Effect of Betel Leaf Decoction against Ectoparasites Intensity of Monogenea

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Abstract

This study aims to determine the effect of the decoction of betel leaf (Piper betle Linn) in the prevention of parasitic Cichlidogyrus sp on tilapia fish (Oreochromis niloticus) and calculate the intensity level of Cichlidogyrus sp parasites on the gills organ of tilapia. The research method using experimental methods and data processing is done descriptively. Immersion of tilapia in betel leaf (Piper betle Linn) decoction has no effect on the level of intensity of monogenea ectoparasite Cichlidogyrus sp. The level of intensity of the parasite at the highest in treatment A is 2.24 and the lowest in treatment D is 1.58 count/individual. Water quality parameter during the study is still in the proper conditions for the life of tilapia.

Keywords: Betel leaf; ectoparasites; monogenea; tilapia; Oreochromis niloticus.

Introduction

Tilapia (Oreochromis niloticus), a leading commodity in the business of freshwater fisheries.Tilapia tilapia including a group that has an elongated body shape, slim and relatively flat. Tilapia can live in the waters of the deep and wide as well as narrow and shallow pools. Tilapia can also live in the river is not too heavy flow, dams, lakes, swamps, fields, brackish water ponds or in floating net. According Rachmiwati (2008) Tilapia are herbivores, omnivores and plankton. Another important feature of tilapia is growing relatively fast compared to other types of fish.

According Yuliarti (2011) of fish diseases is one of the obstacles in the cultivation on seeding rates and magnifying. One of the attacks was a parasitic disease in fish. Parasites are organisms that live on the other organisms that take food from the body of the organism, so that the organism place to eat (the host) will suffer losses. Parasitism is the relationship with one species of parasite which its host as a habitat and a place to get food or nutrients, the host body is the primary environment of the parasite, while the surrounding neighborhood is a neighborhood of both (Yudhie 2010).

Prevention of disease in fish have been using chemicals. The chemicals can be damaging to the environment that is difficult to degrade, (Baticados and Paclibare, 1992). The use of natural materials to overcome the above problems is a positive way at this time, because the natural material to function as an anti-microbial environmentally friendly, so avoid the pollution. One of the natural ingredients that can be used to prevent parasitic infections cichlidogyrus that attack tilapia is to stew betel leaf (Piper betle L.). According Dervish (1992), betel leaves were found to contain the active ingredient carvacrol phenols such as antiseptic and antimicrobial.

According to Herath (2009) the use of betel leaf stew with a concentration of 8.3 ppt effective to reduce ectoparasites on fish tetra, then Noble and Husin (2010) state feed with the addition of betel leaf extract 0.2 grams / 100 grams of feed is an effective treatment for treating catfish were infected by bacteria Aeromonas hydrophila. Meanwhile, according to Hidayah (2014) the effective dose for immersion sick fish use betel leaf decoction is 2 grams of the betel leaf / 60 ml of water.

Research Methodology

The research was conducted on albino May 2015, the research location in the Central Fish seed (BBI) and the Laboratory of Parasitic Gorontalo City Fish Quarantine Station Class I Djalalludin Gorontalo. The tools used in this study is a cylcountrical plastic container as the container maintenance, pH meter, DO meter, Scales analytical, Trinoculer Microscope, Binocular Microscope, Water Bath, and Stationery Writing.

This research uses experimental methods were analyzed using completely randomized design (CRD). Test variables in this research was the betel leaf stew with different doses with 4 treatments and 3 replications. Treatment A (0), treatment B (2.5 g / 60 ml), treatment C (5 g / 60 ml) and treatment D (7.5 / 60 ml).

Variables observed were viewed tilapia fish infected with parasites cichlidogyrus, during the administration of betel leaf stew with different doses.

The intensity level of Cichlidogyrus sp., Were found in samples of tilapia (Oreochromis niloticus). The calculation of the intensity of the parasitic Cichlidogyrus sp., According Dogiel, et al., (1970) in Rustikawati, I., et al (2004).

