THE EFFECT OF ADDING EM4 TO MOIST PELLETS ON THE GROWTH AND SURVIVAL OF SNUBNOSEPOMPANO (*Trachinotus blochii*)

ABSTRACT

SnubnosePompano (*Tracinotusblochii*) is a species that is still relatively new to be cultivated in Indonesia but has great potential to be developed because it has high nutritional content. However, in cultivation activities, expensive feed and low dietary quality are obstacles that cultivators often complain about. The solution to high feed prices is that additional ingredients (addictive feed) are needed that can increase the growth and survival of fish, thereby reducing production costs and providing alternative feed other than just trash fish. Additional ingredients known on the market are Effective Microorganism-4 (EM4) probiotics. So this research aims to analyze further the effect of adding the probiotic Effective Microorganism-4 (EM4) at different doses on growth, feed efficiency levels, and survival of SnubnosePompano (*Trachinotus blochii*) seeds. This research uses an experimental method (Completely Randomized Design (RAL)), namely a method of testing a planned theory to create facts and provide statistical descriptions to produce facts that can strengthen previous research combined with survey methods and direct measurements in the field. Based on the results of the research carried out, it can be concluded that the addition of EM4 to moist pellets has an influence on the absolute length growth of the SnubnosePompano (*Trachinotus blochii*) which is the best in the 80% treatment (P4) which is not significantly different from the 70% treatment (P3), however substantially different from the Control (P0), 50% (P1), and 60% (P2) treatments. In connection with the results of this study, further research is needed regarding the addition of EM4 at higher doses.

Keywords: Snubnose Pompano (Tracinotusblochii); feed addictive; Effective Microorganism-4 (EM4); pellet moist.

1. INTRODUCTION

Snubnosepompano (*Tracinotusblochii*) is a species that is still relatively new to be cultivated in Indonesia. Even though it is relatively new, the star pomfret fish has been able to attract the attention of cultivators to cultivate Snubnosepompano fish. This is because pomfret fish has several advantages, for example in terms of nutritional content. According to Ashari et al. (2014) the omega 3 content of pomfret is very high, consisting of 390 mg/100 grams of DHA and 2,560 mg/100 grams of EPA. Apart from that, the pomfret fish also has advantages in terms of ease of maintenance, resistance to disease, and fast growth[1].

Good and highly nutritious feed is needed for the growth of Snubnosepompanofish. For cultivators, this feed is included in the largest production costs in cultivation activities. The costs used to feed fish can reach 60-70% of the total production costs. Feed that is expensive and has low nutritional quality is an obstacle that farmers often complain about (Ardita et al., 2015). The solution to expensive feed prices is that additional ingredients (addictive feed) are needed that can increase the growth and survival of fish, thereby reducing production costs and providing alternative feed other than just trash fish. Additional ingredients known on the market are Effective Microorganism-4 (EM4) probiotics [2].

Effective Microorganism-4 (EM4) as an additional ingredient in feed mixtures can have a beneficial effect on fish growth and survival. This is because probiotics contain bacteria (microbes) which can improve the balance of the digestive system by producing the enzymes amylase, protease and cellulose. These enzymes can hydrolyze complex molecules (carbohydrates, proteins and fats) into simpler ones, thus facilitating the process of digestion and absorption of nutrients in the fish intestines[3].

The results of Febriany's research (2022) which administered probiotics at a dose of 50 mL/kg to the star pomfret seed feed resulted in the highest daily growth rate of 0.125%, whereas without probiotics the growth rate was 0.09%. Hamdani's research (2018) which carried out probiotics at a dose of 40 mL/kg of feed to the star pomfret fish feed resulted in an absolute growth rate of 4.76 g, whereas without giving probiotics the absolute growth rate was 3.58 g.

Based on the results of the description of the background and problems, this research aims to further analyze the effect of adding Effective Microorganism-4 (EM4) probiotics at different doses on the growth, level of feed efficiency and survival of Snubnosepompano (*Trachinotus blochii*).

2. MATERIALS AND METHODS

Time and Place

This research was carried out in May – July 2023 at the Ekas Bay Floating Net Cage, Ekas Village, Jerowaru District, East Lombok Regency, West Nusa Tenggara Province. Next, oxygen levels were observed in the Aquatic Environment Laboratory, Faculty of Agriculture, Aquaculture Study Program, University of Mataram.

