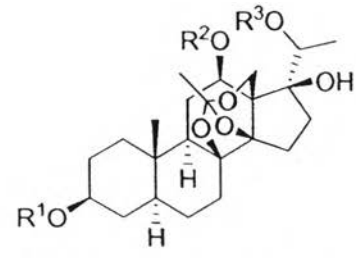
CHAPTER V
CONCLUSION

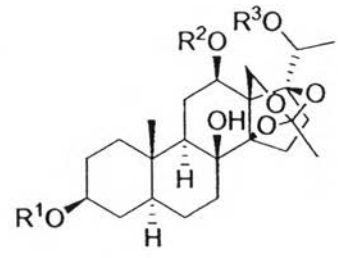
The chromatographic separation of methanolic extract of the pericarp of *G. griffithii* fruits led to isolation of eight new pregnane-type steroidal glycosides substituted with orthoacetate groups, named gymnemogriffithoside A–H (**61**–**68**). The phytochemical investigation of *H. curtisii* pods led to isolation of two new triterpenoids, 3β-hydroxy-11α-hydroperoxyursan-12-en-28-oic acid (**81**) and 3β-hydroxy-11α-hydroperoxyolean-12-en-28-oic acid (**82**), together with twelve known compounds, squalene (**83**), β-amyrin acetate (**84**), α-amyrin acetate (**85**), lupeol acetate (**86**), lupeol (**57**), lanosta-7,24-dien-3β-ol (**87**), cycloeucalenol (**88**), methylene pollinastanol (**89**), oleanolic acid (**90**), ursolic acid (**91**), (–)-catechin (**92**) and (–)-gallocatechin (**93**). Their structures were established by spectroscopic analysis (1D and 2D NMR, HRESIMS and ATR-FTIR).

The absolute stereochemistry of the steroidal skeleton of the new compound **61** was established as 3*S**, 5*S**, 8*S**, 9*R**, 10*S**, 12*R**, 13*R**, 14*R**, 17*S** and 20*S** using both spectroscopic and chemical approaches.

All isolated compounds from *G. griffithii*, steroidal glycosides (**61**–**68**) and the two derived aglycones (**61a** and **67a**), were tested for their *in vitro* cytotoxic activity against five human tumor cell lines (BT 474, Chago, Hep-G2, KATO-III and SW620), using the MTT colorimetric assay. Compounds **61**, **61a**, **62**-**67**, **67a** and **68** did not show any apparent cytotoxicty against the five tested human tumor cell lines. Compounds **63** and **66**, containing a tigloyl moiety at C-20, showed a slight *in vitro* cytotoxicity against five human tumor cell lines and exhibited a more potent *in vitro* cytotoxicity than the other compounds.

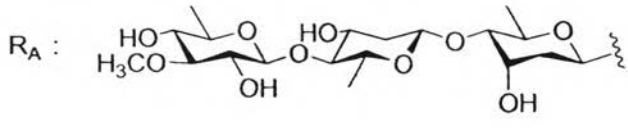
In addition, the α-glucosidase inhibitory activity of isolated compounds from *G. griffithii* and *H. curtisii* were tested. Compounds **81**, **82**, **90**, and **91** from *H. curtisii* processed with pentacyclic triterpenoid acid skeleton showed strong *in vitro* α-glucosidase inhibitory activity against yeast *Saccharomyces cerevisiae* with IC_{50} value in the range of 14.7 to 79.3 μM. Compounds **61**–**68** processed with steroidal skeleton conjugated with three sugar unit at C-3 position were considered to be inactive, while their steroidal aglycone **61a** and **67a** showed a moderate α-glucosidase inhibitory activity, suggesting that the presence of sugar moiety decreased the α-glucosidase inhibitory activity of these compounds.



