

VOLUME 8

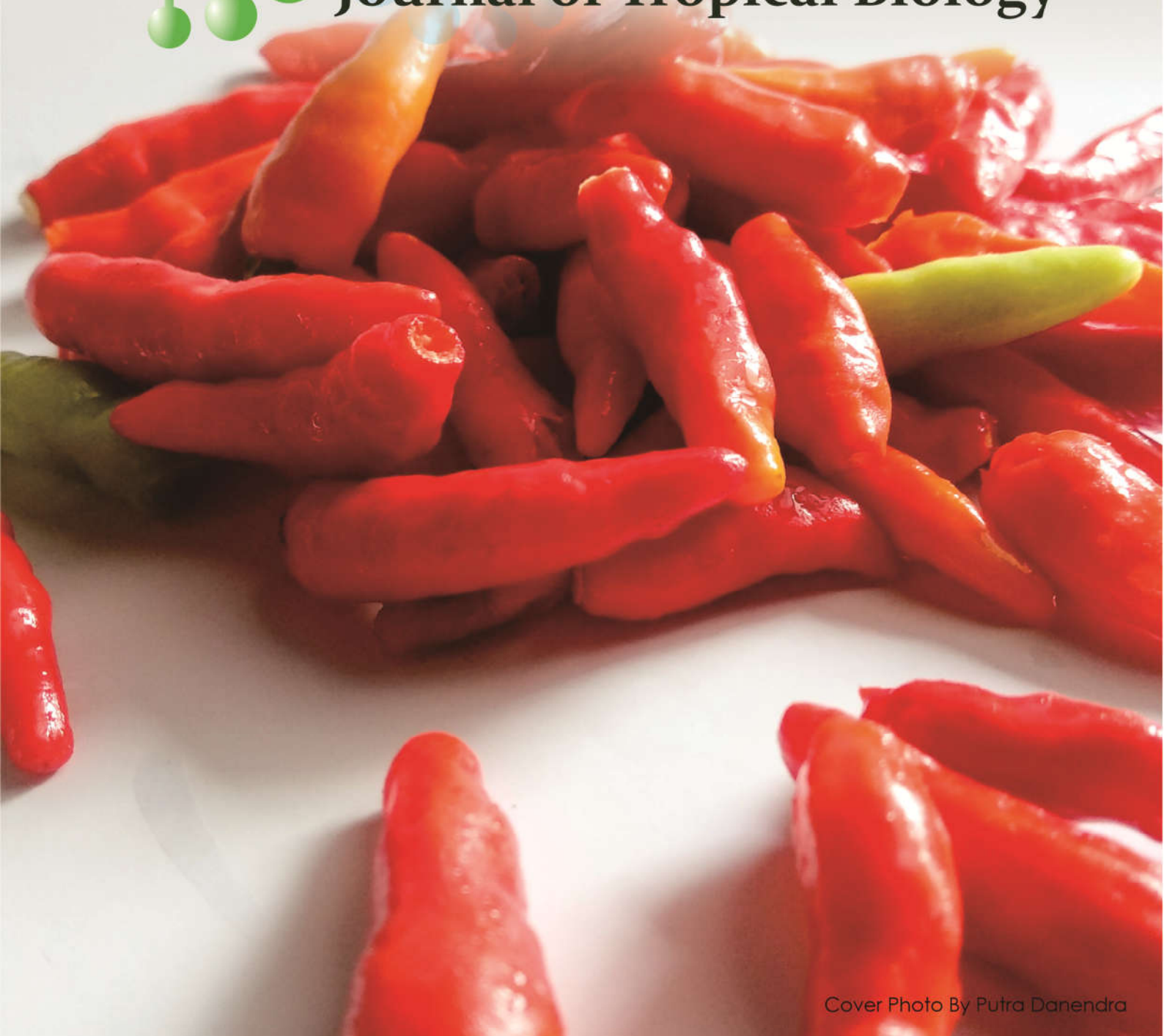
NUMBER 1

2020



BIOTROPIKA

Journal of Tropical Biology



Cover Photo By Putra Danendra



Universitas
Brawijaya

www.biotropika.ub.ac.id

Biotropika: Journal of Tropical Biology

Biotropika: Journal of Tropical Biology is a scientific journal published by Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Brawijaya established since 2013. Biotropika: Journal of Tropical Biology is a peer-reviewed journal that strives to provide scientific information on the research results which focused on biological science in tropical regions including biotechnology, biodiversity, microbiology and environmental sciences. Biotropika: Journal of Tropical Biology publishes three issues each year.

