

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

INDONESIAN AQUACULTURE JOURNAL

Volume 20 Number 1, June 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, Indonesian Ministry of Marine Affairs and Fisheries and serving as a scientific platform to share research information in and contribute to the development of various disciplines of aquaculture including genetics, reproduction, nutrition and feed, fish health and diseases, engineering, and environmental assessment.

Indonesian Aquaculture Journal (IAJ) (<http://ejournal-balitbang.kkp.go.id/index.php/iaj>) is published in both printed (p-ISSN 0215-0883) and electronic (e-ISSN 2502-6577) versions. Currently, IAJ is listed as Category 1 Accredited Journal in the Direktur Jenderal Pendidikan Tinggi, Riset, dan Teknologi (Kemdiktisaintek) No.: 10/C/C3/DT.05.00/2025, Date March 21, 2025. The accreditation is valid for five years from Volume 19 Number 2, 2024 to Volume 24 Number 1, 2029. IAJ has also been indexed in SCOPUS, starting from the 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 1, June 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 University, China)

Language Editors:

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

Agung Purnomo, S.S., MIR.

Assistant Editor:

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

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

Citra Zaskia Pratiwi, M.T.

Annisa Bias Cahyanurani, M.P.

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 1, June 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 1, June 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. Andi Parenrengi (Genetic, National Research and Innovation Agency, Indonesia)
5. Dr. Imron (Genetic, National Research and Innovation Agency, Indonesia)
6. Dr. Pande Gde Sasmita Julyantoro (Fish Health, Univesitas Udayana, Indonesia)
7. Dr. Indra Suharman (Fish Nutrition, Universitas Riau, Indonesia)
8. Dr. Asda Laining (Fish Nutrition, National Research and Innovation Agency, Indonesia)
9. Dr. Michael A. Rimmer (Aquaculture, University of the Sunshine Coast, Australia)
10. Ali Reza Radkhah, Ph.D. (Aquaculture and Fisheries Biotechnology, Departement of Fisheries, University of Tehran, Iran)
11. 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 1, 2025 presents nine research articles: Callus induction in *Kappaphycus alvarezii* using indole 3-Acetic acid (IAA) and 6-Benzylaminopurine (BAP) for seedstock development; Effect of dietary banana pseudo-stem simplicia, commercial vaccine, and their combination on the growth, health status, and immunity performance of Nile tilapia against *Aeromonas hydrophila*; Administration of *Curcuma* spp. extract to control *Aeromonas hydrophila* infection in striped catfish (*Pangasianodon hypophthalmus*); The effect of thyroxine hormone and recombinant growth hormone (RGH) soaking on the rate of egg yolk absorption and growth of tawes fish (*Barbonymus gonionotus*); Hybrid vigor and growth performance of hybrid mahseer (*Tor* spp.) in grow-out; Effectiveness of biofloc, probiotics and the combinations on growth, immune responses and resistance of vannamei shrimp infected with *Vibrio parahaemolyticus*; Species identification and genetic diversity of Portuguese Oyster (*Crassostrea angulata*): implications for breeding in Vietnam; A review of the development Pacific white shrimp (*Litopenaeus vannamei*) farming in Indonesia; and Effect of different substrates on biofilm growth and lipid content of diatom *Thalassiosira* sp.

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 1, June 2025

CONTENTS

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

Callus induction in *Kappaphycus alvarezii* using indole 3-Acetic acid (IAA) and 6-Benzylaminopurine (BAP) for seedstock development

By: Mugi Mulyono, Mutia Safa Salsabila, Mohammad Rasnijal, Siti Fadilah, and Angkasa Putra 1-10

Effect of dietary banana pseudo-stem simplicia, commercial vaccine, and their combination on the growth, health status, and immunity performance of Nile tilapia against *Aeromonas hydrophila*

By: Dinamella Wahjuningrum, Erina Tri Ramadhina, Sri Nuryati, Ita Rizkiyanti, and Taufiq Abdullah 11-22

Administration of *Curcuma* spp. extract to control *Aeromonas hydrophila* infection in striped catfish (*Pangasianodon hypophthalmus*)

By: Ade Dwi Sasanti, Widanarni, Sukenda, Munti Yuhana, Dinamella Wahjuningrum, and Mia Setiawati 23-36

The effect of thyroxine hormone and recombinant growth hormone (RGH) soaking on the rate of egg yolk absorption and growth of tawes fish (*Barbonymus gonionotus*)

By: Tristiana Yuniarti, Sri Hastuti, Ristiawan Agung Nugroho, Fajar Basuki, Diana Chilmawati, and Raka Gilang Saputra 37-47

Hybrid vigor and growth performance of hybrid mahseer (*Tor* spp.) in grow-out

By: Yogi Himawan, Imron, Otong Zenal Arifin, Jojo Subagja, Supriyanto, and Joni Haryadi 49-58

Effectiveness of biofloc, probiotics and the combinations on growth, immune responses and resistance of vannamei shrimp infected with *Vibrio parahaemolyticus*

By: Baref Agung Wicaksono, Widanarni, Munti Yuhana, Muhamad Gustilatov, and Usamah Afiff 59-73

Species identification and genetic diversity of Portuguese Oyster (*Crassostrea angulata*): implications for breeding in Vietnam

By: Luan Thanh Nguyen, Thong Hoang Nguyen, Loc Hong Nguyen, Nguyen Hoang Khoi Le, Suong Thao Nguyen, Thanh Minh Nguyen, Tri Nhu Nguyen, and Sang Van Nguyen..... 75-86

A review of the development Pacific white shrimp (*Litopenaeus vannamei*) farming in Indonesia

By: Supono, and Arief Rahman Rivaie 87-95

Effect of different substrates on biofilm growth and lipid content of diatom *Thalassiosira* sp.

By: Joan T. Tabaguirao, Cleresa S. Dionela, Fredson H. Huervana, and Rex Ferdinand M. Traifalgar 97-105