

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قال الله تعالى

وَيَسْأَلُونَكَ عَنِ الرُّوحِ قُلِ الرُّوحُ مِنْ أَمْرِ  
رَبِّي وَمَا أُوتِيتُمْ مِنَ الْعِلْمِ إِلَّا قَلِيلًا

صدق الله العظيم

سورة الإسراء الآية 85

# Dedication

**This study is dedicated to my Father's spirit , Mother, Brothers, Sisters,  
Teachers and Colleagues.**

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## الخلاصة

هذه دراسة وصفية، تحليلية أجريت في قبيلة الهوسا هدفت لتحديد نسب تردد الاليل والشكل الظاهري للعامل الريصي في قبيلة الهوسا. لقد استغرقت الدراسة ثلاث شهور. هدفت الدراسة لتكوين قاعدة معلومات لهذه القبيلة لتحديد مدى التداخل بينها وبقية القبائل السودانية. استخدمت الدراسة الزمر الوظيفية للعامل الريصي وفصائل الدم كعلامات للهوية لتحديد الأصل المشترك المحتمل. أخذت الموافقة من الأشخاص الذين سحب منهم الدم و قد تم أحاطتهم بأهداف البحث. تم تجميع مائه عينة من القبيلة بحيث لا توجد بينهم صلة قرابة. تم أخذ كل عينة في وعاء سعة 2.5 مل يحتوي على مادة مانعة لتجلط الدم. تم فحص جميع العينات لمعرفة الزمر الوظيفية للعامل الريصي باستخدام طريقة حديثة تسمى جل (مانعة النفاذية) و بطريقة الشريحة ومن ثم تم تحديد الزمر الوظيفية و الشكل الظاهري لكل عينة. وقد تم استخدام قانون جاكرد للتشابة لتحديد التشابة و الاختلاف بين هذه القبيلة والقبائل الأخرى. المعلومات التي حصلت هي الاليل والشكل الظاهري اعتمدت على أن وجود الانتجين يعنى وجود ألبين الذي يعبر عنه حسب قانون مندل للتوريث. تبين أن الزمر الوظيفية D,c,e هي الأكثر ترددا وقد كانت نسبه كل منها (94%) بينما نجد أن الزمر الوظيفية C و E هي الأقل ترددا ونسبتها 17% و 12% على التوالي. وكان الشكل الظاهري 69% cDe ( هو الأكثر تردداً ونجد أن 8% CcDe ) متوسط التردد بينما نجد أن cde (5 و CDe), (6% cDE) و (3% CcDEe) و (2% cDEe) و (1% CDEe) كانت الأقل ترددا. وأيضا تبين أن فصيلة الدم ( O ) هي الأكثر ترددا نسبتها 50% وفصيلة الدم ( B ) نسبتها 26% وفصيلة الدم ( A ) نسبتها 18% وأقلها هي فصيلة الدم ( AB ) ونسبتها 6% .

تمت مقارنة النتائج المتحصل عليها مع بقية القبائل السودانية وبعض القبائل من الدول المجاورة للسودان وقد تبين أن هناك تشابة واضح بين قبيلة الهوسا و بقية القبائل السودانية وبعض التشابة بين هذه القبيلة وقبيلة اليوربا فى نيجيريا و السود فى الولايات المتحدة الأمريكية قد يعزى ذلك إلى وجود سلف مشترك منذ القدم هنالك بعض التغيرات التي يمكن ملاحظتها، لقد حافظت قبيلة الهوسا على خصائصها الجينية مع تغيير بسيط.

### **Abstract:**

This is a descriptive analytical study that aimed to determine the frequency of Rhesus blood group alleles and phenotypes among Hausa tribe. The study also aimed to establish Rhesus blood group baseline data & also aimed to determine ABO blood groups for this tribe. The study used Rh blood group alleles as markers of ethnic identity to determine a probable common ancestry. This study was conducted at different parts of Sudan during the period of three months (Feb to May-2007). Following informed consent, a total of one hundred venous blood samples were collected from unrelated individuals of the study tribe. Specimens were collected in 2.5 mls EDTA containers. The red blood cells were tested for common Rhesus antigens by the gel particle immune diffusion technique and by the slide agglutination technique. The gene/allele and phenotype frequencies were determined. Similarities between this tribe and others were calculated using Jaccard's coefficient of similarities. The phenotypic data obtained was referred to as allele and phenotypes, this is based on reasonable assumptions that every Rh blood group antigen represents a gene that is always expressed and has a Mendelian dominant mode of inheritance. The e, c and D genes were the commonest alleles detected each with frequencies of 94%. C and E antigens were the least frequent with 17% and 12 % frequencies respectively. The cDe (69%) phenotype is commonest among study group. Whereas the CcDe (8%), cDE (6%), cde (6%) and Cde (5%) with intermediate frequency. The CcDEe (3%), cDEe (2%) and CDEe (1%) are least common phenotypes. Blood group O was found to be the most frequent 50%. The frequency of blood group B was 26% and for group A was 18%. Blood group AB was least prevalent 6%. In conclusion marked similarities between Hausa and other Sudanese tribes could probably point to a common ancestry in very ancient. Some changes could be seen and explained by their wandering nature. There is great similarities in the ABO group and the Rh antigens frequencies between Hausa and American blacks, Yorubas in Nigeria. The Hausa population probably maintained their original genetic constitution with minimal genetic change.

## List of abbreviations


Ab	: Antibody.
Ag	: Antigen .
<u>Fc</u>	: Fragment, crystallizable.
<u>Fab</u>	: Fragment, antigen binding.
H-chain	: Heavy chain.
HDN	: Hemolytic Disease of the Newborn.
ID	: Immunodiffusion.
IgA	: Immunoglobulin A.
IgD	: Immunoglobulin D.
IgM	: Immunoglobulin M.
IgG	: Immunoglobulin G.
IgE	: Immunoglobulin E.
L- chain	: light chain.
LW	:Landsteiner and Wiener .
RBC	: Red blood Cell.
Rh Ag	: Rhesus Antigen.
Rh	: Rhesus blood group system .
VH	: Variable heavy .
VL	:Variable light .

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