



Effect of dietary inclusion of raw and fermented hornwort, *Ceratophyllum demersum*, on growth performance and digestibility of young grass carp, *Ctenopharyngodon idella* Val.

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Abstract

A 12-week feeding experiment was conducted to evaluate the growth performance, feed efficiency, digestibility and carcass composition of young grass carp *Ctenopharyngodon idella* (Val, 1844) (4.03±0.16 g) fed on a control diet and two experimental diets (38.5% crude protein). The experiment aimed to assess the utilization of raw hornwort *Ceratophyllum demersum* (HR) and fermented (HF) by adding 20% of each of the alternative ingredients separately to the control diet (C) to completely compensate barley, a portion of wheat bran and 20% of fish meal. Results indicated that all growth and feed efficiency parameters among groups were no significantly different ($P>0.05$) in specific growth rate (SGR), food conversion ratio (FCR), protein efficiency ratio (PER), and protein productive value (PPV) of fish fed HR and HF with the control diet. There was no effect ($P>0.05$) in stimulating digestibility (ADC_{total}) when HR and HF were added to the diet. Both HR and HF produced significantly ($P<0.05$) higher satiation level associated with lower dietary digestible energy contents. The evacuation rate was not affected significantly ($P>0.05$) by the inclusion of raw or fermented hornwort. Whereas, the moisture, protein and lipid levels in carcass were similar ($P>0.05$) in all groups, except for the control diet (C), which recorded the highest ash level ($P<0.05$). In conclusion, the incorporation of raw or fermented hornwort up to 20% level was found to be not suitable, and there were adverse effects on the growth and feed efficiency of experimental fish.

Keywords: grass carp, fermentation, macrophytic, hornwort, digestibility

Editor

María Cristina Cabrera
Universidad de la República,
Montevideo, Uruguay

Received 25 May 2023

Accepted 16 Feb 2024

Published 01 Mar 2024

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