- 8, both on the lateral integument. Sternal shield 76 long, 98 wide with three pairs of sternal setae (20 long), metasternal plate with setae distinct. Genital shield 90 wide with a pair of genital setae (24 long). A clear fold seen between genital shield and ventrianal shield. Ventrianal shield 120 long, 75 wide as figured with three pairs of preanal setae, a pair of preanal pores located little below the level of third pair of preanal setae; four pairs of setae present around ventrianal shield; setae JV_5 - 60 long. Two pairs of metapodal plates present, primary one - 20 long, accessory one 12 long. Fixed digit of chelicera with five teeth posterior to *pilus dentilis* and four teeth anterior to it; movable digit with three teeth. Peritreme extends anterior to j_1. Spermatheca with short cervix. Macrosetae on Leg IV: genu - 128, tibia - 90 and basitarsus - 75.

Leg Chaetotaxy:

genu II $2\frac{2}{0}\ \frac{2}{0}1$, tibia II $1\frac{1}{1}\ \frac{2}{1}1$; genu III $1\frac{2}{0}\ \frac{2}{1}1$, tibia III $1\frac{1}{1}\ \frac{2}{1}1$

Male

Unknown.

Remarks

This new species resembles *A.* (*A.) herbicolus* (Chant) 1959, but differs from it by the following characters:

1. Shape of spermatheca is different from *A. (A.) herbicolus* (Chant).
2. Fixed digit of chelicera with five teeth posterior to *pilus dentilis* and four teeth anterior to it, unlike that of *A. (A.) herbicolus* (Chant).
3. Dorsal shield is longer in the new species.
4. Setae j_1 is longer (36) instead of 25 in *A. (A.) herbicolus* (Chant).

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LENGTH-WEIGHT RELATIONSHIP OF FINFISH *OREOCHROMIS MOSSAMBICA* (PETERS) FROM JANNAPURA POND, KARNATAKA

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The study of length-weight relationship of fish gives an idea of their growth rates. Generally, when the length increases, the weight also increases correspondingly, showing that the weight of the fish is a function of its length. Establishment of a mathematical equation is useful in determining either the weight or the length of a given fish species from a particular locality. Use of such mathematical equations are very common to fishery biologists.

Considerable literature is available on the length-weigth relationship of different fish species. It has been found by many workers that this relationship usually follows the cube law, i.e., $W = aL^b$ (Roy, 1986). However, sometimes, the growth pattern does not strictly agree with the isometric growth formula. The deviations from the hypothetical value of 3 (Ricker, 1958) is either due to environmental factors (Seasonal variations, population dynamics, taxonomic differences etc.) or due to condition of the fish (maturity, spawning etc.). Such deviations have been observed by Sarojini (1957) in *Mugil parsia,* Lal (1980) in *Schizothorax plagiostomus* and Lal and Mishra (1980) in *Schizothorax richardsonii***.**

Oreochromis mossambica (of the family Cichlidae) is widely cultivated in ponds, lakes, tanks, pools and rivers in India. Due to its availability throughout the year, it is a popular food item in the Malnad region of Karnataka. This fish is known for its nutritive and therapeutic qualities and its taste.

A perusal of the available literature indicates that information on the morphometric relationship of this fish is lacking in the Malnad region of Karnataka. A total of 70 specimens of *Oreochromis mossambica* (30 males and 40 females) for this investigation were collected during the period from November 2004 to April 2005 from Jannapura pond ($13^0$45'00"N & $75^0$30'14"E), situated 20km away from Kuvempu University campus. The pond receives the water from Bhadra reservoir left bank channel and sewage from residential settlements.

Length of the fishes were measured and weighed in fresh condition to the nearest 0.1mm and 0.1g respectively. The length-weight relationship was estimated using the formula $W = aL^b$ (Lecren, 1951; Annappaswamy *et al.*, 2004) where W = Weight of the fish, L = Length of the fish and 'a' and 'b' are constants, or, it can be linearly represented as Log W = Log a + b Log L. The constants Log 'a' and 'b' in the above equation

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***Table 1. Length-weight relationship and statistical analysis of* Oreochromis mossambica**

