PATNA WOMEN'S COLLEGE AUTONOMOUS 1940

IRIS
Journal for Young Scientists
ISSN 2278 – 618X **(Print)**
ISSN 2278 – 6384 **(Online)**

http://www.patnawomenscollege.in/journal

Study of effect of Valproic Acid on Regeneration in *Eisenia fetida*

• **Tanvi Singh** • **Sneh Mani** • **Anupriya Bhakta**
• **Shahla Yasmin**

Received : November 2019
Accepted : March 2020
Corresponding Author : Shahla Yasmin

Abstract: Segmental regeneration *was studied in the earthworm. Eisenia fetida by amputating the earthworm at 40th segment. Valproic Acid (HDAC inhibitor) was used at the site of amputation in two concentrations i.e. 1mM and 2mM by Drop method. In another group of earthworm, healing of severed ventral nerve cord was studied by using Rapid Escape Response (RER) Assay. It was observed that Valproic acid slowered the rate of segmental regeneration. The slowering action of valproic acid on segmental regeneration might be due to cell cycle arrest, suggesting its potential use in cancer therapy.*

Keywords: *Eisenia fetida, segmental regeneration, ventral nerve cord, valproic acid.*

Tanvi Singh
B.Sc. III year, Zoology (Hons.),
Session : 2017-2020, Patna Women's College,
Patna University, Patna, Bihar, India

Sneh Mani
B.Sc. III year, Zoology (Hons.),
Session : 2017-2020, Patna Women's College,
Patna University, Patna, Bihar, India

Anupriya Bhakta
B.Sc. III year, Zoology (Hons.),
Session : 2017-2020, Patna Women's College,
Patna University, Patna, Bihar, India

Shahla Yasmin
Head, Department of Zoology, Patna Women's College,
Bailey Road, Patna–800 001, Bihar, India
E-mail : shahla_apex@yahoo.co.in

Introduction:

Regeneration is a well known process in which lost tissues grow again. Earthworms are segmented annelids and exhibit variable regenerative ability (Rashmi et al., 2015). Thus, they are unique and valuable model to study regeneration (Park et al., 2013).There is huge disparity in regenerative power in annelids (Bely and Sike, 2010). The regeneration process in annelids is similar to that of vertebrates (Xiao et al., 2010).Therefore, annelids are suitable experimental models for exploring ways to enhance the regeneration ability (Myohara et al., 1999).As earthworms are thermophilic, they are highly sensitive to reversible anesthetization by cooling under laboratory conditions (Drewes et al., 1989).

Valproic acid defines a novel class of HDAC inhibitors inducing differentiation of transformed cells (Gottlicher et al., 2001). HDAC are chromatin remodelling enzymes that deacetylase histone protein. Thus, they help in condensation of chromatin threads and HDAC inhibitor does the vice versa. They inhibit cell division by arresting the cell cycle (Sato et al., 2004).