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Spawning Technology and Seed Production of Tapah Fish (*Wallago leerii* B) by the Injection of Different Doses of sGnRH + Domperidone

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Abstract:

This research was conducted by first accelerating Tapah fish gonad maturity by providing Vitamin E which is applied through a trash fish food. Efforts gonadal maturation lasted for eight months, from February to September 2014. The purpose of this study is to accelerate the maturity of gonads parent fish and induce spawning them by injecting hormone sGnRH + Domperidone with different doses. Experimental method was used in the study. Fish used in the experiment were 2.5-3.0 kg of body weight with the first initial gonad maturity (or level I). Parent fish reared in a floating cage measuring 4 x 3 x 2.5 m, which is installed in the Kampar River, the village of Pelalawan. The dose of vitamin E 100 mg / kg body weight applied through the feed pellets. A few pellet particles inserted into a capsule, and subsequently inserted in the trash fish gills before it was given to the captive fish. The results showed that an increase in the maturity of the fish eggs, from Maturity Level I (one) into a maturity level III and IV. An application of sGnRH + Domperidone through an intramuscular injection apparently have not been able to spawn. Water quality record during the study showed a temperature range between 27-33 ° C, with a pH of 5.

Key words: *Wallago leerii* B[1], Vitamin E[2], Gonad maturity[3], sGnRH + Domperidone spawning[4].

1. Introduction

Tapah Fish is one of the freshwater fish that has been consumed by the people of Riau for a long time, because in addition to having thick flesh, it is also delicious, so it is not surprising that this fish has a high economic value. The fish belong to the family of Siluriidae, that inhabit lakes, marshes and creeks. Tapah was usually sold in traditional markets in the form of fresh or processed fish, such as fresh and smoke fish curry. Price tapah fresh fish at the local market typically range from Rp 75,000 - 150,000/kg, while the processed fish such as smoked fish for example, the price could reach between USD 150000-200000 / kg. Therefore, the resale value is so high, it is not surprising that Tapah hunted by the fishing community without regard to the concept of natural resource, resulting in a serious threat to natural populations.

In supporting the development of local aquaculture, it is necessary to an adequate supply of fish seed both in quantity and quality. Attempts to produce fish seed artificially through stimulation of hormones, such as sGnRH + Domperidone has not been made. As a first step the business can begin by developing fish breeding technology, either through natural or artificial reproductive techniques. Crucial factor in the development of hatchery operations is the continuity of stem gonads mature, healthy and quality. Nuraini (2007) has conducted research on fish gonad maturity Tapah (*Wallago leerii* B), but the extent to which nurseries with hormonal stimulation can not be known because it has not been done. This study is urgent to do and Therefore, this study is very urgent to do and not impossible possibility of these fish developed into one of the potential new fish to be cultivated both in cages and in ponds, although so far there has been no attempt to start it.

Thus, the present study aimed to determine the increase in diameter of eggs by providing Vitamin E in the fish food and to determine the best dose of sGnRH + Domperidone to produce a good quality and quantity of eggs.

2. Methods

The study was conducted from February to September 2014, located in the village of Pelalawan, Pelalawan, Sumatra. Treated fish were originated from natural populations as a result of fishermen catch along the Kampar river. Test fish were treated in this trial weight measuring 2.5 - 3 kg. As domestication and ripening container holding cage size is 4 x 3 x 2.5 m. While, Vitamin E was used to feed the mother fish dose of 100 mg / kg of feedn and pellets used in this study contains 26% protein. Study variables measured were (a) The diameter of the eggs which was conducted before and after feeding vitamin E, by taking samples of eggs with polyethylene canula catheter, then placed on graph paper. (b) The quality and quantity of eggs results ovulation results, as well

as water quality, which was data obtained from the study of the increase in diameter of eggs and spawning by injection of different doses of sGnRH + Domperidone.

Examination of gonad maturity level of adult tapah fish would be treated feeding contains Vitamin E, is done by dissecting some fish as an example, to determine the level of their gonad development. Afterwards, as many as 12 pairs of adult fish that have the similar size to be treated.

Fish feed given test was trash fish, which has been inserted a capsule contains Vitamin E pellets. Feed given in every other 2 day as much as 6% of the weight of the biomass. While the level of maturity of the eggs petambahan examination conducted every month, by taking samples of the eggs using a canula catheter.

3. Results and Discussion

3.1. Added Diameter Eggs

Observation of the increase in diameter Tapah fish eggs during the seven-month study showed a significant developments can be seen in Table 1. It shows that the observations for 7 months has been an increase in diameter increment eggs. In the first month of observation (first observation), before the parent fish tapah treated, it appears that the test fish eggs were reddish in colour and egg could not be separated from one another. This is because the small size of eggs and egg newly formed small grains. Furthermore, from Table 1, it is clear that an increase in the diameter of the eggs since the first month until the seventh month of maintenance. However, there were also in the third and fourth month was no increase in the diameter of the egg.

Table 1. Results of measurements of the increase in diameter Tapah parent fish eggs During the study.

