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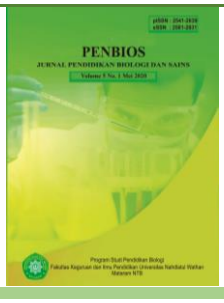

THE INFLUENCE OF THE MIXTURE FEED KAYAMBANG (*Salvinia molesta*) WITH DIFFERENT COMPOSITIONS TO THE GROWTH OF SANGKURIANG CATFISH (*Clarias* sp) ENLARGEMENT AGE (GROWER)

Siti Diana Fathia [1*)], Soesy Asiah Susylawati[2)], Rini Solihat[3)]
[1] Biology Departement, Singaperbangsa Karawang University
[2] Biology Departement, Education University of Indonesia
[3] Biology Departement, Education University of Indonesia
* Correspondence email: s.dianafathia02@gmail.com

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ABSTRACT

This research aims to determine the influence of mixed feed *S. molesta* with different composition on the growth of *Clarias* sp. The treatment carried out on this study included 3 different compositions of the *S. molesta* flour is treatment A composition of the addition of *S. molesta* is different from 20.62 grams (to reach A protein 30%), B treatment of *S. molesta* composition given at 13.34 grams (to achieve protein 40%), and the treatment C composition of *S. molesta* of 6, 05gram (to reach protein 50%) and control (feeding factory F782). the results of the study showed that the influence of artificial feed *S. molesta* is best at treatment A and the lowest at the treatment of C. Based on research conducted the average weight increase *Clarias* sp is in the treatment of A 0.781 grams and the most significant increase in the length of the average in treatment A (30% protein) increased by 0.433 cm. Friedman test results show there is a difference in weight and length *Clarias* sp which is given the treatment of feed A, B and C and feed the plant ($P > 0.05$). The conclusion of the study was the influence of the feed mix *S. molesta* to Growth *Clarias sp* age enlargement.

A. INTRODUCTION

Catfish is one type of freshwater fish that has been commercially cultivated by Indonesian people, especially in Java Island. Catfish cultivation is growing rapidly because it can be cultivated in land and water resources are limited with solid high (Kuswiyanto, 2008). The Dumbo catfish or *Clarias gariepinus* is one of the most desirable freshwater aquaculture fish (Mahyuddin, 2008). This can be seen from the average consumption of nationally increased by 18.3 % per year from 24,991 in 1999 to 57,740 tons in 2003, revitalizing catfish until the end of the year 2009 is targeted at the production of 175,000 tons or 21.64 % annually (Mahyudin, 2008). Based on this, it is necessary to increase catfish cultivation to fulfill the demands of the community while preserving its sustainability. In this research, the use of catfish Sangkuriang (*Clarias* sp) which is a derivative of the Dumbo catfish, the result of the marriage between the 8-derivative Dumbo

catfish with its parent. Morphology and physiology of catfish Sangkuriang almost the same as the Dumbo catfish there is little difference in the color of his body that is whiter (Basahudin, 2009).

In general, feed efficiency and growth are made a base on the selection of feed protein levels. However, on the other hand. *S. molesta* is potential to be used as a local raw material feed alternative because of *S. molesta* able to multiply rapidly vegetatively, with the procurement time of two to four days under normal conditions, so that the availability is adequate, even sometimes often not exploited if its existence in the rice fields abundant. Adrizal (2002) in his research to inform the metabolism of energy content of *S. molesta* is 2200 kcal/kg.

The artificial feed is a feed that is deliberately prepared and made. This feed consists of a few raw materials that are then processed further so that the shape is changed from its original form (Mudjiman, 2007). Some things that need to be considered in choosing feed is the nutrient content of the feed, physical properties, color, and aroma. Based on the research results, protein levels are 26-28% and fat content is 6-8% (Wawan, 2007). Kurnia (2008) argues that like humans, fish need complete and adequate nutrition for his life. The main elements such as proteins, fats, and carbohydrates as the main components besides minerals and vitamins as supporting components, are necessary to support the growth of an organism.

B. METHOD

Types of research

Research conducted is experimental research. According to Nazir (2003) The experimental method is the research done by manipulating the research object as well as the control as a comparator.

Population and samples

1. The population used in this research is all Sangkuriang catfish (*Clarias* sp) at the age of magnification (grower) with an average weight of 10-25 grams.
2. The samples used are Sangkuriang catfish (*Clarias* sp) with four treatments as much as 24 tails, for each treatment consisting of 6 tails.

Place and Time research

Research conducted in laboratory ecology of Biological Education majors Faculty of Mathematics and Natural Sciences University of Indonesia Education (UPI), Dr. Setiabudi No. 229 Bandung starting from June-July 2009.

