ISSN: 2442-3750 (print) ISSN: 2527-6204 (online) Volume 10, Issue 1, March 2024

Nationally Accredited based on the Decree of the Minister of Research, Technology and Higher Education of Indonesia, Number 105/E/KPT/2022 as a SINTA 2 journal (2021-2026).

JPBI (Jurnal Pendidikan Biologi Indonesia), ISSN 2442-3750 (print); ISSN 2527-6204 (online), publishes a scientific papers on the results of the study/research and review of the literature in the sphere of biology education in primary education, secondary education, and higher education. Additionally, this journal also covers the issues on environmental education. This journal collaborates with Asosiasi Lesson Study Indonesia (ALSI)/Indonesian Association of Lesson Study. Editor accepts the article has not been published in other media with the writing format as listed on page manuscript writing guidelines.

JPBI (Jurnal Pendidikan Biologi Indonesia) was established in 2015, published three times a year, on March, July, and November. Started by Volume 3, Number 3, November 2017, the journal was only published by using one language namely English. The journal has been indexed in ERIC, EBSCO, DOAJ, ACI, BASE, Garuda, Google Scholar, SINTA, and others.

JPBI (Jurnal Pendidikan Biologi Indonesia), in English is the "Indonesian Journal of Biology Education". The word "Indonesia" does not mean that the article is only written by an author from Indonesia, but it is more meaningful: (1) the journal publisher is from Indonesia and (2) the article needsto be related to conditions in Indonesia or countries that have the same conditions so that the article is expected to have implications and contributions to overcome Biology Education problems in Indonesia or possibilities to be applied in Indonesia.

# **Editorial Team**

#### **Editor-in-Chief**

Prof. Dr. Hadi Nur, Scopus ID: 6602169746; Department of Chemistry, Universitas Negeri Malang, East Java, Indonesia

#### **Managing Editor**

Assoc. Prof. Dr. Atok Miftachul Hudha, Scopus ID: 57209580278; Department of Biology Education, University of Muhammadiyah Malang, East Java, Indonesia

## Section/Handling Editor

- 1. Dr. H. Husamah, Scopus ID: 57195803428; Department of Biology Education, University of Muhammadiyah Malang, East Java, Indonesia
- 2. Mrs Diani Fatmawati, Scopus ID: 57188975423; Department of Biology Education, University of Muhammadiyah Malang, East Java, Indonesia
- 3. Mr Ahmad Fauzi, Scopus ID: 57190423577; Department of Biology Education, University of Muhammadiyah Malang, East Java, Indonesia

## **Editorial Advisory Regional Africa**

Prof. Dr. Anthony Kudjo Donkor, Scopus ID: 55794169000; University for Development Studies, Tamale, Ghana

#### Editorial Advisory Regional America and Europe

Assoc. Prof. Dr Siti N. Hidayati, Scopus ID: 6602160347; Department of Biology, Middle Tennessee State University, Murfreesboro, United States

## **Editorial Advisory Regional South Asia**

Dr. Shahin Gavanji, Scopus ID: 54883969200; Chairman of World Academy of Medical Sciences (WAMS); Department of Biotechnology, Faculty of Advanced Sciences and Technologies, University of Isfahan, Isfahan, Iran, Islamic Republic of

# **Editorial Advisory Regional Southeast Asia**

Prof. Dr. Henita Rahmayanti, Scopus ID: 57193697371, Department of Population and Environmental Education, Universitas Negeri Jakarta, The Special Capital of Jakarta, Indonesia

# **Editorial Board**

- Prof. Dr. Nuryani Y Rustaman, Scopus ID: 55872695700; Science Education Departement, Indonesia University of Education (UPI), West Java, Indonesia
- Prof. Dr. Nobuyasu Katayama, Scopus ID: 7102706409; Tokyo Institute for Biology Education; and Department of Biology, Faculty of Education, Tokyo Gakugei University, Koganei, Japan, Japan
- Prof. Dr. Dongryeul Kim, Scopus ID: 57037347100, Biology Education Major, Department of Science Education, College of Education, Daegu National University of Education, Daegu, Korea, Republic of
- Prof. Dr. Animesh Ku. Mohapatra, Scopus ID: 35729036800; Department of Life Science, Regional Institute of Education (NCERT), Bhubaneswar, Odisha, India

