

LIST OF TABLES

Table	Title	Page
1	Effect of hormones on muscle growth in fishes.....	6
2	Ingredients and chemical composition (%) of the first experimental diets	24
3	Ingredients and chemical composition (%) of the second experiment diet	31
4	Effect of different levels of some natural phytochemicals (g/kg diet) on growth performance and survival rate of Nile tilapia, <i>O. niloticus</i> , fingerlings	33
5	Effect of different levels of some natural phytochemicals (g/kg diet) on final length, length gain and condition factor of Nile tilapia, <i>O. niloticus</i> , fingerlings	33
6	Effect of different levels of some natural phytochemicals (g/kg diet) on feed and nutrients utilization of Nile tilapia, <i>O. niloticus</i> , fingerlings	35
7	Effect of different levels of some natural phytochemicals (g/kg diet) on whole body chemical composition and gross energy as percent of wet weight of Nile tilapia, <i>O. niloticus</i> , fingerlings.....	35
8	Effect of different levels of some natural phytochemicals (g/kg diet) on relative organs weight of Nile tilapia, <i>O. niloticus</i> , fingerlings.....	37
9	Effect of different levels of some natural phytochemicals (g/kg diet) on luteinizing hormone and testosterone levels of Nile tilapia, <i>O. niloticus</i> , fingerlings.....	38
10	Effect of different levels of some natural phytochemicals (g/kg diet) on the levels of thiobarbituric acid-reactive substances, reduced glutathione, and the activities of antioxidant enzymes in plasma of Nile tilapia, <i>O. niloticus</i> , fingerlings	44
11	Effect of different levels of some natural phytochemicals (g/kg diet) on the levels of thiobarbituric acid-reactive substances, reduced glutathione, and the activities of antioxidant enzymes in liver homogenate of Nile tilapia, <i>O. niloticus</i> , fingerlings	45
12	Effect of different levels of some natural phytochemicals (g/kg diet) on the levels of thiobarbituric acid-reactive substances, reduced glutathione, and the activities of antioxidant enzymes in testes homogenate of Nile tilapia, <i>O. niloticus</i> , fingerlings	46
13	Effect of different levels of some natural phytochemicals (g/kg diet) on blood hematological parameters of Nile tilapia, <i>O. niloticus</i> , fingerlings.	48
14	Effect of different levels of some natural phytochemicals (g/kg diet) on proteins profile in plasma of Nile tilapia, <i>O. niloticus</i> , fingerlings.	49
15	Effect of different levels of some natural phytochemicals (g/kg diet) on lipids profile in plasma of Nile tilapia, <i>O. niloticus</i> , fingerlings.	51
16	Effect of different levels of some natural phytochemicals (g/kg diet) on some liver function enzymes in plasma of Nile tilapia, <i>O. niloticus</i> , fingerlings.	52

17 Effect of different levels of some natural phytochemicals (g/kg diet) on some liver function enzymes in liver homogenate of Nile tilapia, <i>O. niloticus</i> , fingerlings.	52
18 Effect of different levels of some natural phytochemicals (g/kg diet) on urea, creatinine and bilirubin. of Nile tilapia, <i>O. niloticus</i> , fingerlings.	53
19 Effect of different levels of some natural phytochemicals (g/kg diet) compared with 17 α -methyl testosterone (MT) on sex-reversal of Nile tilapia, <i>O. niloticus</i> , fry.....	55
20 Effect of different levels of some natural phytochemicals (g/kg diet) compared with 17 α -methyl testosterone (MT) on growth performance and survival rate of Nile tilapia, <i>O. niloticus</i> , fry after 28 days of age.	58
21 Effect of different levels of some natural phytochemicals (g/kg diet) compared with 17 α -methyl testosterone (MT) on length, length gain and condition factor of Nile tilapia, <i>O. niloticus</i> , fry after 28 days of age.	58
22 Effect of different levels of some natural phytochemicals (g/kg diet) compared with 17 α -methyl testosterone (MT) on feed and nutrients utilization of Nile tilapia, <i>O. niloticus</i> , fry after 28 days of age.....	59

