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Biochemical Effect of Synthesized Hetrocyclic Compound 8-Hydroxy-9methoxy-11-Oxo-Morphanthridine on Ldh 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 : LDH – LACTATE DEHYDROGENASE, biochemical effect, rats T2-8-hydroxy-9-methoxy-11-oxo-morphanthrinine.

I. INTRODUCTION

Lactetedehydrogenase is one of the group of ubiquitious enzymes whose activity in Serum is elevated in a considerable variety of disease stage such as myocardial infraction, anaemia, cancer including leukaemais and lymphomas and liver disease.

The extent of elevation is dependent upon the particular disease and vary often on the stage of the disease. As such under various sorts of stress condition including the chemical strus more lactatedehydrogenase level in the body is expected that that in the normal condition.

In human Serum the normal range of LDH is 70 – 240 I.U. per litre. LDH is widely distributed, being found in all cells in man but it is specially plentiful in cardiac and skeletal muscle, liver, kidney and Red blood cells. An increasing serum lactate dehydrogenase is found in Myocardial infraction. An increased activity has also been found in liver disease, particularly in infective hepatitis, leukaemia etc.

It has been reported that 15% of a series of 38 patients with malignant neo-plasms of urinary tract had normal excretion and conversely that approximately 70% of 63 patients with benign conditions had increased excretions of LDH.

As lactate dehydrogenase is involved in carbohydrate metabolism, comparative measurement of the activities of these enzymes in control and seven membered heterocyclic compounds prepared exposed laboratory (white) Rats may help in understanding the physiological changes that arise from the injection of compounds. Keeping this inviews LDH activity were measured in laboratory Rats in control and prepared heterocyclic compounds.

II. METERIAL AND METHODS

Quantiative Estimation of Lactatede – hydrogenase :-

Quantative estimation of the Serum lactate dehydrogenase was done by colorimetric method of king (1959-1966).

Reagents :-

(a) **Glycine Buffer :-** 7.505 grams of glycine and 5.85 grams of sodium chloride were dissolved in distilled water and made upto a litre.

(b) **Buffered Substrate solution :-** 125 ml of glycine buffer and 75 ml. of 0.1 N sodium lactate solution.

(c) **Nicotinamide adenine Dinucleotide (NAD) solution :-** 10 mg of Nicotinamide adenine dinucleotide was taken and mixed in 2 ml of distilled water and was kept at 0 to 4^0C for long stability. It was approximately 0.2 M.

(d) **2' 4' Dinitrophenyl Hydrazine Reagent :-** 200 mg. of 2' 4' Dinitrophenyl hydrazine was taken and mixed in hot normal HCL and was made upto a litre with this acid.

(e) **Sodium Hydroxide (0.4 N) Solution :-** 16 grams of NaoH was taken and dissolved 100 ml. distilled water to prepare 0.4 N sodium hydroxide solution.

(f) **Standard Sodium Pyruvate Solution :-** 11 grams of sodium Pyruvate was taken and dissolved in 100 ml of buffered substrate solution. It contained one micromole of pyruvate/ml.

(g) **Reduced Nocotinamide Adenine Dinucleotide solution :-** 1 micromole/ml; of buffered substrate was prepared from disodium salt (Mol. wt. – 716).

TECHNIQUE :-

Serum from both control and treated Rats were collected in a centrifuge tube as described earlier.

PROCEDURE :-

(i) 1ml of buffer substrate was pippeted and also 4 ml Serum (0.1 ml. Serum was diluted to 1 to 15 with water) into each of two tubes (first designed as 'blank' and second as 'test').

(ii) 0.2 ml. of NAD solution was added in second test tube and 0.2 ml. distilled water in 1st (blank) tube and were shaken to mixed.

(iii) Exactly after 15 minutes of adding NAD, 1 ml of Dinitrophenyl dydrazine reagent was added in both 'blank' and 'test' tubes.

(iv) Tubes were shaken to mix and left in water both for further 15 minutes.

(v) Then both tubes were removed from water bath and 10 ml. of 0.4 N NaoH was added.

(vi) Optical density was noted at 440nm with five minutes of adding NaoH solution.

