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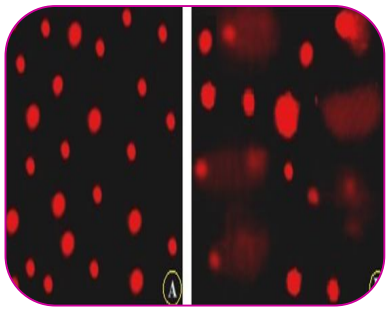
IMPACT OF SUB LETHAL CONECNTRATION OF MALATHION ON GLYCOGEN CONTENT OF FINGERLING OF *LABEO ROHITA*



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ABSTRACT:

Pesticides have an innate capacity to cause damage to biological system. Considering above fact the present study deals with the effect of malathion for short duration(24 to 96 h) Labeo rohita. The body muscle showed reduction in glycogen content during sublethal treatment.

KEYWORDS : *Labeo rohita, Malathion, Muscle, Biochemicals.*

INTRODUCTION

Malathion is commonly used organophosphorous pesticide. While most of the malathion will stay in the areas where it is applied, some can move to areas away from where it was applied by rain, fog and wind. Once malathion is introduced into the environment, it may cause serious intimidation to aquatic organisms and is notorious to cause severe metabolic disturbances in non target species like fish and fresh water mussels (USEPA, 2005).

Labeo rohita is common fresh water fish abundantly present in local river Godavari Dist. Nanded. It is one of the major source of food of poor population in local area. The present study was designed to study impact of sublethal concentration of 0.8 ppm of malathion on body muscle protein in fresh water fish *Labeo rohita* during exposure period of 24,48,72 and 96 h.

MATERIAL AND METHODS

For present study, commercial grade malathion (50% EC, manufactured by Coromandal fertilizer limited, Coromandal house, pesticide division, Ranipet, Vellore (TN), India) was procured from the local market. Healthy specimens of *Labeo rohita* were collected from local river Godavari Dist. Nanded. Their average length and wet weight (7.5$\pm$ 1.7cm and weight 8.2 $\pm$ 0.5gm) respectively. Fishes were treated with 0.1 % KmNo4 solution for 2 min. to avoid any dermal infection. The fish stock was then maintained in 100 liter glass aquaria for 14 days to acclimatize under laboratory condition. The fishes were fed with pieces of live earth warm on alternate days. A stock solution was prepared in acetone and mixed in water to obtain required dilutions. The LC50 value for 96 hours of malathion was determined by procedure of Finney (1971). The LC50 of malathion for 96 hours for *Labeo rohita* was 2 mg/liter. Fishes were exposed to sub lethal concentration (0.4,0.8,0.12 ppm) of malathion, simultaneously control group was also maintained. Glycogen content was estimated by Anthrone method (Hedge and Hofrciter, 1962).

RESULTS-

In the present investigation the glycogen content at control experiment in 24 , 48, 72 and 96 hours was 12.40, 11.00, 12.00 and 11.07 mg/gm body weight of muscles but different concentration of organophosphates malithion at 0.4 ppm the glycogen content in 24, 48, 72 and 96 hours was 10.10, 10.05,

9.00 and 8.95 mg/gm body weight of fish respectively. In the concentration of 0.8 ppm it was 8.30, 8.10, 7.50, 7.10 mg/gm body of weight of muscles at 24, 48, 72 and 96 hours respectively. In the concentration 1.2 ppm 6.80, 6.10, 5.89 and 5.05 mg/gm body weight of muscle of the fish at 24, 48, 72, and 96 hours respectively. Changes in glycogen of body muscle of *Labeo rohita* is presented in Table 1. The glycogen level of body muscle fluctuated during different intervals of treatment. The glycogen content changes is occurs the concentration is increases the glycogen content is decreases.

DISCUSSION:

Lomte and Sabiha Alam (1984) showed effect of malathion on the biochemical components of the proso branch, Belamia bengalnsis and reported that the decrease in glycogen, protein and lipid under pesticidal stress. Decrease in tissue lipid and proteins might be partly due to their utilization in cell repair and tissue organization with the formation of lipoproteins, which are important cellular constituents of cell membranes, and cell organelles present in the cytoplasm (Harper, 1983). Nagabushanam et al. (1972) showed decline in lipid content in the hepatopancreas of the fresh water prawn Macroranchium kristensis in response to pesticide. The decreased glycogen content in cardiac muscle is attributed due to inhibiton of hormone and enzymes when the fish is under the influence of toxicant. During this time the conversion of carbohydrate into amino acid may be possible. Hence the decreasing trend in glycogen contents was noticed. Similar observations were made by (Gaiton et al. 1965; Edwards, 1973; Anita Susan et al. 1999).

Venkatraman and Sandhya Rani (2006) showed similar result depletion in glycogen was studied by Veeraiah and Prasad (1998) In present study, the depletion in glycogen content in body muscle might be due to possible glycogenolysis, resulting in anaerobic glycolysis in body muscles to cope up with adverse condition as reported by Dezwaan and Zandee (1999) and Chaudhari (2000).

Table1. glycogen content (mg/gm) in body muscle of *Labeo rohita*

Concentration (ppm)	Duration			
	24	48	72	96
Control	12.40 ± 0.11	11.00 ± 0.16	12.00 ± 0.19	11.07 ± 0.21
0.4	10.10 ± 0.8*	10.05 ± 0.7	9.00 ± 0.2**	8.95 ± 0.9
0.8	8.30 ± 0.11	8.10 ± 0.13***	7.50± 0.19	7.10 ± 0.21
1.2	6.80 ± 0.11	6.10 ± 0.16	5.89 ± 0.17	5.05 ± 0.20**

[Values are mean ± SD of six replicates, * P<0.05, ** P < 0.01, *** P > 0.01, significant when student's test was applied between control and experimental groups]

CONCLUSION

In the present investigation the effect of organophosphate malithion of the glycogen content of *Labeo rohita* changes is found due to the effect of malithion in the different concentration the concentration is increases the glycogen content is decreases during the study period.

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USEPA (2005) : United states environmental protection agency.