Research Methods

This research is using experimental method. namely a method of testing a planned theory to create facts and provide statistical descriptions to produce facts that can strengthen previous research combined with survey methods and direct measurements in the field. The design used is a Completely Randomized Design (RAL) or a field design that uses homogeneous locations. The homogeneous location referred to here is a floating net cage (KJA) unit as a place to conduct this research. The treatment that will be carried out is based on the results of research by[4] who administered probiotics at a dose of 50 mL/kg to pomfret seed feed to obtain the best growth and survival. The advice given is to carry out research with other, higher doses to get the maximum dose. This treatment was carried out with 5 treatments and 3 repetitions, namely:

P0 : 0 mL/kg
P1 : 50 mL/kg
P2 : 60 mL/kg
P3 : 70 mL/kg
P4 : 80 mL/kg

The construction of the research layout design can be seen in Figure 1 below:

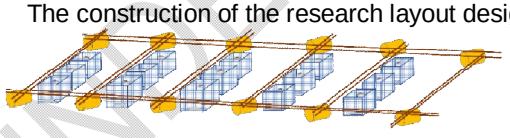

Figure 1. Floating net cage raft and research layout construction

Research Procedure

Research preparations were carried out such as preparation of tools, materials and feed. The tools used in this research were warings sewn into squares measuring 1 x 1 cm as well as tools for measuring water quality such as pH meters, DO meters, refractometers and thermometers. The material used is star pomfret seeds, with the density used being 20 Snubnosepompano seeds with a size of 5 cm. The maintenance container in this study is a waring measuring 1m x 1m. The depth used in this research is 1 meter. The pomfret seeds used were obtained from the Lombok Sea Cultivation Fisheries Center (BPBL) Sekotong.

Meanwhile, in feed preparation, the main ingredients used in making feed in this study were wet feed and trash fish. Making moist feed refers to research [5]. The step in making feed is to add as many feed ingredients as possible first, sorting them according to the dosage that has been formulated. The trash fish used is separated from its scales and bones, then ground using a blender. After all the ingredients are mixed, knead the ingredients until homogeneous. Then steam the ingredients in a pan filled with boiling water for 5 minutes so that the feed ingredients are not damp. When steaming is complete, wait a few minutes for the food to cool. The feed that has been broken down is divided into 5 parts and probiotics are added according to the specified dose by injecting it into the feed, then moist feed is formed and can be given to cultivated biota or stored in the freezer. The composition of moist feed ingredients refers to research[6].

Once the tools and materials are ready, the next step is to distribute the pomfret seeds by placing the seeds in each basket provided. The density used was 20 individuals with a size of 5 cm. After that, each container was attached with a weight to the container and lowered to a depth of 1 m.

Measurement of the length and weight of the pomfret seeds is carried out once a month. To measure body length, you can take seeds and measure them using a special ruler and measure the total length using a caliper.

Then water quality observations were carried out at the research location, namely measurements of physical parameters such as temperature, current speed and depth, chemical parameters such as pH and salinity which were carried out every 15 days, namely 0 days, 15 days, 30 days, 45 days and 60 days.

Test Parameters

The main parameters tested in this research were growth parameters (absolute length growth and specific growth rate), survival rate, feed conversion ratio, feed efficiency, and data analysis.

Growth Parameters

Absolute Length Growth

Growth parameters Absolute length was determined using the formula of[7]. Absolute length growth was calculated using the formula:

$$SGR = \frac{LnLt - LnL0 \times 100\%}{t}$$

Description:
SGR= Specific length growth rate (%/day)
Lt = Final average length of fish (cm)
L0 = Initial average length of fish (cm)
t = Research period (day)

Absolute Weight Growth

The absolute weight growth parameter is determined by the formula of [7]. Absolute length growth was calculated using the formula:

$$W = Wt - Wo$$

Description:

W = Absolute weight growth (g)

Wo = Initial average of research

Wt = Final average of research

Specific Growth Rate

The specific growth rate is measured using the formula:

$$SGR = \frac{Ln(wt) - Ln(wo)}{t} \times 100\%$$

Description:

Wt= Total weight of fish at the end (g)

Wo =Total weight of fish at the beginning (g)

t =Research period (day)

Survival Rate

Survival rate parameters are determined by[7]:

$$SR = \frac{Nt}{No} \times 100\%$$

Description:

SR = Survival rate (%)

