

3rd International Conference on Biology, Science and Education (IcoBioSE 2021)

Biological Science and Education
Challenges for Empowering Smart and
Sustainable Society

Advances in Biological Sciences Research Volume 32

Padang, Indonesia
27 October 2021

Editors:

**D. Rahmawati
Reki Kardiman
Rijal Satria**

ISBN: 978-1-7138-7369-3

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Print copyright© (2023) by Atlantis Press (part of Springer Nature)
All rights reserved.
Copyright for individual electronic papers remains with the authors.

For permission requests, please contact the publisher:

Atlantis Press
Van Godewijckstraat 30
3311GX Dordrecht
The Netherlands

contact@atlantis-press.com

Printed with permission by Curran Associates, Inc. (2024)

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Effect of Gamal Leaves Extract (<i>Gliricidia sepium</i>) on Growth Rate and Feed Conversion Ratio of Bileh Fish (<i>Rasbora</i> sp.)	1
<i>Zulfadhli, Radhi Fadhillah, Dedi Jusadi, Yushinta Fujaya, Farzan Ikhsan, Burhanis</i>	
The Effectiveness Crude Extract of <i>Cinnamomum Zeylanicum</i> to the Level of GSH in Mouse Liver	10
<i>Yuni Ahda, Siska Alicia Farma, Yusni Atifah, Jon Efendi</i>	
Effect of Gamma-Ray Irradiation on Vetiver Grass (<i>Vetiveria Zizanioides</i> (L.) Nash.) in Vitro Shoots Growth and Multiplication	17
<i>Wahyu Widoretno, Miftahur Rohmah, Serafinah Indriyani</i>	
Isolation and Total Lactic Acid Bacteria from Sauerkraut with the Addition of Chili (<i>Capsicum Annum</i> L.)	27
<i>Resti Fevria, Vauzia Vauzia, Olivia Agustin, Dwi Hilda Putri, Irdawati Irdawati, Dezy Handayani, Edwin Edwin</i>	
The Implementation of WE-ARe Learning Model toward the Critical Thinking of Pre-service Biology Teachers	34
<i>Astuti Muh.Amin, Fitriyah Karmila, Zainal A. Laode, Noor Hujjatusnaini, Romi Adiansyah, Sukardi Abbas</i>	
A Study Investigation Students' STEM Literacy in Biology Learning	47
<i>Yosi Laila Rahmi, Media Wati Kaban</i>	
The Effect of Differences in Sugar Concentration on The Amount Of Sauerkaut Lactic Acid Bacteria from Cabbage (<i>Brassica oleracea</i> L.)	53
<i>Resti Fevria, Vauzia, Nur Afifah, Linda Advinda, Siska Alicia Farma, Edwin</i>	
Effect of Ecoenzyme Addition on Vitamin C Levels of Spinach (<i>Amaranthus</i> Sp.) Cultivate Hydroponically	59
<i>Resti Fevria, Vauzia Vauzia, Siska Alicia Farma, Edwin Edwin</i>	
Specific Thermophilic Bacterial Xylanase Enzyme Activity Using Rice Straw as Substrate and Its Possibility as an Eco-friendly Fabric Bleach	66
<i>Irdawati Irdawati, Zul Hidayati, Linda Advinda, Mades Fifendy, Salvia Salvia</i>	
Phytochemical Characterization of Bioactive Compounds on Ethanol Extracts Fermentation Products of Isolate BJDTA21 Endophytic Bacterial Andalas	75
<i>Azzahrah Khairunnisa Mardhiyah, Dwi Hilda Putri, Violita Violita, Azwir Anhar, Abdul Hafids, Armita Sofani, Try Susanti</i>	
Natural Compounds, Pharmacological Activities, and Conservation of <i>Eria</i> (Orchidaceae)	81
<i>S. Nurfadilah</i>	
The Effectiveness of <i>Carica Papaya</i> Linn. LEAF Extract with the Contact Poison Method for Controlling Subterranean Termites <i>Coptotermes</i> sp. (Isoptera: Rhinotermitidae)	99
<i>Zulyusri Zulyusri, Rosi Fitri Ramadhani, Desyanti Desyanti</i>	
Profile of the Sustainable Reserve Food Garden (SRFG) Program in Pacitan Regency, East Java	107
<i>Titik Wijayanti, Endang Arisoesilaningih, Yayuk Yuliati, Amin Setyo Leksono</i>	
Identification of Mercury and Cyanide Degrading Bacteria in Sekotong People's Mining	119
<i>Suhadi, S. Zubaidah, Sueb, R. Farahilda, M. Syamsussabri, A. N. Rochmah</i>	

