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Biochemical Effect of Synthesized Hetrocyclic Compound 8-hydroxy-9methoxy-11-oxo-morphanthridine on Carbohydrates Activity of Rats

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ABSTRACT

The Present investigation is an endeavour to analyse the effect of 8-hydroxy-9-methoxy-11-oxo morphanthridine on bio chemical aspects of laboratory rats.

Keywords : Glucose, Biochemical Effect, Rats T2-8-Hydroxy-9-Methoxy-11-Oxo-Morphanthrinine.

INTRODUCTION

The carbohydrates are optically active polyhydroxy aldehydes or ketones or the compounds which produce such units on hydrolysis. These are the most important structural and functional component of living organisms. It is important source of energy for vital activities; It has a central role in cellular metabolism.

Carbohydrates are required by each and every cell performing their life activities and also serve as chief source of energy in the food of animals. For animals, these are the main energogenic substances.

Carbohydrates are the quickest and the instant source of energy in living organisms. These energogenic substances are obtained from the external environment and upto certain extent remain stored in each cell. In higher animals, however some organs and tissues such as liver and muscles are specialized for carbohydrate storage.

Belloiu and Belloiu in their review maintained that liver serves as prime organ for carbohydrate metabolism. They also proposed that liver could be modulated to store glucose form or to release into the blood stream.

As a matter of fact, the energogenic function at hepatic level may be reduced to the transport of glucose micromolecule into the hepatocyte and their condensation into non reductive macromolecules of glycogen.

Attempts have also been made to ascertain seasonal changes in serum glucose level and indications are also available that temperature variation causes manifold variatious in blood sugar level.

As glucose are involved in metabolism, growth, comparative measurement of the acitivities of glucose in control and seven membered heterocyclic compounds prepared exposed laboratory rats may help in understanding the physiological changes that arise from the chemical keeping in this view glucose activity was measured in laboratory rats in control and treated with prepared heterocyclic compounds.

METERIAL AND METHODS

Quatitative estimation of blood glucose of control and treated rat (Rattus Rattus) were done by glucose kit (GOD/POD Method)

PRINCIPLE :

Glucose is oxidisied by the enzyme glucose oxidase (GOD) to give D-gluconic acid and hydrogen peroxide in presence of the enzyme peroxide (POD) oxidizes phenol which combines with 4-aminoantipyrine to produce a red coloured quinoeimine dye. The intensity of the colour developed is proportional to glucose concentration in the sample.

D – glucose + H_2O + O_2 GOD D- gluconic acid + H_2O_2

H_2O_2 + 4 – aminoantipyrine + phenol POD quinoneimine dye + H_2O

REAGENTS PROVIDED :

			2 x 125 ml	2 x 500 ml
1.	Enzyme reagent	-	2 vials	2 vials
2.	Buffer solution	-	2 x 125 ml	2 x 500 ml
3.	Standard (100 mg%)	-	3.0 ml	5 ml

REAGENT PREPARATION :

1 vial of enzyme reagent (1) was taken and dissolved in one bottle of buffer solution (2) Now, the dissolved solution was mixed gently. The prepared working enzyme reagent was stable for at least one month at 2.8^0c.

PROCEDURE :-

Pipette into clean dry test tubes labeled blank (B), standard (S) and Test (T)

	B	S	T
Working enzyme Reagent	1.0 ml	1.0 ml	1.0 ml
Distilled water	0.01 ml	x	x

Standard (3)	x	0.01 ml	x
Serum x	x	0.01 ml	

Mixed well and incubate at 37^0C for 10 minutes or at room temperature for 20 minutes and measured the absorbance of test (T) and standard (S) against Blank (B) on a photocolorimeter with 530 nm filter.