(Biotropika: Journal of Tropical Biology adalah jurnal ilmiah yang diterbitkan oleh Jurusan Biologi, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Brawijaya sejak 2013. Biotropika: Journal of Tropical Biology adalah jurnal yang ditelaah oleh mitra bestari yang menyediakan informasi ilmiah tentang hasil-hasil penelitian yang fokus pada kajian biologi di wilayah tropis meliputi bioteknologi, biodiversitas, mikrobiologi dan ilmu lingkungan. Biotropika: Journal of Tropical Biology menerbitkan tiga isu/ nomor setiap tahun).

EDITORIAL TEAM

Editor in Chief

Yoga Dwi Jatmiko, M.App.Sc., Ph.D (Scopus ID: 57192984241)

Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Brawijaya

Managing Editor

Muhammad Yusuf, M.Si

Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Brawijaya

Eko Suyanto, M.Sc

Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Brawijaya

Editorial Board

Prof. Sutiman Bambang Sumitro, DSc
(Scopus ID: 55218596400)

Biology Department, Faculty of
Mathematics and Natural Sciences,
Universitas Brawijaya

Prof. Widodo, PhD. Med.Sc
(Scopus ID: 57190247745)

Biology Department, Faculty of
Mathematics and Natural Sciences,
Universitas Brawijaya

Prof. Muhaimin Rifa'i, PhD. Med.Sc
(Scopus ID: 8269391600)

Biology Department, Faculty of
Mathematics and Natural Sciences,
Universitas Brawijaya

Luchman Hakim, M.Agr.Sc., Ph.D
(Scopus ID: 55293349000)

Biology Department, Faculty of
Mathematics and Natural Sciences,
Universitas Brawijaya

Rodiyati Azrianingsih, M.Sc., PhD
(Scopus ID: 56560101900)

Amin Setyo Leksono, M.Si., Ph.D
(Scopus ID: 12445990300)

Zulfaidah Penata Gama, M.Si., Ph.D
(Scopus ID: 55573337700)

Sugiono Saputra, Ph.D
(Scopus ID: 57076979100)

Dr. Sundari, M.Pd
(Scopus ID: 57204425264)

Biology Department, Faculty of
Mathematics and Natural Sciences,
Universitas Brawijaya

Biology Department, Faculty of
Mathematics and Natural Sciences,
Universitas Brawijaya

Biology Department, Faculty of
Mathematics and Natural Sciences,
Universitas Brawijaya

Mikrobiologi Division, Research Center
for Biology, Indonesian Institute of
Sciences, Indonesia

Biology Education, Faculty of Education,
University of Khairun, Ternate, Indonesia

**Editorial Team would like to thank to peer reviewer who has been invited by
Biotropika: Journal of Tropical Biology Volume 8 Number 1, 2020**

Prof. Amin Leksono, S.Si., M.Si., Ph.D.

Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Brawijaya,
Indonesia

Dr. Bagyo Yanuwadi

Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Brawijaya,
Indonesia

Dr. Dra. Catur Retnaningdyah, M.Si

Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Brawijaya,
Indonesia

Prof. Dr. Jamili

Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Halu Oleo,
Indonesia

Budiman, S.Si., M.Sc.

Department of Organic Plant Production and Agroecosystems Research in the Tropics and
Subtropics, University of Kassel, Germany

Alifia Issabella Mulyawati, S.Si., M.Si

School of Bioresources and Technology, King Mongkut's University of Technology
Thonburi, Thailand

Ir. Retno Mastuti, M.Agr.Sc., D.Agr.Sc.

Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Brawijaya,
Indonesia

Elok Rifqi Firdiana, S.Si., M.Si

Purwodadi Botanical Garden, Indonesian Institute of Sciences, Indonesia

Yoga Dwi Jatmiko, S.Si., M.App.Sc., Ph.D

Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Brawijaya, Indonesia

Dr. Erlia Narulita

Biology Education Department, Faculty of Teacher Training and Education, Jember University, Indonesia

Novita Kartika Indah, S.Pd., M.Si.

Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Negeri Surabaya, Indonesia

Dr. Kurniasih Sukenti

Biology Department, Faculty of Mathematics and Natural Sciences, Mataram University, Indonesia

Dr. Dra. Aminatun Munawarti, M.Si.

Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Brawijaya, Indonesia

Siti Nurfadilah, S.Si., M.Sc.

Purwodadi Botanical Garden, Indonesian Institute of Sciences, Indonesia

Muhammad Yusuf, S.Si., M.Si.

Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Brawijaya, Indonesia

PREFACE

All of our gratitude goes to Almighty God because of His blessed, Biotropika: Journal of Tropical Biology publishes scientific writing which are the results of research from academics in Indonesia. In this edition, Biotropika: Journal of Tropical Biology presents various research whose research locations are scattered from various parts of the archipelago.

This edition begins with the results of the exploration of mangrove species from Buo Bay, Padang, West Sumatra Province whose distribution was influenced by soil texture and tides. Next, the use of natural pesticides, a combination of chitosan and liquid smoke, in supporting the growth of red-hot chili plants. This research was conducted in South Kalimantan, where business of making charcoal as a raw material for liquid smoke is frequently found. The optimal dosage of chitosan liquid smoke composites was 7.5% and 10%. Then switch to the Province of West Nusa Tenggara, precisely the Sumbawa Regency which is commonly found honey bees *Trigona* spp. In addition to being used its honey, the beehive as also a habitat for antibacterial-producing lactic acid bacteria that effectively inhibits the growth of pathogens. As a maritime country, marine resources, especially sharks, are commodities with high economic value, but the ecological value is also worth in supporting wildlife conservation. Therefore, a study of the ecological value of sharks, which is one of the catches of fishermen at the Brondong Fisheries Port, Lamongan Regency, East Java, was carried out and it was found that *Carcharhinus falciformis* sharks with the highest ecological value. As an herbaceous plant that contains bioactive compounds for health, Ciplukan (*Physalis angulata* L.) is important to be propagated in vitro. Callus culture has the potential to produce secondary metabolites, and by regulating the composition of growth regulators, callus with optimal growth was obtained. The uniqueness of fauna on Enggano Island, Bengkulu Province also shows interesting study results. The typical macrofauna which inhabits caves as many as six species was the main concern in this study. Explorative studies were also carried out in the southern cross lane, Malang Regency by examining the diversity of local bananas and their use in ethnobotany perspective. There were nine banana cultivars that were used in various aspects of life and were expected to become a tourist attraction. Finally, as one of the articles in English, researchers report that the high nature value farmland in the rehabilitation area, the Donglo Block in Meru Betiri National Park, is an important area that separates conservation areas from settlements. In this area, 14 species of mammals and birds were observed, whose existence is supported by fruit plants in high nature value farmland.

The editorial team thank the reviewers who willing to provide inputs and criticisms for improving the writing quality. The members of the editors who have spent their time to let this issue can be published properly. May the articles in this journal can be beneficial to the readers and be a reference for future studies.

Regards,
Editorial Team

KATA PENGANTAR

Segala puji syukur kita sampaikan kepada Tuhan YME karena atas karunia-Nya, Biotropika: *Journal of Tropical Biology* kembali mempublikasikan artikel ilmiah yang merupakan hasil penelitian dari para akademisi dan peneliti di Indonesia. Pada edisi ini, Biotropika: *Journal of Tropical Biology* menyajikan berbagai hasil penelitian yang lokasi penelitiannya tersebar dari berbagai penjuru nusantara.

