قسم الإنتاج الحيواني

كليــه الزراعــة

جامعة بنـها

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5- SUMMARY

The present study was carried out at the hatchery of Arab Fisheries Company an affiliate of the Arab league at Abbassa village, Abu-hammad district, Sharkia Governorate, Egypt.

5.1. First experiment:

The aim of this experiment was to investigate the effect of year of hatching, male body weights and female body weights on reproductive traits of Nile tilapia (*Oreochromis niloticus*). Six concrete ponds ($3 \times 10 \times 1 m^3$). The water depth for each pond was maintained approximately 70 Cm were used in the experiment represent 6 treatments and each pond was stocked with 50 females and 17 males. Females were divided according to their body weights to three groups, 300, 400 and 500 g and males also were divided into two groups 300 and 400 g. The diets were formulated to contain 32 % crude protein for males and females and fish fed the diets at a daily rate of 5% of total biomass (twice daily at 9.00

am and 3.00 pm) for 6 days / week. While the diets used for fry were formulated to contain 40 % crude protein and fed at a daily rate 20% of total biomass (three times 9.00 am, 1.00 pm and 5.00 pm) for 30 days. The diets were prepared for the fry by the roughly mixing with 17α methyl testosterone (60 mg / kg diet). the hormone has been used to produce successfully all-male tilapia fry. The eggs of each female were collected, and their measurements were recorded. The duration of this experiment was (425 days) from the 1st April 2002 until 29th of May 2003.

Results obtained can be summarized as follows:-

5.1.1. Total egg weight per female (EWF):

Averages of EWF were 13.35 and 19.24 g for the two years 2002 and 2003, respectively. EWF were 13.33 and 19.26g for the two males groups 300 and 400 g, respectively, and EWF for the three groups 300, 400 and 500 g were 12.33, 14.64 and 21.91g, rerspectively. The differences between averages of EWF attributed to the effect of female body weight were non significant.

5.1.2. Egg weight (g) per gm of body weight (EWG):

Averages of EWG were 0.038 and 0.035 g for the two years 2002 and 2003. EWG were 0.038 and 0.035 g for the two males groups 300 and 400 g. (EWG) as affected by female body weight were 0.045, 0.040 and 0.038 g for the three studied body weight groups 300, 400 and 500 g, respectively, and the differences between these averages in this trait were significant ($P<0.001$).

5.1.3. Absolute fecundity:

Averages absolute fecundity as affected by the year were 1215.39 and 1411.71 for the two years 2002 and 2003. Absolute fecundity were 1327.03 and 1300.07 for the two males groups, 300 and 400 g. Absolute fecundity for the body weights of female were 1264.73, 1376.1 and 1299.84 for the three females groups 300, 400 and 500 g, respectively, and the differences in absolute fecundity as affected by year, female body weights were highly significant.

5.1.4. Relative fecundity:

Relative fecundity as affected by the year were averages 3.31 and 3.66 for the two years and the relative fecundity were 3.55 and 3.41 for the two studies males, 300 and 400 g. The averages relative fecundity were 4.14, 3.49 and 2.82 for the three female groups 300, 400 and 500g. The differences between relative fecundity as affected by female body weights were highly significant.

5.1.5. Number of eggs / one gram of egg (NE/GE):

Average number of eggs in one gm of egg (NE/GE) for the two years 2002 and 2003 were 94.63 and 103.004 (NE/GE) were 99.06 and 98.58 for the two male groups 300 and 400 g, respectively. Effect of female body weights on average number of eggs in one gm of egg (NE/GE) were 103.64, 97.63 and 95.19 for the three weight groups 300,400 and 500 g. The Analysis of variance indicated that, averages of (NE/GE) due to female body weights were significant

5.1.6. Hatchability percentage:

Averages of hatchability percentage as affected by years were 81.44 and 82.73% for the two years 2002 and 2003. The hatchability percentages were 80.69 and 83.48% for the two male groups studied 300 and 400g. Averages of hatchability percentages as affected by weight of Nile tilapia females were 82.68, 82.36 and 82.22% for the three weight groups, 300, 400 and 500 g. Analysis of variance indicated that, averages of hatchability percentage due to female body weights were significant**.**

5.1.7. Fry number per fish:

Averages fry number per fish as affected by year were 869.73 and 1017.52 fry/fish for the two years 2002 and 2003. The fry number per fish were 950.36 and 936.89 for the two male groups studied 300 and 400 g. The averages fry number / fish were 896.25, 987.42 and 997.22 for the three female body weight groups 300, 400 and 500 g and the differences between averages of fry number per fish as affected by female weight were significant**.**

5.1.8. Fry number per gram of female body weight:

Averages fry number / g were 0.038 and .035 for the two years 2002 and 2003. Fry number /gm were 0.038 and 0.035 for the two male groups 300 and 400 g. The averages of fry number / g were 0.045, 0.040 and 0.038 for the three body weight groups, 300, 400 and 500 g and the differences between averages were non significant.

5.1.9. Fry body weight:

The averages body weight of fry after 30 days were 0.42 and 0.45g for the two years 2002 and 2003 with significant differences for the effect of years. The averages body weight of fry after 30 days were 0.44 and 0.43g for the two males 300 and 400. The effect of female body weight on fry body weight, averages body weight of fry after 30 days for the three weight groups of females, 300, 400 and 500 g were 0.45, 0.43 and 0.43 g. These results indicated that, the increase in female body weight leads to decrease in fry body weight.

5.1.10. Daily weight gain for fry (DWG):

Averages of DWG during the whole experimental period (2-30 days) were 0.022, 0.0240, 0.0243, 0.0230, 0.0244 and 0.0250 g in year 2002, while in year 2003 DWG, during the whole experimental period were 0.0290, 0.0250, 0.0240, 0.0280, 0.0250 and 0.0240 g for the six treatments T1 (M1× F1), T2 (M1× F2), T3 (M1× F3), T4 (M2× F1), T5 (M2× F2) and T6 (M2× F3). The differences between averages were significant.

