



Proceeding

The First International Conference on Science (ICOS-1)

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PREFACE

Makassar city, the capital of South Sulawesi province known as one of the biggest cities in Indonesia and also having Hasanuddin University, the biggest university in eastern part of Indonesia, has plenty of natural resources and human resources. Having a strategic position at the center point of Indonesia, Makassar has been developing very rapidly, and has been contributing to the regional, national and even international economic development. Given this, science can play important roles and therefore is needed to support rapid development in various sectors.

With regard to this, cooperates with Ministry of Environment Indonesia, Atmospheric and Ocean Research Institute (AORI) Japan, University of Kebangsaan Malaysia (UKM), Alfred Wagener Institute (AWI) Germany, Queensland University of Technology (QUT) and Flinders University Australia, Faculty of Mathematics and Natural Sciences Hasanuddin University carried out “The First International Conference on Science (ICOS-1)” on November 19-20, 2014, in Hotel Clarion Makassar. The theme of ICOS-1 is “Science Enhancement for Developing Countries”. The conference attended by two hundred participants and came from Asia (Japan, Malaysia, Indonesia), Australia, and Europe.

There are approximately 97 research articles for oral presentations and 16 poster presentations, ranging from Biology, Statistics, Mathematics, Chemistry, Physics, Geophysics, Computer Science and Environmental Science. Of the 113 papers, there are approximately 79 papers were selected to be published in the proceedings of the ICOS-1 through the peer review process.

With regard to the delivery of the ICOS-1 in 2014 and the completion of the proceedings ICOS-1, 2014, allow us to thanks to: the authors for providing the content of the program, the conference participants who came from several public and private universities, the program committee and the senior program committee, who worked very hard in reviewing papers and providing feedback for authors to be included in the Proceedings of ICOS-1, 2014, the hosting organisation Hasanuddin University, our keynote and invited talk presentations including Ir. Muh Ilham Malik M.Sc, from Ministry of Environment Indonesia, Prof Koji Inoue from AORI Japan, Prof Mohammad B Kassim from UKM Malaysia, Dr.rer.nat Dominik Kneer from AWI Germany, Prof Dadang A. Suriamihardja and Prof Alfian Noor from Hasanuddin University, Prof Kerrie Mengersen from QUT and Dr. Darfiana Nur from Flinders University, Australia.

Hopefully is of benefit to all readers.

Yours faithfully,
Prof Dr. Hanapi Usman M.S
Dean of Faculty Mathematics and Natural Sciences
Hasanuddin University



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THE INFLUENCE OF EYE STALK ABLATION TO GONADAL MATURITY OF MUD CRAB *SCYLLA SERRATA* THAT CULTIVATED ON BATTERY CELL CAGE

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Abstract

The aim of the research is to know the level of Gonadal Maturity (GM) female crab with eye ablation technique. The research was executed at ponds of Semanting Village, in Derawan Island District, Berau Regency, East Kalimantan Province. The animal tests was female mud crab (Scylla serrata) genitals mature which had early body carapace width ranging 90-120 mm, undeveloped ovary (immature) but had done copulation. The experimental design utilized randomized block design. treatment was done ablation of 100% right eye stalk (treat A), ablation of 50% right eye stalk (treat B), and without ablation (treat C), with three replications, were applied. These were grown for two weeks maintained on battery cell cage. The results of the study, showed that to reach the gonad maturity level IV or perfectly mature, the parent crab treated eye stalk ablation 100% (A) shows the percentage achieved relatively higher, reaching 66,7% compared to the parent crab treated with ablation of 50% (B) which only reached 53,3%. However, statistical tests both treatments showed no significant difference ($P > 0,05$). While the parent crab ablation untreated (control), indicating the percentage achievement of gonad maturity level is lower than the parent crab treated with ablation of only 23,3%. In the only treatment A statistical test that showed significant differences with the control ($P < 0,05$), while treatment B showed no significant difference with control ($P > 0,05$). Other parameters observed in this research is the gonad maturation index and survival rate, which shows the result of three treatments statistically was not real different ($P > 0,05$). The value of water quality measurements include temperature, pH, dissolved oxygen and salinity during the research is still optimal for the maintenance of mud crab. The concluded of the research was the treatment of eyestalk ablation effective accelerated gonadal mature..

Keywords : *Ablation Eye Stalk, Mud Crab, Gonadal Maturity*

1. INTRODUCTION

Mud crab (*Scylla* spp.) or mudcrab is one of aquatic biological resources of high economic value and potential for propagation [2]. In the presence of the mangrove forest in the entire coastal region of the State of Indonesia as an archipelago made of mud crab exporter sizable than other exporting countries.

As a commodity that has important economic value and high nutritional value, causing the market demand for mangrove crabs from year to year tend to increase. Cultivation in the end is an effort to meet the mangrove crab fishery market share and to improve the welfare of society, as well as an alternative in an effort to maintain the sustainability of mangrove crab populations in the wild.

Mangrove crabs spawn production is part of the cultivation, and is very suitable for the cultivation of the farmers and fishermen who live in areas that have the potential of mangrove crab resource, such as East Kalimantan and other potential areas.

