

Isolation and Identification of Bacterial Fauna from the Midgut of *Anopheles gambiae* complex in Malaria Endemic Areas of Northern Nigeria

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Abstract

Malaria parasites transmission in Nigeria is primarily due to the genus *Anopheles*. This study was carried out with the aim to isolate and identify bacteria from midgut of *Anopheles* species. A total of 200 *Anopheles* mosquito larvae, 100 each from Agricultural field sites (strain A) and residential sites (strain R) were collected and reared to adults. Susceptibility bio-assay performed on the adults *Anopheles*. *Anopheles* mosquitoes were anesthetized by chloroform and dissected. 70% of ethanol was used for surface sterilization of mosquitoes and laboratory equipment, followed by rinsing *Anopheles* mosquitoes four times with 1X PBS. Each dissected midgut from the *Anopheles* mosquitoes was transferred in 1X PBS and squashed, labeled and incubated in the water bath and enriched in tryptic soya broth for 24 h at 35 ± 2 °C. The culture dependent approach using different mediums was used to investigate the bacterial biodiversity. The microbiota in the two pools of *Anopheles* was diverse with strain R showing a greater gut bacterial diversity than strain A, with both strains dominated by Gram-negative bacteria. The more resistant strain (Strain A) showed lower bacterial diversity. This finding can be used as a baseline for studying the relationship between microbiota and mosquitoes, and for the development of a new malaria biological control. The gut bacterial populations of *Anopheles gambiae* could be a crucial determinant of their life histories, and the expression of insecticide resistance.

Glutathione, Antimicrobial susceptibility testing, Gel electrophoresis. He has published more than 20 papers in reputed journals.



Speaker Publications:

1. Abdu Mrsb, Habibu & Spiers, Andrew & Hapca, Simona & Dauda, Mukhtar & Deeni, Yusuf. (2018). Differential expression of insecticide resistance genes in *Anopheles gambiae* from Northern Nigeria. *Journal of Biotechnology*. 280. S22. 10.1016/j.jbiotec.2018.06.067.
2. Abdu Mrsb, Habibu & Deeni, Yusuf & Hapca, Simona & Spiers, Andrew & Dauda, Mukhtar. (2018). Agro-allied chemicals, environmental xenobiotics and insecticides resistance in *Anopheles gambiae* in Nige.

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Biography:

Dr. Habibu received his BSc and MSc in Medical Microbiology from Bayero University, Kano in Nigeria, and a PhD in Molecular Entomology from University of Abertay Dundee, Scotland, UK. His major areas of research interest are; Medical Microbiology & Biotechnology, Molecular Entomology (Insecticides resistance mechanisms in principal malaria vector in Northern Nigeria) and General Biology. Skills includes: