

Ministry of Higher Education and Scientific Research

Middle Technical University

Technical Institute/Kut



# Biochemical Study of Diabetes Mellitus

A Search

Submitted to the Board of the Department of Medical Laboratories Part of  
the Requirements for obtaining a Technical Diploma Certificate

By

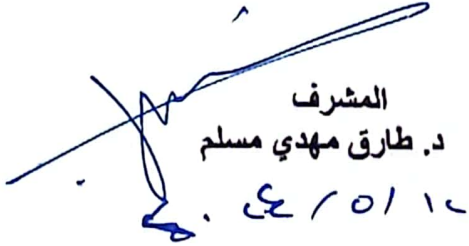
**Zahraa Shaker Salha**

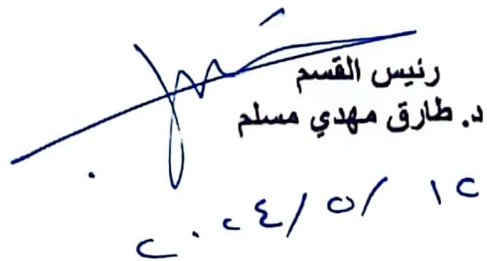
Supervised by

**Dr. Tariq Mahdi Muslim**

## أقرار المشرف

أشهد ان اعداد هذا البحث جرى تحت اشرافي في قسم تقنيات المختبرات الطبية /  
المعهد التقني - كوت كجزء من متطلبات نيل درجة الدبلوم التقني في تقنيات المختبرات الطبية  
وعليه ارسحه للمناقشة .

  
المشرف  
د. طارق مهدي مسلم  
١٤ / ٥ / ٢٠٢٤

  
رئيس القسم  
د. طارق مهدي مسلم  
١٤ / ٥ / ٢٠٢٤

## أقرار لجنة المناقشة

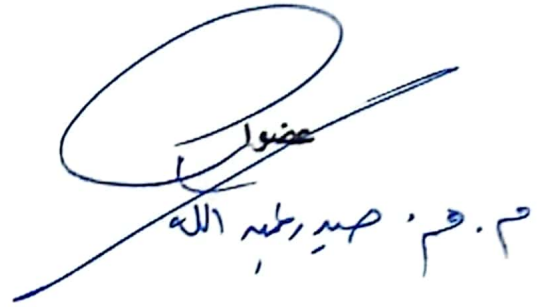
نشهد باننا اعضاء لجنة التقويم و المناقشة ، اطلعنا على هذا البحث ، و قد ناقشنا الطلبة في محتوياته و فيما له علاقة به ، و وجدنا انه جدير بالقبول لنيل شهادة الدبلوم التقني ، في قسم تقنيات المختبرات الطبية

  
عضوا

م. م. س. س. س. ك. م.

  
عضوا

م. م. م. م. م. م. م.

  
عضوا  
م. م. م. م. م. م. م.

  
رئيس اللجنة

د. طارق محمد مسلم

## Abstract

Diabetes mellitus is a chronic heterogeneous metabolic disorder with complex pathogenesis. It is characterized by elevated blood glucose levels or hyperglycemia, which results from abnormalities in either insulin secretion or insulin action or both. Hyperglycemia manifests in various forms with a varied presentation and results in carbohydrate, fat, and protein metabolic dysfunctions. Long-term hyperglycemia often leads to various microvascular and macrovascular diabetic complications, which are mainly responsible for diabetes-associated morbidity and mortality. Hyperglycemia serves as the primary biomarker for the diagnosis of diabetes as well.

## 1.1 Introduction

Diabetes Mellitus (DM) is a metabolic disorder characterized by the presence of chronic hyperglycemia accompanied by greater or lesser impairment in the metabolism of carbohydrates, lipids and proteins. DM is probably one of the oldest diseases known to man. It was first reported in Egyptian manuscript about 3000 years ago (1).

In 1936, the distinction between type 1 and type 2 DM was clearly made. Type 2 DM was first described as a component of metabolic syndrome in 1988. The origin and etiology of DM can vary greatly but always include defects in either insulin secretion or response or in both at some point in the course of disease (2).

Mostly patients with diabetes mellitus have either type 1 diabetes (which is immune-mediated or idiopathic) Type 2 DM (formerly known as non-insulin dependent DM) is the most common form of DM characterized by hyperglycemia, insulin resistance, and relative insulin deficiency. Type 2 DM results from interaction between genetic, environmental and behavioral risk factors (3).

Diabetes also can be related to the gestational hormonal environment, genetic defects, other infections, and certain drugs (4).

## 1.2 Aim of the study:

To study the biochemical characteristics, classification, pathophysiology, diagnosis and management of diabetes mellitus.