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Phylogenetic analyses and temporal patterns abundance of *Aedes albopictus* and *Aedes aegypti* (Diptera: Culicidae) invasive species in Central African Republic

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Abstract

The invasive Asian tiger mosquito, *Aedes albopictus* was first reported in central Africa in 2000 in Cameroon, together with the indigenous mosquito species *Aedes aegypti*. Today, this invasive species is present in almost central Africa countries including Central African Republic (CAR) where have recorded for the first time in 2009. As invasive mosquito vector diseases may impact the distribution of native species, resulting in new patterns of vectors and concomitant risk for diseases, we undertook a comparative study in early in the wet season as well as in the dry late in the wet season in the capital Bangui and in main cities of CAR in order to document infestation by the two species and their ecological preferences. In addition we explore the geographical origin of invasive populations of *Ae. albopictus* using two mitochondrial DNA genes (COI and ND5). High levels of pre-imaginal *Ae. aegypti* and *Ae. albopictus* infestation were detected with *Ae. aegypti* indices significant superior to *Ae. albopictus* indices early in the wet season and *Ae. albopictus* indices significant superior to *Ae. aegypti* late in the wet season. Used tyres container the most strongly colonized and productive larval habitats for both species whatever the season. Mitochondrial DNA analysis revealed broad low genetic diversity which is in agreement with the recent introduction of *Ae. albopictus* in CAR. Phylogeographic analysis based on COI and ND5 polymorphism indicated that *Ae. albopictus* haplotye from RCA are closely related to those found in Cameroon. This data may have important implications for vector control strategies in central Africa.