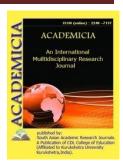




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PESTICIDES AND TOXICITY ON AQUATIC LARVAE: A STUDY ON LOKTAK LAKE CATCHMENT AREA

R. K. Memsana Devi*

*Asst. Prof. Department of Zoology, Naorem Birahari College, Khundrakpam, Manipur, INDIA

ABSTRACT

This paper attempts to study on Pesticides and Toxicity on aquatic larvae of Pantalaflavecens found in the Loktak Lake Catchment Area, Manipur. It is also a part of the study on pesticide pollution in the lakes and their effect on non-target organisms. The time at which the pesticides are added into the water will be noted along with the room and water temperatures. The larvae were observed continuously for their response to the chemical. Whenever a larva dies, it was immediately removed. Therefore, a research work with an objective to develop ways and means of fighting harmful insects, pests and weeds without effecting non-target species and ecosystem is necessary.

KEYWORD: Pesticide, Chlorpyrifos, Monochrotophos, Toxicity, Endosulphan

REFERENCE

Agrahari, S., Pandey, K.C. and Gopal, K. (2006). Effect of monocrotophos on erythropoietic activity and hematological parameters of the fresh water fish channapuncatatus (Block) Bull. Environ. Contam. Toxiol. 76: 607-613.

Alef, L.K. and P. Nannipieri.(1995). Methods in soil microbiology and enzyme activities. Academic Press, Harcourt Biace and Company Publishers, London, pp. 225-230.

Arias-Estevez, M., Lopez-Periago, E., Martinez-Carballo, E., Simal-Gandara, J., Mejuto, J. C., & Garcia-Rio, L. (2008). The mobility and degradation of pesticides in soils and the pollution of groundwater resources. Agriculture, Ecosystems and Environment, 123, 247-260.

Baily, H. C., L. Deanovic, E. Reyes, T. Kimball, K. Larson, K. Cortright, V. Connor and D.E. Hinton, (2000). Diazinon and chlorpyrifos in urban waterwys in northern California, USA. *Environ. Toxicol.*, *Chem.* 19(1): 82-87

Bindumol G.P (2018). Studies on Leaching and Dissipation of Commonly Used Organophosphorus, Pesticides in Cardamom Tems of Idukki District, Kerala, unpublished Ph. D thesis submitted on the department of Botany, University of Calicut. Kerala

Chauhan, A., S.K. Samantha, and P.K. Jain. (2000). Degradation of nitro aromatic compounds by microorganisms isolated from pesticide contaminated sites. Role of microbes in the control of environmental pollution. Academic Press, pp. 25-36.

Fogg, P., &Boxall, A. B. A. (2004). Leaching of Pesticides from Biobeds: Effect of Biobed Depth and water loading. Journal of Agricultural and Food Chemistry, 52, 6217-6227.

Germida, J.J. and S.D. Siciliano.(2003). Microbially Mediated Processes. Soil Biology and biochemistry (Ed. Summer), CRC Press, USA, Florida, 95-100.

Giannouli, D. D., & Antonopoulos, V. Z. (2014). Evaluation of two pesticide leaching models in an irrigated field cropped with corn. Journal of Environmental Management, 150, 508-515.

HiiYii Siang, Lee Mun Yee. And ChuahTseSeng. (2007). Acute toxicity of organochlorine insecticide endosulfan and its effect on behaviour and some haematological parameters of asian swamp (Monopterusalbus). Pestic.Biochem. Physiol., 46-53.

Janci, J. Arockia Rani (2009). Effect of Agricultural Pesticide – Monocrotophos on the non-target organism Gyplonychus Rusticus (FABR) (Hemiptera: Belostomatide), unpublished Ph. D thesis submitted to Department of Advance Zoology and Biotechnology, Loyola College under Madrdas University.

Jha, A.N. and Singh, H.N. (1984). Toxicity of seven different insecticides against adult *Triboliumcastaneu*(HERBES), *Indian J. Ent.* 46(4): 395-397.

KalpanaAcharya (1996). Pesticide induced growth rate depression of two planktonic green algae, Unpublished thesis submitted at Utkal University, Orissa

Koprucu, S.S., Koprucu, K., Ural, M., Ulspir, S. and Pala, M. (2006). Acute toxicity of organ phosphorous pesticide diazinon and its effects on behavior and some hematological parameters of fingerling.

Kumar, A and Champman JC. (1998). Profenofos toxicity to the eastern rainbow fish, Melanotaeniaduboulayal) Environ. Toxicol. Chem., 17: 1799-1806.

