

ESTIMATES OF *PLASMODIUM VIVAX* GAMETOCYTE FERTILITY AND OOKINETE TRANSFORMATION IN *ANOPHELES DIRUS*, *AN. MINIMUS* AND *AN. SAWADWONGPORNI* MOSQUITOES

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Current efforts to develop transmission-blocking vaccines (TBV) for *Plasmodium vivax* aim to disrupt early sporogonic stages of the malaria parasites in the lumen of the anopheline midgut. However, the correlation between *P. vivax* ametocyte densities and their infectiousness to mosquitoes based on oocyst densities is unclear. We calculated transitional efficiencies between early parasite lifestages (macrogametocyte, ookinete, oocyst) and estimated the successive losses in parasite abundance. We examined early sporogonic development of natural strains of *Plasmodium vivax* in laboratory-reared *An. dirus*, *An. minimus* and *An. sawadwongporni* mosquitoes fed on gametocytemic blood drawn from uncomplicated, symptomatic patients reporting to a malaria clinic in Mae Sot, Thailand. Relative densities of macrogametocytes per mosquito were estimated based on blood meal volume, RBC density and patient macrogametocytemia. Absolute densities of ookinetes were determined using immunofluorescent staining with a monoclonal antibody against Pvs25, a protein expressed on the surface of post-fertilization stages. Additional mosquitoes were dissected for oocysts on day 7. Transitional efficiencies between parasite lifestages were calculated and the successive losses in parasite abundance estimated. Parasite populations incurred a 100- to 600- fold loss in abundance during the transition from macrogametocyte to ookinete, and a 10-fold loss from ookinete to oocyst. Quantitative studies of *P. vivax* macrogametocyte fertility and ookinete transformation are crucial to understand the efficacy of TBV in *An. dirus* and other important malaria vectors.

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EVALUATION OF THE VECTEST MALARIA ANTIGEN PANEL ASSAY FOR THE DETECTION OF *PLASMODIUM FALCIPARUM* AND *P. VIVAX* CIRCUMSPOROZOITE PROTEIN IN ANOPHELINE MOSQUITOES IN THAILAND

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We evaluated the performance of the VecTest Malaria Antigen Panel (V-MAP) assay for the detection of *Plasmodium falciparum* and *P. vivax* (variants 210 and 247) circumsporozoite protein in anopheline mosquitoes in Thailand. The V-MAP assay is a rapid, one-step procedure using a 'dipstick' wicking test strip. The circumsporozoite (CS) ELISA was used as the reference standard. Mosquitoes evaluated in the study included field-collected specimens ($n = 930$) and laboratory-reared specimens that had been fed on blood collected from patients with and without *Plasmodium* gametocytes ($n = 4,110$) or on cultured *P. falciparum* gametocytes ($n = 262$). Field-collected mosquitoes were triturated individually or in pools of 2-5 and tested using 613