

HIGH MALARIA TRANSMISSION SUSTAINED BY ANOPHELES GAMBIAE S.L. AND STATUS OF KDR RESISTANCE MUTATION OF PLASMODIUM FALCIPARUM INFECTED SPECIMENS IN THE CITY OF YAOUNDÉ CAMEROON

Doumbe-Belisse P^{1,2}, Ngadjeu C S^{1,2}, Talipouo A^{1,2}, Djamouko-Djonkam L^{1,3}, Kopya E^{1,2}, Bamou R^{1,3}, Sonhafouo-Chiana N^{1,4}, Wondji C⁵, Awono-Ambene P¹, Njiokou F² and Antonio- Nkondjio C^{1,5}

¹Laboratoire de Recherche sur le Paludisme-OCEAC, Cameroon

²University of Yaoundé, Cameroon

³University of Dschang, Cameroon

⁴University of Buea, Cameroon

⁵Vector Group Liverpool School of Tropical Medicine, UK

Urban malaria is becoming a major public health problem in Cameroon. In the frame of a larval control study due to be implemented in the city of Yaoundé, we conducted baseline surveys to assess malaria transmission dynamic in this city. Adult mosquitoes were collected indoor and outdoor using light traps of Center of Diseases Control and Human Landing Catches from Mar' 2017 to Mar' 2018 in 30 districts of the city. Mosquitoes were sorted by genus and identify up to the species level using polymerase chain reaction (PCR). TaqMan *Plasmodium* infection and ELISA CSP analysis were used to determine mosquito infection status. The detection of Knock down resistance (kdr) mutation was carried out on infected and non-infected *An. gambiae* s.l. using DNA-based molecular technique. A total of 218,991 mosquitoes were collected. The main malaria vectors were *An. gambiae* s.l. (n=6154) and *An. funestus* s.l. (n=229). PCR results (n=1622) revealed that 92.29% *An. coluzzii* and 7.71% *An. gambiae* s.s. constituted *An. gambiae* s.l. Amongst the 186 *An. funestus* s.l. analysed by PCR, 93.51% belonged to *An. funestus* s.s. and 2.16% to *An. leesonii*. The average biting rate of *An. gambiae* s.l. was higher outdoor than indoor (P=0.013). Seasonal variation in mosquito abundance and biting rate was recorded as well as variation according to districts. Furthermore, the *P. falciparum* infection rate was 2.15% and the annual entomological infection rate was estimated at 80.49 infective bites. There was no significant difference between the resistance allele frequencies of infected and non-infected females (P=0.49). Thus, the susceptibility of *An. gambiae* s.l. to *P. falciparum* was not affect by the presence of the resistance alleles at the kdr locus. The results provide evidence of increasing outdoor malaria risk in the city of Yaoundé and call for more actions to improve control strategies in this city.

Lucie.doumbe@yahoo.fr