- Prof. Dr. Aloysius Duran Corebima, Scopus ID: 56857563800; Department of Biology, Universitas Kanjuruhan Malang, Malang, East Java; Prof. Emiritius at Universitas Negeri Malang, Indonesia
- Prof. Dr. Muhammad Faizal A. Ghani, Scopus ID: 49861280500; Department Of Educational Management, Planning, and Policy Faculty Of Education, University of Malaya, Kuala Lumpur, Malaysia
- Prof. Dr. Imran Parvez, Scopus ID: Hajee Mohammad Danesh Science and Technology University, Dinajpur, Bangladesh
- Assoc. Prof. Ziyn Engdasew, SCOPUS ID: 56006357200; School of Educational Sciences, Adama Science and Technology University, Ethiopia
- Assoc. Prof. Dr Siti N. Hidayati, Scopus ID: 6602160347; Department of Biology, Middle Tennessee State University, Murfreesboro, United States
- Assist. Prof. Dr Hidayah Binti Mohd Fadzil, Scopus ID: 56256057000; Department of Mathematics and Science Education, Faculty of Education, University of Malaya, Kuala Lumpur, Malaysia
- Assit. Prof. Pratchayapong Yasri, Scopus ID: 36543463100; Institute for Innovative Learning, Mahidol University, Nakhon Pathom, Thailand
- Assoc. Prof. Dr. Ruqiah Ganda Putri Panjaitan, Scopus ID: 55656556500, Biology Education Program, Mathematics and Natural Science Education Department, Teaching and Education Faculty, Universitas Tanjungpura, Indonesia
- Assoc. Prof. Dr Puguh Karyanto, Scopus ID: 57202219619, Department of Biology Education, Faculty of Teacher Training and Education, Universitas Sebelas Maret, Surakarta, Central Java; Head of Indonesian Consortioum for Biology Education, Indonesia
- Assoc. Prof. Dr. Agus Sutanto, Scopus ID: 57210971026; Department of Biology Education, University of Muhammadiyah Metro, Lampung, Indonesia
- Prof. Dr. Yuni Pantiwati, Scopus ID: 57190660805, Biology Education, Postgraduate, Universitas Muhammadiyah Malang, Indonesia
- Assoc. Prof. Dr. Marheny Lukitasari, Scopus ID: 57201676274; Department of Biology Education, University of PGRI Madiun, East Java, Indonesia
- Dr. Ilmi Zajuli Ichsan, Scopus ID: 57209737062; Department of Biology Education, Faculty of Mathematics and Sciences, Universitas Negeri Jakarta, Special Region of Jakarta, Indonesia

### Copy Editor and Proofreader

- Fuad Jaya Miharja, Scopus ID: 57208113299, Department of Biology Education, University of Muhammadiyah Malang, East Java, Indonesia
- Dwi Setyawan, Scopus ID: 57201433886, Department of Biology Education, University of Muhammadiyah Malang, East Java, Indonesia
- Dr Arsad Bahri, Scopus ID: 56857333400; Department of Biology, State University of Makassar (UNM), South Sulawesi, Indonesia

#### Administration

- 1. Tutut Indria Permana, Scopus ID: 56598093500; Department of Biology Education, University of Muhammadiyah Malang, East Java, Indonesia
- 2. Fendy Hardian Permana, Scopus ID; Department of Biology Education, University of Muhammadiyah Malang, East Java, Indonesia
- 3. Mr. Moh Mirza Nuryady, Scopus ID; 56809465100, Department of Biology Education, Universitas Muhammadiyah Malang, ID, Indonesia

# **Editorial Office**

Department of Biology Education, Faculty of Teacher Training and Education,
University of Muhammadiyah Malang
3rd Campus, 1st Floor, BioEdu Room, Tlogomas Street No. 246 Malang, East Java, Indonesia
Postal Code: 65144

Phone: +62341- 464318 Ext.120 Fax: 0341- 460782 E-mail: jpbi@umm.ac.id / journal.educationalbiology@gmail.com Website: http://ejournal.umm.ac.id/index.php/jpbi

