

عنوان مقاله:

Research Article: Efficacy of various processed canola meals to replace fish meal in Nile tilapia *Oreochromis niloticus* diet: Growth performance, digestive enzymes, immune parameters, and liver antioxidative status

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خلاصه مقاله:

Replacing fish meal by convenient and economic sources is necessary for sustainable development of aquaculture industry. The present study was designated to explore the effect of different processed canola meals as fish meal replacement on growth performance, digestive enzymes activity, immune parameters, and liver antioxidative status of Nile tilapia *Oreochromis niloticus*. Four isonitrogenous and isoenergetic diets were used with, (1) no canola meal (control), (2) 25% non-processed canola meal (CM), (3) 25% dephytinized (using 2000 IU/kg phytase) ammonia methanol solution treated canola meal (CPM), and (4) electron beam irradiated (15 kGy) ammonia methanol solution treated canola meal (ECM). Juvenile male Nile tilapia with an average body weight of 3.5 ± 0.1 g ($n=17$ fish per tank) were fed the experimental diets three times a day until apparent satiation for 36 days. Results revealed that the fish fed the control diet showed the highest daily growth coefficient (DGC) ($p < 0.05$). CPM group significantly showed greater final weight and DGC in comparison to other treatments ($p < 0.05$). CRM included diet showed lower FE and PER ($p < 0.05$). In addition, those fish fed control diet with no canola meal content showed significantly higher feed intake, followed by CPM contained diet (663.7 ± 9.2 g and 477 ± 20.2 g, respectively, $p < 0.05$). Regression analysis also revealed a statistically significant relationship between total feed intake and DGC. Our results also indicated a significant quadratic relationship between dietary glucosinolate content and DGC implying that as dietary glucosinolate content increased total feed intake and subsequently DGC decreased. Regarding dietary protein digestibility (ADCp), there were no consistent results. Regarding digestive enzymes activity, mucosal innate immunity, liver antioxidant enzyme activities and liver tissue malondialdehyde content (MDA) content, there were no significant differences among experimental groups ($p > 0.05$). It is concluded that dietary ANTs contents mainly glucosinolate affected juvenile Nile tilapia growth performance and nutritional indices mainly via reducing feed intake following feeding on diets contained differently processed or crude canola meal.

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