Nt = Total of fish at the end

No = Total of fish at the beginning

Feed Conversion Ratio

The feed conservation ratio parameter is determined by the formula:

$$\frac{F}{(Wt+D)-Wo} x100\%$$

Description:

F :Total amount of feed given (g)

Wt :Total weight of fish at the end (g)

Wo :Total weight of fish at the beginning (g)

D :Weight of fish that died (g)

Feed Efficiency

The feed efficiency parameter was calculated using the formula :

$$\text{Feed Efficiency} = \frac{(Wt+D)-Wo}{F} x100$$

Description:

Wt :Total weight of fish at the end (g)

Wo :Total weight of fish at the beginning (g)

D :Weight of dead fish (g)

F :Feed consumed (g)

Data Analysis

Data obtained from the results of this study such as absolute length growth, absolute weight, specific weight, FCR, feed efficiency, and survival of Snubnosepompano will be analyzed using Analysis of Variance (ANOVA) at a significant level of 0.05, if the results obtained are significantly different ($p < 0.05$), then Duncan's test and homogeneity test are carried out to obtain the location of the significance of the data obtained. While water quality data is presented descriptively.

RESULTS AND DISCUSSION

Absolute Length Growth

The results of research carried out for 60 days in the waters of Ekas Bay, East Lombok with the addition of EM4 to different moist pellets showed that the average absolute length growth obtained ranged between 1.27cm - 2.03cm as seen in Figure 2below.

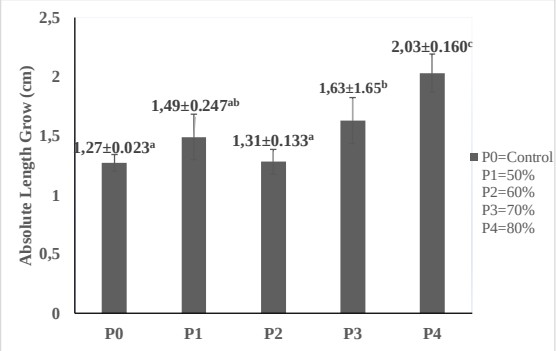

Figure 2. Absolute Length Growth Graph of Snubnose Pompano(*Trachinotus blochii*)

Based on the results of the analysis of variance of one factor (one way anova) at a significance level of 0.05, it shows that the addition of EM4 to different moist pellets has a significantly different effect (P = 0.01 <0.05) on the absolute length growth of Snubnosepompano (*Trachinotus blochii*). The results of the annova test that has been done there are significant differences between treatments. The results of the Duncan test analysis of absolute length growth in the addition of EM4 showed that the P4 treatment was significantly different from P3, P2, P1 and P0. P3 is not significantly different from P1 but P3 is significantly different from P2 and P0.

Absolute Weight Growth

The results of the research conducted for 60 days in the waters of Ekas Bay, East Lombok with the addition of EM4 to different moist pellets showed the average absolute weight growth obtained ranged from 2.07 cm - 3.38 cm as shown in Figure 3 below.

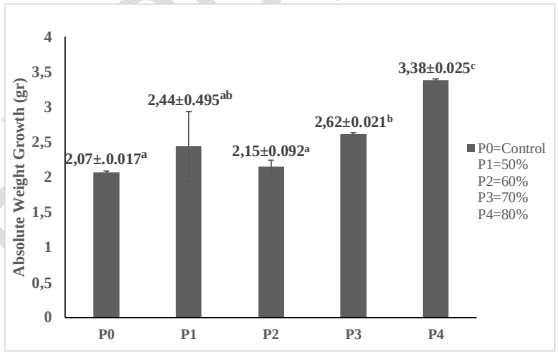

Figure 3. Absolute Weight Growth Graphof SnubnosePompano (*Trachinotus blochii*)

Based on the results of one-factor analysis of variance (one way anova) at a significance level of 0.05, it shows that the addition of EM4 to different moist pellets has a significantly different effect (P= 0.01<0.05) on the absolute length growth of cultured Snubnosepompano (*Trachinotus blochii*). The results of the annova test that has been done there are significant differences between treatments. The results of the Duncan test analysis, namely absolute weight growth in the addition of EM4, showed that the P4 treatment was significantly different from P3, P2, P1 and P0. P3 is not significantly different from P1 but P3 is significantly different from P2 and P0.

