

NOTICE OF PUBLICATION

AQUACULTURE COLLABORATIVE RESEARCH SUPPORT PROGRAM



RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

Title: Effects of alpha-lipoic and ascorbic acid on the muscle and fatty acids and antioxidant profile of the South American pacu *Piaractus mesopotamicus*

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Abstract: The effects of dietary alpha-lipoic acid (LA) and vitamin C on the fatty acid (FA) composition in the brain and muscle and vitamins E and C levels in the brain were studied in the fish *Piaractus mesopotamicus*. A two-factorial design, where diets were devoid or supplemented with ascorbate (500 mg AA kg⁻¹) and/or lipoic acid (1000 mg kg⁻¹), was used. The levels of eicosapentaenoic acid (20:5n-3, EPA) increased (P<0.01) in muscle polar lipids (PL) in LA groups (6.93%±0.43 vs. 5.83%±0.40 and 6.68%±0.53 vs. 6.00%±0.39), and the same trend was also seen in the brain, however not significant. These changes are suggested to be caused by a change in lipid metabolism rather than being a direct effect of protection by LA against lipid peroxidation. No interaction of vitamin C and LA neither effects of LA on vitamin E (15.1–19.2 mg α -tocopherol g⁻¹ tissue) or vitamin C (total AA, 41.7–89.8 μ g g⁻¹ tissue) in brain was detected.

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