

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

INDONESIAN AQUACULTURE JOURNAL

Volume 20 Number 2, December 2025



Accreditation Number: 10/C/C3/DT.05.00/2025

Available online at: <http://ejournal-balitbang.kkp.go.id/index.php/iaj>

FOCUS AND SCOPE OF INDONESIAN AQUACULTURE JOURNAL

Indonesian Aquaculture Journal (IAJ) is a peer-reviewed and open access journal based in Indonesia that globally/internationally accepts and publishes scientific articles in the field of aquaculture. The journal is hosted and managed by the Agency for Marine and Fisheries Extension and Human Resources Development, Ministry of Marine Affairs and Fisheries of the Republic of Indonesia. It serves as a scientific platform to share research findings and contribute to the development of various aquaculture disciplines, including genetics, reproduction, nutrition and feed, fish health and diseases, engineering, and environmental assessment.

Currently, IAJ is recognized as a Category 1 Accredited Journal under the Directorate General of Higher Education, Research, and Technology (Kemdiktisaintek), Decree No. 10/C/C3/DT.05.00/2025, dated March 21, 2025. This accreditation is valid for five years, from Volume 19 Number 2 (2024) to Volume 24 Number 1 (2029). IAJ has been accredited as Category 1 (SINTA 1) and has also been indexed in Scopus since Volume 14 Number 1 (2019).

This journal is published twice a year (June and December issues) with the first IAJ edition published in 2006. Submitted manuscripts will be rigorously checked by the IAJ Assistant Editor to comply with the IAJ writing format and content guidelines. Manuscripts, complied with the described process, will be reviewed by one member of the Editorial Board and one reviewer appointed by the IAJ Editor-in-Chief. The Editor-in-Chief has the authority to accept or reject submitted manuscripts based on the recommendations of the assigned Editorial Board member and reviewers.

INDEXING INFORMATION OF INDONESIAN AQUACULTURE JOURNAL

Indonesian Aquaculture Journal (<http://ejournal-balitbang.kkp.go.id/index.php/iaj>) has p-ISSN 0215-0883 and e-ISSN 2502-6577 is indexed, abstracted, or fulltext reproduced in the national and international indexing/library databases including SCOPUS, Science and Technology Index (SINTA), GARUDA, Google Scholar, Cross Ref, Mendeley, Indonesian Scientific Journal Database (ISJD), World Cat, Scilit, BASE, Dimensions, SCI Journal, Resurchify, dan ORES.



Available online at: <http://ejournal-balitbang.kkp.go.id/index.php/iaj>

INDONESIAN AQUACULTURE JOURNAL

Volume 20 Number 2, December 2025

Accreditation Number: 10/C/C3/DT.05.00/2025

IAJ Category 1 Accredited Journal is valid for five years

(Volume 19 Number 2, 2024-Volume 24 Number 1, 2029)

Indonesian Aquaculture Journal publishes research results on various disciplines of aquaculture described in the Focus and Scope of the journal. This journal publishes research articles twice a year and is funded by the Politeknik Kelautan dan Perikanan Sidoarjo, Agency for Marine and Fisheries Extension and Human Resources Development, Ministry of Marine Affairs and Fisheries

EDITORIAL TEAM

Managing Director:

Dr. Yaser Krisnafi, S.St.Pi., M.T. (Politeknik Kelautan dan Perikanan Sidoarjo, Indonesia)

Editor-in-Chief:

Prof. Dr. I Nyoman Adiasmara Giri (Fish Nutrition, National Research and Innovation Agency, Indonesia)

Editorial Board:

Prof. Dr. Ketut Sugama (Aquaculture, National Research and Innovation Agency, Indonesia)

Prof. Dr. Ahmad Mustafa (Aquatic Environment, National Research and Innovation Agency, Indonesia)

Prof. Dr. Alimuddin (Biotechnology, Faculty of Fisheries and Marine Science-IPB University, Indonesia)

Prof. Dr. Murwantoko (Disease and Fish Health, Gadjah Mada University, Indonesia)

Prof. Dr. Sinung Rahardjo (Aquaculture, Jakarta Technical University of Fisheries, Indonesia)

Prof. Dr. Mhd. Ikhwannuddin (Aquaculture, University Malaysia Terengganu, Malaysia)

