(Penaeus indicus, H. Milne Edwards)

Penaeus indicus, H	I. Milne)		
(Semi-purified			(Edwards
		. (Isonitrogenic)	diet
		. (×)	
(/ ± /)		
		C	
(p<0	.05)		
		0.3.	
(p<0.05)	NPU PER I	FCR SGR	(:)
	• 4		
(p<0.05)			
	40		:
\			1
	>		3
			4
			5

...

```
. ()
                                                 Penaeus )
                                                                                   (indicus
    (semi- purified diets)
                                                                                         .(
                     (Isonitrogenic)
                                                                       .( )
                                      ( × )
copy right 1995, realeas 6.1 ) Lindo
```

www.SID.ir

```
.( )
              рΗ
рΗ
                             ( /
                                                                                     .( )
             (FCR)
                                   (SGR)
              (PER)
                      (NPU)
              ( ) =
              (FCR) =
           (SGR) = \{(Inw_2\_Inw_1)/
                                                         )
( )
             /( )
                                                                                 / ± /
               ) *
                                    (PER)=
                                               Block Complete )
                                                                   (Randomized Design
         ) AOAC
 (Digestible energy)
  ( ) Bautista
          ) Keembiyehetty and Wilson
                                                             (pellet)
                                                                                     .( )
```

...

```
(Two-way Anova)
                     NPU PER FCR SGR
                                                                             Spss Excel
                                                                         .( )
                                                   Duncan's )
                                                                        (Multiple Range Tests
(p>0.05)
                                 (p<0.05)
                                                   (P=0.05)
        SGR
FCR
    (p<0.05)
                                  NPU PER
SGR
                          NPU PER FCR
           1
                                                   B_{j\,:}
                                                   AB<sub>ij:</sub>
                                                   R_{l:}
                                (p < 0.05)
                                                   e<sub>ijl:</sub>
```

```
ALI
                           )Ahamad
                                             (p<0.05)
                    Hajra .
                                               (p<0.05)
                                                          (p>0.05)
                 (P.monodon)
                                                         (p<0.05)
                                            (p>0.05)
                    ) Diwan Vijayan
 ) Jones Kumlu
        (PL7-PL20)
                 (PL20-PL60)
```

(IPF	. ratio)		(
		El- Dahhar (P/DE)	()and Lovel
(Page and Andrews	()
		Catacutan .	() Coloso
·		Keembiyehetty .	() Wilsor

2- Ahamad Ali, S. 1990. Relative efficiencies of different lipids and lipid levels in the diet of the prawn *Penaeus indicus*. Indian J. Fish. 37(2):119-128.