Preparation phase

1. Provision of venue

Setting fish placement and test container preparation, covering the container used in the form of jolang (large plastic bucket) with a height of 25 cm and a diameter of 52 cm, the placement of fish in accordance with the treatment of groups with treatment I (30 % protein), treatment II (40% protein), treatment III (50% protein) and control treatment.

2. Provision of Feed

The feed used in this research is the artificial feed with the difference of composition *S. molesta* given that is 20.62 grams, 13.34 grams, and 6.05 grams according to the

calculation of artificial feed is explained in the previous research by Sri Maryanti (2009; Panduwijaya, 2007).

Data Analysis

Data obtained from observations regarding the weight and length of fish are analyzed using SPSS 16. Non parametric test to determine the influence on the growth of Clarias SP is conducted Friedman test.

C. RESULTS AND DISCUSSION

Results

Mixed feed Kayambang (*Salvinia molesta*)

The artificial feed on this research is pellet-shaped, which has been mixed and adjusted in size with the mouth opening *Clarias* sp. The artificial feed used is 3 different compositions to achieve protein content of 30%, 40%, and 50%.

Growth of *Clarias* sp after feeding

In this research the growth is seen at the weight increase and body length of *Clarias* sp every week. The weight and length of *Clarias* sp is weighed at the beginning of the experiment or before treatment, the next five times the weight and length weighing every seven days once during 35 days. The results of the growth of *Clarias* sp include weight and length will be described below:

Weight *Clarias* sp

Weight *Clarias* sp for 35 a full day of observation can be seen in appendix C. 3, the average weight increase data *Clarias* sp can be seen in **Table 3.1**, the following:

Table 3.1. Average weight increase *Clarias* sp.

Treatment	W_0 (g)	W_5 (g)	ΔW (g)
A	10,839	11,620	0,781
B	13,473	12,208	-1,265
C	14,837	12,755	-2,082
D	12,649	15,367	2,718

Description :

W_0 = *Clarias sp Weight per week*-0

W_5 = *Clarias sp* Weight per week-5

ΔW = Average weight difference*Clarias sp* W_5-W_0

In this study, the average initial weight of the *Clarias* sp range taken for *Clarias* sp age enlargement ranged from 10.50 to 20.00 grams. In general, the average weight result of *Clarias* sp from **Table 3.1** Shows the final weight (W5) experiencing a change from the initial weight (P0).

Weight *Clarias* sp at Treatment A

A treatment is with the addition of *S. molesta* flour of 20.62%, the average weight of *Clarias* sp experienced an increase that is not too large. The average weight data of *Clarias* sp can be seen in appendix C.2. For more details the average weight of *Clarias* sp created the following graphic:

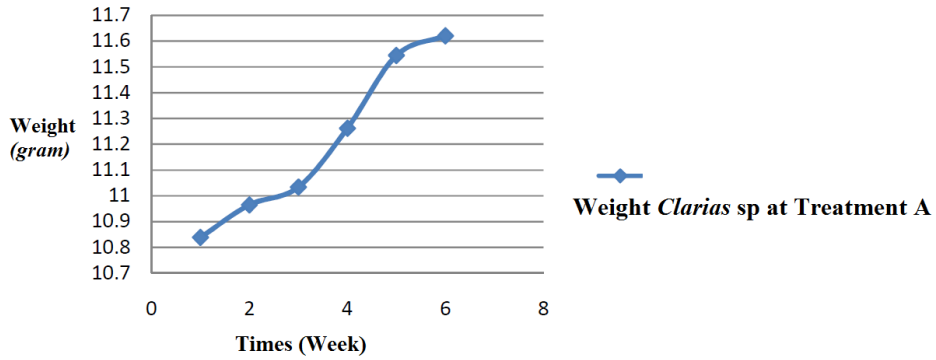

Figure 3.1. Average weight of Clarias sp on A treatment

Figure 3.1 shows that the average initial weight of *Clarias* sp at treatment A amounted to 10.84 and an average end weight of 11.62 there was an average weight increase of 0.78 grams. The average weight of *Clarias* sp increases in line with the increase in the weight of gram-feeding is adjusted.

