

# 3BIO: Journal of Biological Science, Technology and Management

---

Volume 2 • No 2 • 2020

## Editor-in-Chief

**Dr. Rudi Dungani**, Institut Teknologi Bandung, Indonesia

## Managing Editor

**Dr. Nuri Nurlaila Setiawan**, Indonesia

## Editorial Board

**Prof. Dr. Tati Suryati Syamsudin**, School of Life Sciences and Technology, Institut Teknologi Bandung, Indonesia

**Prof.Dr. MD. Nazrul Islam**, School of Life Sciences, Khulna University, Bangladesh

**Prof.Dr. Mohammad Jawaaid**, Department of Biocomposite Technology, Institute of Tropical Forestry and Forest Products, Universiti Putra Malaysia, Malaysia

**Prof.Dr. Djoko T. Iskandar**, School of Life Sciences and Technology, ITB, Indonesia

**Dr. Azzania Fibriani**, School of Life Sciences and Technology, Institut Teknologi Bandung, Indonesia

**Dr. Ramadhani Eka Putra**, School of Life Sciences & Technology Institut Teknologi Bandung, Indonesia

**Dr. Maelita Ramdani Moeis**, School of Life Sciences and Technology, Institut Teknologi Bandung, Indonesia

**Dr. Ihak Sumardi**, School of Life Sciences and Technology, Institut Teknologi Bandung, Indonesia

**Dr. Ahmad Faizal**, School of Life Sciences & Technology Institut Teknologi Bandung, Indonesia

**Dr. Fenny Martha Dwivany**, School of Life Sciences & Technology Institut Teknologi Bandung, Indonesia

**Dr. Angga Dwiartama**, School of Life Sciences and Technology, Institut Teknologi Bandung, Indonesia

**Dr. Takashi Tanaka**, Shizuoka University, Faculty of Agriculture, Japan

**Dr. Amalia Yunita Halim**, Minerals and Energy Resources Laboratory. School of Petroleum Engineering. UNSW Sydney, Australia

**Dr. Bonface Manono**, South Eastern Kenya University, Kenya

**Dr. Maria Mercedes Caron**, Multidisciplinary Institute of Plant Biology. National Scientific and Technical Research Council. National University of Cordoba, Argentina

**Mrs. Alfiah Noor**, Oncology Research Center. Vrije Universiteit Brussels. Belgium, Belgium

**Ms. Samantha Vivia**, Washington State University, Pullman, United States of America

This journal and individual articles are published at <http://journals.itb.ac.id/index.php/3bio>  
a series imprint of the ITB Journal – an open access publisher.

ISSN 2655-8777 (Online)

3Bio: Journal of Biological Science, Technology and Management is a peer-refereed journal which is published twice a year. It is an interdisciplinary journal with its core in basic and applied life sciences and aims to address sustainability issues.

## AIMS AND SCOPE

Journal of Biological Science, Technology and Management (3BIO) is the official journal of the School of Life Sciences and Technology, Institut Teknologi Bandung, Indonesia. 3BIO is an open access journal and published by ITB Journal. It is an interdisciplinary peer-reviewed journal in a wide aspect related to the field of life sciences and other related fields of study. The journal aims to promote scientific discourse and disseminate research on various branches and applications of bio-science, biotechnology and bio-based management.

This journal invites original empirical research, literature reviews, theoretical or methodological contributions, or short communications on, but not limited to, the following topics:

- Ecology and Biosystematics
- Microbiology
- Genetics and Molecular Biology
- Animal Development and Physiology
- Plant Development and Physiology
- Entomology
- Biomedical science
- Biochemistry
- Agronomy
- Forestry
- Bioengineering
- Bioethics
- Management of Biological Resources.

The journal also invites contributions from other associated disciplines.

ITB Journal (formerly Proceedings ITB), the official ITB scientific journal, has been published since 1961. It serves a vehicle for ITB's Faculty members and contributors from outside of ITB to publish research findings in science, technology and fine arts.

For more information about how to submit an article, please refer to our website:  
<http://journals.itb.ac.id/index.php/3bio>

## COPYRIGHT

Submission of a manuscript implies that the work described has not been published before (except in the form of an abstract or as part of a published lecture, review, or thesis); that is not under consideration for publication elsewhere; that is publication has been approved by all co-authors, if any, as well as – tacitly or explicitly by the responsible authorities at the institution where the work was carried out. Transfer of copyright to publisher becomes effective if and when the article is accepted for publication. The copyright covers the exclusive right to reproduce and distribute the article, including reprints, translation, photographic reproduction, microform, electronic form (offline, online), or other reproductions of similar nature.

All articles published in this journal are protected by copyright, which covers the exclusive rights to reproduce and distribute the article (e.g. as offprints), as well as all translation rights. No material published in this journal may be reproduced photographically or stored on microfilm, in electronic data bases, video disks, etc., without first obtaining written permission from publisher. The use of general descriptive names, trade names, trademarks, etc. in this publication, even if not specifically identified, does not imply that these names or not protected by the relevant laws and regulations.

While the advice and information in this journal is believed to be true and accurate at the date of its publication, neither the authors, the editors nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

## TABLE OF CONTENTS

---

The Protective Effect of Propolis Nanoemulsion (NEP) Against UVB Irradiation Inducing Photoaging in Human Dermal Fibroblast (HDF)	
<i>Anggraini Barlian, R. Agustin, Ramadhani Eka Putra</i>	44-53
Aging Process in Dermal Fibroblast Cell Culture of Green Turtle ( <i>Chelonia mydas</i> )	
<i>Anggraini Barlian, Yemima D. Riani</i>	54-60
Production of Bioethanol and Crude Cellulase Enzyme Extract from Napier Grass ( <i>Pennisetum purpureum</i> S.) through Simultaneous Saccharification and Fermentation	
<i>Taufikurahman, Sherly</i>	61-72
An Increase of Silicon Recovery from <i>Oryza sativa</i> L. Husk by Cow Rumen Fluid Treatment	
<i>Muhammad Rizki Fajar Ilhamy, Khairul Hadi Burhan, Robert Manurung</i>	73-81
Risk Assessment and Management Recommendations of Invasive Species in Papandayan Mountain Nature Reserve, West Java	
<i>Anggi Sella Nyuanti, Rina Ratnasih Irwanto, Elham Sumarga</i>	82-89
Index	iv
List of Reviewers	vi
Guidelines for Authors	vii