

## INDONESIAN AQUACULTURE JOURNAL

p-ISSN 0215-0883  
e-ISSN 2502-6577

Volume 13 Number 1, 2018

Keywords derived from the article. No permission or cost needed to copy the abstract

UDC 639.31

Huria Marnis, Evi Tahapari, and Jadmiko Darmawan (Research Institute for Fish Breeding)

Genetic diversity analysis of the first and second generations of fast-growing striped catfish (*Pangasianodon hypophthalmus* Sauvage, 1878) using microsatellite analysis

Indonesian Aquaculture Journal, 13 (1), 2018, 1-6

Genetic diversity is an important aspect of a selective breeding program to produce fish broodstock carrying superior traits such as fast-growing, disease resistant, and other traits. We have carried out a breeding program to produce a fast-growing striped catfish (*Pangasianodon hypophthalmus*) since 2010. The aim of this study was to evaluate the genetic variation of the first (G-1) and second (G-2) generations of fast-growing striped catfish using microsatellite analysis. The G-1 and G-2 populations were selected individually from populations. DNA samples were collected from 40 ind. fish of each population and analyzed using five microsatellite loci (Pg1, Pg2, Pg3, Pg13, and Pg14). The results showed that the number of alleles per loci in the G-1 and G2 populations ranged from 4 to 7 alleles, with an average of five for each generation. The average of observed heterozygosity of the G-1 population (0.420) was lower than the G-2 population (0.495). Inbreeding level showed that the G-1 population was more inbred than the G-2 population. The study also found that both striped catfish populations had relatively low genetic variation. This result suggests that monitoring of genetic variation and better scheme of good spawning were needed on the next selection program to produce the intended fast-growing striped catfish.

KEYWORDS: genetic; microsatellite; *Pangasianodon*; catfish

UDC 639.3.03

Jojo Subagja, Vitas Atmadi Prakoso, Otong Zenal Arifin, and Endang Haris Suhud (Institute for Freshwater Aquaculture Research and Fisheries Extension)

Countergradient variation in growth of barb (*Barbonymus balleroides* Val. 1842) domesticated at different altitudes

Indonesian Aquaculture Journal, 13 (1), 2018, 7-12

Barb (*Barbonymus balleroides* Val. 1842) is one of the native species found in many rivers of Asian countries, including Indonesia. This species had higher commercial value compared with other fish species popular among consumers. In terms of supporting its domestication, information regarding the optimal aquaculture system of the fish is needed, one of which is its rearing location. Currently, there is limited information on rearing the fish at different locations with different altitude. This research aimed to obtain the growth of barb fingerlings reared in three locations with different altitudes. The study was conducted in the ponds located at Cijengkol area (ASL < 200 m), Maleber (200 m < ASL < 400 m), and Ciherang (ASL > 400 m), West Java. Fingerlings of domesticated barb (total length  $4.48 \pm 0.10$  cm; weight  $0.95 \pm 0.06$  g) were stocked in three fixed net cages (size 2 m × 2 m × 1 m) in a pond (40 m × 20 m) at each location. Fish were fed with commercial feed (30% protein) of 5% biomass three times per day during 120 days of rearing. Water quality parameters observed were temperature, dissolved oxygen, and pH. Measured parameters were length gain, weight gain, specific growth rate, average daily growth, biomass gain, feed conversion ratio, and survival rate. The results showed that the fish reared in Maleber showed the best growth and feed conversion ratio compared to other locations ( $P < 0.05$ ). Meanwhile, no significant differences were found on the survival rate within all treatments. The growth of barb fingerlings is more optimal if reared in midland areas which have suitable temperature ranges for their growth.

