International Journal of Zoology Studies
ISSN: 2455-7269; Impact Factor: RJIF 5.14
www.zoologyjournals.com
Volume 2; Issue 3; May 2017; Page No. 46-47

Variations of the oocytes development of freshwater bivavlve *Corbicula striatella* during different seasons from Girna dam, Chalisgaon Jalgaon Maharashtra

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Abstract
Bivalve was found in Indian waters the reproductive cycle and gonad development of the freshwater bivalve *Corbicula striatella* as studied over a period of 24 months (January 2016-december 2016). At the regular reproduction molluscs in India. Eapecially in Maharashtra state, in diocious *Corbicula striatella* the gonads are common structure in other species of phylum molluscs. Those species are collected from girna dam, Tal- Chalisgaon Dist – Jalgaon. Due to the higest oocyte diameter are shown by the winter season and then after slightly significant decrease on diameter in monsoon and then lowest diameter are observed in summer season. As per the variations of Previtelogenic and Vitellogenic oocytes in different seasons. Such as Winter season on Prewinter the previtellogenic oocytes diameter 57.227±3.136 to 63.486±5.170&Vitellogenic oocytes diameter 60.963±2.136 to 63.486±5.170 and Postwinter on a Previtellogenic oocytes diameter 61.418±3.259 to 75.223±6.480 and Vitelogenic oocytes diameter 115.428±5.524 to 125.568±4.490 then Monsoon season on the Premonsoon Previtellogenic oocytes diameter 47.117± 2.136 to 33.386±4.170& Vitellogenic oocytes diameter 51.763 ± 2.155 to 58.456±5.570 and Postmonsoon Previtellogenic oocytes diameter 51.412±3.249 to 655.217±5.458, Vitelogenic oocytes diameter 98.428±4.524 to 105.468±3.470 and Summer Presummer season, thats Previtellogenic oocytes diameter 44.325±2.236 to 50.465±5.160 & Vitellogenic oocytes diameter 48.763±2.178to51.445±4.265 and Postsummer Previtellogenic oocytes diameter 47.318±3.563to63.183±5.4520 and Vitelogenic oocytes diameter 92.428±5.248 to90.568±3.458 diameters of oocytes are observed. (All values are in μm.).

Keywords: *Corbicula striatella,* oocytes, variation in seasons

Introduction
Many species of bivalve molluscs found in Indians water which can sustain regular growth of development particularly in Maharashtra state several species of commercially, edible and important species both marine and freshwater bivalve plays and imp role as bioindicator to detect various environmental fluctuation. Due to the higest oocyte diameter are shown by the winter season and then after slightly significant decrease on diameter in monsoon and then lowest diameter are observed in summer season. (Mark Harrmann, jose e.f. & jurgen Laudens (2009) Freshwater bivalve molluscs species is *Corbicula striatella* as a filter feeder animal easy food engulfing the food in an aquatic mode of life due to feeding habitat is the role of transformation of energy in aquatic food chains.

Materials and Methods
The adult Fresh water bivalves, *Corbicula striatella* were collected from of Girna dam which is about at the distance of 50 K.M. away from Chalisgaon City of Maharashtra state. First they are made acclimatized to laboratory condition and after wardly they are washed. The water in the aquarium was changed regularly water after every 24 hours. After the acclimatization bivalves 30-35 mm shell widths and 50-60 mm length were freshly collected between various different seasons. Immediately after bringing to the laboratory the shells of the animals were clean with freshwater in order to remove the algal biomass and mud. The animals kept carefully and gonad flesh of animals was fixed in carnoys fixative for 24 hours. The gonad tissue were then removed and processed for preparation of paraffin blocks. Dehydration of gonad was done through serial grades of ethyl alcohol while xylene was replaced by toluene during the process. The tissue were embedded in paraffin was at 58^0C. The section of gonad was cut out 5-6 μm thickness. The gonads were stained Mallory's tripple stain. A the section are observed under the binocular microscope and wherever necessary measurement were made in oocytes on binocular lense are used 50 mm measurement in microscope.

Discussion
Seasonal variation is oocytes have been reported by many workers. Gabbot and Bayne (1973) [2]. Reproduction and developing oocytes of bivalves depends upon the neuroendocrine control of bivalve which is the so many impacts of climatic factors are responsible for the oocytes maturation and development. Nagbhushnam R. and Mane U.H. (1975) [4]. Though considerable several aspects of exogenous and endogenous regulation in reproduction and energy metabolism in bivalve molluscs, bivalves are hermaphrodite animals possess a pair of gonads located near to the digestive gland the maturation of gonad is depends upon the high nutritional content of food supply and better climatic factor responsible to the gonad development. Sastry A.N. (1970) [3]. Spawning, fertilization, development and growth these phases functioning continuous in co-ordination with seasonal environmental change.

Results
Histological section of gonads and its measurement of the developing oocytes from female gonads of *Corbicula striatella* due to different pre and post seasons are given in table no.1 showing the oocytes diameter as in a winter season on the

prewinter previtellogenic 57.227±3.136 to 63.486±5.170 & Vitellogenic 60.963±2.136 to 63.486±5.170 and postwinter previtellogenic 61.418±3.259 to 75.223±6.480 and vitelogenic 115.428±5.524 to 125.568±4.490 then Monsoon season on premonsoon previtellogenic 47.117± 2.136 to 33.386±4.170 & Vitellogenic 51.763 ± 2.155 to 58.456±5.570 and postmonsoon previtellogenic 51.412±3.249 to 655.217±5.458, vitelogenic 98.428±4.524 to 105.468±3.470and summer season on the presummer previtellogenic44.325±2.236 to 50.465±5.160 & Vitellogenic 48.763±2.178 to 51.445±4.265 and postsummer previtellogenic 47.318±3.563to63.183±5.4520 and vitelogenic 92.428±5.248 to90.568±3.458 diameters of oocytes are observed.

Table 1: Measurement of Oocytes of freshwater bivalve, C. Striatella during winter season.

Sr. No.	Season on	Previtellogenic oocytes diameter	Vitellogenic oocytes diameter
1)	Prewinter	57.227±3.136 to 63.486±5.170	60.963±2.136 to 63.486±5.170
2)	Post winter	61.418±3.259 to 75.223±6.480	115.428±5.524 to 125.568±4.490

Table 2: Measurement of Oocytes of freshwater bivalve, C. Striatella during Monsoon season.

Sr. No.	Season on	Previtellogenic oocytes diameter	Vitellogenic oocytes diameter
1)	Pre monsoon	47.117± 2.136 to 33.386±4.170	51.763 ± 2.155 to 58.456±5.570
2)	Postmonsoon	51.412±3.249 to 655.217±5.458	98.428±4.524 to 105.468±3.470

Table3: Measurement of Oocytes of freshwater bivalve,C. Striatella during Summerseason.

Sr. No	Season on	Previtellogenic oocytes diameter	Vitellogenic oocytes diameter
1)	Pre summer	44.325±2.236to50.465±5.160	48.763±2.178to51.445±4.265
2)	Postsummer	47.318±3.563to63.183±5.4520	92.428±5.248 to90.568±3.458

Conclusion

The study revealed that gonads consist of numerous follicle innervated by the connective tissues and muscles upon the amount of connective tissue was found to depends upon the maturity of gonads. The follicles were mostly packed with the germ nutritive cells, and lipid globules with the onset of gametogenesis varioion of oocytes range of *Corbicula striatella* due to the depends upon the climatic temperature is responsible for the spawning, hatching, fertilization, development this factors are direct impacts of the reduction of shapes and size of developing of oocytes.

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