Increasing market demand for commodities mangrove crabs spawn with a fairly high lead innovation needs to be done in order to increase the production of



crabs spawn. Gains derived from aquaculture production crab spawn mainly due to the considerable price margins and relatively small mortality rate during maintenance. The main problem in the production of crab spawning effort is to get the crab spawning requires a relatively long time so that cultivation is still seasonal crab spawn.

^[5] has conducted research that eye stalk ablation on mud crab turned out to affect the reproductive process, causing mud crab can reach TKG (Maturity Level gonads) faster than the left natural. This is because these processes are controlled by hormones produced and distributed by and through the neurosecretory system of the eye stalks. Departing from the results of these studies to investigate whether whole or partial ablation eye stalks can affect the speed of the gonads mature mangrove crabs are cultured in battery cell cages.

2. MATERIALS AND METHODS

The experiment was conducted in July 2014 - August 2014 in brackish water pond of Bingkar Island, Semanting Village, Derawan Island District, Berau Regency, East Kalimantan Province.

Test animals was used mud crab (*Scylla serrata*) adult female sex which has the initial body carapace width range of 90-120 mm, undeveloped ovaries (immature) but have done copulation, as many as 90 individuals.

The experimental design used in this study was a randomized complete block design (RBD) with 3 treatment, the ablation of the right eye 100% (treatment A), ablation of the right eye of 50% (treatment B), and without ablation (C) with each 3 replications,

Test animals kept in confinement battery cell that has been labeled on each treatment. In each experimental unit was placed 10 cell battery cage size 26 x 16 x 16 cm³ (one cage filled the crabs) in accordance with the prescribed treatment.

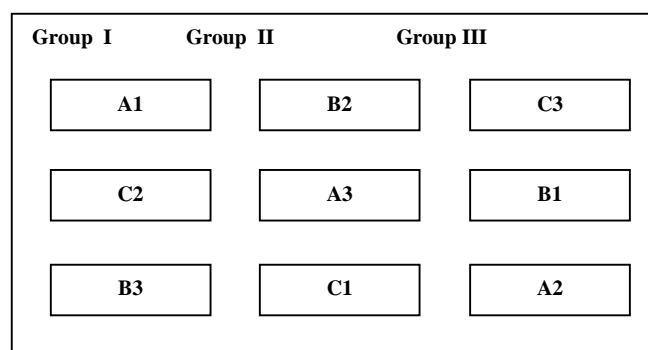


Figure 1. Lay Out of design experiment

Eye ablation performed with scissors which is heated first, so that the scar is immediately dry and not spend a lot of fluids. Done ablation, crab soaked in a bucket of KMnO₄ solution with a concentration of 5 ppm for 15 minutes, to prevent infection. After the crab transferred to the battery cell that had been prepared in accordance with the prescribed treatment.

At the end of the study all test animals dissected, observed changes in the color, morphological structures and proportion of gonad, and then weighted. The data generated from the observations was analyzed as a percentage of the number of individuals who are mature gonads per treatment. Gonadal indices obtained from



the weight distribution the gonads (ovaries) in the wet state with body weight multiplied by 100% using the formula of Effendi (1979):

$$GMI = \frac{gw}{tw} \times 100\%$$

Keterangan :

GMI : Gonadal maturation index (%)




gw : gonad weight (gr)

tw : total weight (gr)

3. RESULT AND DISCUSSION

The morphology of Gonadal Maturation Level of *Scylla serrata* that treated with eye stalk ablation showed in Table 1 below.

Table 1. Description of Morfology of Gonadal Maturation (GM) of *Scylla serrata*

GM	Clasification	Figure	Description
I	Immature		Ovary thin filament-shaped ivory or beige
II	Towards Mature		Ovary colouris young orange, egg granules clearly visible yet
III	Mature		Ovary colour is Orange, ovarian size increases, grain eggs are already visible but still look together




GM	Classification	Figure	Description
IV	Mature		Colored ovary reddish orange, ovarian size enlarged and meet all cavity backs, granules eggs seemingly obvious <i>Reference : Siahainenia(2008)</i>

photo :personal collection

The results of the study, showed that to reach the gonad maturity level IV or perfectly mature, the parent crab treated eye stalk ablation 100% (A) shows the percentage achieved relatively higher, reaching 66,7% compared to the parent crab treated with ablation of 50% (B) which only reached 53,3%. However, statistical tests both treatments showed no significant difference ($P > 0,05$). While the parent crab ablation untreated (control), indicating the percentage achievement of gonad maturity level is lower than the parent crab treated with ablation of only 23,3%. In the only treatment A statistical test that showed significant differences with the control ($P < 0,05$), while treatment B showed no significant difference with control ($P > 0,05$).

