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**MOLECULAR AND POPULATION GENETIC TOOLS TO EVALUATE THE
IMPACT OF VECTOR CONTROL STRATEGIES**

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Several population genetic analytical tools based on allele frequency data of “neutral” molecular markers have been proposed to assess demographic/genetic equilibrium. The application of such tools in monitoring the impact of malaria control strategies may provide an important means to determine the efficacy of adopted measures.

Here we present results obtained from studies on the genetic structure of the malaria vector *Anopheles gambiae* on the islands of São Tomé and Príncipe. In this archipelago malaria and its vector are contemporary with the colonisation of the islands in the 15th century. In 1980-82 a nation-wide eradication programme was implemented in the country, based on DDT indoor spraying. Despite its earlier success in reducing both parasite prevalence and vector density, the disruption of the programme led to a rapid and severe epidemics.

Using microsatellite data, we have made a retrospective study in order to determine to which extent was the anti-vector campaign effective in reducing the vector effective population size (N_e). Estimates of current and long-term N_e and tests of demographic equilibrium provided no evidence that vector populations had gone through a recent bottleneck. Results are discussed in relation to historical and ecological aspects of these island populations. These data may raise important on both the effectiveness of the adopted vector control strategies and the adequacy of population genetic tools to evaluate control strategies.

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