# Sudan University of Science and Technology College of graduate studies and Scientific Research

# Screening and Evaluation of Homocysteine and Apolipoprotein A-1 As Atherogenic Markers in Sudanese with Long Standing Diabetes Mellitus Type 2

مسح وتقويم الهيموسيستين و ابو البروتين الدهني أ-1 كمؤشرات لتصلب الشرائيين في السودانيين المصابين بمرض السكر من النوع الثاني لفترة طويلة

A Thesis submitted for fulfillment of Ph.D degree in clinical chemistry

#### Seif eldeen Ahmed Mohamed

B.Sc , M. Sc. clinical chemistry

Medical laboratory Science

Sudan University of Science and Technology

### **Supervisor:**

**By:** 

#### Dr. Badr Eldien Hassan Elabid

MB BS (U of K), MD Clinical Pathology (Clinical Chemistry)

Associate Professor of Chemical Pathology

University of Science and Technology

## **Co supervisor:**

#### Dr. Mohamed Abdelrahim Abdallah

M.Sc, Ph.D Biochemistry

Associate Professor of Biochemistry

Sudan University of Science and Technology

August 2011