

# **Anopheles culicifacies sibling species B and E in Sri Lanka differ in longevity and in their susceptibility to malaria parasite infection and common insecticides**

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## **Abstract**

Members of the *Anopheles culicifacies* Giles complex (Diptera: Culicidae) are well established as the predominant vectors of malaria in Sri Lanka. Until recently, only sibling species B was reported to be present in Sri Lanka, which was surprising as species B is a poor vector of malaria in India. This was clarified by the identification through Y-chromosome morphology that what was reported as B on the island is really a mixture of B and E. The fecundity, longevity and insecticide resistance of B and E are of relevance to malaria transmission and its control and are reported in this study. The mean egg production of these two sibling species did not differ significantly. The mean age of wild mosquitoes was assessed by the Polovodova technique of observing ovarian dilatations. More of species E than B had three or more dilatations, i.e. had reached an age at which sporozoites could have developed to maturity, although the difference between the species was of borderline significance. Following feeding on *Plasmodium vivax* or *Plasmodium falciparum* infected blood, some females of species E developed oocysts but none of species B did so. Both sibling species were found fully susceptible in laboratory tests to lambda-cyhalothrin and deltamethrin, but resistant to DDT and partially resistant to malathion.

## **Author keywords**

*Anopheles culicifacies*; Fecundity; Insecticide resistance; Longevity; *Plasmodium falciparum*; *Plasmodium vivax*; Sibling species; Species B; Species E; Sri Lanka

## **Indexed keywords**

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**EMTREE medical terms:** age; animal; *Anopheles*; article; classification; comparative study; disease carrier; disease predisposition; disease transmission; female; fertility; growth, development and aging; human; insecticide resistance; longevity; malaria; oocyst; parasitology; physiology; *Plasmodium falciparum*; *Plasmodium vivax*; species difference; Sri Lanka

**MeSH:** Age Factors; Animals; *Anopheles*; Disease Susceptibility; Female; Fertility; Humans; Insect Vectors; Insecticide Resistance; Longevity; Malaria; Oocysts; *Plasmodium falciparum*; *Plasmodium vivax*; Species Specificity; Sri Lanka

*Medline is the source for the MeSH terms of this document.*

**Regional Index:** Asia; Eurasia; South Asia; Sri Lanka

**Species Index:** *Anopheles culicifacies*; Culicidae; Diptera; *Plasmodium falciparum*; *Plasmodium vivax*