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AMPORN THIENGTRONGDEE : THE EFFECTIVENESS OF A SINGLE DOSE OF PRIMAQUINE 45 MG. ON THE INHIBITION OF PLASMODIUM FALCIPARUM DEVELOPMENT IN ANOPHELES DIRUS A. THESIS ADVISOR : USA LEK-UTHAI, M.Sc.(PUBLIC HEALTH), JIRASUK ROJANAPREMSUK, Dr.P.H., YUPHA RONGSRIYAM, Ph.D., SORNCHAI LOOAREESUVAN, M.D., SRIVACHA KRUDSOOD, M.D., M.Sc.(C.T.M.) 81p. ISBN 974-589-779-5

Malaria is still the most important tropical disease in Thailand due to the dramatic widespread increase in drug resistant strains of *Plasmodium falciparum* and insecticide resistant strains of *Anopheles* mosquito vectors. The objective of this study is to determine the effectiveness of a single 45 mg dose of primaquine on the inhibition of *Plasmodium falciparum* development in *Anopheles dirus* A by interupting the sporogony cycle. The mosquitoes acquired gametocyte stage 5 (40 gametocytes/microlitre) by artificial membrane feeding. One feeding took place in the absence of primaquine and a subsequent feeding was following a 45 mg dose. Stomach content analyses were carried out at 3, 5, 7, 10, 13, 15, 18, 21 and 24 days after feeding for detection of oocysts and the salivary glands were assessed for the presence sporozoites.

The results indicated that the average number of oocysts in the pre-treatment blood with primaquine was significantly greater than that in the post-treatment blood (p-value < 0.05). AS well,the oocysts never developed into sporozoites.

The density of gametocytes before primaquine treatment was found to be 1,120 gametocytes/microlitre. whereas after primaquine treatment the density was only 680 gametocytes/microlitre. The development of gametocytes in *Anopheles dirus* A after blood feeding, showed the average of oocyst on the day after primaquine treatment was statistical significantly (p-value <0.05) more than before primaquine treatment. After primaquine treatment, gametocytes could develop to oocyst and sporozoite.