

## Publication

## 'Nature or nurture': survival rate oviposition interval, and possible gonotrophic discordance among South East Asian anophelines

**JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 3645219**Author(s)** Charlwood, J. Derek; Nenhep, Somalay; Sovannaroeth, Siv; Morgan, John C.; Hemingway, Janet; Chitnis, Nakul; Briet, Olivier J. T.**Author(s) at UniBasel** [Chitnis, Nakul](#) ; [Briet, Olivier](#) ;**Year** 2016**Title** 'Nature or nurture': survival rate oviposition interval, and possible gonotrophic discordance among South East Asian anophelines**Journal** Malaria Journal**Volume** 15**Number** 1**Pages / Article-Number** 356

Background: Mosquito survival, oviposition interval and gonotrophic concordance are important determinants of vectorial capacity. These may vary between species or within a single species depending on the environment. They may be estimated by examination of the ovaries of host-seeking mosquitoes. Methods: Landing collections, Furvela tent-trap and CDC light-trap collections were undertaken sequentially in four locations in Cambodia between February 2012 and December 2013 and samples from the collected mosquitoes were dissected to determine parity, sac stage (indicative of time spent prior to returning to feed) and egg stage. Results: A total of 27,876 *Anopheles* from 15 species or species groups were collected in the four locations and 2883 specimens were dissected. Both the density and predominant species collected varied according to location and trapping method. Five species were dissected in sufficient numbers to allow comparisons between locations. Estimated oviposition interval differed markedly between species but less within species among different locations. *Anopheles aconitus* had the shortest cycle, which was 3.17 days (95 % CI 3–3.64), and *Anopheles barbirostris* had the longest cycle, which took four days (95 % CI 3.29–4). *Anopheles minimus* had a higher sac rate in weeks leading up to a full moon but there was apparently little effect of moon phase on *Anopheles dirus*. Despite the fact that many of the species occurred at very low densities, there was no evidence of gonotrophic dissociation in any of them, even during sustained hot, dry periods. The principal Cambodian malaria vector, *An. dirus*, was only common in one location where it was collected in miniature light-traps inside houses. It did not appear to have an exceptional survival rate (as judged by the low average parous rate) or oviposition cycle. Conclusions: Differences in the oviposition interval were more pronounced among species within locations than within species among ecologically diverse locations. A nationwide survey using CDC light-traps for the collection of *An. dirus* inside houses may help in determining patterns of malaria transmission in Cambodia.

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