PULSUS
Journal of
Aquaculture and Fisheries Management
Abstract

White Shrimp Litopenaeus Vannamei Behaviour And Growth Are Influenced By Fish Meal And Free Amino Acids Contents In Feeds

Pierrick Kersanté*
BCF Life Sciences, Boisel, 56140 PLEUCADEUC–France. pkersante@bcf-lifesciences.com

Abstract:

Fish meal (FM) and free amino acids are known to act as palatability enhancers in aquaculture species. Recent trials have demonstrated the interest of mix of natural free amino acids (MFAA) on shrimp growth, feed conversion ratio (FCR) and feed consumption. In order to better understand how ingredients such as MFAA and FM influence shrimp behaviour, a specific protocol was designed.

An 8 weeks trial was carried out at the Kasetsart University Research Centre in Thailand. A total of 360 juvenile white shrimp, (Litopenaeus vannamei), initial body weight of 2.5g were divided among 36 100L capacity aquariums filled with brackish water (15ppt salinity). Animal were divided in 9 groups fed with feeds deferring in FM and MFAA contents (see table 1). MFAA was coated around the feed (Coa) or mixed (Mix) with other ingredients (Mix). Shrimp were fed 3 times/day using a feeding tray. Daily feed amount distributed was equivalent to 4.5% of the biomass. Once every week the behaviour of shrimp from each aquarium was observed by trained technicians during the 2nd meal of the day. The following parameters were recorded: time between shrimp release and first pellet attack (Attractiveness), number of shrimp consuming feed after 15 minutes (Global attractiveness) and feed consumed within an hour (Feeding stimulation). To estimate the amount of feed consumed within an hour, the remaining pellets were collected, dried and weighed. Data were submitted to an ANOVA analysis.

Feed Attractiveness is influenced by both FM level and MFAA application (Table 1). Whether mixed with other raw materials or sprayed over pellets, MFAA had positive impacts on all behavioural parameters.

Whatever the FM level in the feed formula, MFAA significantly improved the attractiveness. Approach time was shorter for the Coa group than in the Mix group. There was a correlation between FM content and global attractiveness of the feed. In all cases, and irrespective of FM level, MFAA was able to increase this parameter. Influence of the application mode on Global attractiveness shrimp behaviour was not so clear. Feed eaten within an hour was not influenced by FM levels. This parameter was nevertheless influenced by the use of MFAA either applied on or in the feeds.

Those results underline the effect of FM and MFAA as ingredients that influence shrimp behaviour. Such functionalities are key for feed formulators as they can improve feed valorisation particularly with slow bottom feeders like L. vannamei. Better feed attractiveness leads to a lower leaching and thus minimize the potential impact on water quality.

Biography:

Pierrick Kersanté is in charge of products and applications developments on Aquaculture, Canine & Feline Health and Nutrition at BCF Life Sciences. He has always been involved in R&D projects developments with previous experiences in Food, Retextured Food and Functional Ingredients.

Recent Publications:

1. Free Amino Acids Mix Made of Poultry Keratin as a New Functional Ingredient for White Shrimp (Litopeaneus vannamei) FeedThe Biology and Evolution of the Three Psychological Tendencies to Anthropomorphize Biology and Evolution.
2. Alleviation of ems shrimp disease
3. Natural free amino acids influence shrimp behaviour and feed attractiveness

Webinar on Fisheries Research, November 28, 2020.

Citation: Pierrick Kersanté*, White Shrimp Litopenaeus Vannamei Behaviour And Growth Are Influenced By Fish Meal And Free Amino Acids Contents In Feeds, Webinar on Fisheries Research; November 28, 2020.