



# EFFECT OF *EUPHORBIA NERRIFOLIA* ON THE PROTEASE ACTIVITY OF THE FRESH WATER SNAIL, *LYMNEA ACUMINATA* (LAMARK)

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**Abstract:** Effect of Herbicide *Euphorbia nerrifolia* on the protease activity in the digestive gland of the fresh water snail, *Lymnea acuminata*. The protease activity was found to be increase at 24 hours and 48 hours of sub-lethal dose of herbicide treatments. In physiological impairment this herbicide seem to be more effective.

**Key words:** *Lymnea acuminata* , *Euphorbia nerrifolia* enzyme activity, protease and digestive gland.

## Introduction:

The molluscs has always been to interest to man as food, as sources of dyes, as intermediate hosts to many important parasitic helminthes, as destructive borer and as producers of pearls. Their shell have been sought extensively for button and ornamental manufacture.

Snail have a combined conchilion calcareous shell, the firm shell was necessary for two reasons, firstly to act as a support for the mantle cavity, and secondly to act as an anchor for the shell muscles which entered the foot and allowed the shell to be pulled down over it for protective purpose.

There are a number of chemicals in the environment some of them are toxic and rest are non toxic . These toxic chemicals are discharged by industries into air , water and soil and they enter into food chain from the environment. Once they enter our biological system , they disturb the biochemical processes leading in some cases to fatal results.( Sarika P. Fulpagare., (2009) )

Most of the informations regarding the effect of these compounds has been obtained from mortality studies . But little is known about their effect on physiological processes.

In the view of this, the present study was undertaken to evaluate the toxic effect of *Euphorbia nerrifolia* on Protease in the digestive gland of *Lymnea acuminata*.

Effect of leaf extract Of *Euphorbia nerrifolia* on biochemical components Of of the fresh water Snail *Lymnea acuminata* (Lamark) ( Sarika Piran Fulpagare (Jan 2018 )).Toxic effect of latex of *Croton tiglium* on *Lymnea acuminata* and *Channa punctatus* (Ram P. Yadav, Ajay Sing (2002))).Toxicological effects and biochemical alterations induced by herbicides and various plant extracts in fresh water snail *Lymnea*

acuminata ((Lamark) Shweta Sane (2009)).Azadirachtin and fenvalerate induced alterations in the neuronal activity of cockroach, *Periplaneta americana* Shafeek A.,D. Arunkumari , K.S. Ajwan And et al. (2003).

### Material and Method :

The freshwater snails *Lymnea acuminata* were collected from the Gomai river backside to PSGVPMS ASC College Shahada ,Dist- Nandurbar -425409 at Lonkheda Sahahada Tehsil.. After bringing to the laboratory they were washed with the fresh water and maintained in well aerated water in laboratory conditions for acclimatization.

**Collection of plant material :** *Euphorbia nerrifolia* were collected from botanical garden of PSGVPMS ASC College Shahada ,Dist- Nandurbar -425409

**Isolation of latex:** The white milky latex produced by *Euphorbia nerrifolia* was drained into glass tubes by cutting the stem apices. The latex was centrifuged at 2500 r.p.m. for 20 minutes to remove resin. This resin free latex was lyophilized at 40°C and lyophilized, dried powdered latex was used for experiments and stored in airtight desiccators for further study.