The Urgency of Higher Order Thinking Skills (HOTS) Base on Development of Biology Assessment Instruments for Class XI Students of SMA/MA	128
<i>Sa'diatul Fuadiyah, Ganda Hijrah Selaras, Defrian Melta, Dini Rahmi</i>	
Optimization of Multiplex PCR for Detection of Pork-Contaminated Beef-Based Food Product	134
<i>Moralita Chatri, Afifatul Achyar, Cahay Kamila Putri</i>	
In Silico PCR Study Amplifying Mitochondrial ND5 Gene to Detect Food Adulteration	141
<i>Moralita Chatri, Afifatul Achyar, Dwi Hilda Putri, Dezi Handayani</i>	
The Effect of Administration of Honey on Maximal Physical Activity in Malondialdehyd (Mda) Levels of Male Mice (<i>Mus musculus L.</i>).....	147
<i>Pudia M. Indika, Randi Kurniawan, Ridho Bahtra, Elsa Yuniarti</i>	
Primer Design and Optimization of PCR Methods for Detecting Mixed Rat Meat in Food Samples.....	157
<i>Masnaini Masnaini, Afifatul Achyar, Moralita Chatri, Dwi Hilda Putri, Yuni Ahda, Irdawati</i>	
Varietal Identification of Liberica Coffee in Kepulauan Meranti Riau using RAPD Marker: A Preliminary Study.....	165
<i>Ninik Nihayatul Wahibah, Rizka Prathama Putri, Atria Martina, Arini Arini, Yasir Sidiq</i>	
Implementation of Online and Independent Learning for Prospective Teacher Students.....	173
<i>F. Yanti, Lufri Lufri, Yuni Ahda, Festiyed Festiyed</i>	
Cardiac Histopathology of Male Mice (<i>Mus musculus L.</i>) Given Maximum Physical Exercise and Gambir Catechin (<i>Uncaria gambir Roxb.</i>).....	179
<i>Elsa Yuniarti, M. Des, Desi Fitria, Pamela Mayorita</i>	
Characterization of Bacterial Cellulose Composite–Gardenia Leaf Extract (<i>Gardenia Jassminoides J. Ellis</i>) with Addition of Crosslinker	187
<i>Muhammad Iqbal, Ananda Putra, Ali Amran, Elsa Yuniarti</i>	
Level of Knowledge and Behavior of Students in Maintaining Reproductive Health.....	199
<i>Nurul Huda, Didik Priyandoko, K. Mimin Nurdjani</i>	
Effect of <i>Triticum aestivum L.</i> Wheat Grass Juice Planted with Various Media on the Hemoglobin of Anemic Male Mice (<i>Mus musculus L.</i>).....	207
<i>M. Des, Elsa Yuniarti, Atradinal Atradinal</i>	
Antiviral Potential of Ethanol Extracts of Andalas Endophytic Bacterial Isolate B. J.T.A 2.1 Fermentation Products.....	215
<i>Dwi Hilda Putri, Azwir Anhar, Irdawati, Mades Fidendy, Nurhasnah</i>	
Effect of Honey Extender for Spermatozoa Dilution on Fertility and hatchability of Javaen Barb Fish (<i>Systemus orphoides</i>)	223
<i>Sri Hilia, Abinawanto, Astari Dwiranti, Anom Bowolaksono, Fadhillah, Retno Lestari, Anang Kritanto</i>	
Hypoxic Swimming Exercise Increases Catalase Enzyme Activity in Trained Swimmers	229
<i>Siska Alicia Farma, Syahrastani, Habibullah Novichandra</i>	
Primers and Probes Design of Multiplex qPCR For Food Authentication Detection.....	236
<i>Moralita Chatri, Dwi Hilda Putri, Dezi Handayani, Afifatul Achyar</i>	
Blended Learning Research Trends in Biology Education: A Systematic Review of Literature from 2016 to 2022	245
<i>Heru Setiawan, Hertien Koosbandiah Surtikanti, Riandi</i>	

