## (Cyprinus carpio)

(	)	/	(	)	1		(Cyprinus	carpio)	°C		((	OECD)
/	/	1					LC <sub>50</sub>	· / (Very H		/		<i>/ /</i> .
						LC	50			<i>;</i>		

/ / : // : (E-mail:issasharifpour@yahoo.com -

...

.( ) .( ) .( ) pН (EC)

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() EC pН °C pН (EC) (HT) (ppm) / ppm)

...

(LC<sub>50</sub>-96h) ( ) (OECD) (static) Probit Value Quattro pro Spss Y=a+bXLC a Probit y (Slope)  $LC_{50}$ b X Antilog X LC<sub>50</sub> LC  $LC_{50}$ ( ) LC<sub>50</sub>

<sup>-</sup>Lethal concentration

<sup>-</sup> Organisation Economic Cooperation and Development

				$^{ m LC}_{ m 50}$
h	h	h	h	( )
				( )
1	1	1	1	
1	1	1	1	
1	1	1	1	

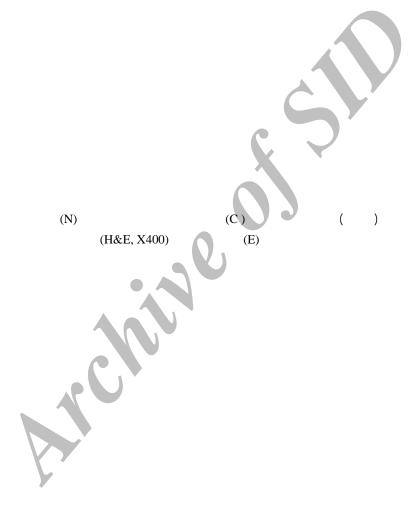
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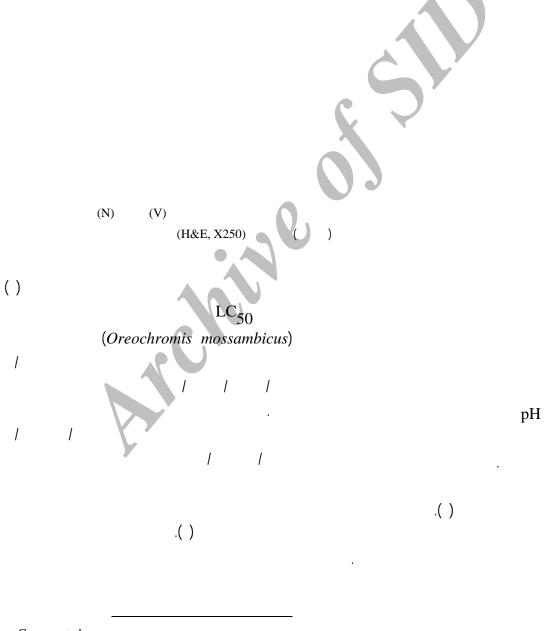
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(N) (H&E, X100 (H)



Gansen et al.

LC<sub>50</sub> ppm (Tilapia sp.) ()  $Na^+/k^+$ ( ) 1  $LC_{50}$ (Brachydanio rerio) (Hyphessobrycon bifasciatus) 1 .( ) (Striped bass) ( )( ) LC<sub>50</sub> (Anguilla anguilla)  $LC_{50}$ .( ) LC<sub>50</sub> / ppm ( ) **<<** ) (

Liong *et al*Bhantnagar

-Jonson & Toledo

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## A Study of Endosulfan Caused Lethal Effects as well as Histopathological Changes in Common Carp (*Cyprinus carpio*)

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## **Abstract**

To evaluate the toxic effects of pesticide Endosulfan in fish, acute toxicity tests were carried out in valuing common carp (*Cyprinus carpio*) of 5-20 and 21-40 gr, using static water of 21°C and employing Organisation of Economic Coopration and Development (O.E.C.D) method.

Mortality limits of 0.0002-0.0022 and 0.001-0.0046 mg/lit were found in fish of 5-20 gr and 21-40 gr, respectively. The LC50 of 0.0061, 0.0029, 0.0016 and 0.0009 mg/lit were obtained in fish of 5-20 gr within 24, 48, 72 and 96 hours of post- challenge, respectively, while those in fish of 21-40 gr were 0.0079, 0.0053, 0.0035 and 0.0024 mg/lit, respectively.

The affected fish showed pale colour, irregular swimming behaviour, whirling and bottom sitting. Following a temporary recovery, fish showed sufferings of severe convulsion and respiratory disorder, resulting in death within a short time after challenge.

Histologically, there were hyperemia and inflammation of secondary lamellae in the fish challenged with lower doses of the pesticide whereas a general necrosis was observed when fish were in contact with higher doses. Similar histopathological changes were observed in the kidney and liver tissues. According to the mortality limits and LC<sub>50</sub> (less than 0.1 mg/lit), this pesticide should be considered as a very highly toxic chemical for common carp, causing a rapid and accumulative mortality in fish.

**Keywords:** Endosulfan, Common carp (*Cyprinus carpio*), Toxicity, LC<sub>50</sub>, Histopathology.

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