KEYWORDS: Barb fingerlings; *Barbonymus balleroides*; domestication; growth; altitude

## INDONESIAN AQUACULTURE JOURNAL

p-ISSN 0215-0883  
e-ISSN 2502-6577

Volume 13 Number 1, 2018

Keywords derived from the article. No permission or cost needed to copy the abstract

UDC 639.518

Gunarto, Muhammad Nur Syafaat, Herlinah, Sulaeman, and Muliani (Research Institute for Coastal Aquaculture and Fisheries Extension)

Crablet production of mud crab *Scylla tranquebarica* by their larvae rearing supplemented with different dosages of commercial feed

Indonesian Aquaculture Journal, 13 (1), 2018, 13-21

The effects of an artificial commercial feed supplementation on larval rearing and crablet production of mud crab *Scylla tranquebarica*. In mass production of mud crab seeds, only rotifer and *Artemia* nauplii are usually fed to mud crab larvae rearing until the larvae develop to crablet stage. The supplementation of artificial commercial feed from zoea-3 stage is expected to supply an essential nutrient required for an optimum larval development. The research was aimed to determine the optimum dosage of commercial feed supplementation for a successful larval rearing to produce crablet in hatchery. Newly hatched larvae of mud crab were stocked at a density of 100 ind./L. The larvae were fed with rotifer and *Artemia* nauplii. Microbound artificial commercial feed sized < 100 microns (protein 52%, fat 14.5%, fiber 3% and water content 10%) was supplemented to the larvae from zoea-3 to megalopa stage at different dosages namely: a). 0.5 mg/L/2 days; b). 0.75 mg/L/2 days; c). 1.0 mg/L/2 days; d). 1.25 mg/L/2 days. Larval population, larval development indices (LDI), megalopa occurrence index (MOI) and crablet production were observed and measured. Water quality (ammonium, nitrite, Total Organic Matter (TOM), and total *Vibrio* sp. count were also monitored. The LDI, MOI, and crablet production from each treatment were compared and tested using one way-ANOVA. The results showed that the survival rate of larvae at zoea-5 ranged between 29-33%. The LDI was not significantly different ( $P > 0.05$ ) among treatments. However, the MOI of treatment A and B at day 21 ph was significantly higher ( $P < 0.05$ ) compared with treatment C and D. In addition, the crablet production in treatment B, C and D were significantly higher ( $P < 0.05$ ) compared with treatment A. It was concluded that the supplementation of artificial commercial feed in larval rearing of *S. tranquebarica* could be applied at the dosage range of 0.75-1.25 mg/L/2-days from zoea-3 until crablet (C-7) stage.

KEYWORDS: dosage; mangrove crab; *Scylla tranquebarica*; supplemented feed

UDC 639.34

Vitas Atmadi Prakoso and Young Jin Chang (Institute for Freshwater Aquaculture Research and Fisheries Extension)

Metabolic rates (SMR, RMR, AMR, and MMR) of *Oplegnathus fasciatus* on different temperature and salinity settings

Indonesian Aquaculture Journal, 13 (1), 2018, 23-29

The metabolic rate of aquatic animals is closely related to oxygen concentration and influenced by internal and external factors. Despite its high value as marine fish species in South Korea, information on rock bream *Oplegnathus fasciatus* metabolism is scarcely available. This study observed the standard metabolic rate (SMR), routine metabolic rate (RMR), and active metabolic rate (AMR) of rock bream *Oplegnathus fasciatus* subjected to different temperature settings. Another observation was performed to find out the maximum metabolic rate (MMR) on rock bream subjected to different salinity settings. Fish (TL:  $26.86 \pm 0.29$  cm and BW:  $469.40 \pm 38.21$  g for SMR, RMR, and AMR measurement; TL:  $26.7 \pm 0.4$  cm and BW:  $451.0 \pm 44.4$  g for MMR measurement) were observed using respirometer (dimension = 30 cm × 20 cm × 20 cm; volume: 10.4 L) inside a recirculation systems. SMR, RMR, and AMR were measured at 15°C, 20°C, and 25°C. Meanwhile, MMR was measured at 15, 25, and 35 psu. The results showed that SMR, RMR, and AMR increased linearly by increasing the temperatures (SMR:  $58.7 \pm 3.2$ ,  $102.7 \pm 4.3$ , and  $157.1 \pm 4.1$  mg O<sub>2</sub>/kg/h at 15°C, 20°C, and 25°C, respectively; RMR:  $66.0 \pm 8.6$ ,  $112.6 \pm 10.2$ , and  $175.2 \pm 21.3$  mg O<sub>2</sub>/kg/h at 15°C, 20°C, and 25°C, respectively; AMR:  $73.4 \pm 7.4$ ,  $122.0 \pm 6.3$ , and  $196.7 \pm 15.4$  mg O<sub>2</sub>/kg/h at 15°C, 20°C, and 25°C, respectively), whilst MMR decreased by lowering salinity ( $48.5 \pm 5.2$ ,  $61.1 \pm 5.5$ , and  $89.3 \pm 14.7$  mg O<sub>2</sub>/kg/hour at salinity of 15, 25, and 35 psu, respectively).

