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RESEARCH ARTICLE

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THE USE OF *ORIGANIUM VULGARE* EXTRACT IN PRACTICAL DIETS AS A GROWTH AND IMMUNITY PROMOTER FOR NILE TILAPIA, *OREOCHROMIS NILOTICUS* (L.) FINGERLINGES CHALLENGED WITH PATHOGENIC *PSEUDOMONAS AERUGINOSA* AND *PSEUDOMONAS FLOURSCENCE*

ABSTRACT:

This experiment was conducted to evaluate the use of ethanol-extracted from the medicinal plant, *Origanium vulgare* as a growth and immunity promoter for Nile tilapia, *Oreochromis niloticus* (L.) fingerlings. Fish (average 12.27 g) were randomly distributed into four treatments; three replicates each at a rate of 20 fish per 100 L aquarium. Fish were fed one of the tested diets containing similar crude protein (30 %) and gross energy (4.40 KCal/g), in addition to 0.0, 0.5, 1.0, or 1.5 % *Origanium vulgare* extract. Diets were given twice daily at a rate of 3 % of live body weight, for six days a week during 10 weeks. After the feeding trial, fish of each treatment were challenged by pathogenic *Pseudomonas aeruginosa* and *Pseudomonas flourscence,* which was given by intraperitoneal (I/P) injection and they were kept under observation for 10 days to follow up any abnormal clinical signs and the daily mortality rate. The growth-promoting influence of *Origanium vulgare* extract was observed on fish. The maximum growth was observed at 0.5 *% Origanium vulgare* extract as compared to the control. No significant differences in fish survival were reported among the experienced treatments at (P>0.05), falling within the range of 93.3 - 100%. The control fish consumed less diet and gave a higher FCR, while fish fed diet containing 0.5 % *Origanium vulgare* extract demonstrated the highest protein efficiency ratio (PER), apparent protein utilization (APU), and energy utilization (EU). The supplementation of *Origanium vulgare* extract had no significant (P>0.05) effect on the fish body composition (dry matter, crude protein, fat, and ash), meanwhile, total protein, albumin, and globulin increased significantly (P<0.5) to the highest values at 0.5 % *Origanium vulgare* extract, as compared to the control. However, supplementation of *Origanium vulgare* extract did not significantly affect the albumin / globulin ratio (A/G). The present study showed that 0.5 *% Origanium vulgare* extract in Nile tilapia diets increased the fish resistance to *Ps aeruginosa* and *Ps flourscence,* indicating the effective role of *Origanium vulgare* extract in disease prevention in tilapia culture. The reduction in feed cost compared with control diet showed 12.52 % to produce one kg fish gain of treatment containing 0.5 % extracted *Origanium vulgare* levels.

KEY WORDS:

Origanium vulgare, Nile tilapia, growth performance, feed utilization, Medicine plant, whole body composition, *Pseudomonas aeruginosa, Pseudomonas flourscence.*

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INTRODUCTION:

Tilapia species are widely distributed in many countries of the world. Their farming has grown extremely fast in the last decade, where they are cultured worldwide with annual growth rate of about 12.2% (El-Sayed, 2006).. In Egypt, Nile tilapia is a major species in aquaculture system and much appreciated by consumers. However, the success of intensive tilapia culture depends to a large extent on supplemental feeding.

Medicinal plants as natural growth promoters have significant improvements of body weight, weight gain, survival rate and feed conversion rate in broilers (Ibrahim *et a*/., 1998; Tollba 2003) and in fish (El Dakar, 2004; Shalaby, 2004). Some vegetable herbs, edible plants and seeds are used as