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RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

Title: Growth and body composition of Midas (*Amphilophus citrinellus*) and Nile tilapia (*Oreochromis niloticus*) reared in duoculture

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Abstract: Background: Cichlids are of economical importance either as food (Nile tilapia) or as ornamental fish (Midas) and both exhibit territorialism and aggressive feeding behavior depending on availability of food and space. Objective: to evaluate the growth rates and behavioral changes of Nile tilapia and Midas kept in mono or polyculture. Methods: Midas and tilapia were maintained in a semi-closed rearing system. Initial weight was 0.83 and 0.81 g for Nile tilapia and Midas, respectively. Four treatments with different fish proportions were used. Midas and tilapia were distributed in 12 glass aquaria with three replicates (n = 30 fish per tank). Treatment ratios between Midas and tilapia were 1:0, 1:1, 2:1 and 0:1, respectively. Fish were fed a commercial diet (40% protein, 12% lipids) for six weeks at 5% weight ratio. Feed offer was adjusted weekly. Observations of behavioral traits were recorded throughout the trial to determine social and feeding conduct. Body composition of fish was assessed at the end of the experiment. Results: Midas modified their feeding behavior and their weight gain increased (3.9 ± 0.3 g) in the 2:1 group. The 0:1 group exhibited the lowest growth rate throughout the experiment (2.9 ± 0.3 g). Midas did not affect Tilapia growth (5.8 ± 0.4 g) across treatments. Interspecies aggressiveness was less evident when reared in monoculture (groups 1:0 y 0:1). Intra and interspecies attacks were higher in the 1:1 and 2:1 groups. Proximate body composition indicated higher lipid levels in Midas across treatments in comparison to tilapia. Conclusions: duoculture benefits growth of juvenile Midas when present at 25-30% of total stocking density with Nile tilapia.

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