

EFFECT OF USING SOME SPICES AS FEED ADDITIVES ON GROWTH PERFORMANCE, PRODUCTION TRAITS AND BODY COMPOSITION OF NILE TILAPIA, *Oreochromis niloticus* (L.)

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ABSTRACT

This study was conducted to evaluate the effect of black seed and marjoram leaves powder on growth performance, feed utilization, and body composition of Nile tilapia, *Oreochromis niloticus*. All diets are iso-nitrogenous (30% crude protein) and iso-caloric (4.72 kcal/g diet). Thirty glass aquaria were used, each one was stocked with 10 fish (8.2 g) and three aquaria were designated for each treatment. The ten treatments were: Treatment 1 was control without additives, treatments 2, 3 and 4 contained 1.0%, 2.0% and 3.0% black seeds (BS), respectively, treatments 5, 6 and 7 contained 1.0%, 2.0% and 3.0% marjoram leaves (ML), respectively and treatments 8, 9, and 10 contained BS and ML (1 : 1 w/w) at a rate of 1.0, 2.0%, and 3.0%, respectively. Fish were fed on one of the experimental diets at feeding level of 3% of body weight daily for 12 weeks. The feed was offered twice daily, five days a week. Fish growth (indicated as final weight, weight gain, daily gain, relative growth rate (RGR), and specific growth rate (SGR)) was increased gradually and the maximum growth was obtained when fish fed T4. The lowest growth was obtained at the control group. The highest feed intake and the lowest feed conversion ratio (FCR) were obtained when fish fed 30 g BS/kg diet (T4). Apparent protein utilization (APU), and energy utilization (EU) were enhanced significantly when fish fed BS and ML (each alone or together), while the lowest values were obtained at the control group. Dry matter content in fish body was significantly increased by BS and/or ML. Crude protein increased significantly also in all treatments compared with the control. Total lipids contents reflected significant increases in all treatments compared with the control. Yet, ash content decreased significantly with each black seed and/or marjoram leaves level.

Keywords: Black seeds, Marjoram leaves Nile tilapia, Growth, Feed utilization, Fish body composition .

INTRODUCTION

The use of medicinal herbs as feed additives has greatly increased because they contain some chemical components that may enhance the growth and health (Salem and El-Mahdy, 2001). Nowadays, there is an increased demand for using these herbs as natural growth promoters via improving the general health (Abdelhamid *et al.*, 2002, 2004 a, b, c, d & e and 2005 a & b, Abd Elmonem *et al.*, 2002; Shalaby *et al.*, 2003 and El-Dakar *et al.*, 2004 a&b) instead of using synthetic drugs (Abdelhamid *et al.* 1997 and 1998 and Hussein *et al.*, 2000). Several studies in animal nutrition showed that adding some spices or medicinal herbs to diets had favorable effects on live weight gain, feed efficiency and nutrient digestibility (Hnafy, 1995; Karaly, 1995; Gabr *et al.*, 1996; Mir *et al.*, 1998; Youssef *et al.*, 1998; Aboul-Fotoh *et al.*, 1999; Allam *et al.*, 1999; El-Ayek *et al.*, 1999 ; El-Saadany