

Effect of Feed Supplement with Different Dosage on the Growth and Survival of Siamese Catfish Seedling

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Abstract

This study aims to determine the effect of addition of VITERNA Plus with different doses in feed on growth and survival seed Siamese catfish (*Pangasius hypophthalmus*). This research using the experimental method, with a completely randomized design (CRD) and 4 treatment 3 replicates. Results show that the highest growth in length and weight indicated in treatment D of 1.86 cm and 0.72 grams, C 1, 65 cm and 0.62 grams, and 1.23 cm and 0.42 grams and the lowest growth, namely in treatment A 0.67 cm and 0.25 gram. Survival of Siamese catfish seed during treatment A showed 66.67 %, amounting to 76.19% of treatment B, treatment C amounting to 80.95% and amounted to 88.10% in treatment D. Results of analysis of variance in length and weight of the seed of Siamese catfish show that different doses VITERNA Plus have very real effect with the value of F Calculation of the length and weight are 65.57 and 105.46, while the value of F table (0.01) is 7.59.

Keywords: feed; supplement; Siam Catfish; *Pangasius hypophthalmus*; seed; survival; dosage, growth

Introduction

VITERNA plus is a feed supplement that is processed from a variety of natural ingredients that are beneficial to increase the appetite of fish, increase endurance, stimulate digestive enzymes and accelerate growth. VITERNA plus formulated with a base of amino acid technology to supplement and complement the fish nutrition because VITERNA is pure nutritional supplement or enhancer that is ready to digest as well as to improve the effectiveness and efficiency of digestion of fish. VITERNA usage is by way mixed into the feed (pellets) which will be given to the fish. According Mufidah et al., (2009), VITERNA are supplements derived from a variety of natural ingredients that are beneficial to increased nutrients and accelerate the growth of the fish. Extra VITERNA into the ration means increasing the quantity and quality of feed given.

The quality and quantity of feed is very important in fish farming, because only with a good feed of fish can grow and develop in accordance with what we want. The feed given to the fish is considered good not only of the components of the feed, but also of how the components contained in the feed can be absorbed and utilized by the fish in his life. Completeness of the nutrients in the feed is absolutely necessary to keep the fish growth can take place normally. The content of nutrients needed by fish in general consists of five groups: protein, carbohydrates, fats, minerals and vitamins (Agustono et al., 2007).

Protein is the first component to the growth of fish as a source of energy and to repair damaged tissue. The growth of fish increases if the feed can be digested well by the fish so that the energy obtained from the fish feed can be utilized optimally. The presence of digestive enzymes in the body of the fish can improve the digestibility of fish to feed and can spur the growth of fish (Ahmadi H. et al., 2012).

Fish have limited digest low-quality feed, thus requiring a high protein feed for growth. The ability of fish to digest the feed consumed depends on the presence or absence of appropriate enzymes and necessary conditions of the enzyme to react with the substrate in the digestive tract of fish (Princess Fadhilah et al., 2012). An alternative way to increase the efficiency of feed to be easily digested and can work more effectively is with the addition of VITERNA plus the feed.

Siamese catfish is one of the introductions of fish species that have economic value to be cultivated. This is because the catfish Siamese has advantages such as rapid growth rate, high fecundity, can be mass produced and has a high selling price and the taste of the meat favored by the people (Susanto and Amri, 2001). Catfish require a source of energy derived from food for growth and survival. Patin is a fish eating everything (omnivorous), but tends toward carnivores. In this case the catfish require feed which has a high protein content for pertumbuhannya. Setiap fish require different nutritional values, needs protein, fat and fiber. Foods that have a balance of protein, fat

and fiber to the needs of a particular fish will make a great fast fish, but if poor nutrition, fish growth will be very slow resulting in cost and time of harvest long (Djariah, 2001).

Research Methodology

This research activity is carried on for 5 weeks on July 22 sampai 26 August 2015, at Fish Seed (BBI) City Gorontalo. Alat used in this study is a cylindrical plastic container as the container maintenance, monitor water checker, an analytical balance, syringe, sprays, scales sit, and stationery. Materials used in this research is the seed catfish conjoined as test animals, fresh water as the medium of life, VITERNA plus for mixed feed, mineral water and 885 brands of feed pellets.

