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The Effect of Ovaprim Injections Combination With Oxytocin on Ovulation Stimulation and The Quality of Egg Hoven's Carp (*Leptobarbus Hoevenii* Blkr)

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Abstract

Research on the effect of ovaprim injections combination with oxytocin on ovulation stimulation and the quality of egg hoven's carp (*Leptobarbus Hoevenii* Blkr.) was conducted on May - June 2018 at Domestic Harcery BPBAT Gelam River Jambi, under Directorat General of Aquaculture Ministry of Marine Affairs and Fisheries. The purpose of this study was to determine the effect of combining different doses of ovaprim and oxytocin on the ovulation stimulation and the quality of egg hoven's carp and to know the best combination of ovaprim dose and oxytocin for ovulation and quality of egg hoven's carp**.** The Method used is an experimens method using a complete randomized design with four treatments and three repetitions. The treatments used was P0 (*Ovaprim* 7 ml/kg body weight), P1 (*Ovaprim* 0,525 ml/kg + Oxytocin 0,175 Iu/kg body weight), P2 (*Ovaprim* 0,35 ml/kg + Oxytocin 0,35 Iu/kg body weight), dan P3 (*Ovaprim* 0,175 ml/kg + Oxytocin 0,525 Iu/kg body weight)**.** The results showed that giving *ovaprim* 0,35 ml/kg + oxytocin 0,35 Iu/kg body weight gave the best result with the latent time obtained 9,05 hours, number of eggs resulted 115.500 stripping, value of ovisomaic index 9,9, eggs diameter 0,24 mm, increase of egg maturity percentage 6,67 % and degree of fertilization 86,21%. degree of hatching 78,19%

Keywords : Hoven's Crap*, Leptobarbus hoevenii* Blkr*, ovaprim* dose*,* oxytocin dose, ovulation and egg quality .

I. INTRODUCTION

Hoven's Crap (*Leptobarbus hoeveni* Blkr.) is a native fish Indonesian waters mainly found in rivers, lakes and other public waters in Kalimantan and Sumatera. The Market demand for these fish is quite high and has high economic value and is highly favored by the people and in some neighboring countries such as Malay and Brunei so it is a very potential commodity and encourage public increast to develop it. Even more fish production that relies more on the catching of public waters tend to be instable and there is a tendency in some places to decrease.

Although it has long been developed and the maintenance of hoven's carp is quite popular, but fish seeds as the main production factor while relaying more than the result of catching in nature. In which the fish breed in the river at the beginning of the rainy season, which means seasonal supply of seeds is available. While the seeds from the cultivation is still limited in number so it has not been able to meet the growing needs of seeds.

The main problem of hoven's carp farming is the hatchery that is still not widely known to the general public. If the hatchery can be controlled then the fish farming will be able to become one of the alternative fish farming in Indonesia. As mentioned above, the market demand for hoven's carp is quite large, has a high economic value and very popular by the community, including in some neighboring countries such as Malaysia and Brunei.

II. RESEARCH METHODS

Time and Place Methods

The research was conducted on May – June 2018 at Domestic Harcery BPBAT Gelam River Jambi, under the Directorate General of Aquaculture Ministry of Marine Affairs and Fisheries.

Material and Tools

The material used in this reserach are the mother originating at BPBAT Gelam River Jambi, ovaprim as a product containing, spawning fish stimulating hormone, oxytocin also as stimulant, physiological solution NaCl 95% for hormone diluent stimulants and as a sperm dilution solution, sera solution as a material used to observe the maturity of eggs (eggs that pulled over), tissue and napkins as material for cleaning equipment and material used.

The tools used in this research is concrete tank size 7 x 7 m as a container of fish test maintenance, fiber test 3 x 0,8 x 0,5 m as a container for the maintenance of fish test during spawning process, jars as container hatching eggs, analytical scales as a tool to weigh weight of test fish and egg, a microscope equipped

with an ocular micrometer to see the diameter of a egg, a syringe to inject a tesrt fish, a pretidis as a means of laying eggs of stripping, a glass object where the egg looks at

the egg in a microscope, dropper drops as a tool to take egg, thermometers as water temperature gauge, PH indicator as a water PH meter, aeration equipment as a means to increase oxygen levels in water to catch fish and chicken feathers as tool to stir eggs with sperm.

