Denvect014- **Evaluation of genetic parameters for entomological surveillance of *Aedes (stegomyia) aegypti* (Linnaeus, 1762)**

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Despite repeated attempts to control the mosquito vector of dengue, *Aedes aegypti*, more than 80% of the strata of the city of Salvador-BA showed house infestation index (HI) greater than 3.9%. This condition is defined by the ministry of health as representingrisk of an outbreak of dengue. Since traditional approaches to *A. aegypti* control have not produced the expected results, the current study aimed to evaluate vector genetic parameters such as genetic differentiation measures and the effective population size (N_e) in various geographical levels in order to supportfieldwork decisionsabout strata visits and treatment.The study design had a cross-sectionalcomponent describing genetic parameters from larvaes of *A. aegypti* collected in three municipalities (Salvador, Jacobina and Vitoria da Conquista) in 2009, in addition to larvaes from Rockefeller lab strain. A longitudinal component evaluated larvae collected from four areas of Salvador during four cycles of the LIRAa performed between 2007 and 2009. The DNA of each larvae was isolated and genotyped with five microsatellites markers. Four new microsatellite markers were design and validated in this study and behaved as single locus, multi allelic (3-4 alleles/locus) and independent. All markers were usually in H-W equilibrium for the 2009-10 populations. Allelic, genotypic and the classical genetic differentiation measures (F_{ST}, *Φpt*, R_{ST} and *Jost´D*) were able to detect population stratification at the municipality level and the lab strain ($p < 0.05$). Allelic and genotypic frequencies showed significant genetic differentiation only between area 4 and areas 1 and 2, which is 9 Km apart from these areas. F_{ST} and its derivations captured significant genetic differentiation for other pairs of populations. N_e was infinite for the *A. aegypti* population from Salvador and ranged from 11.8 to 30.7 in the control populations. ROCK strain had the lowest N_e.Longitudinal analysis showed significant genetic differentiation in the *A. aegypti* population from Salvador between 2008 and 2009. The instability of the *A. aegypti* population may be correlated to the reduction in the HI in this period. N_e measures varied considerably by area and cycle, althoughthey were not correlated to the HI. In conclusion; vector control produces ineffective changes in the *A. aegypti* population structure. The combination of georeferencing technology and the study of population genetics of *A. aegypti* could help in the definition of strata and the management of treatment. **Keywords:** *Aedes aegypti*, microsatellites, entomological surveillance, genetic markers. **E-mail:** kalabric@bahia.fiocruz.br