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RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

Title: Growth Performance and Immune Response of Snakehead, *Channa striata* (Bloch 1793) Fed Soy Diets with Supplementation of Mannan Oligosaccharides

Author(s): Tran Thi Thanh Hien¹, Pham Minh Duc¹, Tran Le Cam Tu¹, Tran Minh Phu¹, Dang Thuy Mai Thy¹, and David Bengtson².

1. College of Aquaculture and Fisheries, Can Tho University, Can Tho, 84710, Vietnam
2. Department of Fisheries, Animal and Veterinary Sciences, University of Rhode Island, Kingston, RI 02881, USA

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Abstract:

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This study evaluated the effectiveness of mannan oligosaccharides (MO) supplementation in fish meal (FM), soybean meal (SBM) and soy protein concentrate (SPC) formulated feeds for snakehead, *Channa striata* (Bloch 1793) in a two-way factorial experiment. Factors were diet (FM, 40% FM replacement by SBM, and 40% FM replacement by SPC) and MO supplementation (0%, 0.2%, or 0.4% MO). Growth was significantly affected ($p < 0.05$) by diet and MO supplementation, as well as their interaction. Feed conversion ratio, protein efficiency ratio and survival were significantly affected ($p < 0.05$) by diet, but only survival was significantly affected ($p < 0.05$) by MO supplementation, and interactions were insignificant ($p > 0.05$). Red blood cell counts were not significantly affected ($p > 0.05$) by diet, MO supplementation, or the interaction, but white blood cell counts were significantly affected ($p < 0.05$) by diet and MO supplementation, not the interaction. Immunoglobulin (Ig) levels were significantly increased ($p < 0.05$) by MO supplementation and the MO x diet interaction, but diet did not affect Ig levels ($p > 0.05$). Following a 15-d bacterial challenge with *Aeromonas hydrophila*, lysozyme levels were significantly increased ($p < 0.05$) by MO supplementation and the MO x diet interaction, but not by the diets themselves. Cumulative mortality did not differ among fish fed different diets ($p > 0.05$). Our results suggest that MO supplementation may improve diet performance in snakehead culture, although full-scale commercial trials should be conducted to confirm this.

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