

**UNIVERSITI TEKNOLOGI MARA**

**EFFECTS OF DIABETES MELLITUS  
ON ESTROUS CYCLE OF WKY RAT**

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## TABLE OF CONTENTS

	<b>Page</b>
TITLE PAGE	
APPROVAL	
ACKNOWLEDGEMENT	ii
TABLE OF CONTENTS	iii
LIST OF TABLES	v
LIST OF FIGURES	vi
LIST OF ABBREVIATIONS	vii
ABSTRACT	viii
CHAPTER (ONE INTRODUCTION)	
1.1 Background	1
1.2 Rational of The Research	3
1.3 Measurable Objective	3
CHAPTER TWO (LITERATURE REVIEW)	
2.1 Introduction	4
2.2 Sex Differences in Diabetes Mellitus	5
2.3 Effect of Diabetes Mellitus on Sex Hormones	6
2.4 Effect of Insulin on Female Sexual Function	8
2.5 Effect of Diabetes Mellitus on Insulin	11
CHAPTER THREE (MATERIAL AND METHODOLOGY)	
3.1 Experimental Animals and General Conditions	14
3.2 Determination of Estrous Cycle	14
3.3 Induction of Diabetes Mellitus	15
3.4 Blood Collection	16

## ABSTRACT

Recent laboratory and clinical studies suggest that Diabetes Mellitus induce alterations in neuroendocrine system may bring about pathophysiological changes that negatively affect sexual function of female WKY rats. However, these studies have been few in number and are limited in scope. We analyzed the effect of STZ induced diabetes on estrus cycle of female WKY rats. Diabetes significantly altered female reproductive cycle and level of reproductive hormone. Diabetes led to persistent diestrus, supported by decreased in levels of estrogen and luteinizing hormone, and increased in progesterone level. Diabetes alteration of female WKY may be due to failure of insulin metabolism and impaired insulin aromatase crosstalk.

# CHAPTER 1

## INTRODUCTION

### 1.1 Background

Diabetes Mellitus (DM) consist of a group of syndromes characterized by hyperglycemia; altered metabolism of lipids, carbohydrates, protein; and an atherosclerosis. Most patients can be classified clinically as having either type 1 or type 2 (Bruton *et al.*, 2006)

DM can occur in both female and male. Animal studies have shown that there are some differences between female and male diabetic rats. One month streptozotocin induced diabetes show differences in neuroendocrine and morphological alterations in the hypothalamus-pituitary axis of male and female Sprague-Dawley rats. Brain and pituitary from STZ-induced DM are less severely affected by diabetes in female rats (Bestetti *et al.*, 1985). Male rats show increase in vasoconstrictor response to angiotensin II than females (Toledo *et al.*, 2003). Moreover, diabetic females have higher brain weights and fewer luteinizing hormone gonadotroph changes than diabetic male Wistar rats (Bestetti *et al.*, 1985).