Dedication

I dedicate this work with my best wishes to my mother, my father, my brothers and my sisters.

Acknowledgments

I would like thank god for giving me this opportunity. I would like to express my gratitude to Dr. Abdelgadir Ali Almugadam, because without his valuable guidance & suggestions this work would not have been possible. I would like to extend my warmest thanks to Mr. Salah Alzaki who has continuously helped and encouraged by giving me the reagents and advice for some technical issues throughout the practical work.

And most of all, I would like also to specially acknowledge my parents for their financial and emotional support.

List of Abbreviations

Bp	**base pairs**
DNA	**Deoxyribonucleic acid**
dNTP	**deoxynucleotide triphosphate**
DTT	**dithiothreitol**
FISH	**Fluorescence in Situ Hybridization**
mRNA	**messenger RNA**
NDNAD	**National DNA Database**
PCR	**polymerase chain reaction**
RNA	**ribonucleic acid**
RFLP	**restriction fragment length polymorphism**
RT	**reverse transcription**
SDS	**sodium dodecyle sulphate**
SNPs	**single nucleotide polymorphisms**
UV	**ultra violet**
WBCs	**White blood cells count**

Abstract

The objectives of this study was to evaluate the yield and purity of DNA extracted from stored and fresh blood samples.

Analytical, comparative study was conducted in Khartoum state during the period from January to June, 2011.This study included 70 subjects, 35 of them were fresh blood samples and 35 of them were stored for three years.

Two and half ml of whole blood was collected in ethylene di-amine tetra acetic acid (EDTA) containers so as to determine the total white blood cells count by Glacial acetic acid and to extract the genomic DNA by chelex method. the DNA concentration was measured by spectrophotometer (Biophotometer, eppendorf) at 260 nm, DNA purity was determined by the A260/A 280 ratio.

The results showed that the mean concentration of DNA extracted from fresh blood samples was (220.6µ g/mL) ,which slightly higher than that extracted from stored blood samples (207.7µ g/mL), (P=0.14). The study also showed that the mean ratio of DNA extracted from fresh blood samples (1.06) was similar to stored ones (1.06), (P=0.64). Also in this study showed a weak correlation between TWBCs and the DNA concentration in fresh blood sample (r-0.08) and (P=0.64).

تهدف هذة الدراسة الي تقييم كمية وزن قاء الحمض النووي في عينات الدم الماخوذة حديثا والمحفوظة لمدة زمنية ,في ولاية الخرطوم في الفترة من يناير الي يونيو 2011.
شملت الدراسة 70 عينة دم ,35 عينات دم ماخوذة حديثا و 35 عينة دم محفوظة لمدة ثلاثة سنوات ,تم اخذ اثنين ونصف مل من الدم في مانع تجلط واجريت لها حساب كريات الدم البيضاء باستخدام حمض الخليك و قياس كمية الحمض النووي بواسطة جهاز اسبكترو فتومتر بطول موجي 260 نانومتر , وزن قاء الحمض النووي باخذ النسبة بين الحمض النووي والبروتين بمعدل امتصاص 260\280.

اوضحت الدراسة بان ليس هنالك ارتفاع بسيط في متوسط العينات الماخوذة حديثا(ميكرو جرام/مل 220.6) مقارنة بمتوسط العينات المحفوظة (ميكرو جرام/مل 207.7),(القيمة النوعية=41.) .كما اوضحت الدراسة بان لايوجد فرق في وزن قاء الحمض النووي في متوسط العينات الماخوذة حديثا(1.06) و متوسط العينات المحفوظة(1.06), (القيمة النوعية=64.). كما اوضحت الدراسة بان هنالك علاقة ضعيفة بين كمية الحمض النووي وعدد كريات الدم البيضاء(معامل الارتباط=80.-),(القيمة النوعية=64.)

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