

**Effects of dietary composition, feeding satiation rate and feeding frequency of extruded pellets on growth and body composition of flounder, *Paralichthys olivaceus***

Joo-Young Seo, Hyun-Seok Jang<sup>1</sup>, Kyoung-Duck Kim<sup>1</sup>, Gun-Up Kim<sup>2</sup>  
and Sang-Min Lee\*

*Faculty of Marine Bioscience and Technology, Kangnung National University,  
Gangneung 210-702, Korea*

<sup>1</sup> *National Fisheries Research and Development Institute, Busan 619-902, Korea*

<sup>2</sup> *Gangwon Province Marine Culture Experimental Station, Gangneung 210-860,  
Korea*

A feeding trial of two extruded pellets (EP1, 45% crude protein with 7% crude lipid and EP2, 47% crude protein with 10% crude lipid) × two satiation rates (satiation and 80% satiation) × three feeding frequencies (three, two and one meal a day) factorial design with three replications was carried out to investigate the optimum feeding frequency and satiation rate for growth of juvenile flounder. Flounder averaging 55 g were fed a extruded pellets for 58 days. Daily feed intake was affected by dietary composition, feeding frequency and satiation rate ( $P < 0.05$ ). Weight gain of fish fed the EP1 and EP2 was not affected by both dietary composition and feeding frequency ( $P > 0.05$ ), but affected by feeding satiation rate ( $P < 0.05$ ). Weight gain of fish fed the each of EP1 and EP2 twice daily with satiation was the highest among treatments, but was not significantly different to that of fish fed the diets three times daily with satiation feeding. Feed efficiency and protein efficiency ratio of the fish were not affected by dietary composition, feeding frequency and satiation rate ( $P > 0.05$ ). Moisture, crude protein and crude lipid contents of the muscle of fish were affected by satiation rate. Moisture and crude protein contents of the liver were affected by dietary composition. Based on fish performance results, it can be concluded that the proper feeding frequency for the growth of juvenile flounder grown from 55 g to 90 g is two meals a day with satiation feeding, regardless of dietary composition used in this study.

\*Corresponding author: [smlee@kangnung.ac.kr](mailto:smlee@kangnung.ac.kr)