

**Sudan University of Science and Technology  
College of Graduate Studies**

**The effects of malaria infection on some  
haematological parameters in  
School pupils in Port Sudan city**

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## **Dedication**

To my father and mother

To my teachers

To my brother and sisters

To my friends

## **Acknowledgements**

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## **Abstract**

The study covers about one hundred and fifty persons between 6- 18 years old in Port Sudan city from May to August, this study aimed to determine the effects of malaria infection on haemoglobin and white blood cells deferential count. Blood samples were collected from school pupils to estimate haemoglobin level, white blood cells differential count and the presence of malaria parasites. Three groups were compared, infected group, pre-infected group and non-infected group. The investigation was done by using Giemsa staining method for malaria and differential counts and Sahli haemoglobinometer to estimate haemoglobin level.

The study was showed that the mean haemoglobin levels in infected , pre-infected and non-infected groups were 78.3%, 86.1%, 89% respectively. The differential counts of white blood cells such as neutrophils were found to be 50%, 56.2%, 58% in infected group, pre-infected group and non-infected group respectively. Whereas eosinophils were found to be 3%, 1.7%, 1.2% in infected group, pre-infected group and non-infected group respectively. The basophils were found to be 0.64%, 1.2%, 0.9% in infected group, pre-infected group and non-infected group respectively. The lymphocytes were found to be 44%, 38.7%, 37% in infected group, pre-infected group and non-infected group respectively. finally monocyts were

found to be 3.7%, 2.4%, 3% in infected group, pre-infected group and non-infected group respectively.

The results showed that the haemoglobin levels decreased in infected group with highly significant differences ( $P < 0.01$ ) in contrast the monocytes, lymphocytes and eosinophils were increased in infected group with significant differences ( $P < 0.05$ ,  $P < 0.05$ ,  $P < 0.05$ ).

The collected immature water stages of mosquitoes from different sites in different units, were identified as *Culex*' pupae and larvae.

أُجريت الدراسة علي مائة وخمسين شخص تتراوح أعمارهم بين ستة إلي ثمانية عشرة سنة في مدينة بور تسودان في الفترة من مايو إلي أغسطس بهدف دراسة مدي تأثير الملا ريا علي نسبة الهيموغلوبين و علي نسبة كريات الدم البيضاء .  
تم تقسيم المستهدفين إلي ثلاثة مجموعات المصابين , اصابة سابقة وغير المصابين ثم  
المقارنة بينهم

تم استخدام صبغة الجيمسا لصبغ أفلام الدم ولعد الكريات البيضاء ولفحص طفيل الملا ريا كما استخدم جهاز سهلي لقياس نسبة الهيموغلوبين  
اظهرت الدراسة ان متوسط نسبة الهيموغلوبين في المصابين , اصابة سابقة وغير المصابين كانت 78.3 , 89.1 , 89 . و اظهرت الدراسة متوسط الخلايا المتعادلة 50 , 56.2 , 58 بينما  
متوسط الخلايا الحمضية 3% , 1.7% , 1.2% والخلاية القاعدية 0.64% , 1.2% , 0.9%  
والخلاية اللمفاوية 44% , 38% , 37% أخيرا متوسط الخلايا الالكلة الكبيرة 3.7% , 2.4% ,  
3%

. مصابين اصابة سابقة وغير المصابين على التوالي  
أظهرت الدراسة أن نسبة الهيموغلوبين في المصابين بالملا ريا كانت أقل من  
غير المصابين. أظهرت الدراسة إن نسبة كريات الدم البيضاء الحمضية , اللمفية والالكلة الكبيرة  
أكثر في المصابين .

وصاحبت هذه الدراسة مسح للأطوار المائية للبعوض أوضحت الدراسة أن البيرقات  
والعذارى من بعوض الكيوليكس فقط في المناطق المختلفة في الوحدات المختلفة

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