

# NOTICE OF PUBLICATION

---



AQUACULTURE & FISHERIES INNOVATION LAB

## RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

---

**Title:** Development of formulated diets for snakehead (*Channa striata* and *Channa micropeltes*): Can phytase and taurine supplementation increase use of soybean meal to replace fish meal?

**Author(s):** Tran Thi Thanh Hien<sup>1</sup>, Tran Thi Be<sup>1</sup>, Chong M. Lee<sup>2</sup>, and David A. Bengtson<sup>3</sup>

1. College of Aquaculture and Fisheries, Can Tho University, Can Tho, Vietnam

2. Department of Nutrition and Food Sciences, University of Rhode Island, Kingston, RI 02881, USA

3. Department of Fisheries, Animal and Veterinary Science, University of Rhode Island, Kingston, RI 02881, USA

**Date:** 26 June 2015

Publication Number: AquaFish Research Report 15-344

**Abstract:** AquaFish will not be distributing this publication. Copies may be obtained by writing to the authors.

Culture of snakehead species is limited in Vietnam and banned in Cambodia because of the reliance of the industry on feeding them “small-size” fish (sometimes called trash fish or low-value fish), many of which are juveniles of commercially important species. In an effort to find substitutes for small-size fish, we conducted a series of experiments to test formulated diets with several levels of soybean meal (SBM) replacement of fish meal. Feeding trials lasted eight weeks, after which survival, growth, food conversion ratio and protein efficiency ratio were compared. In the first two experiments, with *Channa striata*, we substituted SBM, either with or without supplementation of phytase (20 mg/kg) (Experiment 1) or taurine (1 g/kg) (Experiment 2), for 0, 20, 30, 40, or 50% of the fish meal. Experiment 1 demonstrated that SBM can replace 30% of the fish meal without, and 40% of the fish meal with, phytase supplementation. Experiment 2 showed again that SBM can replace 30% of the fish meal without, and 40% of the fish meal with, taurine supplementation. The third experiment, with *Channa micropeltes*, which was done only with phytase supplementation, showed that 40% of fish meal can be replaced by SBM. In all the SBM diets, the essential amino acids (EAA) lysine, methionine and threonine were also added to make their dietary levels equal to those in the fish meal control diet. Use of the SBM replacement diets, in addition to conserving the small-size fish in the wild, would result in economic savings (cost/kg of

---

**AQUAFISH RESEARCH REPORTS** are published as occasional papers by the Management Entity, AquaFish Innovation Lab, Oregon State University, Corvallis, Oregon 97333-3971 USA. The AquaFish Innovation Lab is supported by the US Agency for International Development under Grant No. EPP-A-00-06-00012-00. See the website at <aquafishcrsp.oregonstate.edu>.

Continued...

---

fish produced) of about 11% compared to diets based on fish meal alone.

This abstract was excerpted from the original paper, which was published in *Aquaculture* (2015). 448: 334-340.

---

**AQUAFISH RESEARCH REPORTS** are published as occasional papers by the Management Entity, AquaFish Innovation Lab, Oregon State University, Corvallis, Oregon 97333-3971 USA. AquaFish is supported by the US Agency for International Development under Grant No. EPP-A-00-06-00012-00. See the website at <[aquafishcrsp.oregonstate.edu](http://aquafishcrsp.oregonstate.edu)>.