# CHAPTER VII
# CONCLUSION

## 1. Effect of temperature on malarial growth and development

The febrile temperature is capable of markedly inhibiting the growth of five isolates *P. falciparum* but not to standards strain in erythrocyte culture. Ring stage is relatively temperature resistant. The expososure to heat at phase A might protect against the heat at phase D of K1 and 3D7 strain but not in five isolates. K1 and 3D7 after heat shock developed greater than non-HS. The reinfection rate of K1 and 3D7 rised to 2-fold when compared with non-HS and K1 and 3D7 resisted to temperature better than fives isolates.

## 2. *In vitro* drug sensitivity assay

The $IC_{50}$ value of K1 with CQ and ARS after heat for 2 hours was higher than that of K1 under non-HS. The $IC_{50}$ value of 3D7 with CQ and ARS after heat for 2 hours was higher than that of 3D7 under HS. The $IC_{50}$ value of five isolates with CQ and ARS after heat for 2 hours can not be calculated because all parasites died. The $IC_{50}$ value and reinfection rate of all parasites with CQ and ARS after heat for 2 hours was not different to that of non-HS.

## 3. Effect of temperature and drug stress on malarial drug development

K1 strain resisted to high temperature and CQ drug stress. The parasites development and reinfection rate was similar to the control. The development of 3D7 under HS was sensitive to drug greater than that of non-HS group. Temperature might increase drug uptake. When culture five isolates under high temperature with drug, all parasites died higher than non-HS . Drug artesunate (ARS) inhibited the development of all parasites including K1, 3D7 and five isolates. When culture five isolates under high temperatures, with drug, all parasites died higher which is opposite to that of CQ.

**4. Effect of temperature and drug stress on *P. falciparum* heat shock protein 70 (*pf*HSP70s)**

All of conditions show expression of *pf*Hsp70s while K1 under HS with CQ shows another interacting three bands identified by MALDI-TOF as elongation factor-1α, *pf*Hsp84 and phosphoethanolamine N-methyltransferase. The complex formation of these proteins with *pf*HSP70 might have some rules in gene regulation or stress response and this will be explored in future study.