	Sex	a	b	'r'	W = aLb or Log W = log a + b log L	Probability for 't' test
Total length	Male	-1.1682	2.5225	0.980*	W = 0.0678 L2.5225 or Log W = -1.1682 + 2.5225 log L	P<0.05
	Female	-0.5052	2.126	0.937*	W = 0.3124 L2.126 or Log W = -0.5052 + 2.126 log L	
Standard	Male	-0.9951	2.5867	0.962*	W = 0.1011 L2.5867 or Log W = -0.9951 + 2.5867 log L	P<0.05
	Female	-0.2969	2.015	0.881*	W = 0.5047 L2.015 or Log W = -0.2969 + 2.015 log L	

* Significant (P<0.01)

were estimated using the methods of least square. The linear equation was fitted separately for both the sexes. The correlation coefficient (r) and 'b' were calculated followed standard statistical procedures. Analysis of co-variance was employed to test whether the 'b' values significantly differ at 5% level. The 't' test was used to test whether the regression co-efficient significantly deviated from the expected cubic value (Snedecor & Cochran, 1967).

It is noticeable from Table 1 and Figure 1 that the weight in relation to total length is highly significant in both the sexes of *O. mossambica.* Here, b = 2.5225, r = 0.980 and regression equation Log W = -1.1682 + 2.5225 Log L (for males); b = 2.126, r = 0.937 and regression equation Log W = -0.5052 + 2.126 Log L (for females). The computed correlation coefficient (r) is nearer to 1 indicating high positive correlation between length and weight in the species (Pauly, 1983). Table 1 and Figure 2 also show that the weight in relation to the standard length for both the sexes is significant. Here, b = 2.5867, r = 0.962 and the regression equation Log W = -0.9951 + 2.5867 Log L (males); b = 2.015, r = 0.881 and regression equation Log W = -0.2969 + 2.015 Log L (females). The calculated 't' value was higher than the tabulated value at 5% probability level for both the sexes.

The regression coefficient of male is found to be higher when compared to that of female. From this trend it may be presumed that male gained more weight with increase in length, indicating a better well being. The growth in weight was 'allometric' for both the sexes. Tesch (1968) reported that value of 'b' might be between 2.0 and 4.0. However, variation in 'b' value may occur due to different environmental factors. Pathak (1975) reported that the value of regression coefficient in *Labeo calbasu* was 3.0 from India. Al Nasiri and Mukhtar (1988) obtained 'b' as 3.16 for *Hilsa* males and females combined from Iraq. Azadi and Naser (1996) reported the value of 'b' as 3.16 for males and 3.20 for females in *Labeo bata* from Bangladesh. Nasejo *et al.* (1999) calculated the value of 'b' as 3.02 for males and 3.03 for females in *Tenualosa ilisha* from Pakistan. The results of the present study are very similar to the findings of LeCren (1951) and Tesch (1968). As per LeCren (1951), the factors which influence the value of 'b' are due to changes in dietary, topographical and taxonomic factors.

Kumar and Lal (1994) have studied the length-weight relationship in *Nemacheilus multifasciatus* in relation to their sex, place, season and year and reported the value of 'b' with regard to length and weight to range between 1.814 to 3.659. The deviations from the 'b' values of 3 has been attributed to seasonal variations (LeCren, 1951) or change in body shape.

The results of the present study indicate that the value of 'b', is less than 3. The departure from the cube law may be due to several factors. According to Rounsfell and Everheart (1953) the specific gravity or outline of the fish are subject to significant deviation from the cube law in case of different fishes (e.g. such deviation has been noticed by Sultan, 1981; Hoda, 1987; Sivakami, 1987 in *Mystus vittatus*, *Botephthalmus* sp. and *Ompok bimaculatus*). The seasonal changes notably in the post spawning period affect the length-weight relationship. Total weight of fish may also be altered by the weight of the stomach content depending on the food ingested just before weighing (Muth & Smith, 1974).

The divergence from cube law may be due to certain environmental factors also. In the case of the major carp, *Labeo calbasu,* Rao and Rao (1972) (in Godavari river) and Pathak (1975) (in Soni reservoir) have observed the 'b' value less than 3. Thus in the present study, weight in relation to total length and weight in relation to standard length in both the sexes of *O. mossambica* follow allometric growth pattern.