Specific Growth Rate

The results of research that has been conducted for 60 days in the waters of Ekas Bay, East Lombok with the addition of EM4 to different moist pellets show that the average specific growth rate obtained ranges from 0.74 - 1.08 as can be seen in Figure 4 below.

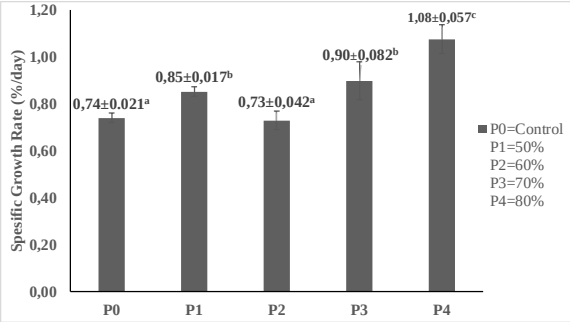

Figure 4. Specific Growth Rate Graph of SnubnosePompano(*Trachinotus blochii*)

Based on the results of one factor analysis of variance (one wayanova) at the 0.05 significance level, it shows that the addition of EM4 to different moist pellets has a significantly different effect (P = 0.00 <0.05) on the specific growth rate of cultured Snubnosepompano (*Trachinotus blochii*). The results of the annova test that has been done there are results of significant differences between treatments. The results of the Duncan test analysis is the specific growth rate of the addition of EM4 shows that the treatment of P4 is significantly different from P3, P2, P1 and P0. P3 is not significantly different from P1 but P3 is significantly different from P2 and P0.

Survival Rate

The results of research that has been conducted for 60 days in the waters of Ekas Bay, East Lombok with the addition of EM4 to different moist pellets show that the average percent survival obtained ranges from 45 - 70% as can be seen in Figure 5 below.

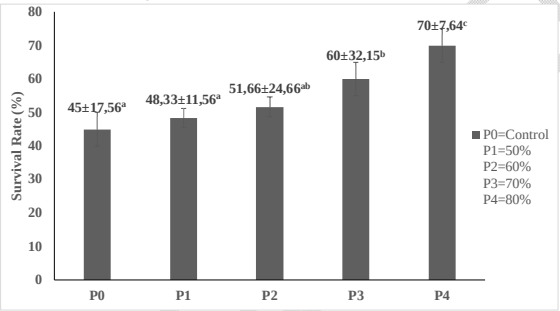

Figure5. SnubnosePompano (*Trachinotus blochii*)Survival Graph

Based on the results of one factor analysis of variance (one wayanova) at the 0.05 significance level, it shows that the addition of EM4 to different moist pellets has a significantly different effect (P = 0.01 <0.05) on the survival of cultured Snubnosepompano (*Trachinotus blochii*). The results of the annova test that has been done there are results of significant differences between treatments. The results of the Duncan test analysis are survival in the addition of EM4 shows that the treatment of P4 is significantly different from P3, P2, P1 and P0. P3 is not significantly different from P2 but P3 is significantly different from P1 and P0.

Feed Conversion Ratio

The results of research that has been conducted for 60 days in the waters of Ekas Bay, East Lombok with the addition of EM4 to different moist pellets show that the average percent feed conversion obtained ranges from 2.30%-3.31% as can be seen in Figure 6 below.

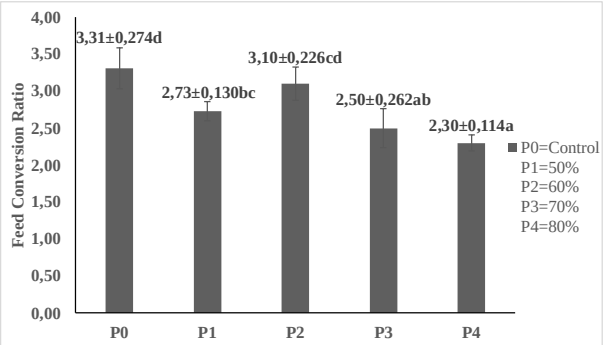

Figure6. Graph of Feed Conversion Ratio of SnubnosePompano (*Trachinotus blochii*)

Based on the results of one factor analysis of variance (one way anova) at the 0.05 significance level, it shows that the addition of EM4 to different moist pellets has a significantly different effect (P = 0.00 <0.05) on the feed conversion ratio of cultured Snubnosepompano (*Trachinotus blochii*). The results of the annova test that has been done there are significant differences between treatments. The results of the Duncan test analysis are the feed conversion ratio of the addition of EM4 shows that the treatment of P4 is significantly different from P2, P1 and P0 but not significantly different from P3. P3 is not significantly different from P1 but P3 is significantly different from P2 and P0.