Calculations :

$$\text{Glucose in mg \%} = \frac{\text{A of (T)}}{\text{A of (S)}} \times 100$$

OBSERVATIONS

CONTROL :

In control I (normal rats) glucose concentration in serum was 114.3 $\pm$ 4 S.D mg/100 ml. The glucose concentration declined significantly to 28.1 $\pm$ 3 S . D mg / 100 ml ($P<0.001$) in control II (rats injected with ethyl alcohol)

TREATMENT :

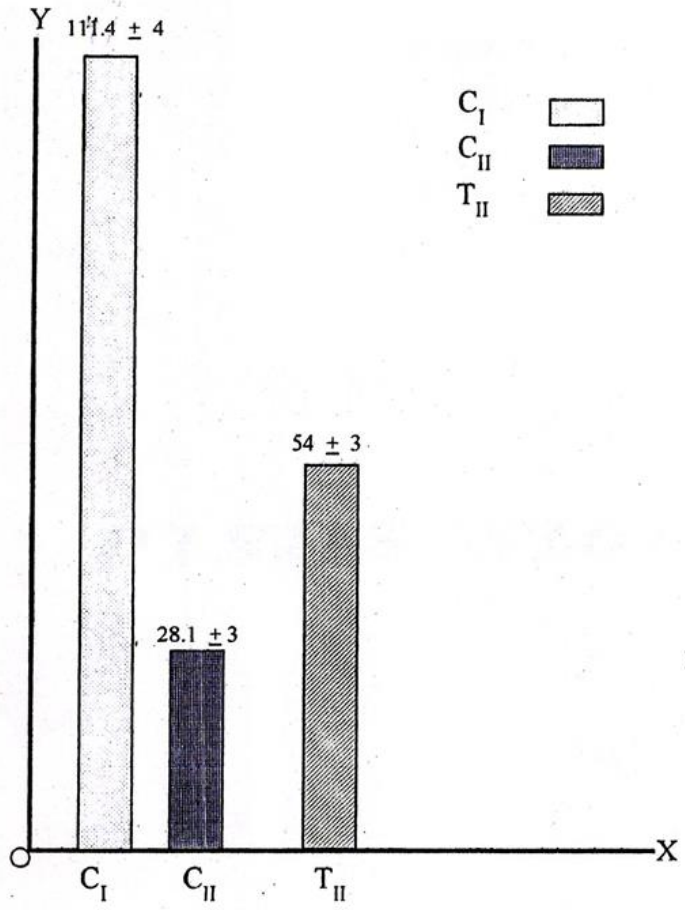
Serum glucose concentration rose significantly to 54 $\pm$ 3 S . D mg. / 100ml ($P<0.001$) on treatment with the compound 8-Hydroxy -9-methoxy – 11 – OxO – morphanthridine.

TABLE – I

Glucose concentration in serum of laboratory rats during control and treatment with synthesized heterocyclic compounds at 48 hrs.

Treated Compounds	Serum (mg/100ml.)
C_I	114.3 $\pm$ 4 S.D.
C_{II}	28.1 $\pm$ 3 ***
T_{II}	54 $\pm$ 3 ***

GRAPH



1mm = 1 (mg./ml.) Serum

DISCUSSION

In the present investigation, the glucose level in serum of laboratory rats were estimated at control (treated with ethanol) and after treatment with synthesized nitrogen containing heterocyclic compounds.

Glucose level in the serum of normal (untreated) rat was 114.3 ± 4 S.D. mg./100ml.

The glucose level in the serum of control rat was declined significantly to 28.1 ± 3 S.D. mg/100 ml. at 48 hrs.

The serum of laboratory rat on treated with 8 – Hydroxy – 9 – methoxy – 11 – oxo – morphanthridine at 48 hrs. highly significant (increased) to 54 $\pm$ 3 S.D. mg/100ml.

The increase in serum glucose level on treatment with 8 – Hydroxy – 9 – methoxy – 11 – oxo – microphanthridine, may be due to following reasons – (i) increased synthesis of glucose from certain substances (e.g. lactate and malate), (ii) increased formation of glucose and glycogen from excessive amino acids produced from catabolic effect on tissue or body proteins during stress, (iii) inhibitition of utilization of glucose by peripheral tissues.

The increased synthesis of glucose from certain substrate is evident from the study of Shreeve and Nobuyashi, 1966; Renaud and Moon, 1980. However, there are many evidences to show that the catabolism of protein takes place during stress and gluconneogenesis takes place from protein breakdown.

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