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Comparison of nested PCR and conventional analysis of *Plasmodium* parasites in Kano, Nigeria

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Plasmodium identification represents the crucial factor in malaria diagnosis and treatment across developing countries. Conventional microscopy and the use of rapid diagnostic kits have been extensively applied towards human malaria diagnosis. Recombinant DNA techniques have been applied towards malaria diagnosis as well as in the species-specific identification using *Plasmodium* 18s-rRNA gene. This study was undertaken amongst patients attending the Murtala Mohammed Specialist Hospital, Kano. Blood samples were collected from 350 malaria-suspected patients. Microscopic analysis via Giemsa-staining revealed that 220 patients were positive for malaria. RDT analysis showed that 248 test samples were positive for *Plasmodium* infection. DNA products obtained from the blood samples were analyzed by nested PCR to amplify the 18S ssrRNA *Plasmodium* gene with genus and specific primers rPLU1/5, rPLU3/4, rVIV1/2, rFAL1/2, rMAL1/2 and rOVA1/2. Data obtained showed that 58.64% of specimens tested by microscopy were false positives while 60.62% of false positives were obtained using RDTs in comparison to nPCR which proved that on 91 out of 350 patients were infected with *Plasmodium falciparum*, representing 26% of tested specimen. Comparative analysis of nPCR to microscopy showed that the sensitivity and positive predictive values of the nPCR were determined as 100 and 41.36%, respectively, while against RDTs it was 100 and 39.38% respectively. nPCR was determined to be more sensitive and specific than either microscopy or RDTs. This study revealed that the accurate diagnosis of malaria by nPCR was compulsory in malaria-prone regions of Nigeria such that nPCR should be applied routinely in laboratory studies.

Biography

Oladele Olasoji Vincent bagged B.Sc in Microbiology from prestigious University of Abeokuta, Ogun state Nigeria. He earned two Master degrees in Medical Microbiology, Risk & disaster Management from both University of Jos as well as Federal University of Technology Minna, Niger state Nigeria. Currently he is a faculty member and researcher in immunology of plasmodium falciparum as strain causing febrile fever in Northern Nigeria for the award of Doctoral degree. Mr Oladele is a member of Nigeria Society for Microbiologist (NSM), Foundation for African Development through Biotechnology(FADIB). He has close to 10 publications both in local and International journals to his credit, as well as membership development Chairman Rotary Club of Kubwa FHA (District 9125) Nigeria.

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