LIST OF FIGURES

Figure	Title	Page
1	Effect of different phytochemical treatments (g/kg diet) on luteinizing hormone (LH) and testosterone levels of Nile tilapia, <i>O. niloticus</i> , fingerlings.....	38
2	Relationship between the plasma testosterone levels and final body weights (g/fish) of Nile tilapia, <i>O. niloticus</i> , fingerlings.	40
3	Relationship between the plasma testosterone levels and SGR (g/fish) of Nile tilapia, <i>O. niloticus</i> , fingerlings.	40
4	Testis of a Nile tilapia, <i>O. niloticus</i> , fingerlings of control group showed normal histological appearance. H &E. (X. 250).	41
5	Testis of a Nile tilapia, <i>O. niloticus</i> , fingerlings exposed to 0.2 g/kg ginseng extract showed normal histological appearance with slightly abundance of spermatids in the lumen of the testicular lobules. H &E. (X. 250).....	41
6	Testis of a Nile tilapia, <i>O. niloticus</i> , fingerlings exposed to 0.4 g/kg ginseng extract showed normal histological appearance with moderate to high abundance of spermatids in the lumen of the testicular lobules. H &E. (X. 250).	41
7	Testis of a Nile tilapia, <i>O. niloticus</i> , fingerlings exposed to 0.6 g/kg tribulus extract showed normal histological appearance with moderate abundance of spermatids in the lumen of the testicular lobules. H & E. (X. 250).....	41
8	Testis of a Nile tilapia, <i>O. niloticus</i> , fingerlings exposed to 1.2 g/kg tribulus extract showed normal histological appearance with highly abundance of spermatids in the lumen of the testicular lobules. H& E. (X. 250).....	42
9	Testis of a Nile tilapia, <i>O. niloticus</i> , fingerlings exposed to 3 g/kg date palm pollen showed normal histological appearance with slightly abundance of spermatids in the lumen of the testicular lobules. H &E. (X. 250).....	42
10	Testis of a Nile tilapia, <i>O. niloticus</i> , fingerlings exposed to 6 g/kg date palm pollen showed normal histological appearance with slightly abundance of spermatids in the lumen of the testicular lobules. H &E. (X. 250).	42
11	Effect of different phytochemicals (g/kg diet) compared with 17 α -methyl testosterone (MT) on sex ratio of Nile tilapia, <i>O. niloticus</i> , fry. GE, ginseng extract; TE, tribulus extract; DPP, date palm pollen.	55
12	Male thread like gonadal of Nile Tilapia, <i>O. niolticus</i> , (A) wet-squash technique; (B) histological section (H&E; 250) showed normal histological appearance.	56
13	Female thread like gonadal of Nile Tilapia, <i>O. niolticus</i> , (A) wet-squash technique; (B) histological section (H&E; 250) showed normal histological appearance.	56
14	Intersex thread like gonadal of Nile Tilapia, <i>O. niolticus</i> , wet-squash technique showed ovary and testes tissue in the same gonads.	56

LIST OF ABBREVIATIONS

Abbreviation	Item
A/G ratio	Albumin/globulin ratio
AcP	Acid phosphatase
ADG	Average daily gain
AIP	Alkaline phosphatase
ALT	Alanine amino transaminase
Anti-SRIF	Anti-Somatostatin
AOAC	Association of official analytical chemists
AST	Aspartate amino transaminase
BD	Basal diet
BW	Body weight
CAT	Catalase
CP	Crud protein
DHEA	Dehydroepiandrosterone
DM	Dry matter
DPP	Date palm pollen
DPPH	2,2-diphenyl-1-picrylhydrazyl
EE	Ether extract
EU	Energy utilization
FAO	Food and Agriculture Organization
FCR	Feed conversion ratio
FW	Final weight
GAFRD	General Authority for Fish Resources Development
GE	Ginseng extract
GPx	Glutathione peroxidase
GSH	Reduced glutathione
GST	Glutathione <i>S</i> -transferase
H&E	Hematoxylin and eosin
Hct	Haematocrit
HDL-c	High density lipoproteins-cholesterol
IGF-1:	Insulin like growth factor one
IU	International unit
l	liter
LDL-c	Low density lipoproteins-cholesterol
LH	Luteinizing hormone
MCH	Mean corpuscular haemoglobin
MCHC	Mean corpuscular haemoglobin concentrate
MCV	Mean corpuscular volume
MT	17 α -methyltestosterone
NFE	Nitrogen free extract
NRC	National Research Council.
PER	Protein efficiency ratio
PPV	Protein productive value
r.p.m	Round per minute
RBCs	Red blood cells

Abbreviation	Item
RNS	Reactive nitrogen species
SGR	Specific growth rate
SOD	Superoxide dismutase
TBARs	Thiobarbituric acid-reactive substances
TE	Tribulus extract
VLDL-c	Low density lipoproteins-cholesterol
WBCs	White blood cells
WG	Weight gain