



FACULTY NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY PO BOX 30732 KARACHI		
DATE	ACCESSION	REF
24/10/14	14/602	

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

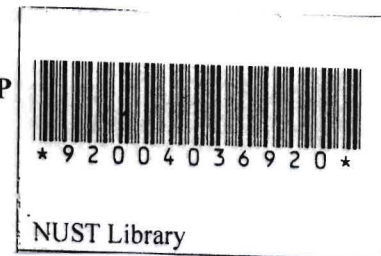
Faculty of Applied Sciences

Department of Applied Biology and Biochemistry

***SCHISTOSOMA HAEMATOBIIUM* DIAGNOSIS IN URINE AND BLOOD
SAMPLES: A POLYMERASE CHAIN REACTION BASED APPROACH**

MASCELINE JENIPHER MAKUVAZA

STUDENT NUMBER: N0114322P



**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR A MASTER OF SCIENCE DEGREE IN APPLIED MICROBIOLOGY AND
BIOTECHNOLOGY**

2013

ABSTRACT

The possible use of polymerase chain reaction (PCR) assay in the diagnosis of schistosomiasis in Zimbabwe was assessed in a cross sectional study done in Murewa on randomly selected children. Sixteen participants were first assessed for schistosome infection using the microscopy egg count urine filtration technique and 44% had schistosome eggs in their urine. The PCR assay was then done on both dried urine samples on filter papers and serum of each of the 16 participants. The results showed that 62.5% had schistosome DNA in their urine and 68.8% had schistosome DNA in their blood. Thus there were significantly a higher number of participants with schistosome DNA in their urine and serum as compared to the presence of eggs in urine. Furthermore, schistosome DNA could be detected more in serum than in urine as more serum samples tested positive than urine samples for DNA detection. This supports literature which states that urine contain relatively little DNA compared to blood due mainly to the variability of host circadian rhythms in contrast to the continuous presence of circulating schistosome DNA in the blood of infected individuals. Sensitivity of PCR in both urine and blood specimens was 57.1%. Specificity of detection of schistosome DNA in urine was 33.3% and in blood it was 22.2%. The sensitivity of urine filtration technique compared against PCR in blood and urine was 36.4% and 40% respectively. The specificity of urine filtration technique against PCR in blood and urine was 40% and 50% respectively. The results indicated that PCR is more sensitive but less specific than urine filtration technique and therefore the two procedures should be used together in clinical and epidemiological studies if the resources are allowing since each of the diagnostic procedures contain an attribute which is clearly important in disease diagnosis.