KEYWORDS: rock bream; *Oplegnathus fasciatus*; temperature; salinity; metabolic rates

## INDONESIAN AQUACULTURE JOURNAL

p-ISSN 0215-0883  
e-ISSN 2502-6577

Volume 13 Number 1, 2018

Keywords derived from the article. No permission or cost needed to copy the abstract

UDC 639.516

Sudewi, Zeny Widiastuti, Bejo Slamet, and Ketut Mahardika (Institute for Mariculture Research and Fisheries Extension)

Experimental infections of milky hemolymph disease in spiny lobster *Panulirus homarus*

Indonesian Aquaculture Journal, 13 (1), 2018, 31-40

Milky hemolymph disease of spiny lobster (MHD-SL) is categorized as the most destructive disease in farming spiny lobster. Therefore, it is required to investigate the routes of milky disease infection in spiny lobster as a basic knowledge in order to prevent milky disease transmission. The aim of the present study was to perform an experimental infection of milky disease in spiny lobster *Panulirus homarus*. Experimental infection of milky disease was carried out by several modes of infection which were injection, immersion and per os exposure. Injection of each 0.2 mL undiluted and diluted hemolymph from the diseased lobster resulted in a cumulative mortality of 100% at 15 days post-infection (dpi), and 75% at 16 dpi, respectively. Experimental infection through water immersion caused in a cumulative mortality of 50% at 7 dpi. In contrast, no mortality was observed in per os exposure as well as in control groups. Results of this experimental study provided evidence for horizontal transmission of MHD-SL among *P. homarus*. Histopathological analysis exhibited that there were masses of Rickettsia-like bacteria (RLB) in the connective tissues of the gill, hepatopancreas, gonad, midgut, and muscle tissues of the affected lobsters. Mass of RLB was not only found in the moribund lobsters but also in the surviving lobsters with milky hemolymph appearance.

KEYWORDS: experimental infection; milky hemolymph disease of spiny lobster (MHD-SL); *Panulirus homarus*; spiny lobster

UDC 639.54

Ketut Mahardika, Indah Mastuti, Sudewi, and Zafran (Institute for Mariculture Research and Fisheries Extension)

Identification and life cycle of marine leech isolated from cultured hybrid grouper in the Northern Bali waters of Indonesia

Indonesian Aquaculture Journal, 13 (1), 2018, 41-49

The aims of this study were to identify and to determine life cycle of marine leech isolated from cultured hybrid grouper "cantik" (*Epinephelus fuscoguttatus* fx *E. polyphkadion* m) in the northern Bali waters of Indonesia under laboratory conditions. Observation of the life cycle of the marine leech was done using petri-dishes (9 cm in diameter) arranged into two groups. In group-1, a petri-dish was filled with sterile seawater (with water exchange of 50%-60% every two days) and in group-2, a petri-dish was filled with continuous running water. DNA sequence was aligned with the sequences from GenBank by BLAST program. Results of similarity index with GenBank sequence exhibited that the nucleic acid of the marine leech isolated from the hybrid grouper "cantik" showed high similarity (99%) with *Zeylanicobdella arugamensis*. One adult leech could produce 1-63 eggs. The eggs were developed into morula, blastula, and gastrula within five days. The early phase of the embryo with daily water exchange treatment started on day-6 and hatched into larvae on day-10. The eggs incubated with continuous running water had hatched faster (eight days). However, not all eggs hatched at the same time. Some of the eggs hatched 1-3 days after the first one. Hatching rate of eggs varied from 2.70% to 100%. The newly hatched *Z. arugamensis* larva has transparent color and length of 1.0-1.5 mm. On day-6, *Z. arugamensis* larvae were already seen attaching to the body of the fish. The size of the *Z. arugamensis* larvae ranged between 3-11 mm on day-9. In that stage, they were able to produce eggs. Therefore, we argue that *Z. arugamensis* only requires 17 to 22 days to develop into the adult stage.

