

ABSTRACT

The experiments on Oreochromis niloticus (L.) (young) of initial mean weight of $2.9 \pm 0.3g$ were fed 15 isocalorific diets of three isonitrogenous levels of 20%, 25% and 30% (by dry weight). At each protein level a series of diets with increasing level of substitution from 13% to 50% of the legume green gram (Phaseolus aureus) were also tested. Experiments were conducted for 10 weeks. O. niloticus of initial mean weight of $1.03 \pm 0.1g$ were only maintained on 10 isocalorific diets of 25% and 30% dietary protein levels.

Daily food consumption was variable and was higher during the first two weeks of the experiment. The mean weekly consumption expressed as per unit weight of fish or per unit fish, with relation to the body weight did not vary significantly between P. aureus substituted diets at a particular protein level, except in one instance. The overall consumption was influenced by the dietary protein content at higher levels.

The dry matter, protein and lipid digestibility of the plant ingredient P. aureus was found to be suitable for incorporation into formulated diets for O. niloticus. The degree of incorporation of P. aureus into the diets did not appear to influence the digestibility, significantly. The total and protein digestibility decreased with increasing

dietary protein content.

The best average daily gain (%ADG) of O. niloticus for the green gram substituted diets were at 25% level of substitution at all three dietary protein levels. Food conversion ratio ranged from 1.68 to 3.21, 1.55 to 2.24 and 1.53 to 2.01 for diets of 20%, 25% and 30% protein contents. FCR of the plant substituted diets gave comparable results to the reference or fishmeal diets except in a few instances. Protein efficiency ratio ranged from 1.51 to 2.99, 1.84 to 2.52 and 1.65 to 2.06 and net protein utilization ranged from 22.50% to 46.12%, 30.72% to 40.91% and 28.60% to 32.05% for diets of 20%, 25% and 30% protein content respectively. PER and NPU for O. niloticus young decreased with increasing dietary protein level and did not show a uniform variation with the level of P. aureus substitution.

There was an increase in carcass moisture and protein and decrease in lipid with increasing dietary protein level whilst changes in carcass ash and energy appeared unclear. The carcass composition did not change significantly with the level of P. aureus substitution.

Overall, it is found that green gram, which is a less expensive ingredient than fishmeal, can be incorporated into practical diets for O. niloticus upto 37% with out adverse effects.