Received: 5 May 2018 | Revised: 4 August 2018 | Accepted: 13 September 2018

DOI: 10.1111/are.13861

ORIGINAL ARTICLE

WILEY Aquaculture Research

Improving co-feeding strategies for Neotropical green terror cichlid (*Aequidens rivulatus*) larvae with lecithin-enriched *Artemia franciscana* nauplii: Effects on survival, growth performance and body composition

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Abstract

The effects of feeding on a commercial diet and lecithin-enriched (EN) *Artemia franciscana* nauplii for improving co-feeding strategies of Neotropical green terror cichlid (*Aequidens rivulatus*) larvae were conducted. For this purpose, eight groups of fish in triplicates were assigned with two different diets (unenriched *Artemia* [UN] and EN *Artemia*) and four feeding regimes (1, 5, 10 and 25 days feeding with UN and EN diets and then a 10% daily replacement *Artemia* nauplii with commercial diet). The crude lipid (21.4%) and total polar lipid (12.96% of total crud lipid) levels significantly increased in enriched *Artemia* nauplii ($p < 0.05$). The highest amount of saturated fatty acids (SFA) were in enriched and UN *Artemia* nauplii (41.74% and 49.64% respectively) but the highest level of monounsaturated fatty acids (MUFA) (25.69%) and polyunsaturated fatty acids (PUFA) (49.11%) were obtained in commercial diet. Growth performance of fish fed 10 EN and 5 EN had significantly higher values of total weight (120.67, 120.31 mg), %WG (584.48, 580.50%) and SGR (7.69, 7.67%) respectively ($p < 0.05$). Nevertheless, fish fed 25 EN had significantly higher FCE (190.4%), PER (3.95) and NPU (202.5), in comparison with other groups. In terms of body composition, the EN *Artemia* nauplii led to increased lipid contents in 25 EN, 10 EN and 5 EN treatments. In conclusion, the results of this study revealed that feeding regimes of 10 EN and 5 EN could improves survival and growth performance of Neotropical green terror cichlid, *A. rivulatus* larvae.

KEYWORDS

Artemia nauplii, body composition, green terror cichlid larvae, growth performance, soybean lecithin

1 | INTRODUCTION

Larval feeding plays an important role for the successful culture of fresh or salt water, and ornamental fish and live feeds such as *Artemia* nauplii, rotifers, daphnia and copepods are essential to succeed of this stage of fish feeding (Baskerville-Bridges & Kling, 2000; Sorgeloos, Dhert, & Candreva, 2001). Live feeds stimulate the feeding of finfish and shellfish larvae through their colour, movement and chemical attractants such as free amino acids and secreted metabolites (Cahu & Infante, 2001; Kolkovski, 2001; Kolkovski, Curnow, & King, 2004). In addition to, live feeds are easier to digest

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