Effects of n-3 PUFA Levels in Live Foods on Albinism, Growth, Survival, and Salinity Tolerance of Flounder (*Paralichthys olivaceus*) Larvae in Large-Scale Artificial Rearing

Wang Wei¹,², Hou Lin²*, Zou Xiangyang³, Yao Feng², Yin Bo⁴, Chen Liqiao¹

¹ College of Life Science, East China Normal University, Shanghai, 200062, China
² College of Life Sciences, Liaoning Normal University, Dalian, 116029, China
³ Dalian Medical University, Dalian, 116029, China
⁴ Marine Economy Research Institute, Liaoning Normal University, Dalian, 116029, China

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Abstract

The effects of feeding enriched rotifers and *Artemia* nauplii on albinism in flounder (*Paralichthys olivaceus*) larvae raised in a large-scale artificial system were investigated. Larvae were first fed an S-type rotifer (*Brachionus angularis*) enriched with *Nannochloropsis oculata* for 11-12 days, which raised the n-3 polyunsaturated fatty acids (PUFA) content in the rotifer from 5.36% to 17.63% of the total fatty acids. Next, the larvae were fed one of three strains of *Artemia* enriched with microcapsule (50DE), vitamin A (9000 IU/l), and vitamin D (2000 IU/l) for 35 days, which raised the n-3 PUFA contents in the *Artemia* to 38.62%, 36.53%, and 33.86% of the total fatty acids, respectively. Among the larvae fed the enriched feeds, no more than 3‰ were albino, much fewer than in the control groups fed non-enriched foods (*p*<0.01). In addition, n-3 PUFA contents in the muscles, growth and survival rates, and salinity tolerance were greater in founder fed the enriched foods. *Artemia* nauplii from Qixiangcuo (Tibet, China), enriched to 38.62% of total fatty acids, was superior in preventing albinism than the strains from Pikou or Yingkou (Liaoning, China).

* Corresponding author. Tel./fax: +86-0411-84258306, e-mail: houlin@lnnu.edu.cn