

CONTENTS

	Page
I. INTRODUCTION	1
II. REVIEW OF LITERATURE	4
2.1. Tilapia.	4
2.1.1. Taxonomy	5
2.2. Reproductive biology of Nile tilapia	5
2.2.1. Reproductive cycle	5
2.2.2. Egg characteristics	7
2.2.3. Fry characteristics	8
2.2.4. Reproductive capacity	10
2.3. Management of broodstock:	11
2.3.1. Control of reproduction:	11
2.3.2. Fecundity and egg size	12
2.3.3. Egg quality	15
2.3.4. Broodstock husbandry and stress	17
2.3.5. Microbial influences	18
2.3.6. Improved management of tilapia broodstock:	21
2.3.6.1. Current trends	21
2.3.6.2. Broodfish selection	22
2.3.6.3. Conditioning and nutrition	23
2.4. Traditional fry production methods:	24
2.4.1. Natural recruitment	24
2.4.2. Fry production in breeding ponds	25
2.4.3. Feeding and nutrition of fry	28
2.5. Production of all-male fry population:	29
2.5.1. Advantages of hormonal sex reversal:	29
2.5.2. Hormone preparation and administration	32
2.6. Future developments in brood stock management	33
2.7. Factors affecting the reproductive performance in fish:	35
2.7.1. Environmental factors	35
2.7.2. Effect of nutrition on the reproductive traits	36
2.7.2.1. Protein	37
2.7.2.2. Lipids	37
2.7.2.3. Vitamins	38
2.7.2.4. Minerals	39
III. Materials and methods	40
3.1. First experiment:	40
3.1.1. The location:	40
3.1.2. Experimental design	40

3.1.3. Ponds and their preparation	41
3.1.4. Preparation of diets and feeding practices	41
3.1.5. Eggs striping	42
3.2. Second experiment:	45
3.2.1. Location	45
3.2.2. Experimental design	45
3.2.3. Preparation of experimental diets:	45
3.2.3.1. Broodstock diets	45
3.2.3.2. Fry diets	46
3.2.4. Diet practices	45
3.2.5. Records maintained	47
3.3. Statistical analysis	49
IV. RESULTS AND DISCUSSION	51
4.1. First experiment	51
4.1.1. Total egg weight per female (g) and egg weight (g) per gm of body weight	51
4.1.2. Absolute and relative fecundity	55
4.1.3. Number of eggs / one gram of egg (NE/GE)	59
4.1.4. Hatchability percentage	62
4.1.5. Fry number per fish and fry number per gram of female body weight:	65
4.1.5.1. Fry number per fish	65
4.1.5.2. Fry number per gram of female body weight	66
4.1.6. Fry body weight	69
4.1.7. Daily weight gain for fry (DWG)	73
4.2. Second experiment:	76
4.2.1. Effect of flumequine on reproductive traits	76
4.2.2. Fry body weight	80
4.2.3. Specific growth rate (SGR)	82
4.2.4. Daily weight gain (DWG)	84
4.2.5. Feed conversion ratio (FCR)	86
4.2.6. Protein efficiency ratio (PER)	88
V. Summary	90
VI. REFERENCES	99
VII. Arabic Summary	---

LIST OF TABLES

		Page
Table (1):	Composition of broodstock and fry diets used during the experimental period.	43
Table (2):	Least square means and standard error for some factors affecting on egg weight (g)/fish and egg weight (g) /gm of fish body weight.	52
Table (3):	Analysis of variance for some factors affecting on egg weight (g)/fish and egg weight (g) /gm of fish body weight.	53
Table (4):	Least square means and standard error for some factors affecting on absolute and relative fecundity.	57
Table (5):	Analysis of variance for some factors affecting on absolute and relative fecundity.	58
Table (6):	Least square means and standard error for some factors affecting on number of eggs/gram of egg.	60
Table (7):	Analysis of variance for some factors affecting on number of eggs/gram of egg.	61
Table (8):	Least square means and standard error for some factors affecting on hatchability percentage.	63
Table (9):	Analysis of variance for some factors affecting on hatchability percentage.	64
Table (10):	Least square means and standard error for some factors affecting on fry number/fish and fry number/ gram of fish.	67
Table (11):	Analysis of variance for some factors affecting on fry number/fish and fry number/ gram of fish.	68

		Page
Table (12):	Effect of year, male and female on body weight on Nile tilapia fry.	71
Table (13):	Analysis of variance for the effect of year, male and female on body weight on Nile tilapia fry	72
Table (14):	Effect of year, male, female on daily weight gain of Nile tilapia	74
Table (15):	Analysis of variance of the Effect of year, male, female on daily weight gain of Nile tilapia.	74
Table (16):	Effect of addition of flumequine doses in prepared diets on reproductive traits of Nile tilapia.	77
Table (17):	Analysis of variance of the Effect of addition of flumequine doses in prepared diets on reproductive traits of Nile tilapia.	77
Table (18):	Effect of addition of flumequine doses in prepared diets on reproductive traits of Nile tilapia.	78
Table (19):	Analysis of variance of the Effect of addition of flumequine doses in prepared diets on reproductive traits of Nile tilapia	78
Table (20):	Effect of flumequine doses in prepared diets on body weight of Nile tilapia	81
Table (21):	Analysis of variance of effect of flumequine doses in prepared diets on body weight of Nile tilapia	81
Table (22):	Effect of addition flumequine doses in prepared diets on (SGR) for Nile tilapia	83

		Page
Table (23):	Analysis of variance of the effect of addition flumequine doses in prepared diets on (SGR) for Nile tilapia	83
Table (24):	Effect of addition flumequine doses in prepared diets on (DWG) for Nile tilapia	85
Table (25):	Analysis of variance. Effect of addition flumequine doses in prepared diets on (DWG) for Nile tilapia	85
Table (26):	Effect of addition flumequine doses in prepared diets on (FCR) for Nile tilapia	87
Table (27):	Analysis of variance of Effect of addition flumequine doses in prepared diets on (FCR) for Nile tilapia	87
Table (28):	Effect of addition flumequine doses in prepared diets on (PER) for Nile tilapia	89
Table (29):	Analysis of variance of the Effect of addition flumequine doses in prepared diets on (PER) for Nile tilapia	89