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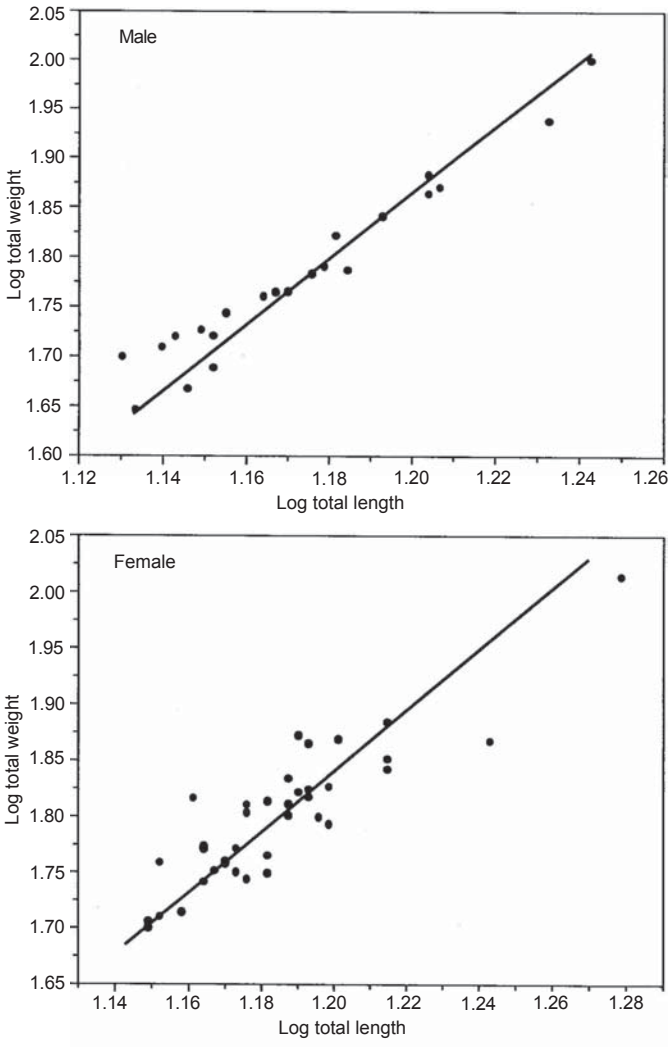

***Figure 1. Logarithmic relationship between the length-weight of* Oreochromis mossambica**

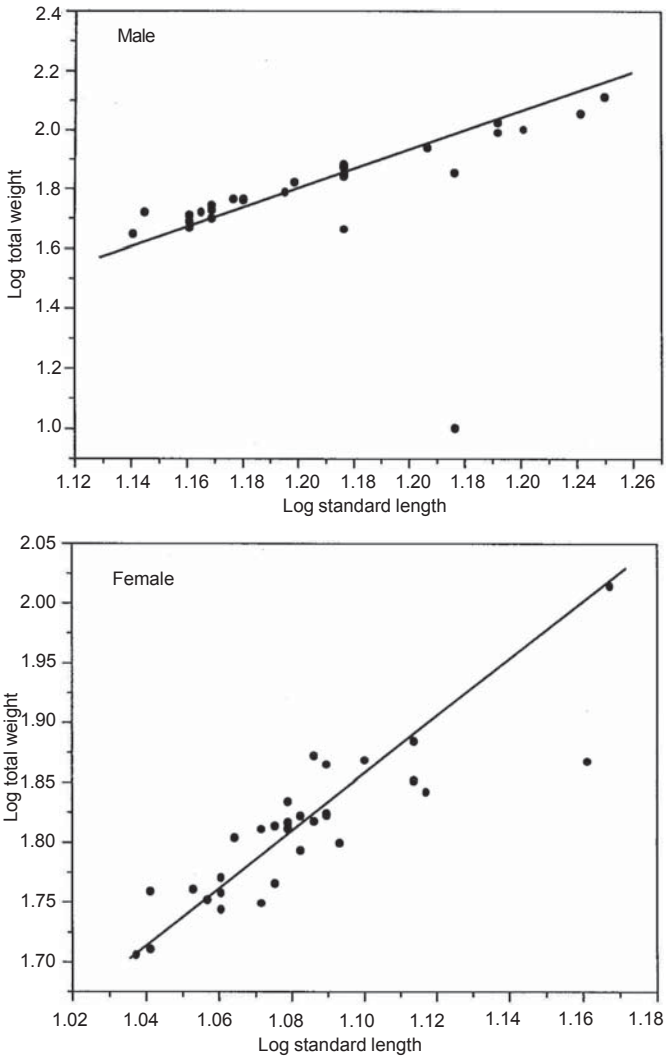

***Figure 2. Logarithmic relationship between the standard length-total weight of* Oreochromis mossambica**

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