

## REFERENCES

- Alam MS, Chakma S, Khan WA, Glass GE, Mohon AN, Elahi R, et al. Diversity of anopheline species and their *Plasmodium* infection status in rural Bandarban, Bangladesh. Parasit Vectors 2012;5:150.
- Alam MS, Khan MG, Chaudhury N, Deloer S, Nazib F, Bangali AM, et al. Prevalence of anopheline species and their *Plasmodium* infection status in epidemic-prone border areas of Bangladesh. Malar J 2010;9:15.
- Baimai V. Heterochromatin accumulation and karyotypic evolution in some dipteran insects. Zool Stud 1998;37:75-88.
- Baimai V, Andre RG, Harrison BA. Heterochromatin variation in the sex chromosomes in Thailand populations of *Anopheles dirus* A (Diptera: Culicidae). Can J Genet Cytol 1984a;26:633-6.
- Baimai V, Andre RG, Harrison BA, Kijchalao U, Panthusiri L. Crossing and chromosomal evidence for two additional sibling species within the taxon *Anopheles dirus* Peyton and Harrison (Diptera: Culicidae) in Thailand. Proc Entomol Soc Wash 1987;89:157-66.
- Baimai V, Green CA, Andre RG, Harrison BA, Peyton EL. Cytogenetic studies of some species complexes of *Anopheles* in Thailand and Southeast Asia. SE Asian J Trop Med 1984b;15:536-46.
- Baimai V, Kijchalao U, Rattanarithikul R, Green CA. Metaphase karyotypes of *Anopheles* of Thailand and Southeast Asia: II. Maculatus group, Neocellia series, subgenus *Cellia*. Mosq Syst 1993a;5:116-23.

Baimai V, Kijchalao U, Rattanarithikul R. Metaphase karyotypes of *Anopheles* of Thailand and Southeast Asia: V. Myzomyia series, Subgenus *Cellia* (Diptera: Culicidae). J Am Mosq Control Assoc 1996a;12:97-105.

Baimai V, Kijchalao U, Rattanarithikul R. Metaphase karyotypes of *Anopheles* of Thailand and Southeast Asia: VI. The Pyretophorus and the Neomyzomyia series, subgenus *Cellia* (Diptera: Culicidae). J Am Mosq Control Assoc 1996b; 12:669-75.

Baimai V, Poopittayasataporn A, Kijchalao U. Cytological differences and chromosomal rearrangements in four members of the *Anopheles dirus* complex (Diptera: Culicidae). Genome 1988;30:372-9.

Baimai V, Rattanarithikul R, Kijchalao U. Metaphase karyotypes of *Anopheles* of Thailand and Southeast Asia: I. The *hyrcanus* group. J Am Mosq Control Assoc 1993b;9:59-67.

Baker EZ, Beier JC, Meek SR, Wirtz RA. Detection and quantification of *Plasmodium falciparum* and *P. vivax* infections in Thai Kampuchean *Anopheles* (Diptera: Culicidae) by enzyme linked immunosorbent assay. J Med Entomol 1987;24: 536-41.

Baker RH, French WL, Kitzmiller JB. Induced copulation in *Anopheles* mosquitoes. Mosq News 1962;22:16-7.

Beebe NW, Saul A. Discrimination of all members of the *Anopheles punctulatus* complex by polymerase chain reaction restriction fragment length polymorphism analysis. Am J Trop Med Hyg 1995;53:478-81.

Chabpunnarat S. Cytogenetic study of the *Anopheles maculatus* complex. M.Sc. Thesis, Bangkok, Mahidol University 1988.

Chai JY. Re-emerging *Plasmodium vivax* malaria in the Republic of Korea. Korean J Parasitol 1999;37:129-43.

Chen B, Butlin RK, Pedro PM, Wang XZ, Harbach RE. Molecular variation, systematics and distribution of the *Anopheles fluviatilis* complex in southern Asia. Med Vet Entomol 2006;20:33-43.

Choochote W. Evidence to support karyotypic variation of the mosquito *Anopheles peditaeniatus* in Thailand. J Insect Sci 2011;11:10.

Choochote W, Jitpakdi A, Rongsriyam Y, Komalamisra N, Pitasawat B, Palakul K. Isoenzyme study and hybridization of two forms of *Anopheles sinensis* (Diptera: Culicidae) in Northern Thailand. Southeast Asian J Trop Med Public Health 1998;29:841-7.

