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E: ISSN NO.: 2455-0817 *Remarking An Analisation*

Effect of Dialysis on Carbaryl Inhibited Fish Liver α-amylase Activity

Anurag Kumar
Research Scholar,
Dept. of Zoology
Veer Kunwar Singh University,
Arrah, Bihar, India

Dhyanendra Kumar
Ex- Head & Professor
Dept. of Zoology
Veer Kunwar Singh University,
Arrah, Bihar, India

Abstract

Liver α-amylase activity of *Heteropneustes fossilis (*Bloch) was inhibited by carbaryl and probable mechanism of inhibition was tried to demonstrate by dialysis experiment of control and treated enzymes.

Keywords: *Heteropneustes fossilis,* Carbaryl, α-amylase

Introduction

Carbaryl a derivtive of ceramic acid and a phenyl carbamate has posed a threat of contamination to the fish habitat as run off from the pesticide treated agricultural land causes pollution of the fishery reservoirs. The influence of chronic exposure to pesticides induced in a number of abnormalities in liver, which included the inhibitin of enzymes involved in Carbohydrate metabolism, Wicks (1969) and Greegard (1969). Pesticides significantly inhibited the enzyme activity in workers, Mendoza and Hatina (1970), Grant mehrle (1970), Kumar and Bhattacharya (1975), Bhattacharya and Mukherjee (1976) and Yadava and Singh (1937). It has also been reported by Kumar and Bhattacharya (1977) about the effect of pesticide on α-amylase activity. Hzards of pollution noticed Brown *et al. (1969); Karatas et al. (2016); Moraesde et al. (2013); Tamizhazhagam et al.* (2017); Maksymiv *et al., (*2015). J. O. Babayemi, (2016) "Overviewe of Levels of Organochlorine Pesticides in Surface water and food items. Unyimadu *et al.* (2018) assessed the levels of OCPs in fish.

Aim of the Study

The present study includes the α-amylase activity at different pH and nature of inhibition of α-amylase activity and possible mechanism of action of carbaryl.

Materials and Methods

Soluble starch and 3,5-dinitrosalicyclic acid were purchased from E. Merck and Carbaryl was procured from M/S Paushak Ltd. *Heteropneustes fossilis was* obtained from the local market as healthy fishes weighing about 40-50 gm; length about 10-12 cm were selected for the purpose. Determination of 48 hr. TLM of LC_{50} concentration of carbaryl was done as reported earlier by kumar and Bhattacharya (1975) control and carbaryl treated fishes were sacrificed and liver was dissected out and homogenised separately in Potter Elvehjem homogeniser with 0.02% homogenate. The homogenate was then centrifused at 1000 g for 10 min. Supernatant was collected and diluted 10 times with the above-mentioned buffer and used as enzyme preparation.

Enzyme activity was assayed by following the method of Bernfeld (1955), and the results were expressed as mg. of maltose liberated per mg. of protein. Protein was measured according to the method of Lowry *et al.,* (1951) using bovine serum albumin as the standard.

Results and Discussion

α-amylase activity

With Na-phosphate buffer of different pH values the pH of α-amylase activity was found to be 6.5. There was marked inhibition of α-amylase activity due to the exposure of carbaryl and it was 45.8% at 48 has. LC_{50} concentration.

Effect of Dialysis

To observe the probable mechanism of α-amylase activity by carbaryl, the enzyme was prepared in the similar manner as described in method. At the end of dialysis, the dialysis bag was cut with the scissors and then enzymes were collected. The protein in each case was measured by following the method of Lowry *et al.,* (1951) , using bovine serum albumin. Table 1 shows that enzyme lost some amount of its activity due to dialysis, the reason for this loss is not yet knows but may be due to certain dialysible peptide (s). which passed out during dialysis as it has

been observed that enzyme losses some amount of protein as was determined by Folin-phenol reagent.

Table-1
Effect of Dialysis on Endirn inhibited α-amylase Activity

System	mg. of maltase liberated/mg. of enzyme protein	% of inhibition before and after dialysis
Before Dialysis		
Control	0.48	45.80%
Treated	0.26	
After Dialysis		
Control	0.32	31.20%
Treated	0.22	

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