KEYWORDS: hybrid grouper "cantik"; life cycle; marine leech; *Zeylanicobdella arugamensis*

*Author index*

Arifin, Otong Zenal	A	7	Prakoso, Vitas Atmadi	P	7, 23
Chang, Young Jin	C	23	Slamet, Bejo	S	31
Darmawan, Jadmiko	D	1	Subagja, Jojo		7
Gunarto	G	13	Sudewi		31, 41
Herlinah	H	13	Suhud, Endang Haris		7
Mahardika, Ketut	M	31, 41	Sulaeman		13
Marnis, Huria		1	Tahapari, Evi	T	1
Mastuti, Indah		41	Widiastuti, Zeny	W	31
Muliani		13	Zafran	Z	41

# SEND INSTRUCTIONS FOR WRITING AND PUBLISHING ARTICLES OF INDONESIAN AQUACULTURE JOURNAL 2016 (12pt Bold)

I Nyoman Adiasmara Giri<sup>#</sup>, Ketut Sugama<sup>\*\*</sup>, Alimuddin<sup>\*\*\*</sup>, and Anang Hari Kristanto<sup>\*\*\*\*</sup>

<sup>\*</sup>) Research and Development Institute for Mariculture, Gondol

<sup>\*\*</sup>) Center for Fisheries Research and Development, Jakarta

<sup>\*\*\*</sup>) Bogor Agricultural University, Bogor

<sup>\*\*\*\*</sup>) Institute for Freshwater Research and Development, Bogor (10pt Normal Italic)

## ABSTRACT (12pt Bold)

[Title: Please Type Title of Article in English in here and Bold formatted] This is a new author guidelines and article template of Indonesian Aquaculture Journal since year 2016 publication. Article should be started by Title of Article followed by Authors Name and Affiliation Address and abstract. This abstract section should be typed in Italic font and font size of 12 pt and number of words of 250. Special for the abstract section, please use left margin of 4 cm, right margin of 3 cm, right margin of 3 cm and bottom margin of 3 cm. The single spacing should be used between lines in this article. The abstract should be typed as concise as possible and should be composed of: problem statement, method, scientific finding results, and short conclusion. The abstract should only be typed in one paragraph and one-column format.

**KEYWORDS:** Author guidelines; research journal; aquaculture; article template

## 1. Introduction

Indonesian Aquaculture Journal has a p-ISSN 0215-0883; e-ISSN: 2502-6577 with Accreditation Number: 591/AU2/P2MI-LIPI/03/2015 (period April 2015-April 2018). First published in 2006, with the publication frequency of twice a year, in June and December. (<http://ejournal-balitbang.kkp.go.id/index.php/iaj>) is a peer-reviewed Journal Indonesian Aquaculture accept manuscripts or articles in the field of aquaculture various academics and researchers nationally.

Scripts are entered in the Indonesian Aquaculture Journal writing guidelines will be checked. When it is appropriate will be reviewed by two people Evaluator based on the designation of the Chairman of the Editorial Board. Manuscript received will be examined plagiasinya element using Google Scholar. This journal only accept articles that come from the results of original research (top priority), and article reviews recent scientific nature (non-priority) (Bekker et al., 1999; Bezuidenhout et al., 2009). Decision admissibility of a scientific article in this journal the rights of the Chairman of the Editorial Board based on the recommendations of the evaluator (Bhaktavatsalam & Choudhury, 1995).

## 2. Writing Title, Name and Address Writer

The article title, author name (without academic degrees), and the address written author affiliations centered on the first page under the title of the article. The distance between the line between the title and the author's name is two spaces, while the distance between the address of author affiliations and the abstract is one space. Keywords should be written below the text of the abstract for each language, arranged in alphabetical order and separated by a semicolon with the number of words 3-5 words. For articles written in Indonesian, write the translation of the English title at the beginning of the abstract text in English (see example above).

