

## Molecular markers of malaria parasites and associated predisposing factors in Itu, Southern, Nigeria

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### Statement of the Problem:

Malaria parasites' resistance to antimalarial drugs has become a prominent public health issue globally. This burden has threatened global efforts toward malaria elimination in sub-Saharan Africa and Nigeria in particular. Gene mutation has been incriminated to drug resistance and other factors could influence antimalarial resistance. Therefore, this investigation was carried out to determine the molecular markers of malaria parasites and associated predisposing factors in Itu, South-south, Nigeria.

### Methods and Findings:

Malaria parasitaemia was determined using microscopy. Nested Polymerase Chain Reaction (PCR) was used in analyzing the multidrug-resistant genes of the malaria parasite isolated. A well-structured questionnaire was used to determine the predisposing factors of antimalarial drug resistance. Out of 1037 samples examined for *Plasmodium falciparum*, 41.37% prevalence was recorded. Age group 0-19 years (46.81%) recorded the highest prevalence. Out of 209 subjects who showed high parasitaemia ( $\geq 1000$ ) analyses for *Pfmdr1* genes distribution in the study area, 24.40% prevalence was recorded. Female participants (44.52%) were more infected with malaria parasites, while the males (18.93%) and showed significantly high prevalence of *pfmdr1* genes ( $P < 0.05$ ). Majority (47.16%) of the study participants had episodes of malaria at least once a month, with this population recording significantly high prevalence with *pfmdr1* genes (15.35%). Prevalence of malaria parasites and *pfmdr1* genes was

significantly associated with the education, occupation, reason for stopping treatment and source of treatment of malaria by the participants ( $P < 0.05$ ). Majority of the subject (44.96%) were found to treat malaria without diagnosis.

### Conclusion:

High prevalence of malaria parasites and the characterization of *Pfmdr1* gene were significantly due to the poor malaria management practices by the study participants. Therefore, this could threaten malaria control and prevention effort in Itu. Hence, there is a need to strengthen intervention efforts and regular surveillance of antimalarial resistance in Akwa Ibom State.

### Biography

Bassey Bassey E is a researcher with Akwa Ibom State malaria vector surveillance, University of Uyo. He has a PhD in Parasitology, MSc in Parasitology and MSc in Environmental Health Management from the University of Uyo. He is member of Parasitology and Public Health Society of Nigeria (PPSN). He is specialized in Environmental and Public Health Parasitology with bias in Medical Entomology. He is vast in the Epidemiology of Parasitic Diseases. He is Experienced in malaria vector research and skilled in mosquito behavioral dynamics, insecticides resistance monitoring and malaria parasites resistance surveillance activities.