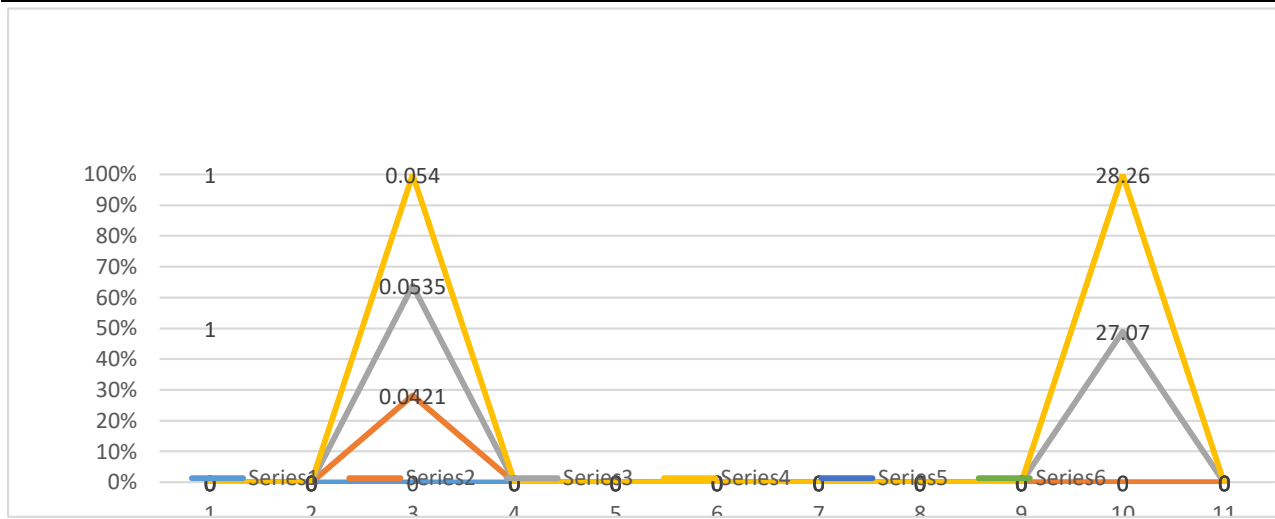
The healthy and active snails were selected for the experimental study . The tissue of foot of snails were exposed to 24 hours and a control group having no mortality was run simultaneously.Lethal concentration (LC<sub>50</sub>) for 24 hours and 48 hours were determined by static bioassay method following probit analysis and  $\frac{1}{3}$  of the LC<sub>50</sub> was selected for scarified the tissue namely digestive gland were isolated by [Summer and Sommer (1971)] method and used for biochemical estimations. Protease was estimated by Prosser and Vanweel (1958).

### Result and Discussion:

The protease activity of the digestive gland of fresh water snail *Lymnea acuminata* (Lamark) was found in increased after sub-lethal concentration of *Euphorbia nerrifolia*.

**Table No. 1 "Effect Of *Euphorbia nerrifolia* On The Protease Activity Of The Fresh Water Snail, *Lymnea acuminata* (Lamark)"(mg/gm dry wt).**

Organ	Control	<i>Euphorbia nerrifolia</i>	
		24 Hrs	48 Hrs
Digestive Gland	0.0421	0.0535	0.0540
S.D	±0.004	± 0.005	±0.003
'P' value		P<.01	P<.001
%		+27.07	+28.26



**Table No. 1** "Effect Of *Euphorbia nerrifolia* On The Protease Activity Of The Fresh Water Snail, *Lymnea acuminata* (Lamarck)" (mg/gm dry wt)

Digestive gland is the principle metabolic center for a variety of functions. It is presumed that the digestive gland contribute to the defense of clams by the ability of its cells to "accumulate high concentration of pollutants". The digestive gland, the primary target organ is evolved in the bioconcentration, biomagnification and biotransformation of toxicants. Among the vital organ, the digestive gland is the chief metabolic organ in bivalves. ( Henry and Carles (1985))

Elevated activity or level protease in the fresh water snail *Lymnea accuminata* (Lamarck) treatment of three *Euphorbia nerrifolia* exposure for 24, 48 hours. The increased in protease level the fresh water snail *Lymnea accuminata* (Lamarck) treatment of three different pesticide exposure for 24, 48 and 72 hours. The decrease in the protein content suggests an increase in proteolytic activity and possible utilization of its products for metabolic purpose. The fall in protein level in pollutant treated animal may be due to enhanced proteolytic and decreased protein synthesis. ( Sarika P. Fulpagare., (2009) ). Elevated level of protease increased by the proteolysis, suggesting that the proteins were utilized to meet the excessive energy demands imposed by toxic stress. [K. S. Tilak (2002)]. The impact of pollutants of an organism is realized as perturbations at different level of functional complexity from molecule to whole animal. The enzymatical assessment of the functional impairment of vital organs is assuming an important tool for understanding environment toxicity, as the toxicity induced biochemical and pathological manifestations of toxicity [Livingstone et.al. (1988)]. The increase enzyme activity was more with increasing the exposure period. The increase protease activity or enzyme activity after the pesticidal treatment might be due to 'physiological shock' such as increase in the enzyme activity [Sudersankumar R. And Krishnan K. (1999)].

Proteins have a major role in the process of interactions between intra and extra cellular media. It is therefore, logical to predict that indiscriminate use of pesticide may enhance the scope of disruption of ecological balance as many non target organism in the food chain perish in the process. Sometime increased metabolism the accumulation at higher concentration of waste product thus increasing susceptibility.

### Conclusion ;

It can be concluded that the herbicides like *Euphorbia nerrifolia* latex due to their potential toxicity produce biochemical changes in the organ of animals. Therefore, further studies are needed to assess the changes induced in the cellular architecture due to herbicides.

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