The Influence of Mung Bean And Ginger Extracts Combination on Blood Glucose Levels of Type-2 Diabetes Mellitus Rats Model	258
<i>Shanti Listyawati, Elisa Herawati, Tetri Widiyani</i>	
Relationships Between Students' Grade IX Natural Science Learning Outcomes and Naturalist, Linguistic, and Interpersonal Intelligence	264
<i>Rahmadhani Fitri, Ganda Hijrah Selaras, Kiki Mulyani</i>	
The Effect of Various Agitation Speeds on Lipid Production from Fungal BR 2.2 Isolate	271
<i>Adriana Tita Suryawati, Miftahul Ilmi</i>	
Stability of Production of Active Antibiotic Compounds by Andalas Endophyte Bacteria (Moru Macrourea Miq.) at Several Subculture Frequency	278
<i>Dwi Hilda Putri, Iffa Sakina Haq, Dezi Handayani, Violita, Nurhasnah, Irdawati</i>	
Vitamin C Levels and Ph Values in Various Types of Ginger Infused Water	287
<i>Rika Sepriani, D. Deswandi, Hilmainur Syampurma, Siska Alicia Farma, Abdul Razak</i>	
Differences in Leaf Functional Traits of <i>Canarium vulgare</i> Leenh. Between Two Growth Stages: Mature vs. Seedling	294
<i>Febrina Artauli Siahaan</i>	
Analysis of Digital Book Integrated Local Culture as the Internalization of Character Education During Pandemic	303
<i>Fitri Arsih, Heffi Alberida, Yosi Laila Rahmi, Nisrina Zakia Khalel</i>	
Stem Education and Research-Based Learning Activities on Taste Roasted in Coffee	312
<i>Ika Priantari, Suratno Suratno, Dwi Wahyuni, Dafik Dafik</i>	
Improving Implementation of Kurikulum 2013 Teacher Perspective in West Sumatra, Indonesia	324
<i>Lufri Lufri, Relsas Yogica, Ristiono Ristiono</i>	
Rice Plant Growth Enhancement and Bacterial Leaf Blight Control by the Rhizobacterial Consortium	328
<i>Haliatur Rahma, Winarto Winarto, Sri Mulyani, Nila Kristina</i>	
Absorption of Copper Metal Ions Using the Immobilized <i>Langsat</i> (<i>Lansium domesticum</i>)	342
<i>Desy Kurniawati, Feby Yulianti, Budhi Oktavia, Trisna Kumala Sari</i>	
Optimization of DNA Isolation on Meat-Based Food Samples Using Phenol-Chloroform Method for the Development of Halal Detection Using In-House Method Analysis	348
<i>Indah Mardhotillah, Afifatul Achyar, Moralita Chatri, Dwi Hilda Putri, Yuni Ahda</i>	
Assessing Anuran Diversity Using Leaf Litter Plot in a Tourism Object in Sumatera Barat, Indonesia	356
<i>Fitra Arya Dwi Nugraha, Ahmad Muammar Kadafi, Rijal Satria</i>	
Self-regulated Learning and Metacognitive Ability in Neuroscience	363
<i>Vica Dian Aprelia Resti, Siti Romlah Noer Hodijah, Mudmainah Vitasari</i>	
Functional and Species Diversity of Butterflies in Relationship to Vegetation Cover of Kiarapayung Biodiversity Park, West Java, Indonesia	368
<i>W. Asfiya, R. P. Narakusumo, A. Winara, D. Dwibadra, Darmawan, Sarino, Y. Budiasih, A. Ruswandi, D. A. Samsudin, D. Peggie, A. D. Sutadian, H. Gunawan</i>	

