

## EVALUATION OF SOME NON CONVENTIONAL DIETS FOR NILE TILAPIA FISH:

### II- CONCERNING BLOOD PROFILE AND CHEMICAL COMPOSITION OF FISH.

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### ABSTRACT

The aim of this study was to evaluate some unconventional diets on blood picture and whole fish and fish muscles composition of Nile tilapia fingerlings. Glass aquaria were used. The initial body weight of the fingerlings was 7 – 8 g. The adaptation period was two weeks before the experimental period of sixteen weeks. The basal diet contained 25% crude protein. The diets were offered daily at two meals at 3% of fish body weight. Each dietary treatment was performed in two aquaria. Fish were stocked at a rate of 7 fingerlings per aquarium. The experimental diets were nearly isocaloric and isonitrogenous. The 1<sup>st</sup> diet was a control, diets No. 2 – 5 are the control diet but their fishmeal was substituted by 25, 50, 75 and 100%, respectively with duckweed meal (DW), diets No. 6 – 9 included crayfish meal (C<sub>r</sub>F<sub>i</sub>) at the same previous replacement rates, and diets No. 10 – 13 included a mixture of DW + C<sub>r</sub>F<sub>i</sub> (1:1) as a substitute for fishmeal at the same rates. The important results refer to diet No. 6 which reflected the highest values of hemoglobin, hematocrit, total protein, and globulin, but diet No. 4 gave the lowest levels. Transaminases activity increased with diet No. 5 and decreased with diet No. 7 referring to affected hepatic function. The 5<sup>th</sup> diet also increased blood levels of urea, uric acid and creatinine, referring to affected kidney function. Carcass and muscle composition of the tested fish significantly affected by dietary treatments. The highest dry matter was determined in the 5<sup>th</sup> group but the lowest in the 6<sup>th</sup> group. Diets No. 6 and 4 were responsible for the highest and the lowest protein %, respectively. Diets No. 5 and 6 reflected the highest and lowest ether extract %, respectively. The lowest ash % was estimated for the 4<sup>th</sup> and 5<sup>th</sup> groups, whereas the highest with diet No. 7. There were positive relationships between moisture and protein as well as between moisture and ash contents, but negative relationships between moisture and ether extract as well as between protein and ether extract % in whole fish body and fish muscles. Decreased silica level of the 2<sup>nd</sup> diet led to low silica content of fish body of this group. The highest silica level was found in the 9<sup>th</sup> diet; yet, the highest silica content was recorded in the 13<sup>th</sup> fish group. The highest lead content was found in diet No. 9, but in fish of the 7<sup>th</sup> and 13<sup>th</sup> groups. The lowest lead content in diet and fish was of the 2<sup>nd</sup> treatment. The 13<sup>th</sup> group reflected the highest cadmium levels in diet and fish, but the lowest in diet and fish was of the control group. From the foregoing results, it would be clear that the 6<sup>th</sup> diet (25% freshwater crayfish meal as partial replaced of dietary fish meal) was significantly the best concerning blood hemoglobin, hematocrit, total protein, and globulin besides highest protein and lowest fat in whole fish and fish muscles.

**Keywords:** Nile tilapia – Blood profile– Fish composition.