5.2. Second experiment:

The aim of the second experiment of the present study was to investigate the effect of flumequine on reproductive traits of Nile tilapia (*Oreochromis niloticus*). This experiment was started on 1st of July 2003 until 25th September of the same year. Four concrete ponds (3 × 10 × 1m^3) were used. The ponds represent 4 treatments

and each pond was stocked with 30 females with an initial weight 344.03, 356.97, 356.63 and 349.60 g and 10 males with an initial weight (376 g).

The tested diets for fish were formulated to contain 32% crude protein. Four diets were formulated to contain four levels of flumequine 0, 10, 14 and 18 mg / kg body weight/day (0, 570, 805 and 1030 mg / kg diet). The fish were fed at a daily rate of 5% of total biomass, (twice daily at 9.00 am and 3.00 pm), 6 days / week.

The tested diets for fry were formulated to contain 40% crude protein. Four diets contain four levels of flumequine 0, 10, 14 and 18 mg / kg body weight /day (0, 570, 805 and 1030 mg / kg diet). Fry were fed the diet contain 40% crude protein and given these diets at a daily rate of 20% of total biomass until 4 weeks and then decreased to 10% until end of the experimental period (three times 9.00 am, 1.00 pm and 5.00 pm). The fry were fed 6days/week.

Eight circular fiber glass tanks 180 liter for liter each were used in this study the eight tanks represent 4 treatments (with 2 replicates for each treatment), and each tank was stocked with 100 fry by initial weight.

Results obtained are summarized in the following:

5.2.1. Effect of flumequine on reproductive traits:

Averages of EWF were 10.82, 14.14, 14.70, and 11.27g. The averages of EWG were 0.03, 0.04, 0.04 and 0.03g for the four treatments g. These results indicated that, EWF and EWG for 10mg

and 14mg flumequine were higher than that obtained in 18mg and control (0 flumequine –without treatment). The differences between the four levels were significant: (NE/GE) are 102.33, 97.73, 94.5 and 104.57 for the four treatments control, 10 mg, 14 mg and 18 mg FLU.

Averages of (ABS) were 1112.07, 1322.6, 1355.67 and 1177.03 and the averages of (REL) were 3.27, 3.63, 3.86 and 3.33 for the four levels of flumequine control, 10, 14, and 18 mg.

Averages of hatchability percentage (HAT) as affected by addition of flumequine in prepared diets, were 89.81, 89.91, 93.27 and 89.74 %for the four treatments control, 10mg, 14mg and18mg.

Averages between treatments of (FN/FI) were 767.5, 960.03, 996.37 and 829.87 fry for the four treatments 0, 10, 14 and 18 mg, respectively, and the averages treatments of (FN/G) were 2.25, 2.83, 2.84 and 2.36, respectively, for the four treatments.

5.2.2. Fry body weight:

The body weight for fry fed the diet contained 10 and 14mg flu/kg of body weight were higher than that fed the other treatments, and the differences between body weight as affected by the four treatments were highly significant.

These results indicated that, body weight for fry fed the diet contained 10 and 14mg flu/kg of body weight were higher than that fed the other treatments, and the differences between body weight as affected by four treatments were highly significant.

5.2.3. Specific Growth Rate (SGR):

Flumequine (FLU) doses of 10 mg FLU/kg of body weight and 14 mg FLU/kg of body weight / day significantly increased SGR of Nile tilapia fry.

5.2.4. Daily Weight Gain (DWG):

DWG during the whole experimental period 2-75 days were 0.07, 0.105, 0.104 and 0.08 g for the four treatments T1, T2, T3 and T4. Analysis of variance between DWG's as affected by treatments for whole experimental period were significant.

Generally, results of DWG indicated that, the levels of flumequine (FLU) 10 mg and 14 mg/kg of body weight increased daily weight gain (DWG) during the whole experimental period.

5.2.5. Feed Conversion Ratio (FCR):

Averages FCR during the whole experimental period (2-75 days) for the four treatments T1, T2, T3 and T4 were 1.16, 1.22, 1.28 and 1.11, respectively. The differences between the different FLU doses were non significant on FCR which indicate that, the addition of flumequine in tilapia diets improved FCR during the whole experimental period.

5.2.6. Protein Efficiency Ratio (PER):

Averages of PER during the whole experimental period (2-75 days) for the four treatments T1 (control-without treatment), T2 (10 mg flumequine / kg of body weight/day), T3 (14 mg

flumequine /kg of body weight/day) and T4 (18 mg flumequine / kg of body weight/day), were 1.55, 1.67, 1.64 and 1.45, respectively. The differences between PER as affected by different treatments were non significant.

5.3. Recommendations

First experiment:

It may be recommended to use female weight 300g is better female weight 400 and 500g in traits egg weight per gram fish, relative fecundity, number of egg per gram egg, fry number per gram and Weight of fry after 30days.

Also using male weight 300g is better male weight 400g in traits egg weight per fish, egg weight per gram fish, absolute fecundity, relative fecundity, number of egg per gram egg, fry number per fish, fry number per gram fish and Weight of fry after 30days.

Second experiment:

It can be concluded that doses 10 and 14mg of flumequine is better than 18mg flumequine dose and control in weight per fish, egg weight per gram fish, absolute fecundity, relative fecundity, hatchability %, fry number per fish, fry number per gram fish, body weight of Nile tilapia, Specific Growth rate (SGR), Daily Weight Gain (DWG), Feed Conversion ratio (FCR) and Protein Efficiency Ratio (PER) for Nile tilapia.