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LIST OF ABBREVIATIONS

Abbreviations	Meanings
º	Degree
%	Percent
ADG	Average daily gain
AL	Albumin
AL/ GL	Albumin/globulin ratio
ALT	Alanine aminotransferase
AST	Aspartic aminotransferase
AST/ALT	Aspartic aminotransferase/ alanine aminotransferase ratio
AWG	Average weight gain
Chole.	Cholesterol
CP	Crude protein
Creatin.	Creatinine
dl	Deciliter (100 ml)
DM	Dry matter
EE	Ether extract
Eosin.	Eosinocyte
EU	Energy utilization

FCR	Feed conversion ratio
FE	Feed efficiency
FI	Feed intake
fl	Femtoliter
FW	Final weight
G	Gram
GE	Gross energy
GL	Globulin
Hb	Hemoglobin
HCT	Hematocrit (packed cell volume)
HDL	High density lipoprotein
In	Logarithm
Kcal	Kilo calorie
Kg	Kilo gram
Kt	Condition factor (based on total length)
LDL	Low density lipoprotein
LE	Egyptian pound
LR	Lipid retention
Lymp.	Lymphocyte
MCH	Mean corpuscular hemoglobin
MCHC	Mean corpuscular hemoglobin concentration
MCV	Mean corpuscular volume
Mono.	Monocyte
NFE	Nitrogen free extract
P/E	Protein/energy ratio

PER	Protein efficiency ratio
PLT	Platelets
PPV	Protein productive value
RBCs	Red blood cells
RGR	Relative growth rate
SGR	Specific growth rate
SR	Survival rate
TP	Total protein
Trigly.	Triglycerides
TWG	Total weight gain
UA	Uric acid
WBCs	White blood cells
µl	Microliter

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VI - SUMMARY AND CONCLUSION

This study was conducted during the summer season 2018 in fish farm at Al-Manzala (General Authority for Fish Resources Development, GAFRD – Ministry of Agriculture) with the cooperation of Animal Production Department, Faculty of Agriculture, Mansoura University. The study lasted for 150 days throughout June - October 2018.

A total number of 750 mono-sex Nile tilapia with an average initial body weight of 52.6 ± 0.40 g were used in five experimental treatments (150 fish / hapa / treatment, 10 fish / m^3) to evaluate two dietary crude protein levels (25 and 30 %) and two crude fat levels (2 and 6 %) from three fat sources (corn oil, imported fish oil, and a new local commercial source of fatty acids named Aquafat-omiga). Fish were stocked into net hapas, each hapa has the dimensions 3 x 5 x 1 m.

Fat sources were extra mixed with the basal diets which contained basically 14.32 and 15.63% fat in the 30 and 25% CP-diets, respectively. Fish were fed the experimental diets at a daily feeding rate of 3% of their live body weight six days a week. Experimental diets were handily introduced two times daily at 8 a.m. and 2 p.m.

The study was evaluated via some determinations, measurements, and / or calculation of water quality criteria, growth performance, feed and nutrients utilization, fish body composition, blood profile, and lastly economic efficiency. The obtained results could be summarized in the followings:

1) The dietary treatments did not affect the fish rearing water criteria.
2) The 30 % crude protein diet (treatment A) was significantly the best ($P \leq 0.05$) compared with the other treatments concerning the final body weight, total body weight gain, daily body weight gain, relative growth rate, fish body crude protein (high) and crude fat (low) as well ash content (low).
3) This diet was responsible too for significantly ($P \leq 0.05$) the highest serum albumin and triglycerides, and the lowest cholesterol, uric acid, and cortisol levels.
4) The fish oil addition (treatment E) reflected significantly ($P \leq 0.05$) the lowest condition factor and feed intake, and the best feed conversion, feed efficiency, protein efficiency ratio.
5) The E-treatment gave highest ($P \leq 0.05$) fat, energy, and ash in the fish body as well as mean corpuscular hemoglobin, cholesterol, low density lipoprotein, globulin, alanine aminotransferase, aspartate aminotransferase. It was the most economic diet among the tested diets.
6) The Aquafat-omiga including diet (treatment D) led to significantly ($P \leq 0.05$) the best protein productive value, energy utilization, lipid retention, dry matter in the carcass composition.

7) D-treatment also gave significantly ($P \leq 0.05$) highest white blood cells count and globulin, uric acid, and creatinine concentrations, and lowest triglycerides, high density lipoprotein, and low density lipoprotein levels. It followed treatment E (fish oil including) concerning the economic efficiency.
8) Treatment C (25 % crude protein plus 2% extra corn oil) was the significantly ($P \leq 0.05$) worst one among the experimental treatments concerning the final weight, total gain, daily gain, and relative growth rate. It gave the highest condition factor and cortisol level and best high density lipoprotein concentration comparing to the other treatments.

Conclusively, from the view point of the producers, 2 % fish oil supplemented diet (25 % protein) is the most economic diet (lowest feed intake, best feed conversion and feed efficiency) followed by that (25 % protein) supplemented with 2 % Aquafat-omiga. But from the view point of the consumers, 30 % crude protein diet plus 6 % addition corn oil gave best body gain, boneless meat, lean meat, and fish carcass protein besides lowest fat and ash in fish body and lowest serum cholesterol, uric acid, and cortisol. So, it could recommend using the first diet containing 30 % crude protein and supplemented with extra 6 % corn oil. Particularly, fish oil is rear, mostly unavailable, imported, and expensive.