Prof. Dr. Abol Munafi Ambok Bolong (Aquaculture, University Malaysia Terengganu, Malaysia)

Dr. K.H. Runte (Aquaculture, University of Kiel, Germany)

Prof. Michael A. Rice, Ph.D. (Aquaculture, Dept. of Fisheries, Animal & Veterinary Science,
University of Rhode Island, USA)

Dr. Clive M. Jones (Aquaculture, James Cook University, Australia)

Mohammad Hossein Khanjani, Ph.D. (Aquaculture, Faculty of Natural Resources, University of Jiroft, Iran)

Krishna R. Salin, Ph.D. (Aquaculture, Asian Institute of Technology, Thailand)

Christopher Marlowe Arandela Caipang, Ph.D. (Fish Health, Division of Biological Sciences, College of Arts and Sciences, University of the Philippines Visayas, Philippines)

Dr. Md. Enamul Huq (Biotechnology, Yulin Univeristy, China)

Language Editors:

Vitas Atmadi Prakoso, S.Pi., M.F.Sc.

Agung Purnomo, S.S., MIR.

Assistant Editor:

Ofan Bosman, S.Pi., M.Si.

Asep Sutiana, S.St.Pi., M.Si.

Citra Zaskia Pratiwi, M.T.

Graphic Designer:

Darwanto, S.Sos.

Manuscripts and inquiries should be sent to:

Indonesian Aquaculture Journal

Agency for Marine and Fisheries Extension and Human Resources Development

GMB III, 6th floor, Jl. Medan Merdeka Timur No.16 Jakarta Pusat

Phone: (021) 3519070 (Hunting); Fax.: (021) 3513287

E-mail: iaj.puslitbangkan@gmail.com

Website: ejournal-balitbang.kkp.go.id/index.php/iaj

Available online at: <http://ejournal-balitbang.kkp.go.id/index.php/iaj>

PEER-REVIEWERS OF INDONESIAN AQUACULTURE JOURNAL

1. Dr. Michael A. Rimmer (Aquaculture, University of the Sunshine Coast, Australia)
2. Dr. Emmanuel Paradise (Ecology and Population Biology, Institute de Recherche pour le Developpement, France)
3. Dr. Munti Yuhana (Microbiology, Faculty of Fisheries and Marine Science, IPB University, Indonesia)
4. Prof. Dr. Akhmad Mustafa (Aquatic Environment, National Research and Innovation Agency, Indonesia)
5. Dr. Imron (Genetic, National Research and Innovation Agency, Indonesia)
6. Dr. Hans Peter Saluz (Molecular Fish Genetic, Hans Knoll Institute, Germany)
7. Dr. Katsumori Hatanaka (Spatial Modelling Aquaculture, Tokyo University of Agriculture, Japan)
8. Prof. Dr. Jesmond Sammut (Environmental Science, University of New South Wales, New South Wales, AU)
9. Prof. Dr. Haryanti (Genetic and Biotechnology, National Research and Innovation Agency, Indonesia)
10. Dr. Ketut Mahardika (Aquaculture, National Research and Innovation Agency, Indonesia)
11. Prof. Dr. S. Budi Prayitno (Aquaculture and Fish Health, Diponegoro University, Indonesia)
12. Dr. Andi Parenrengi (Breeding, National Research and Innovation Agency, Indonesia)
13. Dr. Irma Shita Arlyza (Molecular Ecology, Indonesian Institute of Science, Indonesia)
14. Prof. Dr. Rudhy Gustiano (Genetic, National Research and Innovation Agency, Indonesia)
15. Prof. Dr. Ir. Ngurah N. Wiadnyana, DEA (Fisheries Ecology, National Research and Innovation Agency, Indonesia)
16. Dr. Tarunamulia (Aquatic Environment, National Research and Innovation Agency, Indonesia)
17. Ali Reza Radkhah, Ph.D. (Aquaculture and Fisheries Biotechnology, Departement of Fisheries, University of Tehran, Iran)
18. Dr. Indra Suharman (Fish Nutrition, Riau University, Indonesia)
19. Cathy Hair, Ph.D. (Aquaculture, University of the Sunshine Coast, Australia)
20. Hatim Albasri, Ph.D. (Aquaculture, National Research and Innovation Agency, Indonesia)
21. Nguyen Van Sang, Ph.D. (Aquaculture, Research Institute for Aquaculture, Vietnam)
22. Dr. Eddy Supriyono (Fish Nutrition, IPB University, Indonesia)
23. Prof. Dr. Angela Mariana Lusiastuti (Fish Health, National Research and Innovation Agency, Indonesia)
24. Prof. Dr. Rachman Syah (Aquatic Environment, National Research and Innovation Agency, Indonesia)
25. Dr. Romi Novriadi (Aquaculture, Jakarta Technical University of Fisheries, Indonesia)
26. Dr. Dinamella Wahjuningrum (Fish Health, IPB University, Indonesia)
27. Prof. Dr. Agus Kurnia (Fish Nutrition, Universitas Halu Oleo, Indonesia)
28. Prof. Ph.D. Shyn Shin Sheen, (Aquaculture, National Taiwan Ocean University, Taiwan)