Responsible author or authors or Corresponding Author Correspondence should be marked with an asterisk followed by a comma "\*" as the example above. At the bottom of the left column of the first page / abstract should be written sign Writer Responsibility or correspondence or Corresponding Author and well written email address (see example). Communication on the revision of the article and the final decision will only be communicated via email Author Contact.

If the author of more than one, write down the names of the authors, separated by a comma (.). If the author's name consists of two words, said first

---

<sup>#</sup> Correspondence: Research and Development Institut for Mariculture. Jl. Br. Gondol Kec. Gerokgak Kab. Buleleng, Kotak Pos 140, Singaraja, Bali 81101. Phone: + (0362) 92278  
E-mail: [adiasmaranyoman@yahoo.com](mailto:adiasmaranyoman@yahoo.com)

author (first name) should not be abbreviated. If the author's name consists of only one word, write the actual name in one word, however, in the online version (HTML) will be written in two words that contain the same name (repeatedly) for the purposes of indexing metadata (Camdali & Tunc, 2006; Fridman, 2008).

### 3. General Instructions Writing Manuscript

Manuscripts already satisfies the Indonesian Aquaculture Journal writing (in MS Word format, using the template of this article) must be submitted through one of the following ways:

Delivery manuscript via E-mail to email Editorial Journal Indonesian Aquaculture (iaj.puslitbangkan@gmail.com).

Shipping manuscripts to Online Submission System in the E-Journal Portal Indonesian Aquaculture Journal (<http://ejournal-balitbang.kkp.go.id/index.php/iaj>) after registering as a writer and / or Reviewers on the "Register".

Article Writing instructions and templates can be downloaded at the following address:

Article Writing Templates and Guidelines in MS Word (.doc):

Download

Article Writing Templates and Guidelines in PDF (.pdf):

Download

The intruction to submit a manuscript by online can be found on the Submit Online Instructions below. Manuscripts that are not according to the instructions to writing of Indonesian Aquaculture Journal will be returned to the author prior to continue the review process.

Manuscripts written must contain components of scientific articles follows (subtitles in order), namely: (a) Article Title, (b) Name of the author (without a title), (c) Address Affiliates Writer, (d) Abstract and Keywords key, (e) Introduction, (f) Materials and Methods, (g) Results and discussion, (h) Conclusion, (i) Acknowledgements, and (j) References.

Writing subtitles on the contents of the article (Introduction, Materials and Methods, Results and Discussion, Conclusions, Acknowledgements). Sub-titles are in bold with the Title Case and structured format left without a bottom line price. Sub-sub-headings in bold format Sentence case and compiled left flat.

Manuscripts can be written in English, with the maximum number of pages to 15 pages, including figures and tables. Manuscript must be written according to the template of this article in the form of print-ready (Camera ready). Articles should be written in a text field size A4 (210 x 297 mm) and with a format of 4 cm left margin, right margin 3 cm, lower margin 3 cm, and the top margin of 3 cm. The manuscript must be written with the font Times New Roman 12 pt font size (unless the article title, author name and title abstract), within two spaces, and in the format of the column. Words or foreign terms are written in italics (Italic). Should avoid the use of foreign terms to articles in Indonesian language. New paragraph starting 1 cm from the left border, while the spacing between paragraphs given 2. All numbers written with arabic numerals, except at the beginning of the sentence. Writing unit using the International System of Units (SI). Examples of unit symbols abbreviations: gram (g), liters (L), cubic meters (m<sup>3</sup>) per cubic meter (m<sup>-3</sup>).

Tables and Figures placed in the group after the text of the referenced tables or figures. Each image must be given the title of the image (Figure Caption) on the bottom of the image and numbered in Arabic numerals followed by the title picture in Indonesian and English. Each table should be titled table (Table Caption) and numbered in Arabic numerals on the top of the table followed by the title of the table in Indonesian and English. The pictures should be printed clearly warranted (font size, resolution and size of the line to be sure printed clearly). Figures and tables and diagrams / schematics should be placed among the groups corresponding column of text, or if too much is placed in the middle of the page. Tables should not contain vertical lines, while the horizontal lines are allowed but only the essentials only.