The Method used in this research is the experimental method the design used was Completely Rondomized Design (CRD) of one factor with 4 treatments and 3 replication (Ahmad F T, 2013). Then the treatment used in this research are as follows:

1. P0 : Treatment of injection with 100% *ovaprim* with a dose of (0,7 ml/kg) body weight
2. P1 : Treatment of *ovaprim* injection with a dose of 0,525 ml/k + oxytocin injection with a dose 0,175 Iu/kg body weight
3. P2 : Treatment of *ovaprim* injection with a dose of 0,35 ml/kg + oxytocin injection with a dose of 0,35 Iu/kg body weight
4. P3 : Treatment of *ovaprim* injection with a dose of 0,175 ml/kg + oxytocin injection with a dose of 0,525 Iu/kg body weight

A day before the fish are injected, the fish are not fed to reduce the content of the feces in the fish body so as not to interfere with the spawning process. Injection has done three times by intramuscular way that is on the back muscle above the side lines and under the front of the dorsal fin with 45^{o} slope and a depth of about 1,5 cm. First injection hose with a second of 12 hours and second injection with the third is 6 hours. While stripping has done 9 hours after the last injection.

Picture 1. Injection of Hormones in Hoven's Carp (*Leptobarbus hoevenii* Blkr.)

Picture 2. Stripping on The Hoven's Carp (*Leptobarbus hoevenii* Blkr.)

Parameters measured from this research were latent time, number of eggs strippping, parent ovisomatic index value, egg diameter, egg maturity, dgree of fertilozation and water quality i.e temperature, dissolved oxygen (DO) and pH.

RESULTS AND DISCUSSION

Latent mean time, number of eggs stripping, ovisomatic index value, egg maturity diameter, degree of fertilization and hatching tripping results obtained from the result of research on the Table 1.

Table 1. Average latent time, number of eggs stripping, ovisomatic index value, egg diameter, egg maturity, degree of fertilization and degree of hatching egg hoven's carp (*Leptobarbus Hoevenii* Blkr.)

Treatment	Latent Time (hr) X ± Std	Number of Eggs (butir) X ± Std	Value of Ovisomatic Index (OVI %) X ± Std	Egg Diameter (mm) X ± Std	Maturity Egg (%) X ± Std	Degree of Fertilization (FR%) X ± Std	Degree of Hatching (HR%) X ± Std
P0	6,5 ± 0,0^{b}	115.368± 18.524,87^{b}	9,31 ± 0,52^{b}	1,23 ± 0,01^{b}	6 ± 1^{b}	84,75 ± 1,09^{b}	77,62 ± 1,18^{b}
P1	8,93 ± 0,07^{c}	83.210 ± 4.557,37^{a}	7,1 ± 1,04^{c}	1,18 ± 0,01^{b}	5,67 ± 0,57^{b}	69,21 ± 3,58^{c}	54,16 ± 2,86^{c}
P2	9,03 ± 0,03^{b}	115.500 ± 15.211,71^{b}	9,9 ± 0,32^{a}	1,24 ± 0,01^{b}	6,67 ± 0,57^{b}	86,21 ± 0,98^{c}	78,19 ± 0,21^{a}
P3	9,25 ± 0,08^{c}	38.191 ± 6.206,61^{a}	4,25 ± 0,15^{c}	1,15 ± 0,01^{b}	4,67 ± 0,57^{b}	56,38 ± 3,37^{b}	50,76 ± 5,78^{c}

Description : the average value followed by the same letter states no significant difference (p>0,05)

P0 : *Ovaprim* 100% with a dose of (0,7 ml/kg) body weight

P1 : *Ovaprim* 0,525 ml/kg plus oxytoci 0,175 Iu/kg body weight

P2 : *Ovaprim* 0,35 ml/kg plus oxytocin 0,35 Iu/kg body weight

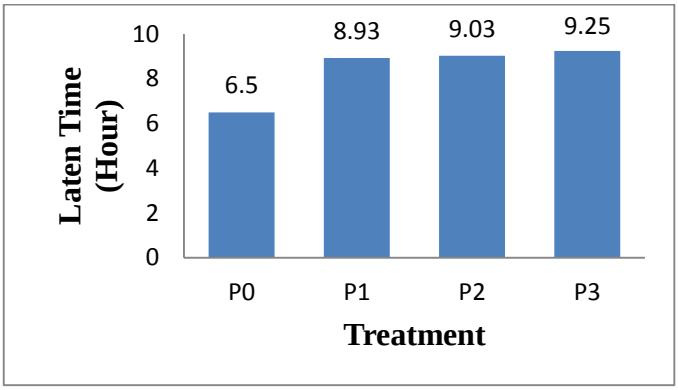
P3 : *Ovaprim* 0,175 ml/kg plus oxytocin 0,525 Iu/kg body weight