Choochote W, Jitpakdi A, Sukontason K, Jitpakdi A, Sukontason K, et al. Intraspecific hybridization of two karyotypic forms of *Anopheles vagus* (Diptera: Culicidae) and the related egg surface topography. Southeast Asian J Trop Med Public Health 2002a;33(suppl 3):29-35.

Choochote W, Rongsriyam Y, Leemingsawat S, Jitpakdi A, Komalamisra N, Surathin K, et al. Intraspecific hybridization of *Anopheles minimus* (Diptera: Culicidae) species A and C in Thailand. Southeast Asian J Trop Med Public Health 2002b; 33(suppl 3):23-8.

Choochote W, Saeung A. Systematic techniques for the recognition of *Anopheles* species complexes, in: S. Manguin (Ed.). *Anopheles* mosquitoes-New insights into malaria vectors. InTech 2013;57-79.

Collins FH, Paskewitz SM. A review of the use of ribosomal DNA (rDNA) to differentiate among cryptic *Anopheles* species. Insect Mol Biol 1996;5:1-9.

Coluzzi M. Sibling species in *Anopheles* and their importance to malariology. Misc Publ Ent Soc Am 1970;7:63-77.

Faulde MK, Hoffmann Ralf, Fazilat KM, Hoerauf A. Malaria re-emergence in Northern Afghanistan. Emerg Infect Dis 2007;13:1402-4.

Folmer O, Black M, Hoeh W, Lutz R, Vrijenhoek R. DNA primers for amplification of mitochondrial cytochrome *c* oxidase subunit I from diverse metazoan invertebrates. Mol Mar Biol Biotechnol 1994;3:294-9.

Frances SP, Klein TA, Wirtz RA, Eamsila C, Linthicum KJ. *Plasmodium falciparum* and *Plasmodium vivax* circumsporozoite antigen in *Anopheles* collected in eastern Thailand. J Med Entomol 1996;33:990-1.

Garros C, Harbach RE, Manguin S. Morphological assessment and molecular phylogenetics of the Funestus and Minimus Groups of *Anopheles* (*Cellia*). J Med Entomol 2005;42:522-36.

Gingrich J, Weatherhead A, Sattabongkot J, Pilakasiri C, Wirtz RA. Hyperendemic malaria in Thai Village: dependence of year-round transmission on focal and seasonally circumscribed mosquito (Diptera: Culicidae) habitats. J Med Entomol 1990;27:1016-26.

Green CA, Gass RF, Munstermann LE, Baimai V. Population-genetic evidence for two species in *Anopheles minimus* in Thailand. Med Vet Entomol 1990;4:25-34.

Green CA, Rattanarithikul R, Charoensub A. Population genetic confirmation of species status of the malaria vectors *Anopheles willmori* and *An. pseudowillmori* in Thailand and chromosome phylogeny of the Maculatus group of mosquitoes. Med Vet Entomol 1992;6:335-41.

Hall TA. BioEdit: a user-friendly biological sequence alignment editor and analysis program for Windows 95/ 98/NT. Nucleic Acids Symposium Series 1999;41: 95-8.

Harbach RE. *Anopheles* classification, Mosquito taxonomic inventory, 2014 <http://mosquito-taxonomic-inventory.info/node/11358> [Accessed 10 May 2015].

Harbach RE, Gingrich JB, Pang LW. Some entomological observations on malaria transmission in a remote village in northwestern Thailand. J Am Mosq Control Assoc 1987;3:296-301.

Harrison BA, Scanlon JE. Medical entomology studies II. The subgenus *Anopheles* in Thailand (Diptera: Culicidae). Contr Am Entomol Inst 1975;12:1-307.

Hempolchom C, Otsuka Y, Baimai V, Thongsahuan S, Saeung A, Taai K, et al. Development of a multiplex PCR assay for the identification of eight species members of the Thai Hyrcanus Group (Diptera: Culicidae). Appl Entomol Zool 2013;48:469-76.

Joshi D, Choochote W, Park MH, Kim JY, Kim TS, Suwonkerd W, et al. The susceptibility of *Anopheles lesteri* to infection with Korean strain of *Plasmodium vivax*. Malar J 2009;8:42.

Junkum A, Jitpakdi A, Jariyapan N, Komalamisra N, Somboon P, Suwonkerd W, et al. Evidence to support two conspecific cytological races on *Anopheles aconitus* in Thailand. J Vector Ecol 2005;30:213-24.

Kanda T. Improved techniques for the preparation of polytene chromosome for some anopheline mosquitoes. Mosq News 1979;39:568-74.