### 4. Special Instructions Content Writing Script Manuscript

TITLE ARTICLE: Article Title should be written briefly and clearly, and must pinpointing issues to be raised, does not allow its diverse interpretations, written entirely in capital letters symmetrically. Title of the article should not contain abbreviations that are not commonly used. The main ideas put forward in advance a new article is followed by other explanation.

INTRODUCTION: Introduction must contain (in order) the general background, previous literature review (state of the art) as a basis for claiming a scientific novelty of the article, a statement of scien-

tific novelty, and the research problem or hypothesis. At the end of the preliminary assessment purposes should be written the article. In the scientific article format is not allowed their review of the literature as well as in the research report, but expressed in previous literature review (state of the art) to demonstrate the scientific novelty of the article.

**MATERIALS AND METHODS:** Materials and methods contain the main ingredients used in the study and the methods used in solving the problems, including methods of analysis. The design and research methods must be clear so that it can be repeated by other researchers. When using the standard method must include the reference, and if the modification must be explained which parts are modified. Equipment that is written in this section only contains

major appliances equipped with the brand (eg: electric Furnace (Carbolite)) and the degree of precision tools used.

**RESULTS AND DISCUSSION:** The results presented clearly and concisely, can be presented in the form of tables and figures, but not duplication. Narrative should explain tables and images. Tables and figures must be referred to in the text. This discussion contains scientific explanation supported by reference. Results and discussion should be able to answer the research hypothesis. Statistical analysis of the results and discussion should include the level of confidence.

**CONCLUSION:** The conclusion describes the response of hypotheses and / or research purposes. Conclusions not contain looping of results and discussion, but rather to a summary of the research results.

Table 1. Response to selection and final mean body weight of the third generation compared to the control population of the African catfish *Clarias gariepinus* at the end of larval rearing, nursery and grow-out phases

Phases	Periods (days)	Final mean body weight (g)		Response to selection	
		Third generation	Control	Gram (g)	Percentage (%)
Larval rearing	25	0.19 ± 0.10	0.19 ± 0.07	-	-
Nursery	30	6.12 ± 2.93	5.80 ± 3.50	-	-
Grow-out	60	198.67 ± 82.82	165.22 ± 71.09	33.45	20.24

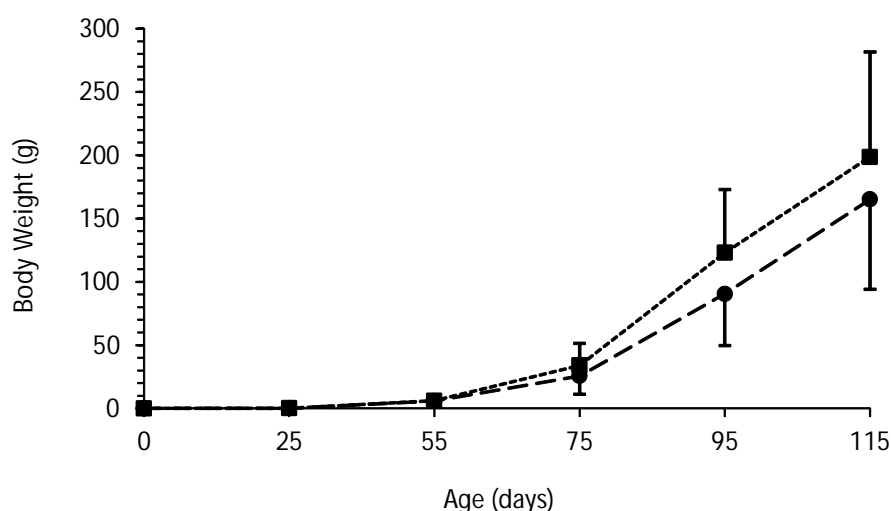


Figure 1. Growth performances based on body weight during 25 days of larval rearing phase, 30 days of nursery phase and 60 days of grow-out phase (based on samplings of 2% populations) of the third generation (■) and control population (●) of the African catfish (*Clarias gariepinus*) genetic improvement program held at Research Institute for Fish Breeding, Sukamandi. Vertical lines represent its each standard deviation

**ACKNOWLEDGEMENTS:** thanks mainly devoted to research funders. Acknowledgements can also be delivered to the parties that support the implementation of the research and writing of the manuscript.