Results and Discussion

Parasite identification

Identification is done in this study there are several stages, namely the initial identification stage which uses 6 fish as the first sample. This identification is done to ensure that a parasite found is really cichlidogyrus sp. Identification of the second stage is to examine 10 of 120 fish countividuals to calculate the intensity of parasites that attack. Examination covering the external parts, namely the body surface, fins and gills. Inspection procedures to determine parasite cichlidogyrus the tilapia is done by mucus taken using a scalpel and made preparations pillowcase on the object that has been poured a glass of water and observed under a microscope with a magnification of 10x and 40x. Ie the entire fin fish dorsal fin, countividual, chest, abdomen and anus is cut from the body by using a pair of scissors. The fins that have been cut are placed on the object that has been poured a glass of water and observed under a microscope. Both gills taken by cutting the base of the gills arc. Gill sheet is separated, the object is placed on a glass slide and then water so as not to dry, and then observed under a microscope.

Observations of clinical symptoms during immersion process

Soaking using betel leaf decoction on tilapia (Oreochromis niloticus) with a density of 1 countividual per container in treatment A (control), treatment B (dosage 2.5 g / 60 ml), treatment C (5 g / 60 ml) and treatment D (dose of 7.5 g / 60 ml). Soaking carried out for 1 hour and observation of clinical symptoms during an interval of one hour after immersion, observation of clinical symptoms is done before the immersion, during immersion and after immersion. Then an interval of one hour after immersion do the turn of the new water as much as nearly 100% after that back symptoms observed behavior of treatment after immersion.

Based on the observation of clinical symptoms of tilapia (Oreochromis niloticus), before immersion, during immersion and after immersion using betel leaf decoction (piper beetle Linn) can be seen in Table 1.

Table 1 Clinical Symptom of Tilapia

No	Gejala klinis	Sebelum	Selama	Sesudah
1	Nafsu makan	-	-	Kurang
2	Habita	Tengah	Dasar	Dasar
3	Warna	Cerah	Cerah	Cerah
4	Gerakan renang	Normal	Tidak seimbang	Normal

Parasite intensity

Intensityisthenumber of parasites present in one countividual/head every organism. Intensity calculation aims to determine the number of parasites after soaking.

Results of research on the intensity at each treatment resulted in a percentage that does not change during the study, namely in treatment A (control) with an average of 2.24 Count / countividual, treatment B (2.5 g / 60 ml) with the mean average 1.86 Count / countividual, treatment C (5 g / 60 ml) with an average 1,86 and treatment D (7.5 g / 60 ml) with a mean 1,58Count / head, as in Table 2.

Table 2 Parasites Intensity at gill

	Treatment			
Iteration	A	B	C	D
1	2,3	1,97	1,97	1,47
2	1,8	1,97	1,8	1,97
3	2,63	1,63	1,8	1,3
Total	6,73	5,57	5,57	4,73
Average	2,24	1,86	1,86	1,58

Results of research on the intensity at each treatment produces different presentations during the study, namely in treatment A (control) has the highest intensity value is 2.24 Count / head compared to treatment B (2.5 g / 60 ml) 1, 86 Count / countividual,

treatment C (5 g / 60 ml) is 1.86 Count / countividuals, and the lowest in treatment D (7.5 g / 60 ml) is 1.58 Count / countividual. Of each treatment decreased the number of intensity values, but of the treatment given betel leaf stew with different doses they have nearly the same amount of intensity, it is suspected because the dose of betel leaf decoction is given still not affect the existence of parasites Cichlidogyrus sp. or even deadly parasites.