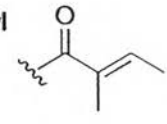


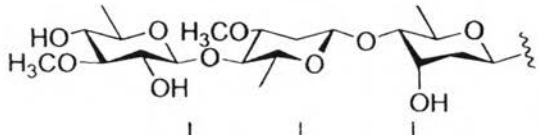
61 $R^1 = R_A$ $R^2 = Ac$ $R^3 = Ac$
62 $R^1 = R_A$ $R^2 = H$ $R^3 = Ac$
63 $R^1 = R_A$ $R^2 = Ac$ $R^3 = Tig$
64 $R^1 = R_B$ $R^2 = Ac$ $R^3 = Ac$
65 $R^1 = R_B$ $R^2 = H$ $R^3 = Ac$
66 $R^1 = R_B$ $R^2 = Ac$ $R^3 = Tig$
61a $R^1 = H$ $R^2 = Ac$ $R^3 = Ac$

67 $R^1 = R_A$ $R^2 = Ac$ $R^3 = Ac$
68 $R^1 = R_B$ $R^2 = Ac$ $R^3 = Ac$
67a $R^1 = H$ $R^2 = Ac$ $R^3 = Ac$

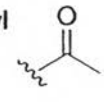


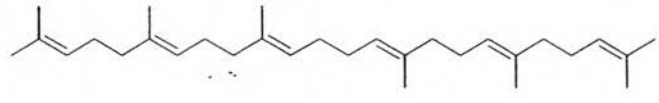
Tig : Tigloyl





Ac : Acetyl





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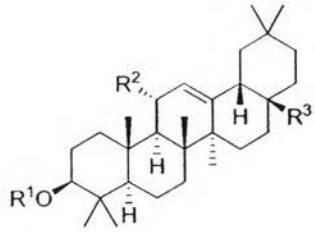
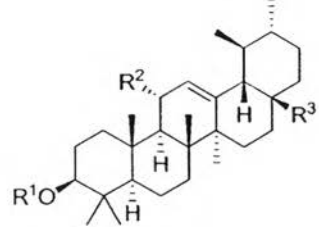
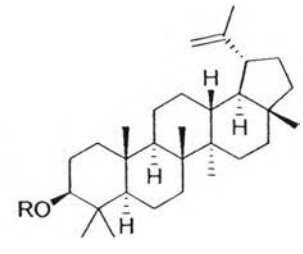


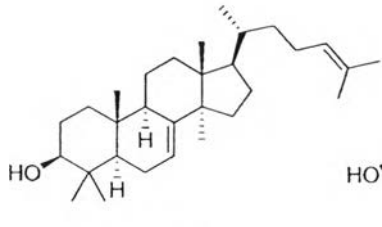




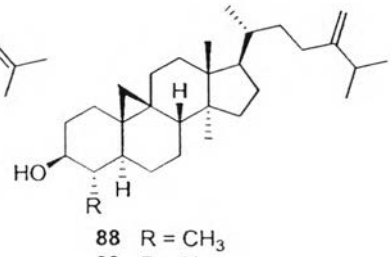
81 $R^1 = H$ $R^2 = OOH$ $R^3 = COOH$
84 $R^1 = Ac$ $R^2 = H$ $R^3 = CH_3$
90 $R^1 = H$ $R^2 = H$ $R^3 = COOH$

82 $R^1 = H$ $R^2 = OOH$ $R^3 = COOH$
85 $R^1 = Ac$ $R^2 = H$ $R^3 = CH_3$
91 $R^1 = H$ $R^2 = H$ $R^3 = COOH$

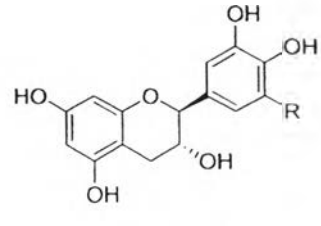
57 R = H
86 R = Ac



87



88 $R = CH_3$
89 R = H



92 R = H
93 R = OH

Figure 5.1 Isolated compounds from *G. Griffithii* and *H. curtisii*.