Latent Time

Latenct time is determined by calculating the distance between the third injection with the time of ovulation expressed in hours. The latent time data obtained from each treatment can be seen in Table 1. Based on the results of the further test it was seen that the treatment of P1, P2 and P3 were not significantly different (P > 0,05), but P1, P2 and P3 were significantly different from the treatment of P0 (P < 0,05)

The longest latent mean times were found in P3 treatment (*Ovaprim* dose 0,525 ml/kg + Oxytocin dose 0,175 Iu/kg body weight of fish) with an average latency time of 9,25 hours, followed by P2 (*Ovaprim* dose 0,35 ml/kg + Oxytocin dose 0,35 Iu/kg body weight of fish) with an average latency time of 9,03 hours. P1 treatment (*Ovaprim* dose 0,175 ml/kg + Oxytocin dose 0,525 Iu/kg body weight of fish) with an average latency time of 8,93 hours.

For more details the average latent time base on the treatment can be seen in Picture3.



Picture 3. Histogram Average Length of Time Latent Hoven's Carp (*Leptobarbus hoevenii* Blkr.)

From Picture 3. Researh data on *Ovaprim* and Oxytocin usege previously done by Ahmad (2013) on Synodontis Fish *(Synodontis Eupterus)* with single *ovaprim* applicaton obtained by latent time of 18 hours 50 minutes. Whereas in the combination treatment of 25% *ovaprim* + 75% oxytocin obtained latent time 20 hours 50 minutes, Mayanti (2013) on CatFish Sangkuriang (*Clarias sp*) with the use of *ovaprim* singly obtained by the latent time of 8 hours. Whereas in the combination treatment 25% *ovaprim* + 75% oxytocin obtained latent time 9 hours 33 minutes further research conducted by Muchlisin *et. al.,* (2014) the use of oxytocin with a single dose of 1 Iu/kg in Seurukan Fish (*Ostheochillus hasselti*) was obtained for 30 minutes.

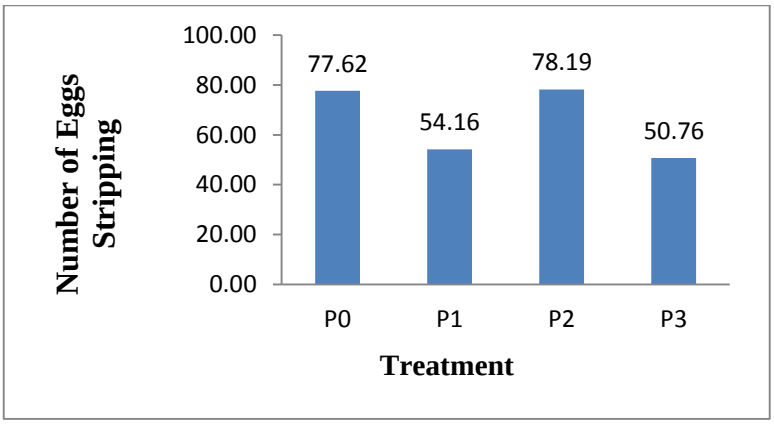
Number of Eggs Stripping Results

The average data on the number of stripping eggs seen Table 1 shows that the highest number of eggs of stripping was found in P2 (*Ovaprim* dose 0.35 ml/kg + Oxytocin

dose 0,35 Iu/kg body weight of fish) with an average of 115.500 eggs, followed by P0 treatment (*Ovaprim* dose 0.7 ml/kg body weight of fish) with an average of 115.368 eggs, P1 (*Ovaprim* dose 0.525 ml/kg + Oxytocin dose 0,175 Iu/kg body weight of fish) with an average of 83.210 eggs, and P3 treatment (*Ovaprim* dose 0.175 ml/kg + Oxytocin dose 0,525 Iu/kg body weight of fish) with an average of 38.191 eggs. Egg stripping results obtained can be seen in Picture 4.

