoxyflavone (4), dicinnamoylmethane (5), 5 - hydroxy - 3, 7 - dimethoxyflavone (6), 5 - hydroxy - 7 - methoxyflavone (7), 5 - hydroxy - 3, 7, 4' - trimethoxyflavone (8), 5 - hydroxy - 7, 4' - dimethoxyflavone (9), 5, 7 - dimethoxyflavanone (10) and sucrose (11). The crystal structures of 3, 5, 7 - trimethoxyflavone (1), 5, 7 - dimethoxyflavone (2), 5 - hydroxy - 3, 7 - dimethoxyflavone (6), 5 - hydroxy - 7 - methoxyflavone (7), 5 - hydroxy - 3, 7, 4' - trimethoxyflavone (8) and 5, 7 - dimethoxyflavanone (10) were determined by using X - ray diffraction analysis. All isolated compounds from the rhizomes of *Kaempferia parviflora* could be summarized as shown in **Table 5.1.**

Table 5.1 Isolated compounds from the rhizomes of *Kaempferia parviflora*.

	Name of compound	M.P.	Appearance	Weight of extraction (mg)				% wt. by wt. of the starting material
				Hex	EtoAc	MeOH	Total	
1	3,5,7-trimethoxyflavone	181 - 182	Colourless needles crystal	346.90	187.70		534.60	0.011
2	5,7-dimethoxyflavone	148 - 149	Colourless needles crystal	988.60	1529.80		2,518.40	0.051
3	5,7,4'-trimethoxyflavone	155 - 156	Powder		232.10		232.10	0.005
4	4'-hydroxy-5,7-dimethoxyflavone	252 - 254	Powder		96.40		96.40	0.002
5	Dicinnamoylmethane	121 - 122	Greenish-yellow solid	27.00			27.00	$5.4*10^{-4}$
6	5-hydroxy-3,7-dimethoxyflavone	131 - 132	Yellow needles crystal	721.00			721.00	0.014
7	5-hydroxy -7-dimethoxyflavone	149 - 150	Yellow plates crystal	327.60			327.60	0.010
8	5-hydroxy-3,7,4'-trimethoxyflavone	145 - 147	Yellow needles crystal	41.70			41.70	$8.4*10^{-4}$
9	5-hydroxy-7,4',-dimethoxyflavone	152 - 153	yellow solid	34.40			34.40	$6.8*10^{-4}$
10	5,7-dimethoxyflavanone	157 - 158	Colourless needles crystal	44.00			44.00	$8.8*10^{-4}$
11	Sucrose		brown - violet vicous liquid			163.80	163.80	$3.3*10^{-3}$
				2,531.20	2,046.00	163.80	4,741.00	0.0926

In the aspect of biological activities, compound 2 and 10 showed cytotoxicity against Kato3 cell lines, compound 3 showed cytotoxicity against Hep-G2, Kato-3, Chago cell lines, compound 6 showed cytotoxicity against Hep-G2 and Kato-3 cell lines, compound 7 showed cytotoxicity against Chago, Kato-3 and SW620 cell lines, compound 9 showed cytotoxicity against Kato-3 and SW620 cell lines. Compound 5 and 11 have weak antioxidant activity.

5.1.1 Suggestion for future work

The study of the relationship between the structure of isolated compounds including their derivatives Structure - Activity Relationship (SAR) should be covered. Moreover, the chemical constituents and biological activity study of other parts of *K. parviflora* should also be investigated. The results from that study would reveal the similarity or difference and might lead to understanding of biosynthesis pathway of some major components.