Kanda T, Takai K, Chiang GL, Cheong WH, Sucharit S. Hybridization and some biological facts of seven strains of the *Anopheles leucosphyrus* group (Reid, 1968). Jpn J Sanit Zool 1981;32:321-9.

Kanojia PC, Shetty PS, Geevarghese G. A long-term study on vector abundance & seasonal prevalence in relation to the occurrence of Japanese encephalitis in Gorakhpur district, Uttar Pradesh. Indian J Med Res 2003;117:104-10.

Kimura MA. Simple method for estimating evolutionary rates of base substitution through comparative studies of nucleotide sequences. J Mol Evol 1980;16:111-20.

Kitthawee S, Edman JD. Adult body size and biting activity of field populations of *Anopheles dirus* (Diptera: Culicidae). Southeast Asian J Trop Med Public Health 1995;26:582-5.

Knight K, Stone A. A catalog of the mosquitoes of the world. Thomas Say Foundation, Vol. VI. 2nd. ed. Entomol Soc Amer 1977, 611 pp.

Komalamisra N. Genetic variability in isoenzymes of *Anopheles minimus* group from various localities in Thailand. Jpn J Sanit Zool 1989;41:69-80.

Lee WJ, Klein TA, Kim HC, Choi YM, Yoon SH, Chang KS, et al. *Anopheles kleini*, *Anopheles pullus* and *Anopheles sinensis*: potential vectors of *Plasmodium vivax* in the Republic of Korea. J Med Entomol 2007;44:1086-90.

Linton YM, Dusfour I, Howard TM, Ruiz F, Manh ND, Dinh TH, et al. *Anopheles (Cellia) epiroticus* (Diptera:Culicidae), a new malaria vector species in the Southeast Asian Sundaicus Complex. Bull Entomol Res 2005;95:329-39.

Liu C. Comparative studies on the role of *Anopheles anthropophagus* and *Anopheles sinensis* in malaria transmission in China. Zhonghua Liu Xing Bing Xue Za Zhi 1990;11:360-3.

Min GS, Choochote W, Jitpakdi A, Kim SJ, Kim W, Jung J, et al. Intraspecific hybridization of *Anopheles sinensis* (Diptera: Culicidae) strains from Thailand and Korea. Mol Cells 2002;14:198-204.

Manguin S Bangs MJ, Pothikasikorn J, Chareonviriyaphap T. Review on global co-transmission of human *Plasmodium* species and *Wuchereria bancrofti* by *Anopheles* mosquitoes. Infect Genet Evol 2010;10:159-177.

Mourya DT, Ilkal MA, Mishra AC, Jacob PG, Pant U, Ramanujam S, et al. Isolation of Japanese encephalitis virus from mosquitoes collected in Karnataka State, India from 1985 to 1987. Trans R Soc Trop Med Hyg 1989;83:550-2.

Nylander JAA. MrModeltest v2. Program distributed by the author, Evolutionary Biology Centre, Uppsala University, Sweden, 2004.

O'Connor CT. The *Anopheles hyrcanus* group in Indonesia. Mosq Syst 1980;12:293-305.

Ow Yang CK, Sta Maria FL, Wharton RH. Maintenance of a laboratory colony of *Anopheles maculatus* by artificial mating. Mosq News 1963;23:34-5.

Paredes-Esquivel C, Harbach RE, Townson H. Molecular taxonomy of members of the *Anopheles hyrcanus* group from Thailand and Indonesia. Med Vet Entomol 2011;25:348-52.

Park MH, Choochote W, Junkum A, Joshi D, Tuetan B, Saeung A, et al. Reproductive isolation of *Anopheles sinensis* from *Anopheles lesteri* and *Anopheles sinerooides* in Korea. Genes & Genomics 2008a;30:245-52.

Park MH, Choochote W, Junkum A, Somboon P, Saeung A, Tuetan B, et al. Non reproductive isolation among four allopatric strains of *Anopheles sinensis* in Asia. J Am Mosq Control Assoc 2008b;24:489-95.

Park SJ, Choochote W, Jitpakdi A, Junkum A, Kim SJ, Jariyapan N, et al. Evidence for a conspecific relationship between two morphologically and cytologically different forms of Korean *Anopheles pullus* mosquito. Mol Cells 2003;16:354-60.

Peterson HE. A comment on "mate recognition systems". Evolution 1980;34:330-331.