I.U./Litre	0	167	333	500	667	833	1000
MI. NADH2 in Subsrate	0	0.05	0.1	0.15	0.2	0.25	0.3
MI. Pyruvate Solution	0	0.05	0.1	0.15	0.2	0.25	0.3
MI. Buffered Substrate	1.0	0.9	0.8	0.7	0.6	0.5	0.4
MI. NAD Solution	0	0.2	0.2	0.2	0.2	0.2	0.2
MI. water	0.3	0.1	0.1	0.1	0.1	0.1	0.1

(FOR the standard curve the above tubes were set)

OBSERVATIONS

CONTROL :

In control I (normal rats) LDH concentration in serum was 100 $\pm$ 5 S.D. I.U. Units/litre. The LDH concentration rose significant to 110 $\pm$ 4.5 S.D. I.U. units/litre ($P<0.001$) in control II (rats injected with ethyl alcohol)

TREATMENT :

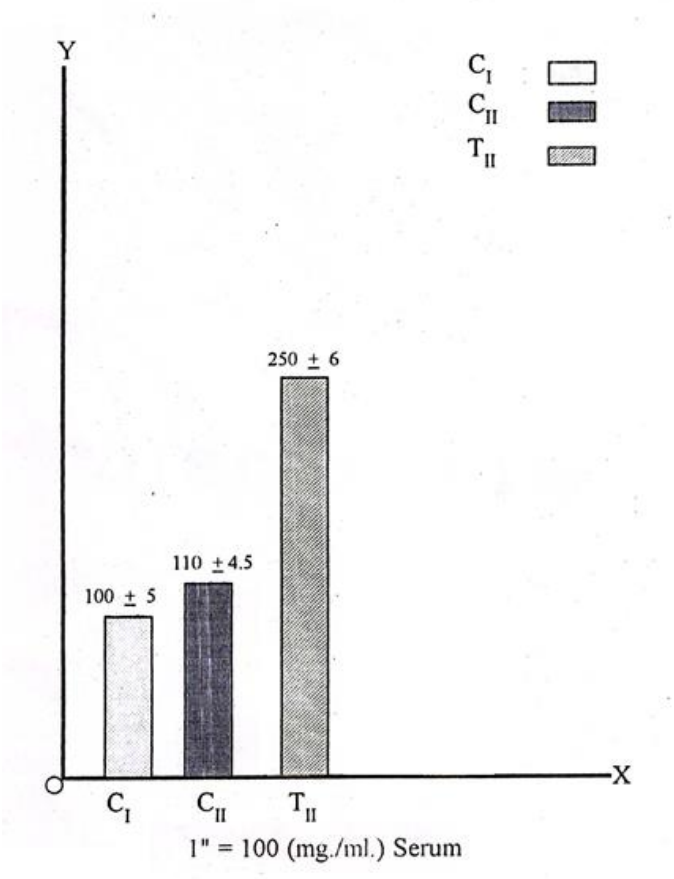
Serum LDH concentration rose significantly to 250 ± 6 S.D. I.U. units/litre (P<0.001) on treatment with the compound 8-Hydroxy -9-methoxy – 11 – OxO – morphanthridine.

TABLE – I

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

Treated Compounds	**Serum (I.U. units/ Litre)**
Control (C_I)	100 ± 5 S.D.
Control (C_{II}) **	110 ± 4.5
T_{II} ***	250 ± 6

GRAPH



III. DISCUSSION

In the present investigation, LDH activity in serum of normal (untreated) rat was 100 + 5 S.D. I.U. units/litre.

The LDH activity in the serum of control (treated with ethanol) rat increased to 110 + 5 S.D. I.U. units/litre.

The serum of laboratory rat treated with 8 – Hydroxy – 9 – methoxy – 11 – oxo – morphanthridine at 48 hrs. increased the LDH activity to to 250 + 6 S.D. I.U. units/litre.

In may be concluded that Ethanol, the carrier molecules result at end the increase of LDH activity that the normal (untreated) rats.

Thus 8 – Hydroxy – 9- mithoxy – 11 – oxo morphanthridine was most active in elevating serum LDH activity.

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