Weight Clarias sp at B treatment

Treatment B is with the addition of *S. molesta* flour of 13.34%, the average weight *Clarias* sp decreased. The average weight Data of *Clarias* sp can be seen in appendix C.2. for more details the average weight of *Clarias* sp created the following graphic:

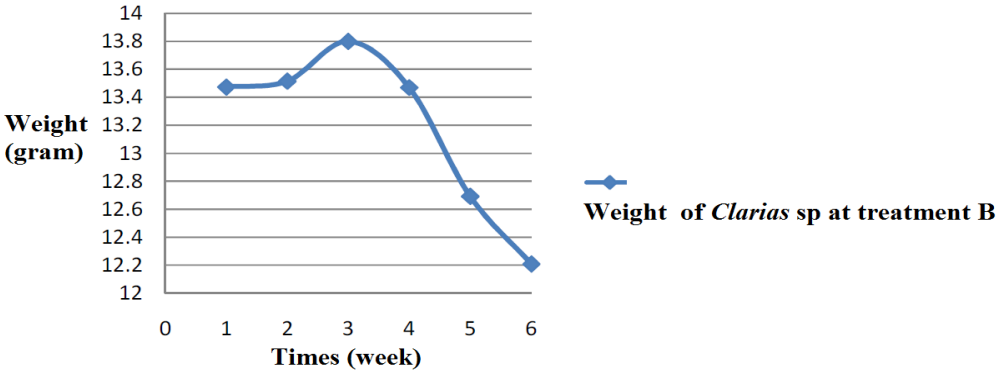

Figure 3.2. Heavy weight *Clarias* sp on B treatment

Figure 3.2 shows the average initial weight of *Clarias* sp on the treatment B has increased by 0.04 to three weeks. But from week 3 to last week it suffered a weight loss of 1.26 grams.

Weight *Clarias* sp on treatment C

The treatment of C is with the addition of *S. molesta* flour of 13.34%, the average weight *Clarias* sp decreased. The average weight data of *Clarias* sp can be seen in appendix C.2. For more details the average weight of *Clarias* sp created the following graphic:

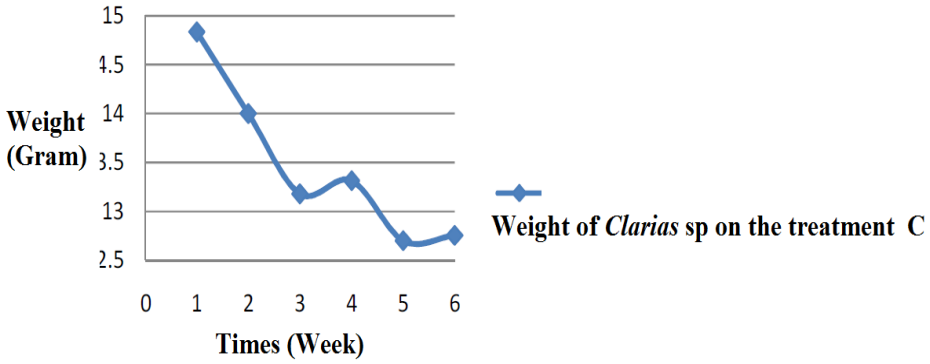

Figure 3.3. Images of the average weight of *Clarias* sp in C treatment

Figure 3.3 shows that the weight of *Clarias* sp in the initial measurements decreased by 0.84 grams. But from the fourth week it increased by 0.55 grams and dropped back until the last week of research of 0.56 grams.

Weight Clarias sp on D treatment

Treatment D is by feeding the plant (31% protein), the average weight *Clarias* sp increased. The average weight data of *Clarias* sp can be seen in appendix C.2. For more details the average weight of *Clarias* sp created the following graphic:

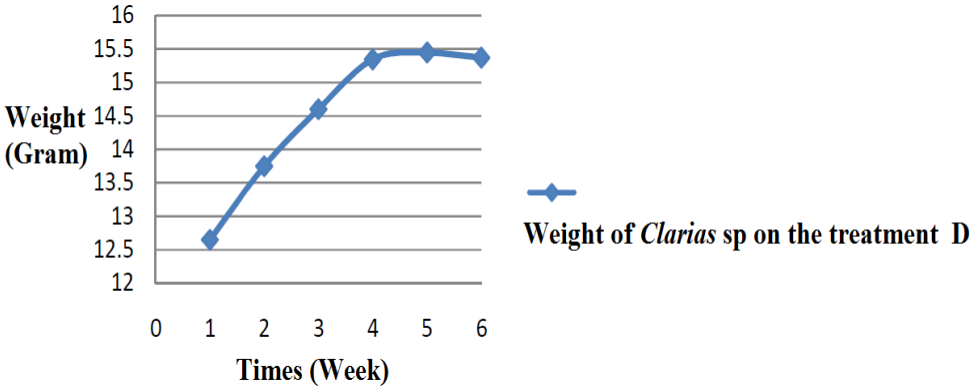

Figure 3.4. Images of the average weight of Clarias sp on D treatment

Figure 3.4 shows that the weight of *Clarias* sp is relatively increased from the initial weight of 12.65 grams to 15.37 grams. Increased weight *Clarias* sp on a relatively stable or not decreased control. The feed given in the control group is F-782 whose protein is adjusted to the age of *Clarias* sp enlargement stage that is the feed with the proteins content 26 -30%.