Rattanarithikul R, Harrison BA, Harbach RE, Panthusiri P, Coleman RE. Illustrated keys to the mosquitoes of Thailand IV. *Anopheles*. Southeast Asian J Trop Med Public Health 2006;37(suppl. 2):1-128.

Ree HI, Hwang UW, Lee IY, Kim TE. Daily survival and human blood index of *Anopheles sinensis*, the vector species of malaria in Korea. J Am Mosq Control Assoc 2001;17:67-72.

Reid JA. Anopheline mosquitoes of Malaya and Borneo. Stud Inst Med Res Malaya 1968;31:1-520.

Rongnoparut P, Sirichotpakorn N, Rattanarithikul R, Yaicharoen S, Linthicum KJ. Estimates of gene flow among *Anopheles maculatus* populations in Thailand using microsatellite analysis. Am J Trop Med Hyg 1999;60:508-15.

- Ronquist F, Teslenko M, van der Mark P, Ayres DL, Darling A, Höhna S, et al. MrBayes 3.2: efficient Bayesian phylogenetic inference and model choice across a large model space. *Syst Biol* 2012;61:539-42.
- Saeung A. *Anopheles* (Diptera: Culicidae) species complex in Thailand: Identification distribution, bionomics and malaria-vector importance. *Int J Parasitol Res* 2012; 4:75-82.
- Saeung A, Baimai V, Otsuka Y, Rattanarithikul R, Somboon P, Junkum A, et al. Molecular and cytogenetic evidence of three sibling species of the *Anopheles barbirostris* form A (Diptera:Culicidae) in Thailand. *Parasitol Res* 2008;102: 499-507.
- Saeung A, Baimai V, Thongsahuan S, Min GS, Park MH, Otsuka Y et al. Geographic distribution and genetic compatibility among six karyotypic forms of *Anopheles peditaenius* (Dipter: Culicidae) in Thailand. *Trop Biomed* 2012; 29:613-25.
- Saeung A, Baimai V, Thongsahuan S, Otsuka Y, Srisuka W, Taai K, et al. Cytogenetic, cross-mating and molecular evidence of four cytological races of *Anopheles crawfordi* (Diptera: Culicidae) in Thailand and Cambodia. *C R Biol* 2014;337:625-34.
- Saeung A, Hempolchom C, Baimai V, Thongsahuan S, Taai K, Jariyapan N, Chaithong U, Choochote W. Susceptibility of eight species members in the *Anopheles hyrcanus* group to nocturnally subperiodic *Brugia malayi*. *Parasit Vectors* 2013;6:5.
- Saeung A, Otsuka Y, Baimai V, Somboon P, Pitasawat B, Tuetun B, et al. Cytogenetic and molecular evidence for two species in the *Anopheles barbirostris* complex (Diptera: Culicidae) in Thailand. *Parasitol Res* 2007;101:1337-44.
- Saitou N, Nei M. The neighbor-joining method: a new method for reconstructing phylogenetic trees. *Mol Biol Evol* 1987;4:406-25.

Sawadipanich Y, Baimai V, Harrison BA. *Anopheles dirus* species E: chromosomal and crossing evidence for another member of the *dirus* complex. J Am Mosq Control Assoc 1990;6:477-81.

Scanlon JE, Peyton EL, Gould DJ. An annotated checklist of the *Anopheles* of Thailand. Thai Natl Sci Pap Fauna Ser 1968;2:1-35.

Sharpe RG, Harbach RE, Butlin RK. Molecular variation and phylogeny of members of the Minimus group of *Anopheles* subgenus *Cellia* (Diptera: Culicidae). Syst Entomol 2000;25:263-72.

Sharpe RG, Hims MM, Harbach RE, Butlin RK. PCR-based methods for identification of species of the *Anopheles minimus* group: allele-specific amplification and single-strand conformation polymorphism. Med Vet Entomol 1999;13:265-73.

Singh OP, Chandra D, Nanda N, Sharma SK, Htun PT, Adak T, et al. On the conspecificity of *Anopheles fluviatilis* species S with *Anopheles minimus* species C. J Biosci 2006;31:671-7.

Singh OP, Nanda N, Dev V, Bali P, Sohail M, Mehrunnisa A, et al. Molecular evidence of misidentification of *Anopheles minimus* as *Anopheles fluviatilis* in Assam (India). Acta Trop 2010;113:241-4.

Somboon P, Thongwat D, Choochote W, Walton C, Takagi M. Crossing experiments of *Anopheles minimus* species C and putative species E. J Am Mosq Control Assoc 2005;21:5-9.