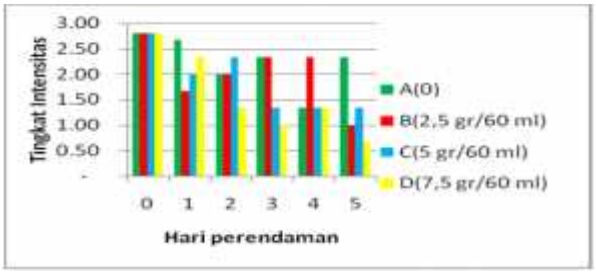

Figure 1 Parasites Intensity at soaking

Based on observations of the level of intensity in each treatment and the immersion-0 that treatment A to treatment D shows the high level of intensity because the treatment has not been used a decoction of betel leaf (Piper betleLinn), while on the day of immersion to-1 on each A treatment of 2.67, it is suspected as the control treatment has not been given a betel leaf stew. On the day of immersion to -2 to all five showed the lowest value in treatment C and D on the day immersion into the 4th and 5th for the treatment has been given a dose of betel leaf stew that can cause the level tends to decrease the number of parasites.

Water quality parameters

Water quality measurements during culture of tilapia showed that the range obtained is still feasible for the life of tilapia. At the time of the process before the immersion, during immersion and after immersion, the measurements are made every day ie morning afternoon and evening. Measurements made that measurement of temperature, pH and DO. For parameter DO measurements only at the beginning and end during the immersion process took place as shown in Table 3

Table 3 Water Quality Parameters

Parameters	Treatment	Iteration			Average
Temp.		1	2	3	
	A	27,13	27,18	26,54	
	B	27,19	26,99	27	
	C	26,89	27,07	27,19	
	D	27,13	27,09	27,08	27,04
pH	A	7,11	7,17	7,08	
	B	7,11	7,11	7,29	
	C	7,19	7,1	7,16	
	D	7,19	7,1	7,19	7,15

Results of water quality measurements showed that the temperature during the study of any treatment above is still within the normal range for the life or the treatment of tilapia (Oreochromis niloticus) ranged between 27,040C. This is in accordance with the opinion (Widy Widyanti), fish growth ranged at a temperature of 17-18 ° C and at an optimal temperature of 28-30 ° C.

PH range for immersion use betel leaf decoction on tilapia fish (Oreochromis niloticus) for all treatments, namely 7.15, while the pH range after soaking remain the same as at the time of immersion. So that a medical condition may still be eligible for the fish life or normal in the treatment process. For most species of fish, low or high pH outside the range of 6.5 to 9.0 can reduce average growth and in extreme conditions can damage the health of the fish (Swingle 1961; Alabaster and Lloyd 1980; Hepher 1990).

DO Measurements of water quality conducted two times during the study, at the beginning and end of the study. DO measurements can be seen in Table 4.

Table 4 DO at treatments

Treatment Dosge	Iteration			Number	Iteration			Number
	1	2	3		1	2	3	
A (0)	4,2	4,2	4,17	4,19	4,21	4,19	4,2	4,2
B (2,5)	4,31	4,36	4,26	4,31	4,21	4,09	4,03	4,11
C (5)	4,42	4,31	4,14	4,29	4,16	4,52	4,58	4,42
D (7,5)	4,18	4,19	4,23	4,2	4,23	4,37	4,33	4,31
Average	4,2				5,68			

The range of disolved oxygen in the research process during the immersion process with betel leaf decoction on tilapia fish (Oreochromis niloticus) ranged from 4.2 to 5.68 mg / l. This is in accordance

with the opinion of Kordi (2004), the growth of the fish ranged from 6.3 to 6.6 ppm DO.

Conclusion and Suggestion

Giving betel leaf (Piper betle Linn) decocotion on tilapia (Oreochromis niloticus) has no effect on the level of intensity of Cichlidogyrus sp. The level of intensity of the parasite in tilapia (at the highest treatment A is 2.24 and the lowest in treatment D is 1.58 count / individual.

Based on the above conclusions, the suggestions can be put forward that needs to be done further research on the use of decoction of betel leaf (Piper betle Linn) by means of extracted or mixed with feed at the right dose.

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