

# CHARACTERISTICS OF STABLE CARBON AND NITROGEN ISOTOPES OF BACK TIGER SHRIMP (*Penaeus monodon*) CULTURED WITH DIFFERENT FARMING PRACTICES

Nguyen Cong Thuan, Ngo Thi Xuan Hau,  
Duong Tri Dung, Le Anh Kha, Nguyen Phuong Duy

## Summary

The preliminary research used analysis of stable carbon and nitrogen isotopes to determine discrimination between *Penaeus monodon* are unfed with commercial feeds and those are fed commercial feeds for authenticating shrimps that are unfed with pellet feeds. Shrimps are unfed with commercial feeds that were sampled from shrimp-rice farming (n = 3), and shrimp-mangrove farming (n = 3), whereas shrimps are fed commercial feeds that were sampled from improved extensive farming (n = 3), intensive farming (n = 3). Shrimps were selected for sampling are shrimps at the period which is close at the time of harvest. Additionally, mangrove shrimps sell on the market were also collected (n = 3). Six different types of commercial feeds that farmers were feeding for shrimps at ponds with improved extensive farming, intensive farming were also collected. Shrimp tissues and commercial feeds were analyzed for  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ . The results showed that  $\delta^{13}\text{C}$  of shrimps were unfed with commercial feeds varied from -24.93‰ to -22.11‰ ( $-23,18 \pm 1,14\%$ ), whereas  $\delta^{15}\text{N}$  varied from 3.52‰ to 5.44‰ ( $4.68 \pm 0.76\%$ ).  $\delta^{13}\text{C}$  of shrimps were fed commercial feeds fluctuated from -21.72‰ to -20.77‰ ( $-21.16 \pm 2.76\%$ ), whereas  $\delta^{15}\text{N}$  fluctuated from 3.67‰ to 8.74‰ ( $7.07 \pm 1.83\%$ ). Both  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  of shrimps were fed commercial feeds were higher than those of shrimps were unfed with commercial feeds.  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  of six types of commercial feeds were from -21.82 to -19.83‰ and from 3.81‰ to 6.87‰, respectively. The positive correlations between  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  of shrimps and their commercial feeds were found, but these correlations are insignificant. This preliminary research indicated that shrimps were unfed with commercial feeds can be discriminated from those were fed commercial feeds based on values of  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ .

**Keywords:** Carbon isotope, nitrogen isotope, *Penaeus monodon*.