In the present investigation, study on some important biological aspects of *T. mossambica* has been carried out. The study was based on 3485 specimens examined during a period of one year from May 1977 to April 1978.

In order to study maturity and spawning, 669 females were classified in seven stages of maturity depending upon appearance of ovary and size of the intra-ovarian eggs as per the international scale of maturity.

Sex-ratio studies revealed that males were predominant over the females throughout the year except for the month of February. So also, in size groupwise distribution, males predominated females except in 121-140 mm and 141-160 mm size groups. Total specimens observed during the period of study consisted of 834 males and 669 females, giving a sex ratio of 55.49 males : 46.30 females.

The minimum size of maturity of female *T. mossambica* was found to be between 80 - 100 mm in total length.
Observations on monthly distribution of females above minimum size of maturity, in different stages of maturity revealed that the species spawns for a very prolonged period extending from February to October with a peak spawning during March to June.

Ova-diameter measurement studies confirm the above observations and it is inferred that the species spawns for a very prolonged period but intermittently.

Fecundity of 15 gravid females ranging from 105 mm to 179 mm was found to vary between 169 and 772. A curvilinear relationship was found between fecundity and total length of body and ovary, whereas a straight line relationship was observed between fecundity and weight of body and ovary. The equations indicating the relationship between fecundity and four different variables are as follows:

1. Total length - Fecundity: \( Y = 3.1432 + 2.6838 \times X \)
2. Body weight - Fecundity: \( Y = 0.8537 + 1.0854 \times X \)
3. Ovary length - Fecundity: \( Y = -1.6015 + 2.7506 \times X \)
4. Ovary weight - Fecundity: \( Y = 0.9981 + 1.1623 \times X \)

Where, \( Y = \log F \) (Fecundity) and \( X = \log \) of respective variables.
Ponderal index was studied for both the sexes separately in relation to size groups and months. First inflexion in 'K' values of both sexes was observed at 85 - 100 mm size group which happens to be the group of minimum size of maturity. Peak spawning months (March to June) exhibit low 'K' values with exceptionally high 'K' value in the month of May which may be due to large recruitment of young specimens during that month.

Length frequency studies were based on observation of total length of 2966 specimens ranging from 11 mm to 240 mm. It has been concluded that the species attains an average size of 105 mm at the end of 1st year and 130 mm at the end of second year. From this it is inferred that when the fish attains maturity it is about 10 months old. Polymodal nature of length frequency distribution is an indication of prolonged breeding behaviour of the fish.

The length-weight relationship was established for both the sexes by using the regression equation as follows:

- **Females**: \( W = 0.0003766 + L^{2.8846} \)
- **Females**: \( W = 0.0005716 + L^{2.9825} \)
Where 'W' and 'L' denote the weight and length of the fish respectively.

Relationships between total length and different body measurements have been established. Equations expressing these relationships are as follows:

1. Total length (Y) and standard length (X)
   \[ Y = -1.4961 + 0.7957 \times X. \]

2. Total length (Y) and head length (X)
   \[ Y = 0.5478 + 0.2811 \times X. \]

3. Total length (Y) and interorbital space (X)
   \[ Y = -0.3714 + 0.1012 \times X. \]

4. Total length (Y) and diameter of orbit (X)
   \[ Y = 1.4218 + 0.0561 \times X. \]

5. Total length (Y) and distance between snout to orbit (X)
   \[ Y = -1.1013 + 0.0981 \times X. \]

6. Total length (Y) and length from snout to origin of first dorsal spine (X)
   \[ Y = 0.3674 + 0.2957 \times X. \]

7. Total length (Y) and length from snout to origin of pectoral fin (X)
   \[ Y = 1.0270 + 0.232 \times X. \]

8. Total length (Y) and height of body (X)
   \[ Y = 1.6463 + 0.2639 \times X. \]

Standard length exhibited maximum rate of growth in comparison with other body measurements.
Food and feeding habits were studied only in adults. Study of percentage composition and percentage of prevalence of different food items revealed that the fish feeds on algae, diatoms, planktonic crustacea and to some extent on rotifers and insect larvae. The nature of stomach contents revealed that T. mossambica is omnivorous with affinity towards phytoplankton and algae. Preference for algae and diatoms was found to increase with growth.

Observations on feeding intensity was found to correlate to some extent with maturation and spawning. Intensity of feeding showed a decline during spawning months and increase during late spawning and post-spawning months.

Seasonal variations in biochemical constituents of three body tissues, muscles, liver and ovaries in females and muscles and liver in males, were studied over a period of one year. An attempt was made to correlate the variations with spawning and feeding activity.

Muscles exhibited high percentage of moisture during late spawning and pre-spawning months. Fat
values were inversely proportional to moisture content. Protein content showed high values during peak spawning months and low values afterwards. Glycogen values fluctuated in relation to maturation and feeding. These were high during post spawning months with high feeding intensity.

In liver, moisture percentage was lowest during peak spawning month (May) and highest at the termination of spawning (October) in both the sexes. Contrary to moisture percentage, percentage of fat exhibited high values during peak spawning months. Like fat, protein values were also high during peak spawning months which deplete during later months. Liver glycogen content was high during October and November which are the months of high feeding intensity. Glycogen values decrease with act of maturation and spawning.

Biochemical constituents of ovary showed striking correlation with maturation and spawning. Moisture fat relationship was found to be inverse. Protein content was high during peak spawning months which decreased during late spawning and post-spawning months. Glycogen content also followed almost similar trend of fluctuations.
Variations in energy contents, in three tissues, were calculated from the values of fat, protein and glycogen contents. Protein content being more as compared to other two constituents, in all the three tissues, the calorific values followed the trend of fluctuations exhibited by protein content in the respective tissues. Energy contents of ovary are found to be highest in all the three tissues; evidently due to a heavy deposition of biochemical components in form of egg yolk in ripe ovaries.