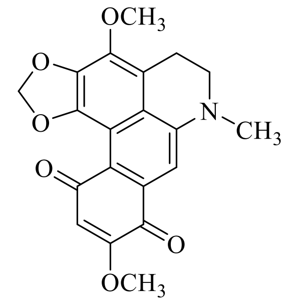
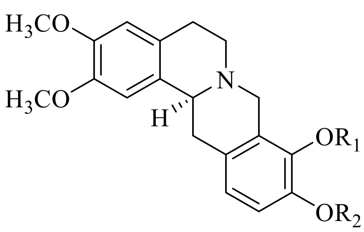
CHAPTER 4

Conclusion

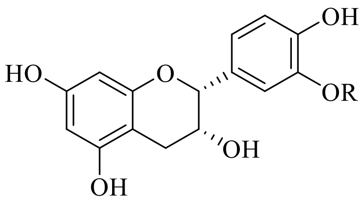
In conclusion, the chemical investigation of the leaves and twigs of *Dasymaschalon yunnanense* afforded one new *p*-quinonoid aporphine alkaloid (**DY1**) along with 21 known compounds (**DY2 – DY21**). The known compounds were classified as two tetrahydroprotoberberine alkaloids (**DY2** and **DY20**), two flavans (**DY3 – DY4**), seven aristolactam alkaloids (**DY5 – DY11**), one aporphine alkaloid (**DY16**), one isoquinolinone alkaloid (**DY13**), one polyoxygenated cyclohexane (**DY12**), five polyoxygenated cyclohexenes (**DY14** – **DY15** and **DY17 – DY19**) and one phenylpropanoid amide (**DY21**). Compounds **DY1** – **DY12** were isolated from the twigs of *D. yunnanense* while compounds **DY2**, **DY5**, **DY7**, **DY10**, **DY12** and **DY13** – **DY21** were purified from the leaves of *D. yunnanense*. Some of the isolated compounds were evaluated for their biological activities. Compound **DY5** exhibited the highest antibacterial activity against *B. subtilis*, *E. coli* and *P. aeruginosa* with the same MIC value of 32 μg/mL. Compound **DY9** exhibited cytotoxicity against KB cell line with an IC_{50} value of 4.61±0.02 μg/mL and Vero cell line with an IC_{50} value of 1.83± 0.57 μg/mL. A new compound **DY1** exhibited the highest antimalarial activity against the K1 strain (multidrug resistant strain) with an IC_{50} value of 1.38±0.99 μg/mL whereas compound **DY20** showed the best antimalarial activity against TM4 strain with an IC_{50} value of 1.82±0.66 μg/mL. Both compounds were non-cytotoxicity against mammalian cells. Compounds **DY2**, **DY5**, **DY9** and **DY14** – **DY16** exhibited antimalarial activity with the IC_{50} values ranging 2.04 - 33.2 and 1.84 - 27.9 μg/mL against the TM4 and K1 strains, respectively.



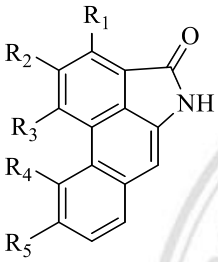
DY1



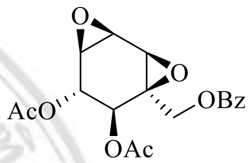
DY2: $R_1 = R_2 = -CH_2-$
DY20: $R_1 = CH_3$, $R_2 = H$



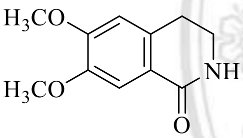
DY3: R = H
DY4: $R = CH_3$



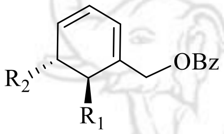
DY5: $R_1 = R_3 = OCH_3$, $R_2 = OH$, $R_4 = R_5 = H$
DY6: $R_1 = R_4 = R_5 = H$, $R_2 = R_3 = OCH_3$
DY7: $R_1 = R_4 = R_5 = H$, $R_2 = OCH_3$, $R_3 = OH$
DY8: $R_1 = R_4 = R_5 = H$, $R_2 = OH$, $R_3 = OCH_3$
DY9: $R_1 = R_3 = OCH_3$, $R_2 = R_5 = OH$, $R_4 = H$
DY10: $R_1 = R_3 = OCH_3$, $R_2 = R_4 = OH$, $R_5 = H$
DY11: $R_1 = R_2 = R_3 = OCH_3$, $R_4 = R_5 = H$



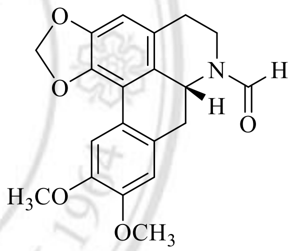
DY12



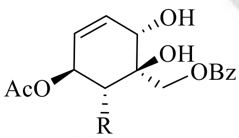
DY13



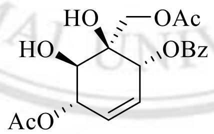
DY14: $R_1 = R_2 = OAc$
DY15: $R_1 = OH$, $R_2 = OBz$