Picture 4. The Left Image Counts The Eggs and The Right Image Shows The Result of Stripping The Hoven's Carp (*Leptobarbus hoevenii* Blkr.)

Based on statistical test showed that the treatment was given significant effect on the number of eggs stripping of hoven's carp. However, the highest number of eggs was obtained on P2 treatment with an average of 115.368 eggs For more details can be seen in Picture 5.



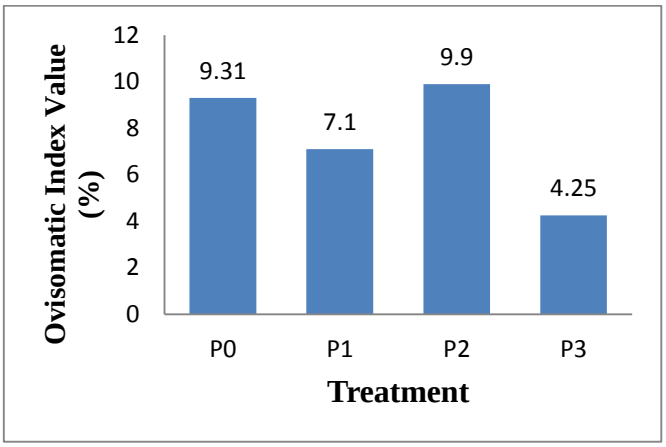
Picture 5. The Average Histogram of The Number of Eggs From The Stripping of The Hoven's Carp (*Leptobarbus hoevenii* Blkr.)

Gurina (2008) states that the number of eggs depended depends on the number of mature eggs, the higher the volume of *ovaprim* given causes the shorter the achievement of core migration.

Ovisomatic Index Value (IOS)

The parent ovisomatic index value is the ratio of the egg weight to the weight of the parent expressed in % (Yulindra, *et al* 2017). Based on this research, the highest value of ovisomatic index was obtained at P2 treatment with value of 9,9%, followed by P0 treatment with value 9,31 %, and P1 with value 7,1% and lowest was P3 treatment with value 4,25%.

From Table 1 it is known that P2 treatment can give the highest ovisomatic index value with value of 9,9%, although based on the analysis of variance (ANOVA) showed that the treatment given significant effect (P>0,05) to the value of avisomatic indices obtioned. For more details the value of avisomatic index obained can be seen in Picture 6.



Picture 6. Histogram Value Ovisomatic Index (%) Hoven's Carp (*Leptobarbus hoevenii* Blkr.)

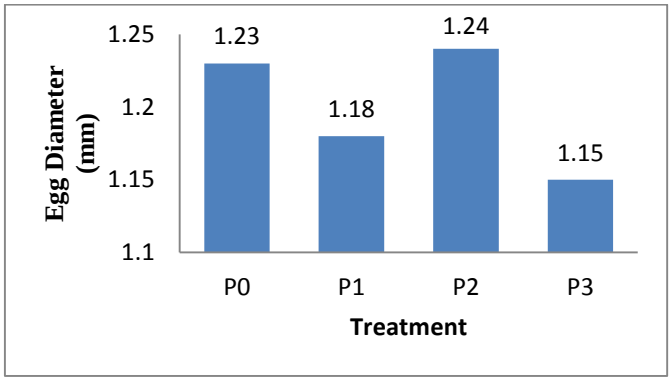
From Picture 6. It can be seen that different doses of *ovaprim* give different effects to ovisomatic index values. Then, Suhenda (2009), states the value of Ovisomatic Index related to the process of vitelogenesis during the process of vitelogenesis yolk egg granules will increase in number and size so that the oocyte volume enlarges.

Egg Diameter

From Table 1. The highest egg diameter of Hoven's Carp (*Leptobarbus hoevenii* Blkr.) was obtained in P2 treatment with 0,23 mm egg diameter, followed by P0 treatment with egg diameter 0,18 mm, P1 with egg diameter of 0,24 mm, and the smallest diameter obtained at treatment P3 with egg diameter 0,15 mm. Fish egg diameter obtained from this research can be seen in Picture 7.