- 3- AOAC (Association of Official Analytical Chemists), 1985. Official methods of analysis AOAC, Washington, DC,1263 pp.
- 4- Bautista, M.N. 1986. The response of *Penaeus monodon* juveniles to varying protein/energy ratios in test diets. Aquaculture, 53: 229-242.
- 5- Catacutan, M. R & R. M. Coloso. 1995. Effect of dietary protein to energy ratios on growth, survival, and body composition of juvenile Asian seabass, Lates calcarifer Aquaculture, volume 131(1-2), 125-133.
- 6- Colvin, P.M. 1976. Nutritional studies on penaeid prawns: protein requirements compounded diets for juvenile *Penaeus indicus* (Milne Edwards). *Aquaculture*, 7:315-326.
- 7- De Silva, S. S. & T. A. Anderson. 1995. Fish Nutrition In Aquaculture. published by Chapman & Hall. First edition. 319 pp.
- 8- EL-Dahhar, A. A & R. T. Lovell. 1995. Effect of protein to energy ratio in purified diets on growth performance, feed utilization and body composition of Mozambique tilapia, *Oreochromis mossambicus*(Peters), Aquaculture research, 26, 451-457.
- 9- Hajra, A., A. Ghosh., & S.K. Mandal. 1988. Biochemical studies on the determination of optimum dietary protein to energy ratio for tiger prawn, *Penaeus monodon* (Fab), juveniles. Aquaculture, 71: 71-79.
- 10- Keembiyehetty, C.N & R.P. Wilson. 1998. Effect of water temperature on growth and nutrient utilization of sunshine bass (*Morone chrysops* & female; x *Morone saxatilis* & male;) fed diets containing different energy/protein ratios. *Aquaculture*, Vol. 166(1-2), 151-162.
- 11- Kumlu. M & D. A. Jones. 1995. Salinity tolerance of hatchery-reared postlarvae of *Penaeus indicus* H. Milne Edwards originating from India. *Aquaculture* 130, 287-296.
- 12- Lee, D. J. & G. B. Putnam. 1973. Response of rainbow trout to varying protein/energy ratio in a test diet. Journal of Nutrition 103: 916-922.
- 13- Maynard, L.A., & J. K. Loosli, 1969. Animal Nutrition, 6 th edn. McGraw-Hill, New York, Ny, 613pp.
- 14- New. Michael. B. 1987. Feed and feeding of fish and shrimp. UNDP, FAO, Rome. 275 pp.
- 15- Nose, T. & S. Arai. 1972. Optimal level of protein in purified diet for eel *Anguilla japonica*. Bull. Freshwater Res.Lab. Tokyo, 22:145-154.
- 16- NRC(National Research Council). 1990. Nutrient requirements of warm water fishes and shellfishes. Washington, DC: National Academy press, 114 pp.
- 17- Page, J. W. & J. W. Andrews. 1973. Interactions of dietary levels of protein and energy on channel catfish *Ictalurus punctatus*. J.Nutr., 103:1339-1346.
- 18- Prather, E. É. & R. T. Lovell. 1973. Response of intensively fed channel catfish to diets containing various protein-energy ratios. Proc. Annu. Conf. S.E. Assoc. Game Fish Comm., 27: 455-459.
- 19- Reis, L. M., E. M. Reutebuch & R. T. Lovell. 1989. Protein-to-energy ratios in production diets and growth, feed conversion and body composition of channel catfish, *Ictalurus punctatus*. *Aquaculture* 77:21-27.
- 20- Sadhana, M. & B.Neelakantan. 1996. Effect of different protein levels in the purified diets on the growth of *penaeus merguiensis* De Man and feed conversion ratio. *Indian J. Fish*, 43(1): 61-67.
- 21- Santiago, C. B. 1996. Approches and design of fish nutrition experiments. Training course on fish nutrition. SEAFDEC, Philippines, 8pp.
- 22- Shiau, Shi-Yen & Shu-ling. Huang. 1990. Influence of varying energy levels with two protein concentrations in diets for hybrid tilapia (*Oreochromis niloticus* x *O.aureus*) reared in sea water. Aquaculture, 9:143-152.

23- Shiau, Shi-Yen., C. C. Kwok. & B. S. Chou. 1991. Optimal dietary protein level of *Penaeus monodon* reared in seawater and brackishwater. Nippon- Suisean- Gakkaishi- Bull- Jap. Soc. Sci. Shi. Fish. Vol 57, no4. pp: 711-716.

24- Tacon .Albert G. j. 1990. Standard methods for the nutrition and feeding of farmed fish and shrimp. Argent Laboratories press. Vol 1, 117pp.

25- Takeda, M., S. Shimeno., H. Hosokawa., K. Hedetoshi., & T. Kaisyo. 1975. The effect of dietary calorie- to-protein ratio on the growth, feed conversion and body composition of young yellowtail. Bull. Jpn. Soc.Sci. Fish., 41:443-447.

26- Vijayan- K. K. &. D. A-Diwan. 1995. Influence of temperature, salinity, PH and light on molting and growth in the Indian white shrimp under laboratory conditions. Asian- Fish.- SCI. 1995 Vol.8. no 1,63-72.

Abstract

A 3x3 factorial experiment was conducted for 60 days to determine of the response of Indian white shrimp (*Penaeus indicus*, H. Milne Edwardes) juvenile to diets containing various energy levels. Three Semi-purified and Isonitogenic diets containing Three levels of energy (3500, 3800 and 4100 kcal/kg) with the constant protein of 40 % were formulated and prepared in this trial. Each diet also was compare in three levels of salinity (25, 35 and 45 ppt). So this study was conducted with 9 treatments and thriplicate random groups of 20 shrimp (average weight of 3.22±0.19 g) per each 300- litre tank. Each tank was filled with 200 litre water and exchanged 50 percent every day. The shrimp were fed their respective diets as a satiuation with the feed divided into three parts for feeding at 08:00, 14:00 and 20:00 h daily.

The results of study indicated with the increase of energy and decrease of salinity growth performances also improved. In this study, diet containing of 4100 kcal/kg energy and salinity of 25 ppt (4100:25) in view of waith gain, SGR, FCR, PER, NPU and yeild significantly (p<0.05) was better than another energy and salinity levels. Further more, the present study showed that 25 ppt salinity was significantly (p<0.05) better than another salinities for culture of this shrimp.

Carcass analysis of shrimp except energy and lipid was not significantly affected (p>0.05) by increasing level of each dietary energy of the diets. On the other hand, increasing lipid and energy content (%) tended to have an effect similar to that of the increase in dietary lipid and energy. Salinity also was not significantly effect (p>0.05) on the proximate analysis of shrimp carcass.