LinthoiNaorem (2013). Diversity of turtle fauna of Manipur with special reference to the ecology of Cuoraamboinensis (Daudin) in Loktak Lake, Manipur. Unpublished Ph. D. Thesis submitted in the Department of Zoology, University of Guwahati.

Moreno, J.L., C. Garcia, and T. Hernandez. (2003). Toxic effect of cadmium and nickel on soil enzymes and the influence of adding sewage sludge. Europ. J. Soil Sci. 54: 377-386

Muni Singh Mayanglambam (2016). Phytoremediation Measures for Heavy Metal Contamination of Loktak Lake, Manipur, India. Unpublished Ph. D. thesis submitted to Department of Environmental Science, Mizoram University.



Nannipieri, P. (1994). The potential use of soil enzymes as indicates of productivity, sustainability and pollution. Soil biota management in sustainable farming systems.(Ed. C.E. Panklinest, B.M. Doube, V.V.S.R Gupta and P.R. Grace). CSIRO, Melbourne, pp. 238-244.

Nannipieri, P. and L. Landa.(2000). Soil enzymes. In: Handbook of Soil Sci. (Ed. H E. Sumner) CRC Press, New York, C 129 - C 137.

R. Jaya Madhuri (2004). Interactions between Pesticides and Microorganisms in Soils from Groundnut Fields, unpublished Ph. D Thesis submitted in the department of Microbiology, Sri Krishnadevaraya University Anantapur

Ravi, M. and R. Siddaramappa.(2002). Transformation of applied phosphorus in acid and neutral soils of Karnataka. Mys. J. Agric. Sci. 36: 12-17

Ravi, M.V., R. Siddaramappa, and V, Ganesan. (2002). Effect of phosphate fertilizers on enzyme activity in neutral soils. J. Agric. Sci. 86: 13-18.

Saha, S. and Kaviraj, A. (2008). Acitic toxicity of synthetic pyrethroidcypermettri to save fresh water organisms, Bull. Environ. Contam. Toxicol., 80: 49-51.

Sairam V. (2016).Indoxacarb (Avaunt14.5% Sc) An Insecticide Induced Toxicity Biochemical Enzymatic And Histopathological Changes In The Freshwater Fish LabeoRohita (Hamilton) Department Of Zoology And Aquaculture AcharyaNagarjuna University.

Singh, S.K., Tripathi, P.K., Yadav, R.P., Singh, D. and Singh, A. (2004). Toxicity of Malathion and Carbaryl pesticides. Effects on some biochemical profiles of the fresh water fish Colisafasciatus. BullEnviron. Cantam. Toxicol., 72: 592-599.

Sriramachandrasekharan and Vaiyapuri.(2002). Effect of green manure, fertilizer nitrogen and cytozyme on enzyme activities in different soils. J. Ecobiol. 14(40): 247-251

Tandon, S.S., Srivastava, P.P., Mukherjee, S.C. and Saharan, N. (2005). Acute toxicity of synthetic pyrethroids to Indian major Carp, Catlacatla. Bull. Environ. Contam. Toxicol., 74: 610-613.

TayyabaKhatoon (1986). Studies on the neurotoxicity of organophosphorus insecticide metasystox to rattus rajah, Unpublished Ph. D., Thesis submitted at the department of Zoology, Aligarh Muslim University

Tilak, K.S., Veeriah, K. and KoteeswaraRao, (2004). Toxicity and bioaccumulation of chlorpyrifos in Indian Carps Catlacatla, Labeorohita and Cirrhinusmirgala. Bull. Environ. Contam. Toxicol., 73: 933-941.

Ural, M.S. and Catla, M. (2005). Acute toxicity of Dichlorvos (DDVP) to fingerling mirror carp, Cyprinuscarpio, L. Bull. Environ. Coutam.Toxicol., 75: 368-373

VenkataSubba Reddy G. (2013). Bacterial Degradation of an Organophosphorus Insecticide – Quinalphos. Unpublished thesis submitted to the department of Microbiology, Sri Krishnadevaraya University, Anantapur

Vijayakumar, M. (2010). Mixed Toxicity of Three Organophosphorus Pesticides (Quinalphos, Malathion, Monocrotophos) And Studies on Effects of Quinalphos on Freshwater Fish



ChannaPunctatus (Bloch) Unpublished Ph. D Thesis submitted to Department of Zoology & Aquaculture AcharyaNagarjuna University

Weaver, R., S. Lai, P. Angle, D. Bottomley, D. Beddicek, S. Smith, A. Tabatabai and A. Wollem.(1994). Methods of soil analysis, Part 2, Microbiological and biochemical properties. Soil Sci. Soc. of Am, Madison, pp. 1.