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HISTOMORPHOLOGICAL STUDY OF THE GONADS OF GUPPY, *POECILIA RETICULATA*

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ABSTRACT
Considering the gonads of all the pisces, they are similar in morphology and cellular structure, such as pair of ovaries and testis and associated organs. But as far as guppy is concerned the cellular structure is the same but morphologically they differ from the other fishes in having both ovaries combined into a single lobe, a peculiar identification of poicilidae. Similar is in the males, both testis combined into one. Some modifications are noticed in the female reproductive system in which one part is dilated to form the seminal receptacle.

KEYWORDS: gonopodium, oogenesis, ovary, *Poecilia reticulata,* spermatogenesis, testis.

INTRODUCTION

Guppies are native of Trinidad and then introduced in the Asian waters. In Asian countries guppies are used as aquarium fishes for their beautiful colours and easy availability plus easy to maintain. Guppy is a hardy fish and can strive in dirty and turbid waters, and is a low maintenance fish. Sexual dimorphism is clearly marked by male being too smaller than the female and the belly of female is large and rounded while male has flat belly. The male exhibits innumerous colors while female is dull grey and white beneath (Fig 1 A and B).

In India though guppy was introduced as ornamental fish in beginning but in later decades they were used as biological weapons against the deadly diseases Malaria. Guppy feeds on larvae of mosquitoes approximately 150 larvae within few minutes and keep their population in control. Most of the fishes are oviparous, which lay eggs and fertilization is external, outside the females body. But guppy is the exception after sharks and whales in being a viviparous fish giving birth to young ones, also known as livebearer fish. It is not a seasonal breeder, it breeds throughout the year and is sexually active the year around. The males are too aggressive and the copulation occurs within seconds. Its gestation period is 21-30 days, it gives birth to about 45-50 young ones which grow up very fast and sexually active for further increase of their breed. On one hand this is very helpful for humans as their increase in number breaks the backbone of the fatal disease Malaria. As guppies and its reproductive capacity is very important to us, there is a need to study in detail about their reproductive organs in detail.

MATERIALS AND METHODS

Fishes were collected from small water ditches present in chauni, cantonment area Kham River Bridge and brought to the laboratory. In laboratory a batch of ten fishes were kept in a aquarium of 10 litre capacity. Fishes were kept in aquarium for 15 days to acclimatize to the laboratory conditions. After 15 days the fishes were sacrificed for their gonads. Testis and ovaries were dissected out and fixed in Bouin's fluid for 24 hours. After 24 hours tissues were dehydrated by alcohol grades and were cleared by lithium carbonate to remove the excess of yellow color of picric acid. Clearing was followed by cold and hot impregnation in paraffin wax for 12 hours and 1.5 hours respectively. Blocks were prepared and ribbon was sliced of 7 microns on rotary microtome. Tissues were stained with haematoxylin and eosin stains and observed under microscope.

RESULTS AND DISCUSSION

Study of the morphology of gonads of fishes and at histological or cellular level has been studied by many scientists and a topic of interest of many people. This study is compulsory as it unfolds the mystery of the breeding season of fishes along with its span, reproductive behaviour with many other objectives. Research on morphology and histology should be done on great extent to unfold the information about the similarities and the differences between the reproductive system of different fishes and vertebrates Lynne *et al.* (2004). As far as pisces or fishes are concerned or any other vertebrate the reproductive organs or the gonads are generally paired or two in number, but in case of guppy the gonads are not paired, they fused into one in a single sac (Fig. 3). The sperm cord or the sperm duct arises from the dorsl side of the testis and opens into the urinogenital papilla Rokade (2017). There is a clear distinction between the two types of testis, lobular and tubular Billiard *et al* (1982) Fig. (2 and 3).

