Accepted Manuscript

Effect of N-carbamoylglutamate supplementation on the growth performance, antioxidant status and immune response of mirror carp (*Cyprinus carpio*) fed an arginine-deficient diet

Liansheng Wang, Jinnan Li, Chang'an Wang, Zhigang Zhao, Liang Luo, Xue Du, Qiyou Xu

PII: S1050-4648(18)30625-9

DOI: 10.1016/j.fsi.2018.10.001

Reference: YFSIM 5602

To appear in: *Fish and Shellfish Immunology*

Received Date: 20 August 2018

Revised Date: 30 September 2018

Accepted Date: 3 October 2018

Please cite this article as: Wang L, Li J, Wang Chang', Zhao Z, Luo L, Du X, Xu Q, Effect of N-carbamoylglutamate supplementation on the growth performance, antioxidant status and immune response of mirror carp (*Cyprinus carpio*) fed an arginine-deficient diet, *Fish and Shellfish Immunology* (2018), doi: https://doi.org/10.1016/j.fsi.2018.10.001.

Effect of N-carbamoylglutamate supplementation on the growth performance, antioxidant status and immune response of mirror carp (*Cyprinus carpio*) fed an arginine-deficient diet

Liansheng Wang, Jinnan Li, Chang'an Wang, Zhigang Zhao, Liang Luo, Xue Du, Qiyou Xu*

Heilongjiang Fisheries Research Institute, Chinese Academy of Fishery Sciences, Harbin 150070, People's Republic of China

Abstract

The present study was conducted to determine the effect of dietary N-carbamoylglutamate (NCG) supplementation on the growth performance, antioxidant capability and immune responses of mirror carp (*Cyprinus carpio*) fed an arginine (Arg)-deficient diet. A total of 630 mirror carp (41.65±0.14 g) were fed diets (Arg 1.24% of the diet) that were supplemented with 0.50% Arg (control diet) or graded levels of NCG at 0 (Arg deficiency diet), 0.04%, 0.08%, 0.12%, 0.16% and 0.20% for 8 weeks. The results showed that, compared with the control diet, the Arg-deficient diet supplementation with 0 NCG (1) decreased the final body weight (FWB), the weight gain rate (WGR) or the protein efficiency ratio (PER) and increased the feed conversion ratio (FCR); (2) decreased the concentration of Arg and nitric oxide (NO) and the activity of total nitric oxide synthetase (T-NOS) in the plasma; (3) decreased the activities of superoxide dismutase (SOD) in the proximal

*Corresponding author. Tel: +86 451 8486 9493; fax: +86 451 8460 4803.

E-mail address: xuqiyou@sina.com (Q.Y. Xu).