Feed Efficiency

The results of research that has been conducted for 60 days in the waters of Ekas Bay, East Lombok with the addition of EM4 to different moist pellets show that the average percent feed efficiency obtained ranges from 30.30% - 43.30% as can be seen in Figure 7 below.

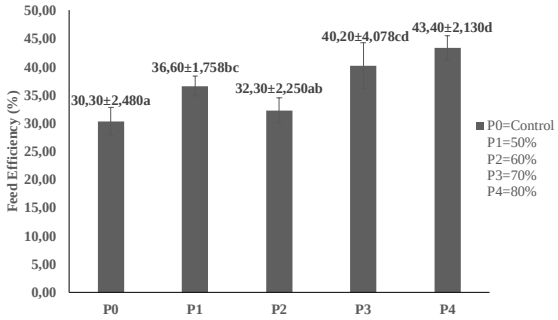

Figure7. SnubnosePompano (*Trachinotus blochii*) Feed Efficiency Graph

Based on the results of one factor analysis of variance (one wayanova) at the 0.05 significance level, it shows that the addition of EM4 to different moist pellets has a significantly different effect (P = 0.00 <0.05) on the feed efficiency of cultivated star Snubnosepompano (*Trachinotus blochii*). The results of the annova test that has been carried out have shown significant differences between treatments. The results of the Duncan test analysis is the feed efficiency of the addition of EM4 shows that the treatment of P4 is significantly different from P2, P1 and P0 but not significantly different from P3. P3 is not significantly different from P1 but P3 is significantly different from P2 and P0.

Water Quality

In raising Snubnosepompano, water quality is an important factor in supporting the growth and survival of Snubnosepompano (*Trachinotus blochii*). Water quality during research activities in the waters of Ekas Bay, East Lombok is presented in Table 1 as follows.

Table 1. Water Quality Measurement Results

No.	Parameter	Obtained Range	Ideal Range	Reference
1.	DO	5,3-6,1	5-7	Ashari *et al.* (2014)
2.	Current Speed	0,1-0,2	0,05-0,2	Fahira (2024)
3.	pH	7,8-8	6,8-8,4	Ashari *et al.* (2014)
4.	Salinity	29,5-32	29-32	Ashari *et al.* (2014)
5.	Temperature	29,1-31	28-32^{o}	Ashari *et al.* (2014)

Water quality in the waters of Ekas Bay, East Lombok during rearing is in the normal range and can support the growth and survival rate of Snubnosepompano (*Trachinotus blochii*) properly.

Discussion

Absolute Length Growth

Based on the results of research conducted for 60 days in Ekas Bay, it was found that the effect of adding EM4 to moist pellets on the absolute length growth of the Bintang Pomfret Fish (Trachinotus blochii) gave different absolute length growth. This can be proven by analysis of the average absolute length growth for each treatment given (Figure 2).

The absolute best growth in length (*Trachinotus blochii*) was in treatment P4 which was significantly different from P3 which was significant from P1 but significantly different from P2 which was significant from P0. This is due to the addition of probiotics which are not much different and are able to meet the nutritional needs of the pomfret fish. With moist feed, the addition of probiotics can also maximize the feed given because the probiotic content can cause high activity in digestion and there are differences in the dose of probiotics given so that differences in the number of bacteria contained can affect growth.

Differences in the dose of probiotics given can affect the fish's ability to digest because the addition of probiotics can produce enzymes that are useful for increasing fish growth. This is in line with the statement by [4] which states that the addition of probiotics can increase nutrition so that it can produce beneficial exogenous enzymes and these enzymes are able to minimize the release of excess energy in the digestive process so that energy can be diverted to the fish growth process and according to[8]stated that bacterial activity in digestion will change rapidly if microbes entering through feed or water cause a balance of bacteria in the digestive tract.

The balance between fish digestive tract bacteria causes probiotic bacteria to be antagonistic to pathogenic bacteria so that the fish digestive tract is better at digesting and absorbing feed nutrients. External factors are also one of the factors that support the growth of pomfret by providing food. Providing artificial feed with nutritional content that suits the needs of the pomfret can be seen from the increase in weight and body length which the pomfret's body utilizes well as an energy source. This is in accordance with the statement from [9]who stated that to accelerate growth, food is needed that has high nutritional and protein content, because it will help the body absorb the meat.

