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HAEMATOLOGICAL STUDY OF DICHLOROVOS INDUCED *Heteropneustes fossilis*

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ABSTRACT

Pesticides influence various physiological and biochemical parameters of fishes (Mckim *et al.* 1970, Rajik *et al.* 1983). In the present study, certain observations on blood – haemoglobin percentage(Hb %) , total erythrocyte count (TEC) and total leucocyte count (TLC) have been made. These parameters were observed in normal as well as dichlorovos (organophosphate pesticide) are treated ***Heteropneustes fossilis.*** It was noted that by increasing the dose of dichlorovos, significant fall in TEC and Hb % values, while the values of TLC increased gradually compared with control.

Key words: Haematological study, TEC, TLC, Hb % and *Heteropneustes fossils*.

The blood is an important vital circulating tissue of the body. It is a very sensitive connective tissue and an ideal indicator of stress conditions. Dichlorovos is the most potent, organophosphate pesticide. Biologically, it exhibits the phenomenon of biomagnification followed by bioaccumulation. In the present study, the effect of dichlorovos on certain blood parameters of *Heteropneustes fossilis* was studied. *H. fossili* is an air breathing siluroid fresh water fish with high protein value. A detailed information on fish blood is scanty. But in the last two decades, the attention of several workers began to be directed to examine the toxic effects on fish haematology (Iqbal et al. 1992; Joshi et al. 1986 and Fange 1992) .

Dichlorovos (DIVAP), an organo-phosphoros compound is a strong contact and stomach insecticides with respiratory action. It is soluble in water with less residual activity. Living specimen of fresh water teleost fish, *Heteropneustes fossilis* was selected as a test animal for present bioassey study . It was procured from Narmada river. Prior to the experimentation the fishes were acclimatized with lab condition and exposed to sub lethal doses of dichlorovos with control. The pesticide was renewed daily during the exposure of 96 hours and every alternate day during chronic exposure (Rand and Petrocelli, 1985). Blood was taken out from the caudal peducle of fish and haemoglobin percentage was determined by Sahil's method (Dacie and Lewis, 1963). The enumeration of TEC and TLC was done by using the improved Neubaver Haemocytometer.

Effect of dichlorovos (0.0096%) on haematological parameters of *H.fossilis* was observed and summrised in Table -1.

The effect of dichlorovos indicates that the total erythrocytes count and haemoglobin percentage of *H. fossilis* were decreased and the total leucocytes count was increased gradually with time exposure. Besides lymph, blood plays an important role in all animals. Lucocytes are responsible for the immunity of an organism, while erythrocytes and haemoglobin are related with oxygen carrying capacity. Due to diachlorovos fishes were under stress and showing the above changes.

Table - 1: Effect of dichlorovos (0.0096%) on haematological parameters of *H.fossilis*

Exposure time	TEC 10 / cu.mm	TLC cu.mm	Total Hb in gm. %
Initial control	2.25 ± 0.23	20113 ± 3800	12.5 ± 0.50
48 hrs.	2.29 ± 0.25	23400 ± 3500	12.5 ± 0.50
15 days	1.90 ± 0.80	27100 ± 4000	10.7 ± 0.78
30 days	1.57 ± 0.95	29212 ± 5200	8.0 ± 1.20
control (30 days)	2.21 ± 0.20	21800 ± 3000	11.8 ± 0.50

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