Abstract

The study on optimum dietary protein level for abalone (Haliotis asinina, Linne.) was conducted and using five formulated diets with 31.14, 35.33, 40.44, 44.99 and 47.18% protein with gross energy of 440 Kcal/100 g. A mixture of Soybean meal and Spirulina (4.4:1) was used as the protein source. The juvenile abalone, average body wet weight 0.51±0.12 grams, were held in net cage with stocking density of 50 animals per cage hanging in concrete tank with 20 tons water volume. The semi-closed culture system was used and the rearing water was treated with ozone and seaweed. Abalone was fed to apparent satiation once daily for 224 days. The experiment was conducted at Petcha Buri Coastal Aquaculture Station. Mean body wet weight, the weight gain, feed conversion ratio, protein efficiency ratio and carcass levels of protein of abalone were significantly (p < 0.05) effected by the dietary protein levels. Abalone fed with 35.33 and 40.44 % dietary protein resulted in the highest mean body wet weight and weight gain and these were significantly (p<0.05) higher than those fed with 31.14, 44.99 and 47.18% dietary protein. The lowest feed conversion ratio was obtained when abalone fed with 35.33 % dietary protein, but the result was not significantly (p>0.05) different from those fed with 31.14,40.44 and 44.99 % dietary protein. The protein efficiency ratio of abalone fed with 35.33% dietary protein was significantly (p<0.05) higher than those fed with 31.14, 44.99 and 47.18% but this was not significantly (p>0.05) different from 40.44%. The survival rate were not significantly (p>0.05) different for all dietary protein levels. On the weight gain basis, the optimum dietary protein level for abalone calculated by non-linear regression analysis were 34.7-38.25 %. The relationship between weight gain (Y; %) and protein level (X; %) was expressed as $Y = -8730.096 + 517.822X - 6.769X^2$ ($R^2=0.834$) Based on these results, about 38% dietary protein provide the maximum growth for abalone. The growth of this abalone may be depressed with 5% but within 95% confident level when dietary protein level was reduced from 38% to 35%.

Keywords: Abalone, Haliotis asinina, protein requirements