Picture 7. Egg of Hoven's Carp Diameter
(*Leptobarbus hoevenii* Blkr.)

Based on the results of further tests with the Newman Keuls study, P1, P2, P3 were not significantly different (P<0,05) with P1. The average egg diameter obtained from this research presented in Picture 8.

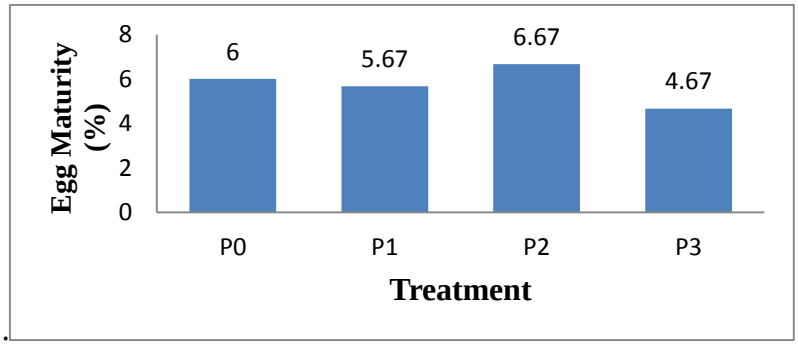


Picture 8. Average Histogram of Hoven's Carp Egg Diameter
(*Leptobarbus hoevenii* Blkr.)

Based on the picture above shows that the treatment of P2 was the best treatment of the effect on hoven's carp egg diameter (*Leptobarbus hoevenii* Blkr.).

Egg Maturity (%)

Egg Maturity was obtained from this research as shown in Table 1. Where the highest percentage of egg maurity is found in treatment P2 (*ovaprim* injection 0,35 ml/kg + oxytocin 0,35 Iu/kg body weight) with percentage of maturity 6,67 % followed by treatment P0 with percentage of maturity 6 %, treatment of P1 with 5,67% maturity percentage and lowest is in treatment of P0 with percentage of maturity 4,67%. Based on further test results obtained P1, P2 dan P3 were not significantly different (P>0,05) with P0. For more details can be seen in Picture 9.

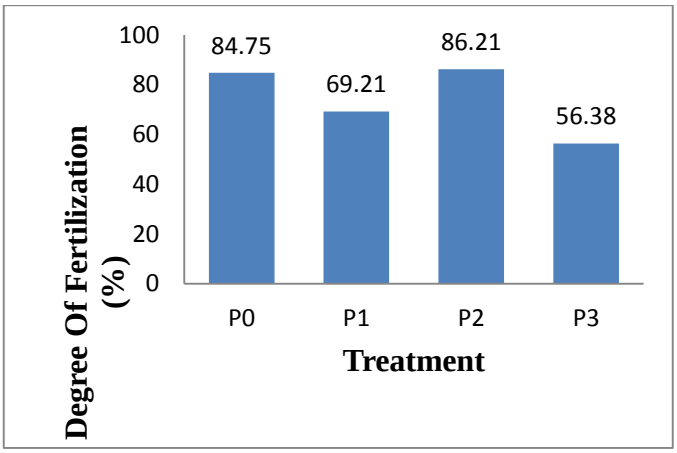


Picture 9. Histogram Egg Maturity of Hoven's Carp (*Leptobarbus hoevenii* Blkr.)

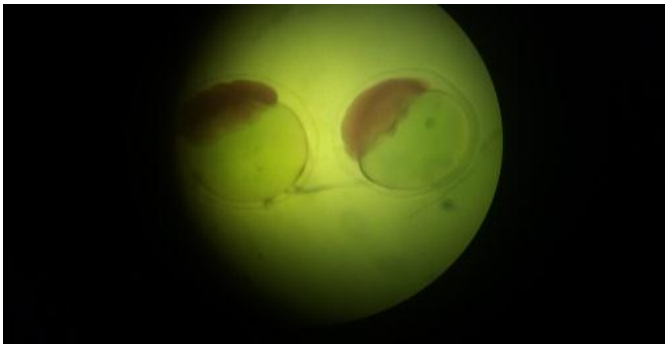
Based on Picture 9. Above It can be seen that P2 treatment is the best treatment of fish egg maturity. In accordance with it's funtion *ovaprim* very imoportant role in spur gonad maturation where sGnRH analog that contained in *ovaprim* role stimulate pituitary to release gonadrotropin (Lam in Sukendi 2014) and assisted oxytocin.