This study used an experimental method in the analysis using a completely randomized design (CRD). Test variables in this study is the addition VITERNA plus different doses mixed into feed pellets, with 4 treatments and 3 replications. Treatments that treatment A (dose 0 ml / kg), B (a dose of 15 ml / kg), C (a dose of 20 ml / kg) and D (dose of 25 ml / kg). The analysis used in this research is the analysis of variance (Analisis Of Variance) and continued with Least Significant Difference Test (BNT).

The variables measured in this study is the length and weight of seed and seed viability Siamese catfish. The length was measured using a ruler while heavy growth weighed using an analytical balance. Other supporting variable measured is the quality of the water.

The growth rate of catfish seed conjoined measured in this study is the length and the weight gain of test animals that measurement is performed once a week. The length of test animals was measured using a ruler while the weight of the test animals were weighed on a balance Analytical.

Calculation of growth in absolute length and weight calculation of absolute growth by Cholik et al., (2005). Added calculation of Average Daily Weight or Daily Growth Rate (DGR) and the calculation Added Long Daily average or Daily Growth Rate (DGR) according Cholik, et al.;(2005). Survival is the percentage amount that the biodata of life at the end of a certain time (Cholik, et al., 2005).

Results and Discussion

Absolute length growth

Length growth the absolute seed catfish Siamese (*Pangasius hypophthalmus*) for 5 weeks, using four treatments the addition VITERNA plus with different doses of the treatment of A (0 ml / kg), treatment B (15 ml / kg), C treatment (20 ml / kg) and treatment D (25 ml / kg) can clearly be seen in Figure 1.



Figure 1. Growth Absolute Length Fish Seed iridescent shark

From the picture above shows clearly that every treatments showed different results between treatment A (0 ml / kg), B (15 ml / kg), C (20 ml / kg), and D (25 ml / kg). Feeding treatment with different doses plus VITERNA on seed siamese catfish (*Pangasius hypophthalmus*) shows that the average growth for the absolute length of treatment A (0 ml / kg) of 0.67 cm, treatment B (15 ml / kg) of 1.23 cm, treatment C (15 ml / kg) of 1.65 cm and treatment D (25 ml / kg) of 1.86 cm. Thus the treatment of feeding a dose VITERNA plus 25 ml / kg has a long growth highest average followed by a dose VITERNA 20 ml / kg, and then to dosage of VITERNA 15 ml / kg, and for treatment of A without the addition VITERNA plus represents the low, The high growth in the absolute length of treatment D at a dose of 25 ml / kg because vitamins contained in VITERNA plus has met the vitamins contained in the feed so that the fish are able to absorb feed well and the presence of vitamins in the diet can also support the growth of the seed. In accordance with the opinion of Subandiyono (2009), which states that the vitamin has many roles in bio-physiological. Its presence in feed are needed to support normal growth, reproduction, and health. The digestive system is a simple fish will assign specific needs vitamin supplements in fish feed.

In C treatment (dosage of 20 ml / kg) and B (a dose of 15 ml / kg) allegedly because VITERNA dose plus mixed into feed is in the range of doses required by seed. While on treatment A, feeding without the addition of a plus VITERNA not meet the needs of fish because of the content of nutrients in feed, especially vitamins and protein can not meet the

needs of fish, causing fish to be slow growth and indicates that the feed is not fully utilized by seed. In general, vitamin deficiencies in fish feed in addition will cause disruption of growth and reproduction can also cause symptoms of vitamin deficiency diseases.

Results of analysis of variance length Siamese catfish seed showed that feeding with different doses plus VITERNA give a significant influence ($F_{hit} > F_{table}$) on the growth of the seed length Siamese catfish (*Pangasius hypophthalmus*). Furthermore, to determine the effect of each - each treatment, followed by Least Significant Difference Test (BNT). Test Results Significant Difference (LSD) values obtained BNT 1% indicates that the treatment D significant effect on treatment C, B, and C. A subsequent treatment very significant effect on treatment B and A. Treatment B very significant effect on A, and treatment A no effect on D, C and B.

Absolute weight growth

The results of measurements of the average weight of absolute seed Siamese catfish (*Pangasius hypophthalmus*) for 35 days according to treatment can be seen in Figure 2.



