Reviewer's report

Title: High mosquito burden and malaria transmission in a district of the city of Douala (Cameroon)

Version: 1 Date: 2 July 2012

Reviewer: Mamadou Ousmane NDIATH

Reviewer's report:

This is one of the many publications on trapping efficiency (HLC and CDC-LT) to monitor urban malaria transmission and the level of susceptibility of mosquitoes to DDT and Pyrethroids. Although these studies are important, present paper is rather superficial.

Major Compulsory Revisions

Methods

Adult mosquito collections

1. In order to make a comparison of both methods it's important to take for granted some criteria. We can't work on the HLC outdoor and indoor experiment for the CDC-LT while comparing them. It would be more useful to use both methods indoor and add in the CDC-LT a human stimulus (a sleeping person under mosquito net) since you have mentioned it in the discussion section.

2. How many night men have you used per night capture?

3. Have randomized the CDC-LT

Bioassay analysis

How many « Batches » have you done for the test? How many mosquitoes in global have you tested for each molecular? You should clarify.

Field processing of mosquitoes

Parturity rate was not explained. This is very regrettable as trap efficiency between parturity rate vs molecular forms (M and S) may be very different.

Data analysis:

A log+1 normalization: adding artificially 1 for zero values creates a bias on sampling sensitivity analysis. (Smith T et al. 1995 J Am Mosq Control Ass, 11: 377-378). Is a statistical analysis of numbers using the negative binomial regression not more appropriate? What test did you use? The “BonEferroni” (in fact Bonferroni) is this test appropriate?

Result:

Field sampling
1. We also notice that you give an absolute emphasis on the Culex, Mansonia and others. So when considering the number it would have been very interesting if you had mentioned the nuisance that might have been created when put together.

2. The sibling species of An.gambiae s.l. identified is very low. Over 1805 An. gambiae s.l only 200 have been identified by PCR, and not reveal the process sampling method. Have you collected them from the CDC-LT? or in a monthly basis? Please clarify.

Infection rate
1. In a total of 1810 anopheles captured only 1765 have been tested by ELISA. Why does that difference?

2. When comparing graphics 2 and 4, we notice that rains are more abundant in the month of July and August while the highest infection rate is absorbed in May, it seems a bit surprising since I was expecting the contrary unless you give further explanations about this new phenomenon.

Susceptibility assays
This part must be completely reviewed in the light of these points:
1. On what groups have you made the kdr, survivors, dead, or both from both of them?

2. Why you did not calculate the KD50 and the KD95. This is a good indicator of resistance

3. Are you-a relationship between RR and survivors?

4. Why you have not done with the kdr mosquitoes from HLC and CDC-LT and compare it with bioassay. In addition, what is the implication of metabolic resistance in malaria vectors in the study area?

5. Bioassays were conducted without using a well characterized susceptible strain of An. gambiae (eg kisumu as a control). Reference strain is needed to check the quality of treated papers used for the tests (100% mortality of the susceptible strain is expected with insecticides used at the Diagnostic concentration). No data on the control batch (ie untreated paper) was also provided.

Discussion
1. In paragraph fourth, you talk about the stratification of urban malaria, while you did not specify in materials and methods. This is irrelevant.

2. How can you explain the increase of resistance?

Minor Essential Revisions
1. You often mention « An. gambiae » throughout the manuscript. Do you mean ss or sl. please specify

2. You declare that urban malaria lacks of sufficient documentation so I suggest
you to read these two contributions (Gadiaga et al., Malar J. 2011 and Machault et al., Malar 2009; 2010) J.), you will find in the bibliographic section corresponding contributions

3. Please consider the daily temperatures in the Study Site section.
4. Please specify the concentration of glucose in the bioassay section
5. Review graphic 4 specially the error bars, when HBR is null.

Discretionary Revisions
As there’s a bias in the CDC-LT, you do not think it would be better to abandon this method

Level of interest: An article of importance in its field
Quality of written English: Needs some language corrections before being published
Statistical review: Yes
These major comments must be addressed before I could recommend this paper for publication in BMC.
Best regards,

Level of interest: An article of importance in its field
Quality of written English: Needs some language corrections before being published
Statistical review: Yes, and I have assessed the statistics in my report.