**REFERENCES:** All references are referred to in the text of the article must be included on the List of References. References should contain reference libraries derived from primary sources (scientific journals and amounted to a minimum of 50% of the total listed below) issued 10 (ten) years. A minimum reference list contains 11 (eleven) reference. Writing in the referral system in the article text and writing a reference list using a reference management application program APA.

### 5. Free Writing Equations

Each equation is written centered and numbered columns are written in parentheses and placed at the end of the right margin. Equations should be written using Equation Editor in MS Word or Open Office (Primack, 1983).

$$RPS = \left( 1 - \frac{\% \text{ fish mortality of vaccinated}}{\% \text{ Fish mortality of control}} \right) \times 100$$

### 6. Free Writing Citations / References In Text Articles

Each fetch data or quoted from other references, the author must write the reference source. References or citations written in the description / text by the author's name and the year (Irwan & Salim, 1998). If the author of more than two, then just write the name of the first author followed by "et al." (Bezuidenhout et al., 2009; Roeva, 2012). All referenced in the text must be listed in the References section.

### 7. Writing Reference Cited

The format of writing a list of references following the format 6th Edition APA (American Psychological Association). Download

A reference in the form of magazines / journals:

Ariyanto, D., Hayuningtyas, E.P., & Syahputra, K. (2009). The relationship between the presence of genes Major Histocompatibility Complex Class II (MHC-II) disease resistance and growth in the population of carp strains rajadanu. *Indonesian Aquaculture Journal*, 10 (4), 461-469.

A reference in the form of titles:

Fridman, A. (2008). *Plasma Chemistry* (p. 978). Cambridge: Cambridge University Press.

In the form of reference Proceedings of the Seminar:

Roeva, O. (2012). Real-World Applications of Genetic Algorithm. In *International Conference on Chemical and Materials Engineering* (pp. 25-30). Semarang, Indonesia: Department of Chemical Engineering, Diponegoro University.

A reference in the form of a dissertation / thesis / theses:

Istadi, I. (2006). Development of A Hybrid Artificial Neural Networks - Genetic Algorithm for Modeling and Optimization of Dielectric-Barrier Discharge Plasma Reactor. PhD Thesis. Universiti Teknologi Malaysia.

A reference in the form of patent:

Primack, H.S. (1983). Method of Stabilizing polyvalent Metal Solutions. US Patent No. 4,373,104.

Handbook of reference in the form:

Hovmand, S. (1995). Fluidized Bed Drying. In Mujumdar, USA (Ed.) *Handbook of Industrial Drying* (pp.195-248). 2nd Ed. New York: Marcel Dekker.

### 8. Instructions Submit Manuscripts Online

Manuscripts should be submitted through one of the following ways (the second way is preferred):

Shipping manuscript preferably with Online Submission System in the E-Journal Portal Indonesian Aquaculture Journal (<http://ejournal-balitbang.kkp.go.id/index.php/iaj>)

The first author listed as author and / or Reviewers (checking role as Author and / or REVIEWER) on the "Register" or address: <http://ejournal-balitbang.kkp.go.id/index.php/iaj/user/register>

After Writer login as Author, click on "New Submission". Stages submit article consists of five stages, namely: (1). Start, (2). Upload Submission, (3). Enter Metadata, (4). Upload Supplementary Files, (5). confirmation

Under Start, select the Journal Section (Full Article), check all of the checklist.



In the Upload Submission, please upload a manuscript file in MS Word articles in this section.

In the Enter Metadata, enter data all Writers and their affiliates, followed by the title and abstract, and indexing keywords.

Upload Supplementary Files in part, is allowed to upload files supporting data or affidavit or other documents.