Density and Diversity of Herpetofauna Using a Transect Method Implemented in a Coconut Plantation (<i>Cocos nucifera</i> L.).....	378
<i>Ridwan Syarif, Rijal Satria, Fitra Arya Dwi Nugraha, Irma Leilani Eka Putri</i>	
Morphology and Anatomy of Stomata of <i>Plagiobryoides cellularis</i> in Galunggung Mount Tourist Area Tasikmalaya	387
<i>Zihan Ayu Anggraeni, Diana Hernawati, Rinaldi Rizal Putra</i>	
Fish Biodiversity Monitoring in Singkarak Lake, West Sumatra: Comparison of Fish Detections Using Environmental DNA and Conventional Methods	396
<i>D. I. Roesma, D. H. Tjong, Syaifullah, Nofrita, M. N. Janra, F. D. L. Prawira, V. M. Salis, D. R. Aidil</i>	
A Comparison of Biology Pre-service Teacher Learning Achievement Using Offline and Online Method in Biology Learning Evaluation Course	410
<i>Rahmawati Darussyamsu, Lufri Lufri, Yuni Ahda, Heffi Alberida, Rahmadhani Fitri, Ganda Hijrah Selaras, Helendra Helendra, Zulyusri Zulyusri, Fatma Rahmadhani, Ilmi Zajuli Ichsana, Henita Rahmayanti, Ali Amran</i>	
Indonesian Student Preparedness Living in the Pandemic	417
<i>Trisna Amelia, Bony Irawan, Erda Muhartati, Azza Nuzullah Putri</i>	
The Combination Effect of Auxin and Cytokinin on Callus Induction of Patchouli (<i>Pogostemon Cablin</i> Benth.) from Leaf Explants.....	426
<i>Rut Normasari, Estri Laras Arumingtyas, Rurini Retnowati, Wahyu Widoretno</i>	
Primers Design and PCR Optimization for Developing <i>Salmonella</i> Sp. Detection Method on Refillable Drinking Water Sample.....	433
<i>Oswal Yuselman, Dwi Hilda Putri, Yuni Ahda, Afifatul Achyar</i>	
The Effect of Green Planning Design on Pedestrian Way at Jln. Kyai Tapa, Grogol Petamburan, West Jakarta.....	443
<i>Reza Fauzi, Nur Intan Simangunsong</i>	
Validity of Project Learning Model Based on STEMS to Improve Creativity in the 21st Century	455
<i>Suci Fajrina, Lufri Lufri, Yuni Ahda, Heffi Alberida</i>	
The Effect of Cooperative Learning Model Type Think Pairhare (TPS) on the Students' Cognitive at Class X SMAN 1 Suliki.....	464
<i>Asti Febrina</i>	
Transitioning Face-to-Face Learning to Online Learning: Describe the Problems Faced by High School Teachers.....	474
<i>Relsas Yogica, Gita Noveri Eza, Dini Rahmi, Yuyu Monlinia</i>	
Analysis of Critical Thinking, Creativity, Communication, and Collaboration Skills (4C) for Junior High School Students	478
<i>Isnaini Isnaini, Atmazaki Atmazaki, Yuni Ahda, Lufri Lufri, Elizar Elizar, Ali Amran, Nidya Fitri, Afriwes Afriwes, Alfadila Hasan</i>	
The Effect of Eco-Enzyme Spraying on Chlorophyll Content of Hydroponic Lettuce (<i>Lactuca sativa</i> L.).....	485
<i>Resti Fevria, Vauzia Vauzia, Siska Alicia Farma, Reki Kardiman, Edwin Edwin</i>	

Development of Species-Specific Cichla Species eDNA Primers for Rapid Alien Invasive Species (AIS) Monitoring.....	492
<i>Nurul Fizatul Nabilah Osman, Adibah Abu Bakar, Ramizah Abdull Rahman, Syazwan Saidin, Intan Faraha A. Ghani, Amirrudin Ahmad</i>	
The Effect of Eco-Enzyme Spraying on Chlorophyll Content of Hydroponic Spinach (Amaranthus sp.).....	504
<i>Resti Fevria, Vauzia Vauzia, Siska Alicia Farma, Edwin Edwin</i>	
Nutritional Control of Bell Peppers Growth with a Hydroponic System Using the Singh's Fuzzy Time Series Method.....	510
<i>A. I. Harsapranata, E. Sedyono, H. D. Purnomo</i>	
Diversity of Amphibians Using a Transect Method Implemented in Three Different Habitat	521
<i>Mira Idora, Rijal Satria, Fitra Arya Dwi Nugraha</i>	
Spatial Distribution of Coffee-Based Agroforestry Lands in the Buffer Area of Bromo Tengger Semeru National Park (BTSNP).....	530
<i>Hasan Zayadi, Luchman Hakim, Sudarto, Jati Batoro</i>	
New Report from Sebelas Maret Avifauna to Support Green Campus Program	538
<i>D. P. Sari, J. Wahyudi, A. Primahesa, Y. R. Siwie</i>	
Students' Metacognitive Skill Level of Biology Education Study Program.....	549
<i>Helendra Helendra, Lufri Lufri, Elizar Elizar</i>	
Identification of Students' Learning Difficulties During the Covid-19 Pandemic to Improvement of 21st Century Skills in College	557
<i>Rahmi Septia Sari, Lufri Lufri, Darmansyah Darmansyah, Yuni Ahda, Ali Amran, Elizar Elizar</i>	
Effect of Permethrin Concentration as Curtain Dyeing Material in Control of Aedes aegypti L	564
<i>Gustina Indriati, Mades Fifendy, Ristiono Ristiono</i>	
Determination of Vitamin A and Mineral Levels (Zinc and Selenium) in Asam Kandis Fruit Peel Extract (Garcinia Cowa Roxb)	569
<i>Prima Minerva, Elsa Yuniarti, Ringga Novelni</i>	
Optimization of Multiplex PCR for Detection of Rat Meat-Contaminated Beef-Based Food Product.....	578
<i>Afifatul Achyar, Moralita Chatri, Lisna Khairiyah S</i>	

Author Index