Figure 2. Growth Absolute Weight Fish Seed iridescent shark

VITERNA plus additional treatment with different doses in feed on the growth of the seed Siamese catfish (*Pangasius hypophthalmus*), showing average growth differently. The average growth of absolute weight without additional treatment A VITERNA plus 0.25 grams, treatment B (15 ml / kg) of 0.42 grams, treatment C (20 ml / kg) of 0.62 grams and treatment D (25 ml / kg) of 0.72 grams thus VITERNA plus additional treatment with a dose (25 ml / kg) had an average growth highest absolute weight followed by treatment of C (20 ml / kg), the third growth indicated in treatment B (15 ml / kg), whereas treatment without addition VITERNA A plus indicates the value of such treatment terendah. Dengan D (dose of 25 ml / kg), had an average growth shows the highest weight,

because the nutrient content of VITERNA plus nutritional supplement that already exist within feed, so that the feed can be put to good use for growth. In accordance with the opinion of Kordi (2012), which states that the added weight of the fish is influenced by the feed given during maintenance, not just enough and on time, but the feed must contain enough nutrients or nutrient.

In the treatment of B (a dose of 20 ml / kg) and the treatment of C (15 ml / kg) showed that the feed given dimanfaatkan by seed. The low growth of the weight on treatment A without the addition of VITERNA plus indicates that the feed is not entirely consumed by the seed for the content of nutrients present in the feed have not been able to meet the needs of the seed and the one that led to low growth of the weight on the seeds for protein content in the feed is very low. According Kordi, (2009) a protein deficiency negatively affect feed intake, consequently decrease the weight growth. While excess protein can cause decreased appetite fish. The nutritional value (nutritional) food generally seen in nutrient composition and how the components of nutrition are important and should be available in a feed, such as protein, fat, carbohydrates, and vitamins.

Results of analysis of variance Siamese catfish seed weight showed that the addition of VITERNA plus different doses on feed delivers significant influence ($F_{hit} > F_{table}$) on the growth of the seed weight siamese catfish (*Pangasius hypophthalmus*). Furthermore, to determine the effect of each treatment, followed by Least Significant Difference Test (BNT). The results of the analysis of real difference test the smallest (BNT) that the weight of the seed catfish Siamese affect the growth of the seed catfish Siamese where the treatment D significantly different with treatment C, B and A, C treatment significantly different with treatment B and A and treatment B significantly different treatment A.

.Daily Growth Average (DGA)

Daily growth in length and an average weight of seed catfish Siamese (*Pangasius hypophthalmus*) for 35 days using four treatments the treatment of A (0 ml / kg), treatment B (dose VITERNA 15 ml / kg), C treatment (dosage VITERNA 20 ml / kg) and

treatment D (VITERNA dose of 25 ml / kg) can be seen in Figure 3 and Figure 4.



Figure 3. Average length growth

Growth in average daily length of catfish Siamese seeds for 35 days based on the addition VITERNA plus different doses on feed gives average growth in length and weight of different daily. Daily growth length of the seed catfish Siamese highest indicated in treatment D (dose of 25 ml / kg) of 0.053 cm, followed by treatment of C (a dose of 20 ml / kg) of 0.047 cm, and treatment B (15 ml / kg) of 0.035 cm and the next lowest at no additional treatment A VITERNA plus the 0.019 cm. While the growth of body weight daily seed catfish Siamese (Pangasius hypophthalmus) Highest indicated in treatment D (dose of 25 ml / kg) of 0.021 gram, followed by treatment of C (a dose of 20 ml / kg) of 0.018 grams, then treatment B (dose 15 ml / kg) of 0.012 grams and the next lowest at A treatment that is 0.0071 gram.

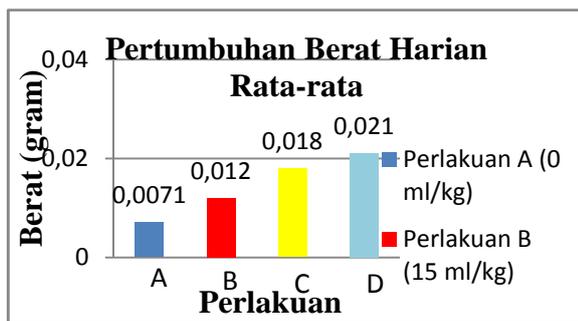


Figure 4. Average weight growth

VITERNA plus additions in the feed at a dose of 25 ml / kg resulted in the growth in length and weight of the highest compared with the dose of 15 ml, 20 ml and feed without the addition VITERNA plus. This is due to the amount of feed given is sufficient for seed eating Siamese catfish (Pangasius hypophthalmus). Besides feed given already meet seed requirements for the VITERNA plus the addition of a low nutrient content of feed can be met so as to spur the growth of

the seed siamese catfish (Pangasius hypophthalmus).Prihadi (2007), said growth is influenced by several factors: factors of domestic and external factors, while the factor of the covering nature of heredity, disease resistance and the ability to use food, while external factors include the physical, chemical and biological waters. Dietary factors and the water temperature is a major factor that can affect the growth of fish. In addition, the growth of fish can occur if the amount of food exceeds the requirements for maintenance of his body.