Somboon P, Thongwat D, Morgan K, Walton C. Crossing experiment of *Anopheles maculatus* form K and *Anopheles willmori* (James) (Diptera: Culicidae). Parasitol Res 2008;103:1317-22.

Somboon P, Walton C, Sharpe RG, Higa Y, Tuno N, Tsuda Y, et al. Evidence for a new sibling species of *Anopheles minimus* from the Ryukyu Archipelago, Japan. J Am Mosq Control Assoc 2001;17:98-113.

Subbarao SK. Anopheline species complexes in South-East Asia. World Health Organization Technical Publication SEARO 1998;18:1-82.

Sucharit S, Harrison BA, Rattanarithikul R. A dark unspotted phenotype of *Anopheles (Cellia) maculatus* Theobald, with notes on its inheritance (Diptera: Culicidae). Mosq Syst 1979;11:163-71.

Sucharit S, Komalamisra N, Leemingsawat S, Apiwathanasorn C, Thongrungkiat S. Population genetic studies on the *Anopheles minimus* species complex in Thailand. Southeast Asian J Trop Med Public Health 1988;19:717-23.

Sucharit S, Surathinth K, Chaisri U, Thongrungkiat S, Samang Y. New evidence for the differed characters of *Anopheles minimus* species complex. Mosq Borne Dis Bull 1995;12:1-6.

Sukowati S, Baimai V. A standard cytogenetic map for *Anopheles sundaicus* (Diptera: Culicidae) and evidence for chromosomal differentiation in populations from Thailand and Indonesia. Genome 1996;39:165-73.

Sukowati S, Baimai V, Harun S, Dasuki Y, Andris H, Efriwati M. Isozyme evidence for three sibling species in the *Anopheles sundaicus* complex from Indonesia. Med Vet Entomol 1999;13:408-14.

Suwannamit S, Baimai V, Otsuka Y, Saeung A, Thongsahuan S, Tuetun B, et al. Cytogenetic and molecular evidence for an additional new species within the taxon *Anopheles barbirostris* (Diptera: Culicidae) in Thailand. Parasitol Res 2009;104:905-18.

Taai K, Baimai V, Saeung A, Thongsahuan S, Min GS, Otsuka Y, et al. Genetic compatibility between *Anopheles lesteri* from Korea and *Anopheles paraliae* from Thailand. Mem Inst Oswaldo Cruz 2013a;108:312-20.

Taai K, Baimai V, Thongsahuan S, Saeung A, Otsuka Y, Srisuka W, et al. Metaphase karyotypes of *Anopheles paraliae* (Diptera: Culicidae) in Thailand and evidence to support five cytological races. Trop Biomed 2013b;30:238-49.

Taai K, Harbach RE. Systematics of the *Anopheles barbirostris* species complex (Diptera: Culicidae: Anophelinae) in Thailand. Zool J Linnean Soc 2015;174:246-64.

Takai K, Kanda T, Ogawa KI, Sucharit S. Morphological differentiation in *Anopheles maculatus* of Thailand accompanied with genetical divergence assessed by hybridization. J Am Mosq Control Assoc 1987;3:148-53.

Tamura K, Dudley J, Nei M, Kumar S. MEGA4: Molecular Evolution Genetics Analysis (MEGA) software version 4.0. Mol Biol Evol 2007;24:1596-9.

Thompson JD, Higgins DG, Gibson TJ. CLUSTALW: improving the sensitivity of progressive multiple sequence alignment through sequence weighting, positions-specific gap penalties and weight matrix choice. Nucleic Acids Res 1994;22: 4673-80.

Thongsahuan S, Baimai V, Otsuka Y, Saeung A, Tuetun B, Jariyapan N, et al. Karyotypic variation and geographic distribution of *Anopheles campestris*-like (Diptera: Culicidae) in Thailand. Mem Inst Oswaldo Cruz 2009;104:558-66.

Thongsahuan S, Otsuka Y, Baimai V Saeung A, Taai K, Hempolchom C, et al. Cytogenetic, crossing and molecular evidence of two cytological forms of *Anopheles argyropus* and three cytological forms of *Anopheles pursati* (Diptera: Culicidae) in Thailand. Trop Biomed 2014;31:641-53.

Thongwat D, Morgan K, O'loughlin MS, Walton C, Choochote W, Somboon P. Crossing experiment supporting the specific status of *Anopheles maculatus* chromosomal form K. J Am Mosq Control Assoc 2008;24:194-202.