Pada edisi ini diawali dengan hasil eksplorasi jenis tumbuhan bakau dari Teluk Buo, Padang, Provinsi Sumatra Barat yang sebarannya dipengaruhi oleh tekstur tanah dan pasang surut air laut. Berikutnya, pemanfaatan pestisida alami, kombinasi antara kitosan dan asap cair, dalam mendukung pertumbuhan tanaman cabai rawit merah. Penelitian ini dilakukan di Kalimantan Selatan yang banyak dijumpai usaha pembuatan arang sebagai bahan baku asap cair. Dosis optimal pemberian komposit kitosan asap cair adalah 7,5% dan 10%. Kemudian beralih ke Provinsi Nusa Tenggara Barat, tepatnya Kabupaten Sumbawa yang banyak ditemukan lebah madu jenis *Trigona* spp. Selain dimanfaatkan madunya, sarang lebah tidak bersengat ini sebagai habitat bakteri asam laktat penghasil antibakteri yang efektif menghambat pertumbuhan patogen. Sebagai negara maritim, sumber daya laut khususnya ikan hiu menjadi komoditas dengan nilai ekonomi tinggi, namun nilai ekologi juga patut diperhitungkan sebagai bentuk usaha konservasi satwa liar. Oleh karena itu, kajian nilai ekologi ikan hiu yang merupakan salah satu hasil tangkapan nelayan di Pelabuhan Perikanan Nusantara Brondong, Kabupaten Lamongan, Jatim dilakukan dan dihasilkan bahwa hiu jenis *Carcharhinus falciformis* dengan nilai ekologi paling tinggi. Sebagai tanaman herba yang memiliki kandungan senyawa bioaktif untuk kesehatan, ciplukan (*Physalis angulata* L.) penting untuk diperbanyak secara *in vitro*. Kultur kalus berpotensi sebagai penghasil senyawa metabolit sekunder, dan dengan pengaturan komposisi zat pengatur tumbuh didapatkan kalus dengan pertumbuhan optimal. Keunikan fauna di Pulau Enggano, Provinsi Bengkulu juga menunjukkan hasil kajian yang menarik. Makrofauna khas yang menghuni gua sebanyak enam spesies menjadi perhatian utama pada penelitian ini. Kajian yang bersifat eksploratif juga dilakukan di jalur lintas selatan, Kabupaten Malang dengan meneliti keanekaragaman pisang lokal dan pemanfaatan etnobotaninya. Terdapat sembilan kultivar pisang yang dimanfaatkan dalam berbagai aspek kehidupan dan diharapkan menjadi daya tarik wisata. Terakhir, sebagai salah satu tulisan berbahasa Inggris, peneliti melaporkan bahwa kawasan pertanian bernilai alam tinggi di area rehabilitasi, Blok Donglo di Taman Nasional Meru Betiri sebagai kawasan penting yang memisahkan antara kawasan konservasi dengan pemukiman penduduk. Di kawasan tersebut terdapat 14 spesies mamalia dan burung, yang keberadaannya didukung oleh tumbuhan buah di area pertanian bernilai alam tinggi.

Redaksi Biotropika: *Journal of Tropical Biology* mengucapkan terima kasih kepada para mitra bestari yang berkenan memberikan masukan dan kritik untuk peningkatan kualitas tulisan. Para anggota redaksi yang telah meluangkan waktunya agar edisi ini dapat terbit dengan baik. Semoga tulisan-tulisan dalam jurnal ini dapat bermanfaat bagi pembaca dan menjadi rujukan untuk penelitian-penelitian berikutnya.

Hormat kami,
Dewan Redaksi

TABLE OF CONTENTS

Editorial Team	i
Preface.....	iv
Table of Contents	vi
Sebaran Jenis Tumbuhan Mangrove di Teluk Buo Bungus Padang Indonesia.....	1
Pengaruh Pemberian Komposit Kitosan Asap Cair terhadap Pertumbuhan Cabai Rawit Merah <i>Capsicum frutescens</i> Linn.	8
Isolasi, Karakterisasi, dan Aktivitas Antibakteri BAL <i>Indigenous</i> dari Sarang Lebah <i>Trigona</i> spp. Asal Kabupaten Sumbawa	13
Nilai Ekologi (<i>Ecological Value</i>) Hiu Hasil Tangkapan Nelayan di PPN Brondong Lamongan Jawa Timur	19
Kultur Kalus Tanaman Obat Ciplukan (<i>Physalis angulata</i> L.).....	26
Identifikasi Makrofauna dan Pemetaan Gua Dopaam Pulau Enggano, Provinsi Bengkulu	36
Etnobotani Pemanfaatan Pisang Lokal (<i>Musa</i> spp.) di Desa Srigonco, Kecamatan Bantur, Kabupaten Malang.....	43
Study of High Nature Value Farmland (HNVf) in Rehabilitation Area, Block Donglo, Meru Betiri National Park	54
Author guideline	App 1