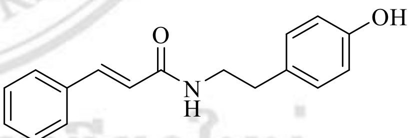
DY16



DY17: R = OAc
DY18: R = OH

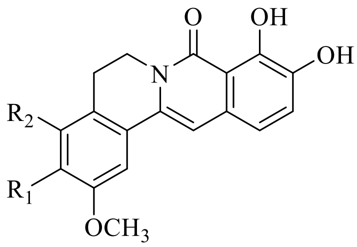


DY19

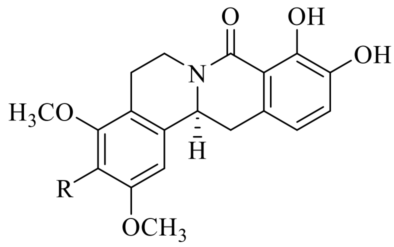


DY21

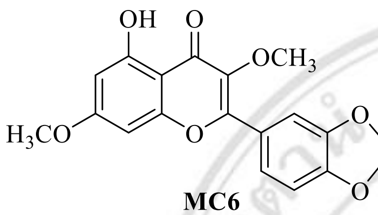
The chemical investigation of the leaves and twigs of *Miliusa cuneata* provided five new oxoprotoberberine alkaloids, miliusacunines A – E (**MC1** – **MC5**) together with 9 known compounds; four flavones (**MC6** – **MC8** and **MC11**), one geranylated homogentisic acid (**MC9**), one furofuran lignan (**MC10**) and three phenylpropanoid amides (**MC12** – **MC14**). Compounds **MC1** – **MC10** were isolated from the leaves of *M. cuneata* whereas compounds **MC6**, **MC7** and **MC11** – **MC14** were obtained from the twigs of *M. cuneata*. Compounds **MC7** and **MC13** were evaluated for their antibacterial activity against both Gram-positive and Gram-negative bacteria. Compound **MC7** showed weak (MIC 100 μg/mL) activity against Gram-negative bacteria, *P. aeruginosa*. All compounds from *M. cuneata* were also evaluated for their cytotoxicity against KB and Vero cell lines, and antimalarial activity against *P. falciparum* (TM4 and K1 strains). Compound **MC9** exhibited cytotoxic activity against a KB cell line with an IC_{50} value of 3.10±0.03 μg/mL and showed the best antimalarial activity against both strains with the IC_{50} values of 3.39±0.62 and 2.77±0.29 μg/mL, respectively. However, this compound exhibited cytotoxic activity against a Vero cell line with an IC_{50} value of 4.11±0.15 μg/mL. While compounds **MC1** – **MC5**, **MC8**, and **MC11** – **MC13** displayed weaker antimalarial activity than compound **MC9** with the IC_{50} values in ranging of 6.86 - 14.8 and 3.97 - 17.2 μg/mL against the TM4 and K1 strains, respectively. None of them were cytotoxic to the Vero cell line. Among these, compound **MC1** showed good antimalarial activity against the TM4 strain with an IC_{50} value of 6.86±1.19 μg/mL and compound **MC2** demonstrated significant activity against the K1 strain with an IC_{50} value of 3.97±1.52 μg/mL.



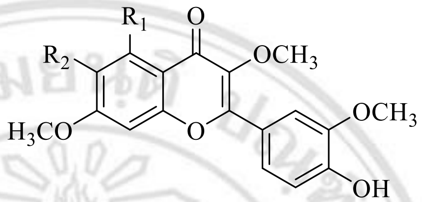
MC1: R_1 = OCH_3, R_2 = OH
MC2: R_1 = OCH_3, R_2 = OCH_3
MC3: R_1 = OH, R_2 = OCH_3



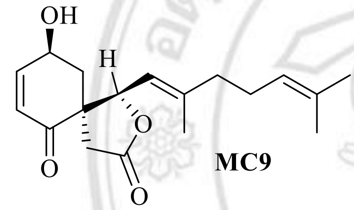
MC4: R = OH
MC5: R = OCH_3



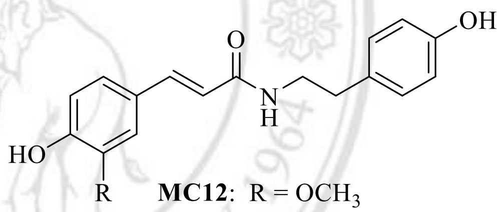
MC6



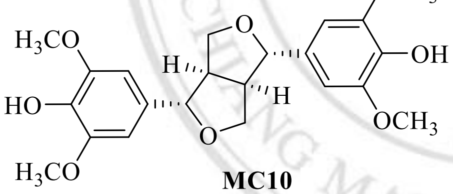
MC7: R_1 = OH, R_2 = H
MC8: R_1 = OCH_3, R_2 = H
MC11: R_1 = OH, R_2 = OCH_3



MC9



MC12: R = OCH_3
MC13: R = OH
MC14: R = H



MC10