

Effect of fish behaviours under the exposure of 10 PPM lethal concentration of pesticide on fish *Heteropneustes fossilis*

Dr. Mahjabi Khan¹

¹Deptt of zoology, D.S.N (PG) college Unnao (UP)

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Abstract

Pesticides are applied to increase production of agriculture. Expensive used contaminated of soil and water remain in the crops and finally enter to food chain. Pesticides used in agriculture are synthetic in origin and get absorbed in the soil through surface run off from treated plants. The residue of the pesticides pollute the ground water through leaching and its effect on the environment there are many types of pesticides on the basis of carbon molecules such as Herbicides, insecticides, fungicides, rodenticides, nematicides. Its a vital weapons of plants protection fish are under the exposed on pesticides the surface increased considerable with loss of coordination, laboured breathing increasable mucous secretion and suddenly twisting start swimming with head down position were noticed during long exposure.

Key words: Fishes, pesticides, behavioural, responses, water

Introduction

C₆H₆Cl₆ lindane discovered four Isomers of the alpha, beta gamma and Delta in (1912).

Lindane is stable in the presence of light, heat, air, carbon dioxide and strong acids. In animals lindane is bio-transformed to chlorophenals which are excreted free Chadwick et l. (1975) reported that lindane in first converted to hexachlorocyclohexane intermidate and two tetrachlorophenats and three trichlorophenals. Abassy et al. (1999) reported the level of organophosphorus insecticides, fungicides and herbicides were in the order dimethoate > malathion > captan > ametryne. According to WHO pesticides are divided in to four categories based on their level of toxicing. Pesticides may also result in genetic defects. Some fish species are highly susceptible to environmental water pollution pesticides toxicity can leap to harmful effect, including mutagenesis carcino genesis hematological and histopathological complication as well as endocrinological and reproductive disorders as well as behavioural nemotoxicological hormonal disbalance caused by oxidative stress. *Heteropneustes fossilis* is a carnivorous fish in order cypriniformes. The accessory respiratory organs for which is quite hard and its usually journal in muddy water. It belong and grow in ground estuarine water Srivastava, (1962) the present work carried out the behavioural changed under the exposed of 10 PPM of sublethal concentration of pesticides.

MATERIAL AND METHOD

Living species and matured specimens of *H. fossilis* were procured from Kanpur local fish market and acclimatized to the laboratory conditional at 15 days before experiments. The animal fed only boiled egg albumin and kept in well are aerated glass and bathed in 1% of KMnO₄ solution the size of glass Aquaria was 75x75x18cm that contained in the laboratory at the water ambient temperature 26±3⁰C at winter sessions values of water Ph=7.1 both groups of male and female fishes for the detected to experiment- involving exposed to pesticides by dissolving 1 gm of pesticides in the 1 liter of distilled water so that obtained a dilution of 1 mg/cc and solution was added to Aquarium containing 10 liters of water exposed to infected of the rate

of 10 PPM 10 ml of stock solution to desired pesticides to as so that dilution of 10 mg/liters of LC50 value to prime faces changes in behaviours of exposed animals.

BEHAVIOURAL CHANGES

The behavioural response of the fish exposed to pesticides were extensively influenced by the expected toxicity and hence they shown various change in their behaviours. Gill et al. (1991), under the exposure on fungicide, aquatic centa unenticing pesticides cased acute and chronic poisoning of fish and other organising schooling behaviour noticed under the exposure of propiconazole in calories botrachus Singh et l. (2013). Exposure fishes exhibited restlessness, erratic and darting swimming hitting against the wall of Aquaria to avoid the chemical may be selected to change in neuro receptors Suadal et al. (1997), Ullah et. al. (2014) hyperexcitability and sinking to bottom in laboratory. Pesticide metabolic react with oxygen present in water that reduced the consumption of oxygen in exposure animals Crisp. et al. (1988). Brain activity was decreased over the period of experiment succinate dehydrogenase (SDH) and ATPase activities were depleted in brain. Das and Mukherjee (2009). Hyper excitability and laboured breathing were some of most expressed characters. Mucous secretion of the skin increased quite some a courtlier to then death hoisting and spinning began changed their. Posture of swimming and came to shorten down so as the tail kept projected to the surface of the head its a remarkable sign of loss of balance function. Holder (1964), quite common in teleosts exposed to be organochlorine pesticides behaviour changed indicator. Rohini (2023) pesticides affection hematobiochemical in fish.

Table : Effect of sublethal concentration dose of pesticides at 10PPM exposed in behavioural responses of *H. fossilis*.

S. No.	Behavioural Changes	Control Fishes	Experiment fishes				
			Day I	II	III	IV	V
1.	Loss of Balance	Normal	Nil	Prominent	Prominent	Prominent	Prominent
2.	Gulping air surface	Normal	Less change	Moderate	Moderate	"	"
3.	Erratic swimming	Normal	Nil	"	"	"	"
4.	Operculas Movements	Normal	Nil	"	"	"	"
5.	Restlessness	Normal	Moderate	Prominent	"	"	"
6.	Jumping	Normal	Moderate	"	"	"	"
7.	Sluggishness	Normal	Nil	Nil	"	"	"

OBSERVATION & CONCLUSION

Acute toxicity caused by the shown as significant positive correlation between dose and mortality increased concentrations of toxic chemicals. Present in pesticides in water results in more intake or entry of toxic chemical in the body of fish.

Pesticides pollution in a serious hazard to the an aquatic medium as well as aquatic animals including fishes. Toxicant caused several negative effect on different respect of fish which result in a massive loss for sustainable aquaculture production. Fish act as a major sources of pesticides that induced various carcinogenic as well as non-carcinogenic human health because pesticides bio accumulate in fish tissue.

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