

UGC MINOR RESEARCH PROJECT REPORT ON

**“Role of Neurosecretory cells on reproduction and seasonal
variation of fresh water pulmonate snail *Indoplanorbis
exustus*”**

(July, 2013 to June, 2015)

Submitted to

UNIVERSITY GRANTS COMMISSION

**Western Regional Office,
Ganeshkhind, Pune- 411007**

By

Dr. Archana B. Mantale

(Principal Investigator)

Department of Zoology

Shri Muktanand College, Gangapur,

Dist. Aurangabad M.S.

Report of the work done

- Relevant references of research work collected from various National and International journals and websites.
- The specimens used in this study collected from Kham River near Aurangabad district every month from August 2013 to July 2014 was done.
- The snail population ranged between 12-15 mm shell lengths was collected every month throughout the year.
- The snails *Indoplanorbis exustus* maintained in tap water in laboratory for acclimatization in large plastic troughs with continuous water refreshment and aeration and provided with vegetative food.
- To study seasonal variation, removal of ovotestes and nerve ring of 8-10 snails in each month has been done.
- Fixing of removed organs, preparation of blocks for microtome and sectioning of the same is done.
- Staining of sections had been done in Haematoxylin-eosin as well as Mallory's Triple Stain (MTS).
- Sections were observed under microscope and photographed.
- Comparison and interpretation of the data obtained from ovotestes and a neurosecretory cell of every month has been done.
- Seasonal changes in neurosecretory activity within cerebral ganglia and their role in regulation of reproduction correlated with the monthly changes in the gonad cytology.
- To study seasonal variation in ovotestes, Gonadal Index of *Indoplanorbis exustus* was done.

- Snails with 12-15 mm shell lengths dissected and blotted wet weight of both the total body weight and gonadal tissue was recorded to calculate Gonadal Index.
- Graph was plotted to show monthly Gonadal Index of *Indoplanorbis exustus*.
- Final comparison, analysis and interpretation of data has been done

Summary of the Findings

- Comparison and interpretation of the data obtained from ovotestes and neurosecretory cells of every month has been done.
- Data for twelve months is prepared.
- Comparison and interpretation of monsoon, winter and summer season is done.
- Seasonal variation ovotestes were studied. It was observed that breeding period of *I. exustus* is from June to October i. e. in rainy season. The ovotestes were dissected through out the year. It was revealed that, in April to July maximum number of eggs and sperms were observed. They start egg laying in the months of July to October.
- It was found that the neurosecretory material showed distinct seasonal fluctuations. Monthly observations of the changes in the reproductive system as well as neurosecretory cells throughout the year revealed a parallelism between the neurosecretory and reproductive cycle.
- The NSCs, which contain neurosecretory material showed a distinct seasonal variations. It was seen that from June to October NSCs are more in number. During this period size of NSCs were also found to be increased.
- From June to October the breeding activity of *I. exustus* had been observed. That means there was co-relation between secretion of NSCs and reproductive activity.
- In the months of November to May the NSCs contain less neurosecretory material and in these periods the size of the neurosecretory cells also found to be decreased. In the months of November to February spent gonads were also observed. In the snails having spent gonads the NSCs were found to be decreased.
- One paper is published.

One Research Paper is Published:

Sr. No.	Title of research paper	Name of Journal / Book	Year and issue no.	ISSN/ ISBN No.	Whether you are first or any more
1.	Seasonal Variation in Gonadal Index of Fresh Water Pulmonate Snail <i>Indoplanorbis exustus</i>	An International Multidisciplinary Quarterly Research Journal	Vol. IV Issue- III July- 2015	ISSN 2277- 5730	01