R. Azumah[1], S. Fialor[1], **J. Ampadu Adjei[2]**, D. Baidoe–Ansah[1] and K. A. Duca[1]

[1]Dept. of Biochemistry and Biotechnology, KNUST, Kumasi; [2]Dept. of Biology; KNUST, Kumasi

Accuracy in *Plasmodium falciparum* malaria diagnosis is an important issue in preventing and eradicating the disease in sub-Saharan Africa. Accurate diagnostic techniques are needed to avoid false negatives which lead to greater disease burden, as well as cases of false positives where unnecessary treatment can result in needless expense and the development of drug resistance. There are multiple considerations that arise when selecting a particular diagnostic method. These include cost, expertise required, time to diagnosis and, most importantly, sensitivity and specificity. Two diagnostic methods (thick smear Giemsa stain and nested PCR for the *Pfcrt* gene) were compared in terms of diagnosis obtained. In addition, the chloroquine sensitivity or resistance of the samples showing positive by PCR was determined using *XapI* restriction digestion. Out of the 89 samples collected at the Clinical Analysis Laboratory in the Dept. of Biochemistry, KNUST, microscopy identified 42 as positive while 39 were identified positive by PCR. Of the positives identified by PCR, 19 were negative by microscopy while 20 were also positive by thick smear. There were, however, 22 samples that showed positive by microscopy, but were identified as negative in the PCR. Thus, 20 samples were positive by both methods and 28 samples were negative by both methods. The higher sensitivity of PCR makes it more reliable than microscopy, which is highly operator and protocol dependent. Overall, taking nested PCR as the gold standard, diagnostic accuracy by thick smear at the lab was 54%, which is in line with numerous results reported in the literature. Of the parasites detected in the patient samples, 97% were chloroquine resistant. Thus, sensitivity to the drug does not appear to be returning in Kumasi, as has been observed elsewhere on the continent. Overall resistance may even be increasing, as this value is higher than the ~87% reported in Kumasi by Abruquah *et al.* (*Ghana Med J.* 2010 June; 44(2): 52–58).

R. Azumah[1], S. Fialor[1], **J. Ampadu Adjei[2]**, D. Baidoe–Ansah[1] and K. A. Duca[1]

[1]Dept. of Biochemistry and Biotechnology, KNUST, Kumasi; [2]Dept. of Biology; KNUST, Kumasi