J Infect Dis Ther 2017, 5:3 (Suppl)
DOI: 10.4172/2332-0877-C1-027

Impact of *L119F-GSTe2* DDT/pyrethroid resistance mutation on the fitness cost and malaria transmission of Anopheles funestus in Cameroon

Mu-Chun Chiang
Liverpool School of Tropical Medicine, UK

Objective: Insecticide resistance in mosquitoes is potentially threatening the control of malaria. However, the ability of resistant mosquitoes to transmit malaria may be altered by reduced fitness associated with insecticide resistance (IR) genes. This study explored the fitness costs associated with *L119F-GSTe2* (a single gene mutation which confers resistance against DDT) in an *An. funestus* population in Cameroon.

Methodology: Mosquito collections were carried out in Obout, Cameroon. Bioassays were performed on reared F1 *An. funestus* and cone assays were performed on 5 commercial nets. Molecular analysis included PCR species identification of *An. funestus* from extracted gDNA and TaqMan assays for Plasmodium infection and *GSTe2-L119F* gene mutation. Oviposition rate was recorded for 100 F0 *An. funestus* but could not be compared between resistant and susceptible mosquitoes (with and without *GSTe2-L119F* mutation respectively) due to unforeseen circumstances.

Results: The Plasmodium infection rate in the Obout *An. funestus* (20% for *P. falciparum*) was significantly higher than previously recorded in the north of Cameroon. Bioassays demonstrated resistance against all classes of insecticides except for the organophosphates. Of the nets tested in the cone assay, only the top of PermaNet® 3.0 demonstrated full efficacy and suspiciously, Olyset® net showed complete loss of efficacy.

Conclusion: This study has unfortunately had setbacks due to problems with chemical reagents. Nevertheless, this is the first study to characterize the resistance profile of *An. Funestus* mosquitoes in Cameroon. The collected *An. funestus* were confirmed as a major Plasmodium vector and based on the bioassay results, organophosphates should be encouraged for use in indoor residual spraying. Tighter inspection and examination of nets sold in Cameroon is required as Olyset® net that is available in local pharmacies was suspected to be forged.

muchunchiang@hotmail.com