Analysis result of heavy statistical test *Clarias* sp Friedman Results Weight Test *Clarias* sp

The average weight of *Clarias* sp in this test results in a calculated value of 0.019 smaller than the 0.05 value thus can be deduced H0 rejected and mean also heavy data in the Inter group *Clarias* sp has a significant difference.

Friedman test results

Friedman test results on the weight of *Clarias* sp by 0.007 it states that the value of significance < of 0.05 then H0 is rejected, or in other words the heavy data of a Sangkuriang catfish (*Clarias* sp) between groups has a significant difference.

Discussion

Feed mixture *Salvinia molesta*

Sukmaniah (2009) which suggests that the proportion of methionine in protein contained in plants close to the proportion of methionine in animals, so that *S. molesta* can be used as raw material of feed making. Nutrient content and the existence of *S. molesta* itself, used as a factor for the choice of *S. molesta* as a substitute for fish flour in addition to the methionine content, even the presence of as a water weed that easily found *S. molesta* can be used Also as an absorber of various nutrients in water. It is similar to the opinion of Wake (1986) stating that *S. molesta* can absorb nutrients in water. So also according to Wawan (2007) good feed for fish enlargement in the form of pellets that are not easily crushed, not quickly drowned and have a scent that stimulates the appetite of fish. Some things that need to be considered in choosing feed that is nutrient content of feed, physical properties, color, and aroma and protein content is 26-28% and fat content of 6-8%. This can be caused by various factors such as the process of making blood flour, corn flour or soy flour. For example, in processing, weighing and drying oven-use. This is in accordance with the opinions expressed by Poernomo and Sarnianto (2003) that the process of making feed energy is necessary.

Weight *Clarias* sp

The increase in the average weight of *Clarias* sp in A treatment can be caused by proteins or various other factors, but that is emphasized in this study of the weight gain in the quality of nutrition in feed especially from its protein content. This is in line with the statement expressed by Afrianto & Liviawaty (2005) that Catfish (*Clarias* sp) can grow well if the feed is given methionine or an essential amino acid instead of a non-essential amino acid. According to Basahudin (2009) Good feed is a combination of natural feed such as worms or other low-level animals and artificial feed that has a good protein content, at the treatment of B (protein content of 34.53%) Average weight feeding *Clarias* sp increased in the first week of 13.473 G until the third week of 13.798 then from the third week decreased from 13.469 G to 12.208 G. Given feed is still suitable for *Clarias* sp age Enlargement, given the protein requirement needed by *Clarias* sp an optimal age enlargement of 26-30%, this is in accordance with Panduwijaya (2007) That 34% protein content still provides increased growth on *Clarias* sp.

At the treatment of C is almost the same as the B treatment, but on the treatment of C the average weight *Clarias* sp do not experience a hike at all. Excess consumption of proteinpun will cause the body to not be able to store proteins and can cause rupture of the stomach. In addition to the research is good treatment A, B and C only used artificial feed, whereas in order to achieve optimal growth there should be a combination of natural feed and artificial feed. It is in accordance with the opinion of Mahyuddin (2008:98) that to get the benefit of catfish growth there is usually an alternative feed given on catfish such as snail, snail, waste hatching eggs, carcass and fish.

At the treatment of D feed used is the factory feed F-782, which has 31% protein and other nutritional content that is already adjusted to *Clarias* SP age enlargement. This led to the heavy experience of a very constant increase in the feed alternatives made by feed mills greatly supporting the growth of fish (Mahyuddin, 2008; Basahudin, 2009).

CONCLUSIONS AND SUGGESTIONS

Conclusion

Based on the results of the research that has been done, the growth of *Clarias* sp either given the artificial feed with a mixture of Salvinia molesta or feed with the plant. Of the three composition of *S. molesta* given the average weight increase of *Clarias* sp most optimal is in treatment A (protein 30%) Increased by 0.78 grams from the initial weight (W0) to the final weight (W5) and the most significant increase in the length of the average is in treatment A (30% protein) increased by 0.43 cm. Based on the results of the test Friedman concluded that there is an influence of artificial feeding on growth of *Clarias* sp both in weight and length.

Suggestions

The advice that can be taken based on this research is to get optimal results, it is necessary to do advanced research by using the addition of protein materials other than *S. molesta*. And in this research can also be done on *Clarias* sp age pendederan 1 or 2-degree to be seen the comparison of artificial feed most influential to the growth of *Clarias* sp.

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