Factors affecting the growth of fish is the protein content in the diet, because protein serves to form new tissue growth and replace damaged tissue. According to (Kordi, 2009) protein deficiency negatively affect feed intake, growth consequently decrease weight while excess protein can cause decreased appetite fish. The nutritional value (nutritional) food generally seen in nutrient composition and how the components of nutrition are important and should be available in a feed, such as protein, fat, carbohydrates, and vitamins.

Survival

Survival is the ratio of the number of organisms that live in akhirperiode by the number of organisms that live at the beginning of the period. Seed viability catfish Siamese (Pangasius hypophthalmus) for 35 days of maintenance which uses four treatments with increasing doses VITERNA different in the feed ie A treatment with doses of 0 ml / kg, treatment B at a dose of 15 ml / kg, treatment C 20 ml / kg and treatment D at a dose of 25 ml / kg can be seen in Figure 5.



Figure 5. Kelangsungan Hidup Benih Ikan Patin Siam

Based on the image above that the survival rate in all treatments showed that the addition of VITERNA plus the influence of feed on the seed survival rate of conjoined catfish. Where all treatments give an

average presentation survival different. In the treatment without giving VITERNA A plus acquired 66.67% survival, treatment B (dose of 15 ml / kg) of 76.19%, C treatment (dosage of 20 ml / kg) 80.95% and treatment D (dosage 25 ml / kg) of 88.10%.

The survival rate can be used to determine the tolerance kemampuan fish to live. In cultivation, mortality factor that affects the survival of larvae or seed. Fish mortality caused oleh beberapa factors, factors inside and outside factors. Factor in the body that affects fish mortality is the difference in age and ability untuk menyesuaikan yourself with the surroundings. The external factors include the conditions of abiotic, kompetisi antar species, increased predators, parasites, lack of food, handling, catching and increase the number of fish populations in fish sama. Kematian space that can be caused by several factors, among others, is by abiotic conditions, predators, parasites, arrests and lack of food (CTF, 2010).

Water Quality

Results of water quality measurements during maintenance seed Siamese catfish (*Pangasius hypophthalmus*) showed that the range obtained is still in a good limit for life conjoined seed catfish (*Pangasius hypophthalmus*).

Water quality measurements carried out once in every week by using a measuring instrument Water Monitor Checker. Measurements were made in the afternoon. According to the table above that the water quality measurement temperature is relatively stable throughout the study on a scale of 26.58 to 28.89 °C, the value is good for the growth of the seed siamese

catfish (*Pangasius hypophthalmus*). Temperatures that are too high will cause the growth of the fish are not optimal. According to Susanto (2009), the optimal temperature range for pertumbuhan ikan catfish is 25-30 °C. In addition, during the study ranged from 7.34 to 7.89 pH. The pH is good for growing seed siamese catfish (*Pangasius hypophthalmus*), Indonesian National Standard (SNI, 2000), that the optimal pH for growth of the seed Siamese catfish (*Pangasius hypophthalmus*) ranged from 6.5 to 8.5. Dissolved oxygen (DO) ranged from 5.01 to 6.04 mg / liter. According to Susanto (2009), dissolved oxygen is good for the growth of the seed siamese catfish (*Pangasius hypophthalmus*) is 5-6 mg / l.

Conclusion and Suggestion

VITERNA plus the addition of different doses on feed delivers highly significant effect on the growth of long and heavy seed Siamese catfish (*Pangasius hypophthalmus*). Length and weight of the highest growth indicated in treatment D (dose of 25 ml / kg) of 1.86 cm and 0.72 grams while the lowest growth is in the treatment of A (0 ml / kg) of 0.67 cm and 0.25 grams. Seed viability Siamese catfish are best used in treatment D (25 ml / kg) amounted to 88.10% and the lowest is in the treatment of A (0 ml / kg) 66.67%.

Based on the above conclusions, the suggestions can be proposed that further research on VITERNA dose plus higher on the growth and survival of seeds catfish conjoined with a dose feeding has been added VITERNA above plus 5% of the body weight of the fish.

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