Tabel 2. Percentage of achievement of Gonadal Maturation (GM) Level of *Scylla serrata*

Treat	Time of observation (day)	GM IV	GM III	GM II	GM I	SR (%)
		%	%	%	%	
A	14	66,7±7,7 ^a	13,3±12,4 ^a	6,7±9,4 ^a	3,3±6,2 ^a	86,7±8,8 ^a
B	14	53,3 ±7,7 ^{ab}	20±12,4 ^a	10±9,4 ^a	-2,4±6,2 ^a	83,3±3,3 ^a
Kontrol	14	23,3 ±7,7 ^b	26,7±12,4 ^a	23,3±9,4 ^a	16,7±6,2 ^a	90±5,7 ^a

Description: Values with the same lowercase letters are not significantly different, A: eye stalks ablation 100%, B: eye stalk ablation 50%, C: without ablation

Thus the eye stalk ablation treatment with ablate all parts of the eye stalk yield relatively higher than the half of the stalk ablate the eye, it is alleged in the treatment of eye stalk ablation of 50% just to eliminate some of the neurosecretory cells which means there are cells produce Gonado Inhibiting Hormone (GIH), as stated [5], that GIH still can be channeled into the blood circulation given the nature of the hormone that can difution into the surrounding blood circulation, so it does not work optimally on the level of maturation of gonads.

Survival Rate (SR)

The survival rate of the parent crab untreated blation is relatively higher, reaching 90% compared to the parent crab treated eyestalk ablation of 100% with survival rate reached 86,7%, and the parent of mangrove crabs in ablation of 50% at 83, 3%. However, the third treatments showed statistically not different. This



show that the treatment of the eyes stalk ablation does not give effect to the survival rate of crab which is cultivated in the battery cell system. Overall survival of each treatment has a value above 83%, it indicates that there is a high survival. This condition is suspected due to water quality maintenance of optimal media as well as the requirement for feed during the research for the life of the crab. In addition, based on research results battery cell system used in maintenance in ponds provides an important role in the survival of mangrove crabs, because it does not happen competition both space and feed, so it is safe from interference and attacks from other crabs.

Gonadal Maturation Index (GMI) of Mud crab (*Scylla serrata*)

Observation of gonadal maturation index (GMI) in gonad maturity level II to IV indicates that the parent crab untreated ablation relatively higher results in a sequence that shows the value that is 2,76%, 4,06% and 6,34% , compared with the two treatments A and B are in each treatment only reached 5,91% (A) and 5,92% (B) until the end of the study on gonad maturity level IV. However, from the results of statistical tests of all treatments showed no significant difference ($P > 0,05$), which means that ablation does not affect the gonad maturity index (GMI) of crab.

Table 3. Gonad Maturation Index (GMI) of *Scylla serrata* parents

Treatment	GM IV	GM III	GM II	GM I
	%	%	%	%
A	5,91±0,9 ^a	1,91±1,4 ^a	1,31±0,7 ^a	0±0
B	5,92±0,7 ^a	3,27±0,06 ^a	1,39±0,7 ^a	0±0
Kontrol	6,34±3,4 ^a	4,06±0,3 ^a	2,76±1,6 ^a	0±0

Description: Values with the same lowercase letters are not significantly different, A: eye stalks ablation 100%, B: eye stalk ablation 50%, C: without ablation

Nasution (2005) states that the gonad maturity index is a percentage of the value of the gonad weight ratio with the overall weight of the fish's body. Gonad maturity index value greater with the development of the gonads until crab spawn or remove eggs.

Index gonad maturity achieved by all the alleged treatment is closely related to the type and amount of food sufficient. In this study, feed used is trash of shark fish (*Carchacinus longimanus*) and Ariid fish (*Arius* spp.). Types of food are thought to provide sufficient nutrients, which affects the gonad maturity. This is in line with that proposed by [1], and then Juwana and [4], that the administration of fish as feed crabs can stimulate gonadal maturation in the parent crab.

4. CONCLUSION

The results concluded eyestalk cutting (ablation) of 100% moreover cutting the eyestalk (ablation) 50% effected on increase gonad parent female crabs development. eyestalk cutting (ablation) of 100% the relative quickly of affected speed gonadal parent female crabs. The treatment of eyestalk ablation effective accelerated gonadal mature.



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6. BIBLIOGRAPHY

- [1] Arifin, S. 1993. *Budidaya kepiting bakau dengan keramba apung*. Techner.08 Th II. Dinas Perikanan Gresik. Jawa Timur.
- [2] Catacutan, M.R, 2002. Growth and body composition of juvenile mud crab, *Scylla serrata*, fed different dietary protein and lipid levels and protein to energy ratio. *Aquaculture*, 208: 113-123.
- [3] Fujaya, S., 1996. Pengaruh spektrum cahaya terhadap perkembangan ovarium kepiting bakau (*Scylla serrata* Forskal). Thesis. Program Studi Biologi Reproduksi Program Pasca Sarjana Institut Pertanian Bogor.
- [4] Romimohtarto, K. dan S, Juwana. 2001. *Biology Laut : Ilmu Pengetahuan tentang Biota Laut*. Djembatan. Jakarta. 540 hal.
- [5] Siahainenia L. 2008. *Bioekologi kepiting bakau (Scyllaspp) di ekosistem mangrove Kabupaten Subang Jawa Barat*. [Disertasi]. Sekolah Pascasarjana IPB. Bogor.
- [6] Soim A. 1999. *Pembesaran kepiting*. Penebar Swadaya, Jakarta.



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