Journal of Nature Studies 21(1): 10-27
Online ISSN: 2244-5226

RESISTANCE STATUS OF *Anopheles gambiae s.l.* TO PUBLIC HEALTH INSECTICIDES AND PIPERONYL BUTOXIDE SYNERGIST IN MANGROVE VEGETATION OF RIVERS STATE, NIGERIA

Idorenyin Bassey Ekerette[1]* & Nwabueze Ebere[1,2]

[1]Entomology and Parasitology Laboratory, Department of Animal and Environmental Biology, Rivers State University, Port Harcourt, Nigeria
[2]Malaria Vector Surveillance and Insecticide Resistance Monitoring Laboratory, Department of Animal and Environmental Biology, Rivers State University, Port Harcourt, Nigeria

*Corresponding author: ekerette.idorenyin1@ust.edu.ng

ABSTRACT – Present status of resistance, the susceptibility pattern to different insecticides by *Anopheles gambiae s.l.* and the efficacy of PBO-LLINs insecticides were investigated in the mangrove vegetation of Rivers State, Nigeria. Sample collection was done during the rainy season. Standard dipping method was used for larval collection. Mosquitoes tested were *Anopheles gambiae sensu lato.* Technical grade insecticides were used which included Organochlorine (Dichlorodiphenyltrichloroethane), Carbamates (Propoxur, Bendiocarb), Organophosphate (Primiphos-methyl) and Pyrethroids (alpha-cypermethrin, deltamethrin, permethrin, lambda-cyhalothrin). 25-three to five days old, non-blood-fed female adults were introduced into each of the four test and control bottles. Record was made of the number of dead and living mosquitoes at 15, 30, 35, 40, 45, 60, 75, 90, 105, 120 minutes. Piperonyl butoxide (PBO) synergist bioassay was carried out using standard methods. Percentage mortality of *An. gambiae s.l.* to bendiocarb and propuxur showed susceptibility (98% - 100%), in accordance with World Health Organization (WHO) recommendations. There was partial recovery of susceptibility against *An. gambiae s.l.* with PBO-permethrin and PBO-deltamethrin synergists. Analysis of variance was used to test for statistical differences in mosquito mortality to the insecticides used. Propoxur and bendiocarb are effective for indoor residual spraying (IRS). Recovery of susceptibility by PBO-pyrethroids makes them recommended over pyrethroids alone, for LLINs impregnation. The study makes available baseline information for monitoring the status of insecticide resistance in the mangrove ecological region of Rivers State, Nigeria.

Keywords: Anopheles gambiae s.l., insecticides, mortality, mangrove, piperonyl butoxide, resistance, Rivers State, Nigeria

JOURNAL OF NATURE STUDIES
(formerly Nature's Bulletin)
Online ISSN: 2244-5226

To cite this paper: Ekerette, I.B. & Ebere N. 2022. Resistance Status of *Anopheles gambiae s.l.* to Public Health Insecticides and Piperonyl Butoxide Synergist in Mangrove Vegetation of Rivers State, Nigeria. *Journal of Nature Studies*. 21(1), 10-27.