INFECTIVITY OF ASYMPTOMATIC *PLASMODIUM*-INFECTED HUMAN POPULATIONS TO *ANOPHELES DIRUS* MOSQUITOES IN WESTERN THAILAND

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This study was part of an ongoing investigation into the host (human) and vector (mosquito) factors that determine whether mosquitoes will become infected with malaria. The infectiousness of *Plasmodium*- infected humans in the village of Kong Mong Tha, Kanchanaburi Province, Thailand, was estimated by feeding mosquitoes on venous blood placed in a membrane-feeding apparatus. Of 8,268 blood films collected between May 2000 and November 2001, 3.9% (324/8,268) were *P. falciparum*-positive, 5.0% (417/8,268) were *P. vivax*-positive, and 0.1% (9/8,268) were *P. malariae*-positive, with gametocytes found in 15.1% (49/324), 24.7% (103/417) and 100% (9/9) of the positive blood films, respectively. Venous blood was collected 1-3 days after the initial blood film from 104 individuals infected with *P. falciparum*, 117 with *P. vivax*, and 6 with *P. malariae*, with 75 uninfected individuals serving as negative controls. Only 8.7% (9/104), 6.0% (7/117), and 0% (0/6) of membrane feeds conducted on *P. falciparum, P. vivax,* and *P. malariae*-infected blood yielded infected mosquitoes. Gametocytes were observed in only 33.3% (3/) of the infectious *P. falciparum* samples and in only 28.6% (2/7) of the infectious *P. vivax* samples. All infectious resulted in low oocyst loads (average of 1.2 oocysts per positive mosquito). Only 4.1% (12/296) of mosquitoes fed on the nine infectious *P. falciparum* samples developed oocysts, while 2.9% (9/311) of mosquitoes fed on the seven infectious *P. vivax* samples developed oocysts. The probability of a mosquito becoming infected with *P. falciparum* or *P. vivax* following a blood meal on a member of the human population of Ban Kong Mong Tha was estimated to be 0.014% (3.9% prevalence x 8.7% infectious x 4.1% mosquito infection rate) and 0.0087% (5% x 6% x 2.9%), respectively.

51st Annual Meeting of the American Society of Tropical Medicine and Hygiene. Denver, Colorado, USA. 10-14 November 2002.