Available online at: <http://ejournal-balitbang.kkp.go.id/index.php/iaj>

ACKNOWLEDGEMENTS FOR PEER-REVIEWERS

Volume 20 Number 2, December 2025

The Editor-in-Chief of Indonesian Aquaculture Journal (IAJ) would like to thank reviewers who have voluntarily participated in reviewing the articles published in this journal. Their participation has ensured the on-time publication of IAJ volumes. The reviewers who participated in the publication of IAJ Volume 20 Number 2, December 2025 are as follows:

1. Prof. Dr. Haryanti (Genetic and Biotechnology, National Research and Innovation Agency, Indonesia)
2. Prof. Dr. Rachman Syah (Aquatic Environment, National Research and Innovation Agency, Indonesia)
3. Prof. Ph.D. Shyn Shin Sheen (Aquaculture, National Taiwan Ocean University, Taiwan)
4. Prof. Dr. Angela Mariana Lusiastuti (Fish Health, National Research and Innovation Agency, Indonesia)
5. Prof. Dr. Andi Parenrengi (Genetic, National Research and Innovation Agency, Indonesia)
6. Prof. Dr. Rosmiati (Aquaculture, National Research and Innovation Agency, Indonesia)
7. Dr. Pande Gde Sasmita Julyantoro (Fish Health, Univesitas Udayana, Indonesia)
8. Dr. Asda Laining (Fish Nutrition, National Research and Innovation Agency, Indonesia)
9. Dr. Romi Novriadi (Aquaculture, Jakarta Technical University of Fisheries, Indonesia)
10. Dr. Michael A. Rimmer (Aquaculture, University of the Sunshine Coast, Australia)
11. Ali Reza Radkhah, Ph.D. (Aquaculture and Fisheries Biotechnology, Departement of Fisheries, University of Tehran, Iran)
12. Nguyen Van Sang, Ph.D. (Aquaculture, Research Institute for Aquaculture, Vietnam)

Available online at: <http://ejournal-balitbang.kkp.go.id/index.php/iaj>

PREFACE

Indonesian Aquaculture Journal (IAJ) has published high-quality research articles for 20 years and the current 2025 edition is IAJ Volume 20. The IAJ 2025 volumes are funded by the Politeknik Kelautan dan Perikanan Sidoarjo in the fiscal year of 2025. All published articles have gone through a complete cycle of the evaluation process by the Editorial Board, Reviewers, and Editorial Office.

Since 2016, the IAJ has made a significant improvement in managing and evaluating publication through the online Open Journal Systems (OJS). Some minor changes were introduced in IAJ including:

1. A written description of p-ISSN and e-ISSN at the bottom of the cover skin page, title page, and table of contents
2. Additional sheets for the list of reviewers, focus & scope of IAJ and Indexing Information
3. A recognition sheet dedicated for reviewers involved in manuscript reviews of each issue
4. Each title sheet contains additional information regarding the website and email addresses as well as a short description about IAJ.

These changes are described in the preface texts of each issue.