# **TABLE OF CONTENT**

Developing prospective teachers' science-task knowledge and practice through lesson study Yuswa Istikomayanti, Zuni Mitasari, Anis Samrotul Lathifah, M. Mashuri, Pratika Desy	1-11
The practice of science and religion integration: Evidence from an Indonesian Islamic school Jailan Sahil, Siti Zubaidah, Aloysius Duran Corebima, Abdul Gofur, Muhammad Saefi	12-26
The development of the woven plant encyclopedia of the Simpakng Dayak Tribe Ketapang	25.25
Regency	27-37
Agnesia Jeni Saputri, Ari Sunandar, Mahwar Qurbaniah	
Development of encyclopedia based on local vegetables North Kayong Regency as biology	38-46
learning media Saripa Aini, Anandita Eka Setiadi, Ari Sunandar	30-40
Beginning science teachers' online classes: A narrative inquiry	
Jleian Mard M. Loseñara, Catherine P. Loseñara	47-57
Effectiveness of project-based learning in improving science literacy and collaborative skills	
of Muhammadiyah middle school students	<i>58-69</i>
lin Hindun, N. Nurwidodo, Sri Wahyuni, Nur Fauziah	
Spirituality-based action competence for sustainability among prospective biology teacher in	
Indonesia	70-84
Abdulkadir Rahardjanto, H. Husamah, Samsun Hadi, Nurdiyah Lestari	
Promoting student's habits of mind and cognitive learning outcomes in science education  Eka Ariyati, Herawati Susilo, Hadi Suwono, Fatchur Rohman	85-95
Validity and practicality of project-based learning teaching modules to train life skills Era	
Society 5.0 (bioentrepreneurship)	96-106
Firdatus Sukma Fitri Shiyamsyah, Y. Yuliani, Yuni Sri Rahayu	
Enhancing student's conceptual understanding on the patterns of Mendelian genetics	
through task-based learning	107-114
Emmylou Aspacio Borja, Romel Cayao Mutya	
Improving critical thinking and creative thinking skills through POPBL learning in high	
school student	115-122
Rima Suwistika, I. Ibrohim, Hendra Susanto	
The impact of problem-based learning and metacognition on solving environmental	100 100
pollution issues	123-130
Annisa Cahyadini, Hanum Isfaeni, Ratna Komala	
How environmental literacy research works in biology learning? A literature review Jundi Awaludin, Tri Handayani Kurniati, Rizhal Hendi Ristanto, Ratna Komala	131-142
Development and evaluation of e-comic nervous system app to enhance self-directed student	
learning	143-153
Hendra Susanto, Deny Setiawan , Susriyati Mahanal , Zahra Firdaus, Claresia Tsany Kusmayadi	
Developing integrated biology teaching material with Qur'an and Sunnah value Siti Robiah, Ibnu Hajar, Sepita Ferazona, Desi Tri Lestari	154-163
Flipped classroom strategies in biology learning: A systematic literature review	
Muh. Wahyudi Jasman, S. Sulisetijono, Susriyati Mahanal	164-184
Exploring students' climate change perception: the key factor of climate change mitigation	
and adaptation	105 101
Maisuna Kundariati, I. Ibrohim, Fatchur Rohman, Safwatun Nida, Wachidah Hayuana, Zia Aulia	185-194
Zaidin Putra	
Development of e-worksheet based on search, solve, create, and share (SSCS) Islamic context	
to improve science process skills on excretory system material	195-210
Tika Audyta Elvanuari, Z. Zulfiani, Eny Supriyati Rosyidatun	

Mapping research trends on development of scientific literacy assessment: A bibliometric analysis Yasmine Hadiastriani, Prasetyorini Djarot	211-222
The project-based learning model and its contribution to student creativity: A review Rahmadhani Fitri, L. Lufri, Heffi Alberida, Ali Amran, Rifani Fachry	223-233
STEM learning design to train student's system thinking skills on climate change Anis Shofatun, Elly Herniani, Dinny Mardiani	234-242
Knowledge, Attitude, and Practices (KAPs) on COVID-19 of junior and senior high school students Ritchelle W. Origenes, Blanca A. Alejandro	243-258
Human pregnancy and birth: The enrichment of a booklet with medicinal plants for postpartum wellness Wiwik Hartika, Ruqiah Ganda Putri Panjaitan, Andi Besse Tenriawaru	265-272
Validity and reliability of concept inventory test in human physiology Gio Jay B. Aligway, Jo C. Delos Angeles , Angeli V. Collano, Eljoy P. Barroca, Anna Clarissa D. Aves, Juneflor F. Catubay, Jennifer T. Edjec, Ma. Diana A. Butaya, Sylvester T. Cortes	273-282
Student metacognition in online learning using website hyperlink facilities on Microsoft Team's platform Puguh Karyanto, Aris Nur Rohman	283-290
Fostering critical thinking: Designing problem-based learning student worksheet on environmental change topic Nurul Fadilah, S. Suhartini, Suyitno Aloysius	291-298
Sasirangan cloth as a learning resource for biology subjects in high school lessons in South Kalimantan Siti Ramdiah, Ria Mayasari, A. Abidinsyah	299-309
Sustainable maritime education: Integrating environmental science for global competence Damoyanto Purba, Marudut Bernadtua Simanjuntak	310-319
Innovating sustainable agriculture: Perspectives from economy and biology professionals Albert Gamot Malau, April Gunawan Malau, Marudut Bernadtua Simanjuntak	320-328
Website development on herbal plant diversity as media in Kurikulum Merdeka Ariftania Madrin, R. Ratnawati	329-338
Development of e-pocket book learning media on environmental pollution based on environmental issues in Cirebon region Ina Rosdiana Lesmanawati, Shofwatun Nada, Siti Nur'aisyah	339-347
Exploring the best practices of the Youth for Environment in Schools – Organization (YES-O) Arlon P. Cadiz, Leah Amor S. Cortez	348-365