



NCIATRI 2023 ABSTRACTS

Editors:
Ansar E. B., Dhanya P. R.,
Jisha K. C., Kesavan K., Lathif Penath,
Mohammed Areej E. M. & Sheena P. A.



MES ASMABI COLLEGE
P. Vemballur, Kodungallur, Kerala, India - 680 671.

Editors:

Dr. Anwar E. B.
Dr. Dhanya P. R.
Dr. Jisha K. C.
Dr. Keerav K.
Mr. Lathif Penath
Mr. Mohammed Areej E. M.
Dr. Sheema P. A.

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First Edition: May 2023
ISBN: 978-93-5813-509-1

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Published by:
MES Asnabi College, P. Vembalur, Kodungallur, Kerala, India.
PIN: 680671

Price: ₹300/-
Date of publication: 25 May 2023
Design & layout: Animesh C. S., Makor Design Studio, Mathilakam, Kerala, India.

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Impact of Malathion on the Biochemical Composition of the Freshwater Fish, *Oreochromis Mossambicus*

Chitra K. C.¹ & Sunniya Abdu^{2*}

¹Dept. of Zoology, University of Calicut, Theshipalam, Kerala, India.
²Dept. of Aquaculture, MES Asmabi College, P. Vembalath, Nedungallur, Kerala.
 *Corresponding author: sunniyaabdu@gmail.com

The aim of the present study was to evaluate the effect of malathion on the antioxidant status in the liver of adult freshwater fish, *Oreochromis mossambicus*. Malathion at sublethal concentration (0.125 mg/L) was used as the test dose and the treatment was given for 24, 48 and 96 h to ten animals in each group maintaining a control group. Malathion generates reactive oxygen species in the liver of the fishes which is evident by the time-dependent reduction in the antioxidant enzymes and concomitant increase in the lipid peroxidation. However, there were no significant changes in the antioxidant parameters in brain of malathion-treated fishes. Thus the present study reveals that the antioxidant enzyme potential is very poor in liver when compared with that of brain. On the other hand, the present study also showed a significant decrease in the marker enzyme, alkaline phosphatase in the liver after 96 h of malathion treatment. Alkaline phosphatase, a hydrolyase enzyme are involved in the mediation of membrane transport and transphosphorylation.

A decreased alkaline phosphatase activity in liver of malathion-treated animal indicate the decreased state of inter and intracellular membrane transport and possibly this could be due to the toxicity of malathion. In the malathion-treated fishes, the hepatocytes have lost their normal architecture and large number of these cells appeared with pyknotic nuclei. The intrahepatic blood vessels were dilated and congested with blood, and inflammatory leucocytic infiltrations were also observed. Numerous hepatocytes showed marked cytoplasmic vacuolization. Thus malathion induces toxic stress to the exposed fishes, which is obvious by the histopathological changes in the liver. Thus the present study reveals that malathion induced oxidative stress in liver of *Oreochromis* by inducing reactive oxygen species generation.

KEYWORDS: Malathion, Liver, Antioxidant Enzymes, ROS, Alkaline Phosphatase, *Oreochromis*.

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Published by
MES Asmabi College
Govt. Aided, Affiliated to University of Calicut, Recognized by UGC,
Ministry Inspection Certified by National Minority Education Commission
It is accredited by NAAC with Best grade
P. Vembalath P.O., Nedungallur, Thrissur Dist., Kerala, Pin - 680 471,
Ph - 0480 2850596
e-mail: principal.mesasmabi@gmail.com
website: www.mesasmabicollege.edu.in

ISSN: 978-93-5813-509-1

MRP: ₹300/-
ISBN: 978-93-5813-509-1