No	Sampling date/Number of parents fish	Egg Diameter (mm)	Gonads Maturity Level	Information
1	20 /02/ 2014 10 females	Not measurable	Early growing	Color reddish ovaries, eggs are very small and can not be separated from one another.
2	20/03/2014 4 females 6 females	 0,5 Not measurable	 I -	 The color of the egg white as milk, eggs can already be sampled using a catheter canula, the egg can not sampled with cateter.
3	20 /04/ 2014 8 females 2 females	 1,0 Not measurable	 II -	 Samples can be taken with the egg sdh cater canula, egg white clear color, Eggs can not be cathetered.
4	20/05/ 2014 4 females 4 females	 2,0 1,5	 III II	Samples were taken with a catheter canula egg, egg color is yellowish and transparent white.
5	20/05/2014 4 females 4 females	 2,0 1,5	III II	Color yellowish white eggs, white and clear transparent.
6	20 /05 2014 8 Males		Immature Gonads	Genital papilla tip pale reddish
7	20/06/ 2014 4 females 4 females	 2 ,0 3,0	 II III	 The color of the egg white clear transparent. The color of the egg white clear transparent.
8	7/07/ 2014 4 females 4 females	 3,0 2,0	 IV II	Color yellowish eggs, and egg white clear tranfaran.
9	13/09/ 2014 4 Females	 3,0 2,0	 IV II	Color yellowish eggs and tranfaran, egg white translucent transparent.
10	13/09/2014 8 Males		Mature onad	Genital papilla tip pale reddish

Increasing the diameter of the eggs may be influenced by the content of fatty acids contained in trash fish feed containing higher fatty acids, coupled with fatty acid contained in Vitamin E, so the fat and vitamin E, which is given to accelerate the increase in the diameter of the egg. In accordance with the statement of Halver (1989) that Vit E is one of the feed nutrient components that are important and necessary for the reproduction of the parent fish.

Vitamin E parent needs will vary and depend on the type of needs. Watanabe *et al*., (1991) stated that vitamin E affects the quality of eggs produced as vitamin E acts as an antioxidant in the body's fatty acids. Vitamin E and essential fatty acids are needed simultaneously for the maturation of the gonads of fish with a dose of vitamin E in the feed will depend on the content of essential fatty acids that exist in the feed.

The diameter of the eggs in Table 1 can be classified into gonad maturity levels, based on Napitu *et al*., (2013), the level of maturity of the eggs are in the gonads Maturity Level II, it is marked by the characteristics of small sized egg white and transparent. Furthermore, eggs are at Level III Kematangah gonads marked traits eggs begin to mature, where the eggs are larger in size and yellow. Then if the bright yellow egg then the egg can be classified to the level of maturity of gonads IV with characteristic sizes larger gonads.

3.2. Inoculation with sGnRH + Domperidone.

Injecting the parent fish with sGnRH + domperidone was done after the parent fish feeding for 5-7 months. From 8 breeding females reared and treated, only four breeding females have eggs 3.0 mm in diameter with bright yellow. The rest were still diameter 2.0 mm and 2.5 mm, where the egg white translucent.

The lack of uniformity gonad maturity of treated fish, in general may be due to the parent experiencing stress as a result of the monhtly sampling. The lack of uniformity treated fish gonad maturity, in general may be due to the parent experiencing stress as a result of the sampling is done every month. Based on the observations of researchers, each time sampling was done, due to evaluation of gonad maturity level, the parent fish will not eat for 5-7 days. This certainly affects the quality of the egg is being formed, thus affecting the development and improvement of egg maturation. With the understanding that the energy obtained from food is supposed to egg development, but is used to maintain the body balance. Thus, for the maintenance of the value Gonado Somatic Index (GSI) had a pattern up and down. As a result, fatty acids are oxidized more, so it requires a longer time to reach the gonad maturity. As stated by Watanabe et al., (1984) states that feed the parent fatty acid deficiency esensil produce a low rate of gonadal maturation.

The occurrence of the pattern up and down value of GSI, likely as a result of the process previtellogenesis, late vitellogenesis and vitellogenesis, as stated by Nayak and Singh in Utomo *et al*., (2006) that the concentration of 17ß-estradiol hormone during the reproductive cycle of the female catfish lower in phase previtellogenesis and increased dramatically in the vitellogenesis phase and reached its peak in the late phase of vitellogenesis.

Parent fish had gonads Maturity Level IV in the 5th and 7th period maintenance, carried out experiments with the injection of a dose of domperidone sGnRH 0 ml, 0,5ml, 0.75 ml and 1.0 ml. After the second injection with a latency time of 6 hours, the researchers tried to experiment stripping, and stripping repeatedly performed every four hours, until the latent time last 16 hours. But it turns out the mother is not ovulate. This is likely caused by the spawning is done not in the spawning season which usually occurs in the rainy season months of October to December, but otherwise spawning yaotu during the dry season months of July to September, 2014.

Factors that cause the parent fish did not ovulate in this experiment include the size of the diameter of the eggs is not uniform. Heterogeneity of the diameter of the eggs is thought to be related to gonadal development suboptimal. This is because the energy of the feed consumed allocated to reproduction, could not be absorbed optimally. Factors affecting the absorption of energy of feed consumed is the diet and environmental factors of the waters (Susanti and Mahyudin, 2012). This incident is also thought to be caused by inappropriate parent in a state of stress, due to the the location of the cages were less worthy, such as the toilet, bathing, washing and latrine, motor boats traffic,and motorized anglers fishing boat. During the study of Water quality records during the study were still support fish life where temperature 25-30 C and pH 5.

4. Conclusions

From the results of this study concluded that administration of vitamin E to the parent fish Tapah (Wallago leeri.B) at a dose of 100 mg / kg of feed can increase accretion gonad maturity, but the mother has not been able to ovulate and mijah. Further research needs to be done to the parent fish can tapah ovulation and spawning. So it can be known the best dose of sGnRH + domperidone for oviulation, spawn, larvae growth could be known.

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