

Microevolution in the malaria vectors *Anopheles cruzii* and *An. homunculus* in two climatic seasons

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Females of *Anopheles cruzii* and *Anopheles homunculus* are similar and both occur in sympatry in southeastern Brazil. In this region, these species are considered respectively the primary and the secondary vectors of *Plasmodium spp.* Despite the epidemiological importance of both species, there have been few studies on the temporal dynamics of these vectors. The aim of this study was to characterise populations of *An. cruzii* and *An. homunculus* with regard to genetic and morphological polymorphism in two different seasons: summer and winter. We used wing shape as the morphological marker. A fragment of the mitochondrial gene CO-I was sequenced and used as the genetic marker. In both species, individuals clustered into two distinct groups in the morphospace of canonical variates according to season. Pairwise cross-validated reclassification showed that wing shape changed significantly during the time interval examined. Genetic analysis revealed rich haplotypic diversity and high nucleotide diversity within populations of *An. cruzii*. On the other hand, *An. homunculus* exhibited a slightly lower haplotypic diversity and moderate values of genetic divergence between seasons, suggesting that summer and winter populations are partly different. Despite being morphologically and phylogenetically very close, the species *An. cruzii* and *An. homunculus* have distinct genetic patterns, where *An. homunculus* does not have a haplotypic patrimony as rich as its congener. The interval between winter and summer is enough for species to develop both morphological and genetic variation. Microevolutionary changes appear to be rapid in these species and should be taken into consideration when developing vector control strategies.

Biography

Camila Lorenz has completed his graduation at the age of 21 from Federal University of Parana and nowadays she is Science Ph.D. student at University of Sao Paulo. She studies genetic populations structure and geometric morphometrics of neotropical mosquitoes. Recently she has published a paper in Parasite & Vectors Journal about diagnosis among *Anopheles* species.

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