

HUMAN BLOOD FEEDING PATTERNS OF THE DENGUE VECTOR, *Aedes Aegypti*

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Feeding patterns of the dengue vector, *Aedes aegypti* for individual human hosts were examined from Thai villages during high and low dengue transmission seasons from February 2000 to January 2003. We used PCR-based profiling of human DNA in mosquito blood meals. Aspiration collections were conducted inside homes in four Thai villages near Mae Sot, Thailand. Human microsatellite markers were amplified at six polymorphic loci and one region of the human x and y-chromosomes. A computer-matching program was employed to match human DNA fingerprints in mosquito blood meals to profiles of community resident volunteers and field crew members. The person(s) who were fed on and the frequency of feeding from different people were determined. Feeding frequency across human host age classes was analyzed after correcting for population age structure. Controlled time-series experiments with one and multiple hosts were conducted to identify the limits of DNA detection using this approach. The frequency of alleles in the human host population was also determined to identify rare alleles that would be useful in matching partial DNA profiles. Results over multiple years, dengue transmission seasons and villages will be presented.

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IDENTIFICATION OF LARVAL *ANOPHELES* MOSQUITO HABITATS USING GIS AND REMOTE SENSING IN SOUTH KOREA

Sithiprasasna R, Linthicum KJ, Lee WJ, Jones JW

This entomological study was made during July to September 2003 in malaria-endemic of Ganghwa Island and Paju City, South Korea. The aims of this study are to use RS/GIS to examine the temporal and geographic distribution of adult *Anopheles* mosquitoes to determine whether there is a link between adult mosquito distribution and location of larval habitats and to identify larval habitats that produce key vector species in order to target the control efforts. We mapped out breeding habitats and patients addresses of both areas using Global Positioning System (GPS). Adult and larval mosquito sampling was conducted throughout the two areas, and mosquito distribution and abundance mapped. Four species (*An. sinensis*, *An. lesteri*, *An. pullus*, and *An. sineroides*) that were frequently collected from light traps were also abundant as larvae. The GIS databases were used to quantify spatial and temporal relationships between larval habitats and characterization of adult mosquito density in the associated villages. High spatial resolution satellite data (LANDSAT and QuickBird) are used to provide up-to-date baseline mapping of recent or temporary development activities such as irrigation schemes, forest

clearance and associated settlements which have changed the environment markedly since conventional paper maps were last drawn. The relationship between larval and adult mosquito distribution and observed malaria distribution will be analyzed and discussed.

Abstract of the 70th Annual Meeting of the AMCA (American Mosquito Control Association) and the 29th Annual Meeting of the Mid-Atlantic Mosquito Control Association. Savannah, GA, USA. 22-26 February 2004:42.

LABORATORY EVALUATION OF THE POTENCY OF BACTIMOS[®] BRIQUETS AGAINST *Aedes aegypti* LARVAE (DIPTERA: CULICIDAE)

Fansiri T, Jones JW and Sithiprasasna R

Bacillus thuringiensis var israelensis (Bti) is a gram-positive spore-forming bacterium produces a proteinaceous crystal (δ -endotoxin) during sporulation. The crystal is cleaved into the toxic polypeptides by specific proteases in the mid-gut of ingesting mosquito larva. The toxic polypeptides bind to the gut epithelium and cause paralysis and death within a short time. This bio-potency study of Bactimos[®] Briquets (active ingredient: 7000 ITU *Aedes aegypti* (AA) International Toxic Units [ITU]/mg *Bacillus thuringiensis var. israelensis*) against late 3rd instar larvae of the arbovirus vector *Aedes aegypti* has been carried out according to WHO standard protocols. The six concentrations of Bti product were used in each test replicated 4 times with 25 mosquito larvae. Probit analysis was then used to determine LC₅₀ which equated to a dosage of 0.54072 mg/l. The potency value of 515.42 ITU/mg (Briquets) was based on the ratio between the LC₅₀ of International Reference Standard IPS-82 and LC₅₀ of the Bti product was calculated. The result and potential role of this product will be discussed.

Abstract of the Joint International Tropical Medicine Meeting (JITMM). Bangkok, Thailand. 29 November-1 December 2004:237. (Poster)

LONGITUDINAL EVALUATION OF MALARIA EPIDEMIOLOGY IN AN ISOLATED KAREN VILLAGE IN WESTERN THAILAND: BIONOMICS OF ADULT ANOPHELINE MOSQUITOES

Zollner GE, Kankaew P, Jaichapor B, Ratanawong S, Chanaimongkol S, Sithiprasasna R and Coleman RE

Anopheline mosquitoes and their relation to malaria transmission were studied for 4.5 years (June 1999-January 2004) in the remote village of Kong Mong Tha in the hills of western Thailand. A total of 21,566 anophelines comprising >30 species was captured on human bait during >2000 collector nights. *An. minimus* and *An. maculatus* comprised approx. 50% and 25% of the catches and 70% (38/56) of mosquitoes positive by ELISA for circumsporozoite