## DECLARATION

I, **Mwiche Siame N.P** hereby declare that this dissertation is my original work and has not been presented for any other awards at The University of Zambia or any other University.

Name of Candidate : **Mwiche Siame N.P**

Signature : ……

Date : ……..

## CERTIFICATE OF COMPLETION OF DESERTATION

I, **Mwiche Siame N.P** hereby certify that this dissertation is the product of my own work and, in submitting it for the Degree of Master of Science in Epidemiology programme, further attest that it has not been submitted to another University in part or whole for the award of any programme.

Signature : ……

Date : …….

Having supervised and read this dissertation is satisfied that this is the original work of the author under whose name it is being presented. I confirm that the work has been completed satisfactorily and has been presented to the Board of examiners.

Name of Supervisor : **Dr Charles C. Michelo**

Signature : ……

Date : ……...

Name of Supervisor : **Dr James Chipeta**

Signature : ……

Date : …….

## CERTIFICATE OF APPROVAL

The University of Zambia board of Examiners approves this dissertation by **Mwiche Siame N.P** in partial fulfillment of the requirements for the award of the degree in Master of Science in Epidemiology.

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**External examiner**

Name : ……..

Signature : …….

Date : …….

## DEDICATION

This work is *dedicated* to my Grandmother Mwiche Newster Phyllis Nambeye and my mother-  Penelope Edah Siame.

## ACKNOWLEDGEMENTS

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## ABSTRACT

**Background:** Malaria remains a major public health challenge globally. In Zambia it is responsible for over 40% hospital admissions. Pregnant women and children less than 5 years old remain the most affected. There has been an up-scale of interventions to reduce the prevalence of malaria in pregnant women this includes; distribution of insecticide treated nets, indoor residual spraying and Intermittent Preventive Treatment in pregnancy (IPTp). However, malaria is still one of the leading causes of morbidity and mortality in pregnant women. Studies have shown that resistance to SP is associated with mutations in the *dhfr* and *dhps* gene of the *Plasmodium falciparum* parasite. There are few studies that have been done to determine the prevalence of malaria and associated factors including genetic mutations in parasites found in pregnant women in Zambia.

**Aim:** To determine and compare the prevalence of malaria, drug resistance molecular markers and associated risk factors in pregnant women of Choma and Nchelenge districts.

**Methodology:** This cross-sectional study was conducted in Nchelenge and Choma districts of Zambia in February-April 2013. Rural Health Centers were randomly selected in each district and a census survey carried out at each health center. A questionnaire was administered and malaria testing done using RDT and microscopy, with collection of a dried blood spot. A chelex extraction was done to extract parasite DNA from dried blood spots followed by nested PCR. Positive samples by PCR then underwent mutation specific enzyme restriction digestion.

**Results:** The overall results were: 375 women were screened in Nchelenge and 145 were screened in Choma district. The median age of the women was 23. The prevalence of malaria was 22% (n=83) in Nchelenge and 0% in Choma. Multivariate analysis showed an association between malaria and the age. Women aged 30-34 years old (AOR: 0.40) were less likely to have malaria than those aged 15-19 years old. The prevalence of *dhf mutations ranged from 6-95 %* while that *of dhps* mutations was 14-97% respectively.

**Conclusion**: This study showed a high prevalence of malaria in pregnant women of Nchelenge district and a high number of mutations in the *dhfr* and *dhps* genes than previously reported. The high malaria endemicity in the general population of this area may have contributed to the high prevalence of resistant parasites in pregnant women. This has been shown in other studies that in highly endemic areas resistant parasites tend to spread quickly. As SP is the only approved drug for IPTp in Zambia, it is important to assess any association between IPTp and the prevalence of these resistant parasites.