Van Bortel W, Harbach RE, Trung HD, Roelants P, Backeljau T, Coosemans M. Confirmation of *Anopheles varuna* in Vietnam, previously misidentified and mistargeted as the malaria vector *Anopheles minimus*. Am J Trop Med Hyg 2001;65:729-32.

Walton C, Handley JM, Kuvangkadilok C, Collins FH, Harbach RE, Baimai V, et al. Identification of five species of the *Anopheles dirus* complex from Thailand,

using allele-specific polymerase chain reaction. Med Vet Entomol 1999;13:24-32.

Whang IJ, Jung J, Park JK, Min GS, Kim W. Intragenomic length variation of the ribosomal DNA intergenic spacer in a malaria vector, *Anopheles sinensis*. Mol Cells 2002;14:158-62.

White GB, Coluzzi M, Zahar AR. Review of cytogenetic studies on anopheline vectors of malaria, 1975. [http://apps.who.int/iris/bitstream/10665/65716/1/WHO\\_MAL\\_75.849.pdf](http://apps.who.int/iris/bitstream/10665/65716/1/WHO_MAL_75.849.pdf).

Wijit A, Saeung A, Baimai V, Otsuka Y, Thongsahuan S, Taai K, et al. DNA barcoding for the identification of eight species members of the Thai Hyrcanus Group and investigation of their stenogamous behavior. C R Biol 2013;336:449-56.

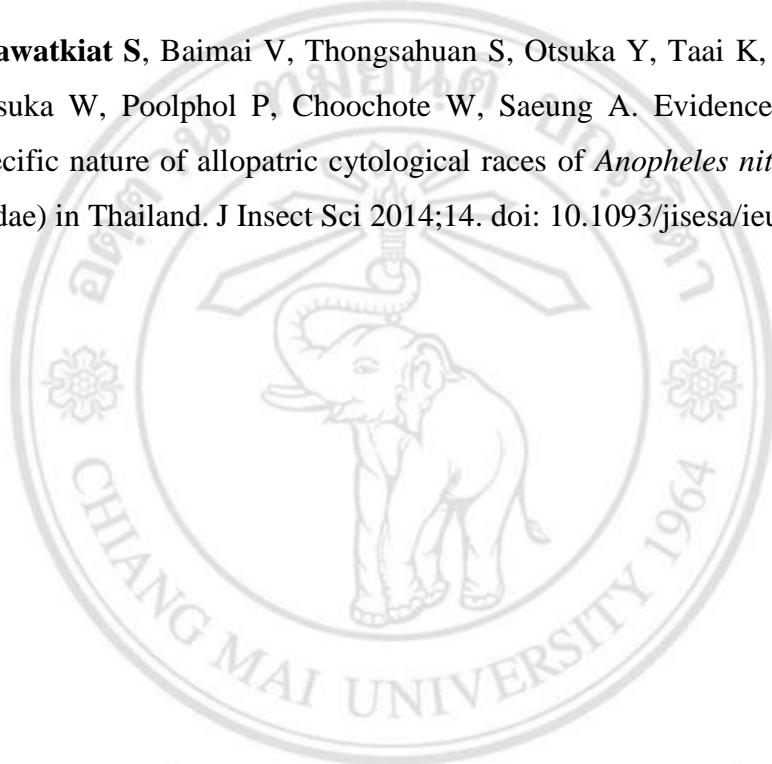
World Health Organization. Anopheline species complexes in South and South-East Asia. SEARO Technical Publication No. 57. WHO Regional Office for South-East Asia, New Delhi. 2007, 102 p.

Zhang HL. The natural infection rate of mosquitoes by Japanese encephalitis B virus in Yunnan Province. Zhonghua Yu Fang Yi Xue Za Zhi 1990;24:265-7.

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## LIST OF PUBLICATIONS

- 1) **Songsawatkiat S**, Baimai V, Saeung A, Thongsahuan S, Otsuka Y, Srisuka W, Choochote W. Cytogenetic, hybridization and molecular evidence of four cytological forms of *Anopheles nigerrimus* (Hyrcanus Group) in Thailand and Cambodia. J Vector Ecol 2013;38:266-76.
- 2) **Songsawatkiat S**, Baimai V, Thongsahuan S, Otsuka Y, Taai K, Hempolchom C, Srisuka W, Poolphol P, Choochote W, Saeung A. Evidence to support a conspecific nature of allopatric cytological races of *Anopheles nitidus* (Diptera: Culicidae) in Thailand. J Insect Sci 2014;14. doi: 10.1093/jisesa/ieu149.



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