Absolute Weight Growth

Based on the results of research that has been conducted for 60 days in Ekas Bay, it is found that the effect of the addition of EM4 to moist pellets on the absolute weight growth of star pomfret (*Trachinotus blochii*) provides different absolute weight growth. This can be proven by analyzing the average absolute weight growth in each treatment given (Figure 3).

The best absolute weight growth of star pomfret (Trachinotus blochii) is in the P4 treatment with an absolute weight growth of 3.38 gr and the lowest in the P0 treatment with an absolute weight growth of 2.07 gr. This is due to differences in the high dose of probiotics given so that it affects the content of feed eaten by star pomfret because the dose of probiotics affects the number of Lactobacillus sp. bacteria that can increase the absorption process of feed. This is in accordance with the statement from [10], the increase in absolute weight occurs allegedly because the content of lactic acid bacteria such as L. casei and yeast (S. cerevisiae) at these concentrations is optimal in helping the digestion process of the feed given.

The content of L. casei in probiotics is able to break down feed complex proteins into simpler forms so that it affects the ability of fish in the process of absorbing the feed content provided. According to[11] which states that L. casei has the capacity to ferment glucose into lactic acid in large enough quantities that will affect the digestive tract and help the process of absorption of nutrients in the body of starfish. Apart from the content of L. casei, the presence of yeast also affects the absolute weight of pomfret because yeast contains vitamin B complex which is able to increase fish appetite and increase fish body metabolism. According to [12]yeast is a cellular organism that contains vitamin B complex such as thiamin, riboflavin, nicotinate and biotin.

Specific Growth Rate

Based on the results of research carried out for 60 days in Ekas Bay, it was found that the effect of adding EM4 to moist pellets on the specific growth rate of pomfret fish (*Trachinotus blochii*) gave a different specific growth rate. This can be proven by analyzing the average specific growth rate for each treatment given (Figure 4).

The best specific growth rate for pomfret fish (*Trachinotus blochii*) was in the P4 treatment with a specific growth of 1.08%. This is because the probiotics contained in the feed act well in fish digestion, so that the growth in length of specific fish with the addition of EM4 is better. According to [4], exogenous enzymes produced by probiotic bacteria produce protease, lipase and amylase which are beneficial in the fish's digestive tract. The presence of these enzymes can reduce the release of excess energy in the digestive process which can be diverted to the fish growth process. So that it is easier for fish to digest feed, bacteria can also reduce negative bacteria and add positive bacteria which will maintain fish intestinal health and optimal absorption of feed nutrients.

Survival Rate

Based on the results of research conducted for 60 days in Ekas Bay, it was found that the effect of adding EM4 to moist pellets on the survival of the pomfret fish (*Trachinotus blochii*) provided different survival. This can be proven by analysis of the average survival rate for each treatment given (Figure 5).

The best survival rate for pomfret fish (*Trachinotus blochii*) was in treatment P4 with survival of 70% and the lowest was in treatment P0 with survival of 45%. The high survival rate of pomfret fish is thought to occur due to the addition of probiotics which can optimize growth and reduce the death rate caused by pathogens. Noviana et al. (2014) stated that the use of probiotics in aquaculture feed can optimize the body's resistance and survival of aquaculture biota against pathogenic infections.

During maintenance, there are several pests that can eat food and disrupt the activities of the pomfret fish by grabbing them from outside the waring bag. Cultivation carried out in KJA in the sea is water-based, where the production container is in a body of water that is open (open access) and public. This is in accordance with the statement from [13]which states that in water-based aquaculture, the environment cannot be completely controlled like in land-based aquaculture, including the presence of pests that are predators, competitors or parasitors.

Feed Conversion Ratio

Based on the results of research carried out for 60 days in Ekas Bay, the results showed that the effect of adding EM4 to moist pellets on the feed conversion ratio of pomfret fish (*Trachinotus blochii*) provided a different feed conversion ratio. This can be proven by analysis by the average survival rate for each treatment given (Figure 6).