The Volume 20 Number 2, 2025 presents ten research articles: Moringa leaf simplicia enhanced health status and immune response of tilapia against *Edwardsiella tarda* infection; Optimization of mustika common carp culture to increase fish farmers' income in Bangkinang, Kampar: a productivity and economic analysis; Effect of negative redox potential of dry sediment on the infectivity of *Vibrio parahaemolyticus*, growth and health status of pacific whiteleg shrimp; Image processing method to detect the position of vannamei shrimp in muddy waters; A review of technological developments in shrimp aquaculture production; The relationship of the water parameter to the growth and the carrageenan quality of *Kappaphycus alvarezii* (doty) doty ex P.C. Silva (1996) in Belopa, Luwu Regency, Indonesia; Impact of protein and probiotic supplementation on immunity and survival of *Clarias gariepinus* under pathogen challenge in aquaculture; Production performance and financial analysis of glass eel (*Anguilla bicolor*) nursery at different stocking densities using RAS; Characterization of endogenous bacteria as potential probiotics in larval rearing of yellowfin tuna (*Thunnus albacares*); Enhancing protein utilization and growth performance in striped catfish with cinnamaldehyde and optimized energy-to-protein ratios.

These scientific papers are expected to contribute to and fill the gap of the body of knowledge in the field of aquaculture. Most importantly, the information contained in the current publication can make a significant impact on the decision making of policy makers and managers to manage and develop aquaculture in Indonesia and worldwide. As the Editor-in-Chief, I would like to extend a sincere gratitude to the contributing researchers in this volume.

Editor-in-Chief

INDONESIAN AQUACULTURE JOURNAL

Volume 20 Number 2, December 2025

CONTENTS

FOCUS AND SCOPE	i
EDITORIAL TEAM	ii
PEER-REVIEWERS	iii
ACKNOWLEDGEMENTS	iv
PREFACE	v
CONTENT	vi-vii

Moringa leaf simplicia enhanced health status and immune response of tilapia against *Edwardsiella tarda* infection

By: Thamara Ratnadilla, Dinamella Wahjuningrum, and Widanarni 107-122

Optimization of mustika common carp culture to increase fish farmers' income in Bangkinang, Kampar: a productivity and economic analysis

By: Yogi Himawan, Didik Ariyanto, Suharyanto Suharyanto, and Flandrianto Sih Palimirmo 123-132

Effect of negative redox potential of dry sediment on the infectivity of *Vibrio parahaemolyticus*, growth and health status of pacific whiteleg shrimp

By: Shofii Amaliah Putri, Sukenda, Munti Yuhana, and Kukuh Nirmala 133-144

Image processing method to detect the position of vannamei shrimp in muddy waters

By: Waryanto, Joga Dharma Setiawan, Mochammad Arianto, Bakti Berlyanto Sedayu, Ninik Umi Hartanti, Suyono Suyono, Karina Farkha Dina, Heru Kurniawan Alamsyah, Hozin Aziz, Imam Taukhid, Supriyanto Supriyanto, Riza Zulkarnain, and Zaenal Arifin Siregar 145-156

A review of technological developments in shrimp aquaculture production

By: Morfow Nkeze Paul, Nor Azman Kasan, Benedicta Oshuware Mbu Oben, and Friday Elijah Osho 157-172

The relationship of the water parameter to the growth and the carrageenan quality of *Kappaphycus alvarezii* (doty) doty ex P.C. Silva (1996) in Belopa, Luwu Regency, Indonesia

By: Nur Istiqamah, Magdalena Litaay, and Ambeng 173-183

Impact of protein and probiotic supplementation on immunity and survival of *Clarias gariepinus* under pathogen challenge in aquaculture

By: Firew Admasu, Mulugeta Wakjira, Tokuma Negisho Bayissa, and Ketema Bacha 185-195

Production performance and financial analysis of glass eel (<i>Anguilla bicolor</i>) nursery at different stocking densities using RAS	
By: Aslia, Tatag Budiardi, Yani Hadiroseyani, and Iis Diatin	197-208
Characterization of endogenous bacteria as potential probiotics in larval rearing of yellowfin tuna (<i>Thunnus albacares</i>)	
By: Ni Wayan Widya Astuti, Ananto Setiadi, Gunawan Gunawan, Jhon Harianto Hutapea, Ahmad Muzaki, and Haryanti	209-220
Enhancing protein utilization and growth performance in striped catfish with cinnamaldehyde and optimized energy-to-protein ratios	
By: Imam Tri Wahyudi, Dedi Jusadi, Mia Setiawati, Julie Ekasari, Muhammad Agus Suprayudi, Mohamad Iqbal Kurniawinata, and Ainulyakin Hasan Imlani	221-230