On the Confirmation, please click "Finish Submission" if all the information is correct.

If the author difficulties in the process of submission via online system, manuscripts can also be sent via E-mail to email Editorial Journal Indonesian Aquaculture (iaj.puslitbangkan@gmail.com), however this method is not recommended.

Statement letter can be downloaded here.

## 9. Conclusion

Every article that is sent to the Indonesian Aquaculture Journal editorial office must follow the instructions of this writing. If the article is not in accordance with these guidelines, the writing will be restored before explored further.

## 10. Acknowledgements

Thanks delivered to the Center for Fisheries Research and Development, which has funded the sustainability of this journal.

## 11. References

- Bekker, J.G., Craig, I.K., and Pistorius, P.C. (1999). Modeling and Simulation of Arc Furnace Process. *ISIJ International*, 39 (1), 23-32.
- Bezuidenhout, J.J., Eksteen, J.J., & Bradshaw, S.M. (2009). Computational fluid dynamic modeling of an electric furnace is used in the smelting of con-

centrates containing PGM. *Minerals Engineering*, 22 (11), 995-1006.

- Bhaktavatsalam, A.K. & Choudhury, R. (1995). Specific Energy Consumption in the Steel Industry. *Energy*, 20 (12), 1247-1250.
- Camdali, U. & Tunc, M. (2006). Steady State Heat Transfer of Ladle Furnace Steel During Production Process. *Journal of Iron and Steel Research, International*, 13 (3), 18-20.
- Fridman, A. (2008). *Plasma Chemistry* (p. 978). Cambridge: Cambridge University Press.
- Hovmand, S. (1995). Fluidized Bed Drying. In Mujumdar, USA (Ed.) *Handbook of Industrial Drying* (p. 195-248). 2nd Ed. New York. Marcel Dekker.
- Istadi, I. (2006). Development of A Hybrid Artificial Neural Networks - Genetic Algorithm for Modeling and Optimization of Dielectric-Barrier Discharge Plasma Reactor. PhD Thesis. Universiti Teknologi Malaysia.
- Primack, H.S. (1983). Method of Stabilizing polyvalent Metal Solutions. US Patent No. 4,373,104.
- Roeva, O. (2012). Real-World Applications of Genetic Algorithm. In *International Conference on Chemical and Materials Engineering* (p. 2530). Semarang, Indonesia: Department of Chemical Engineering, Diponegoro University.
- Wang, Z., Wang, N.H., & Li, T. (2011). Computational analysis of a twin-electrode DC submerged arc furnace for the production of crystal MgO. *Journal of Materials Processing Technology*, 211 (3), 388-395.

## 12. Article Processing Fees

Every article that is sent to the Indonesian Aquaculture Journal editorial office is free of charge (free - no page charge) processing fee included free articles. Costs borne by the publication of this journal publishers.

# SERTIFIKAT

Direktorat Jenderal Penguatan Riset dan Pengembangan,  
Kementerian Riset, Teknologi, dan Pendidikan Tinggi



Kutipan dari Keputusan Direktorat Jenderal Penguatan Riset dan Pengembangan,  
Kementerian Riset, Teknologi, dan Pendidikan Tinggi Republik Indonesia  
Nomor: 21/E/KPT/2018, Tanggal 9 Juli 2018  
Tentang Hasil Akreditasi Jurnal Ilmiah Periode I Tahun 2018

Nama Jurnal Ilmiah  
**Indonesian Aquaculture Journal**  
E-ISSN: 2502-6577

Penerbit: Pusat Riset Perikanan, Kementerian Kelautan dan Perikanan  
Ditetapkan sebagai Jurnal Ilmiah

**TERAKREDITASI PERINGKAT 2**

Akreditasi berlaku selama 5 (lima) tahun, yaitu  
Volume I Nomor 1 Tahun 2016 sampai Volume 15 Nomor 2 Tahun 2020

Jakarta, 9 Juli 2018  
Direktur Jenderal Penguatan Riset dan Pengembangan



Dr. Muhammad Dimiyati  
NIP. 195912171984021001

