Co-culture of catfish (Clarias macrocephalus x C. gariepinus) and tilapia (Oreochromis niloticus) in ponds

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The experiment was conducted for 122 days in central Thailand to test rearing of hybrid catfish in cages in earthen ponds, where tilapia (Oreochromis niloticus) was stocked to utilize the waste products derived from intensively reared catfish. Catfish fingerlings (13-17 g size) was stocked in plastic net cages at a density of 275 fish/m³. Six earthen ponds (250 m² - 110 m³ each) were used to suspend the cages in two loading densities as experimental treatments: 800 and 1760 catfish/pond. Each loading density was replicated in 3 ponds. Each pond was stocked with 440 sex-reversed male tilapia of 6-7 g size in open water, giving the catfish and tilapia stocking ratios of 2:1 and 4:1, respectively. Catfish was fed twice daily at 3-10% body weight per day with commercial floating pellets containing 25-30% crude protein. Water quality was analyzed bi-weekly for concentration of dissolved oxygen, ammonia and chlorophyll a.

Results showed that there was no significant difference (p<0.05) in catfish growth rate and survival between the two loading densities. The mean weight gain of harvested catfish was 259.5 ± 34.5 g and 255.2 ± 8.4 g/fish, giving the total net yield of 218.0 ± 26.8 kg and 391.5 ± 88.0 kg per pond in low and high loading density, respectively. Tilapia was harvested with mean weight of 172.3 ± 37.8 g and 297.5 ± 32.0 g/fish, and the net yield of 68.1 ± 13.6 and 86.9 ± 27.2 kg/pond for low and high loading catfish density treatment, respectively. Chlorophyll a and total ammonia concentrations differed greatly between the two treatments. Early morning dissolved oxygen (DO) declined steadily under both treatments over the culture period.

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