The best feed conversion ratio for pomfret fish (*Trachinotus blochii*) was in treatment P4 with a feed conversion ratio of 2.30% and the lowest was in treatment P0 with a feed conversion ratio of

3.31%. This is because the addition of a probiotic concentration of 80% is more optimal compared to other treatments because the higher the probiotic concentration given, the more bacteria there will be which can help the fish's digestive process become more optimal. With the added probiotics containing L. Casio and kahmir (*S. cereviciae*) which have good ingredients to support fish growth. According to [14]L. casei contained in EM-4 probiotics is able to move complex proteins contained in feed into a simpler form, so that absorption of nutrients in feed can run optimally.

The protease enzyme of Lactobacillus sp. can simplify complex proteins into simpler ones, making it easier for food to be absorbed by the intestines. The yeast type *S. cereviciae* or commonly called baker's yeast is contained in the EM-4 probiotic and there are nucleotides in the baker's yeast which can improve the fish's appetite so that feed intake increases.

Feed Efficiency

Based on the results of research conducted for 60 days in Ekas Bay, it was found that the effect of adding EM4 to wet pellets on the feed efficiency Snubnosepompano (*Trachinotus blochii*)provided different feed efficiency. This can be proven by analyzing the average survival rate for each treatment given (Figure 7).

The best feed efficiency value for Snubnosepompano (*Trachinotus blochii*)was in treatment P4 with survival of 43.30% and the lowest was in treatment P0 with survival of 30.30%. The high feed efficiency value obtained in this treatment shows that there has been optimal utilization of feed used for the fish growth process. [15]stated that the level of digestibility of fish feed is better when given probiotics because probiotics can make the condition of the fish's digestive tract more acidic.

This condition will speed up the secretion of enzymes to help the feed digestion process. Furthermore, [16]explains that if the feed can be digested properly, the feed nutrients will be absorbed optimally, which is shown by increasing the retention value of protein, fat and carbohydrates.

Water Quality

Water quality conditions can affect the Bintang pomfret fish. Water quality is a supporting aspect that determines the survival of the Snubnosepompano (*Trachinotus blochii*). The parameters measured in this research are DO (Dissolved Oxygen), current speed, temperature, pH and salinity.

The results of measurements during the research obtained an average DO value ranging from 5.3 - 6.1 ppm. According to [17], the concentration and availability of dissolved oxygen levels in water are very necessary for fish and other organisms to live. A good DO range for Snubnosepompano (*Trachinotus blochii)* is between 5.0 – 7.0 ppm. Thus, the DO conditions in the waters of Ekas Bay are still relatively good for the survival of the Snubnosepompano (*Trachinotus blochii*).

The results of measurements during the research showed that the average current speed was 0.1-0.2 m/s. According to [18], current speed can influence water circulation in cages to clean remaining uneaten feed and help the process of circulating dissolved oxygen. The range of current speeds that can support the growth of the star pomfret is 0.05 m/s – 0.2 m/s, so that the current conditions in the waters of Ekas Bay are still relatively good for the growth and survival of the Snubnosepompano (*Trachinotus blochii*).

The results of measurements during the research obtained an average temperature value of 29.1°C-31°C. According to [17], high temperature changes in sea waters will affect the metabolic processes, body activities and nerves of fish. The optimal temperature range for growth of pomfret fish is between 28-32°C, so that the water temperature conditions of Ekas Bay can still be tolerated by Snubnosepompano (*Trachinotus blochii*).

The results of measurements during the research obtained an average pH value of 7.8-8. According to [17], waters that have a low pH can result in decreased growth activity or fish becoming weak and more susceptible to disease and this is usually followed by a high mortality rate. The optimal pH range for growing pomfret is between 6.8 – 8.4. Thus, the pH conditions of the waters of Ekas Bay can still be tolerated by the Snubnosepompano (*Trachinotus blochii*).

The results of measurements during the research obtained an average salinity value of 29.5-31 ppt. According to [17], salinity is an environmental parameter that influences biological processes and

directly the growth of living organisms and the appetite of fish. The ideal salinity range for cultivating Bintang pomfret is 29-32 ppt. Thus, the salinity conditions in the waters of Ekas Bay can still be tolerated by the Snubnosepompano (*Trachinotus blochii*).

CONCLUSION

Based on the results of the research carried out, it can be concluded that the addition of EM4 to moist pellets has an influence on the growth in absolute length, absolute weight, specific growth rate, survival, FCR and feed efficiency of the best SnubnosePompano (*Trachinotus blochii*), namely at 80% treatment.

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