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Gut bacteria modulation in *Labeotropheus felleborni* juveniles by *Allium hirtiolium* essence administration to the diet

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Abstract

This study aimed to investigate the effect of Persian shallot (*Allium hirtiolium*) essence on growth, survival, GSI, and intestinal bacteria of *Labeotropheus felleborni*. 240 premature *L. felleborni* (5.56 ± 0.11 g) were distributed among 12 aquariums (100-L) in a completely randomized design (triplicated), and were fed diets containing 0, 0.10, 0.15 ml/kg diet 60 days at a feeding rate of 2% body weight during the experiment. According to the results, Survival increased significantly in 0.20 ml/kg treatment. The growth indices (final weight, specific growth rate (SGR), and feed conversion ratio (FCR)) as well as GSI, showed no significant differences between control and treatments. *A. hirtiolium* essence did not affect the total aerobic bacteria, but the enteric gram-negative bacteria and Lactic acid bacteria count was significantly decreased in the experimental treatments ($p < .05$). According to the results, there is a recommendation for *Allium hirtiolium* essence to be used at 2% of the diet to reduce intestinal gram-negative bacteria count.

Keywords: *Allium hirtiolium*, Persian shallot, Aquaculture, *Labeotropheus felleborni*, Gut bacteria