Degree Of Fertilization (FR%)

The degree of fertilization obtained from this research can be seen in Table 1 and it can be seen that the percentage of fertilization sequentially from the highest is P2 with the degree of fertilization 86,21%, P0 with the degree of fertilization of 84,75%, P1 with the degree of fertilization 69,21% dan P3 with the degree of fertilization 56,38%. For more details can be seen in Picture 10 and Picture 11.



Picture 10. Histogram Degree of Hoven's Carp Fertilization (*Leptobarbus hoevenii* Blkr.)

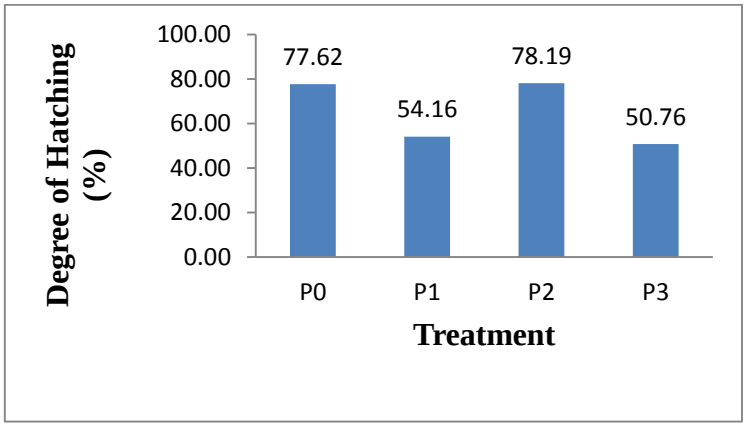


Picture 11. Egg Hoven's Carp was Fertilized

Based on Picture 10 above shows that the best treatment for the fertilization of hoven's carp egg is P2 treatment with the degree of fertilization 86,21%. Based on the statistical test of variance analysis (ANOVA) showed that the treatment given had an effect on the fertilization of hoven's carp and based on the advanced test using the Newman Keuls study showed that P2 treatment not significantly different with P0 (P>0,05), while P1 and P3 significantly different with P0 (P<0,05) Sukendi (2014) states that in the process of spawning fish, the eggs to be fertilized are eggs that have good quality, especially the size of egg diameter and marturity.

Degree of Hatching

The degree of hatching obtained from this research can be seen in Table 1 and it can seen that the percentage of hatching sequentially from the highest is P2 with the degree of hatching 78,19%, P0 with the degree of hatching 77,62%, P1 with the degree of hatching 54,16% and P3 with the degree of hatching 50,76%. For more details can be seen in Picture 10 and Picture 12.



Picture 12. Histogram Degree of Hoven's Carp Hatching (*Leptobarbus hoevenii* Blkr.)

Quality Water

The results of water quality parameter measurements during the research are presented in Table 2.

Tabel 2. Water Quality Measurement Results During Research

No.	Parameter	Results
1.	Temperature	7ºC
2.	pH	7

Based on the data in Table 2. It can be seen that the water quality for spawning fish is still in good condition. Syafriadiman *et. al.,* (2005) states that a good pH for fish is 5,0-9,0. While for spawning fish in the river temperature 20-30ºC, pH ranged from 7-8.

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CONCLUSIONS

The results of this study can be concluded that giving *ovaprim* effect on ovulation and quality of hoven's carp eggs (*Leptobarbus hoevenii* Blkr.) The best dosage for ovulation and the quality of hoven's carp eggs are *ovaprim* 0,35 ml/kg + oxytocin 0,35 lu/kg body weight with latent time obtained 9,03 hour's. The number of eggs stripping 115.368 eggs, ovisomatic index value of 9.9%, egg diameter 0.24 mm, percentage increase of maturity 6.67%, degree of fertilization 86.21% and hatching rate of 78.19%. Need for further research using *ovaprim* dose 0.35 ml / kg + oxytocin dose 0.35 Iu / kg body weight to the value of fertilization, hatchability, growth and survival of hoven's carp larvae, so that in cultivation of seeds later can be done through artificial spawning .

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