



Program Schedule
International Conference on Fisheries and Marine (ICFM)
Fisheries and Marine Science Faculty, Khairun University
Monday, 13 July 2020

Time [GMT+9 Ternate Time]	Programs						
08.00-08.30 am (Ternate/Eastern Indonesian Time)	<p style="text-align: center;">Preparation to joint in the Conference via Zoom</p> <p>Link Zoom : https://zoom.us/j/97897814790?pwd=Sk03anBCb0xxUXFtTjhgVXZPWFFaQT09 ID : 978 9781 4790 Password: laut2020</p> <p>Welcome remark with Highlight Video about Khairun University</p>						
08.30-09.00 am (Ternate/Eastern Indonesian Time)	<p style="text-align: center;">Opening Ceremony by MC</p> <ol style="list-style-type: none"> 1. Singing the national anthem of Indonesia Raya 2. Traditional dancing from North Maluku 3. Praying by MC 4. Chairman Report of the International Conference on Fisheries and Marine (Dr. Najamuddin) 5. Welcome by Dean of Fisheries & Marine Science Faculty (Dr. Janib Achmad) 6. Welcome and Opening Speech by Rector of Khairun University (Prof. Dr. Husen Alting) 						
09.00-12.30 am	<p style="text-align: center;">Plenary Session [Moderator: Halikuddin Umasangaji, PhD]</p>						
	<table border="1" style="width: 100%;"> <tr> <th style="width: 30%;">Time Sharing</th> <th>Keynote Speakers</th> </tr> <tr> <td style="background-color: #fff2cc;">09.00-09.30 am</td> <td>1. Prof. Jamaluddin Jompa (Hasanuddin University, Indonesia)</td> </tr> <tr> <td style="background-color: #fff2cc;">09.30-10.00 am</td> <td>2. Dr. M. Irfan (Khairun University, Indonesia)</td> </tr> </table>	Time Sharing	Keynote Speakers	09.00-09.30 am	1. Prof. Jamaluddin Jompa (Hasanuddin University, Indonesia)	09.30-10.00 am	2. Dr. M. Irfan (Khairun University, Indonesia)
	Time Sharing	Keynote Speakers					
09.00-09.30 am	1. Prof. Jamaluddin Jompa (Hasanuddin University, Indonesia)						
09.30-10.00 am	2. Dr. M. Irfan (Khairun University, Indonesia)						



Date and Venue
13-14 July 2020
Fisheries and Marine Faculty
Khairun University Ternate-Indonesia

**International Conference
On Fisheries and Marine
Online**



(Ternate/Eastern Indonesian Time)	10.00-10.30 am	3. Dr. Alim Isnansetyo (Gajah Mada University, Indonesia)
	10.30-11.00 am	4. Prof. Dr. Inneke R (Samratulangi University, Indonesia)
	11.00-11.30 am	5. Dr. Lev Horodyskyj (Arizona State University, USA)
	11.30-11.50 am	6. Prof. Dr. Takomi Arai (University of Brunai Darussalam, Brunai Darussalam)
	11.50-12.30 am	7. Discussion Session
12.30-13.30 pm (Ternate/Eastern Indonesian Time)	Lunch Break	
13.30-16.30 pm (Ternate/Eastern Indonesian Time)	Parallel Sessions	
	Room	Zoom
	1	Link : https://zoom.us/j/97897814790?pwd=Sk03anBCb0xxUXFtTjhqVXZPWFFaQT09 ID : 978 9781 4790 Password : laut2020
	2	Link : https://zoom.us/j/98849817535?pwd=WFFSZzRrZysxeGFId3FEVWFnQXgyQT09 ID : 988 4981 7535 Password : laut2020
	3	Link : https://zoom.us/j/92017134731?pwd=OWszWGVYNW5Qc1owbTk3dDZua0pWUT09 ID : 920 1713 4731 Password : laut2020
	4	Link : https://zoom.us/j/96784158560?pwd=OGZ6ZCtMbFJlcXdsZWVoM2hzK2pwQT09 ID : 967 8415 8560 Password : laut2020
5	Link : https://zoom.us/j/93122364041?pwd=bG1aaDJ0NDRGL2lGUGw0MDREMWI0UT09 ID : 931 2236 4041 Password : laut2020	
16.30 pm (Ternate/Eastern Indonesian Time)	Closing Speech by Dean of Fisheries & Marine Science Faculty (Dr. Janib Achmad)	



Date and Venue
13-14 July 2020
Fisheries and Marine Faculty
Khairun University Ternate-Indonesia

**International Conference
On Fisheries and Marine
Online**



PARALLEL SESSIONS					
CLASSES	ROOM 1	ROOM 2	ROOM 3	ROOM 4	ROOM 5
TOPIC	<i>Oceanography</i>	<i>Aquaculture</i>	<i>Capture Fisheries</i>	<i>Biotechnology</i>	<i>Coastal Management</i>
MODERATORS	M. Ridwan Lessy, MSi.	Khamsiah Ahmad, MSc	Dr. Nurhalis	Halikuddin, PhD	Nani Nagu, MT
PRESENTERS NAME & PAPER TITLE	Name: Ismail Paper Title: The Power of Biodegradation and Bio-adsorption of bacteria Symbiont Sponges Sea on waste Contaminated of Polycyclic Aromatic Hydrocarbons and Heavy Metals	Name: Diana Arfiati Paper Title: Biological Aspects of Nile Tilapia Black Fish (<i>Oreochromis niloticus</i>) From High Organic Pool	Name: Andina Ramadhani Paper Title: Status Exploitation Orange Mud Crab (<i>Scylla Olivacea</i>) in Aru Islands and Its Adjacent Waters, Maluku	Name: Ayunda A. Nisa Paper Title: Quantitative Fucoxanthin Extract of Tropical Padina sp. And Sargassum sp. (Ocrophyta) and its' Radical Scavenging Activity	Name: Hermien L. Soselisa Paper Title: Seafood Consumption Patterns among Coastal People in Ambon Island, Eastern Indonesia



Date and Venue
13-14 July 2020
Fisheries and Marine Faculty
Khairun University Ternate-Indonesia

**International Conference
On Fisheries and Marine
Online**



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TOPIC	Oceanography	Aquaculture	Capture Fisheries	Biotechnology	Coastal Management
MODERATORS	M. Ridwan Lessy, MSi.	Khamsiah Ahmad, MSc	Dr. Nurhalis	Halikuddin, PhD	Nani Nagu, MT
PRESENTERS NAME & PAPER TITLE	Name: Juliana W. Tuahaatu Paper Title: Plastic pollution on the shores of Outer Ambon Bay	Name: Samsul Rizal Paper Title: The Correlation between Salinity and the Extents of the and Types of Mangrove Vegetation on Brackish water Ponds in the Mahakam Delta, East Kalimantan	Name: Agus A. Sentosa Paper Title: Age, Growth and Mortality of Star-spotted Smooth Hound, <i>Mustelus manazo</i> (Bleeker, 1854) in Southern West Nusa Tenggara Waters	Name: Grace Sanger Paper Title: Composition of Pigment, Total Phenolic Content and Antioxidant Activity of Brown Seaweed (<i>Sargassum olygocystum</i>)	Name: Dr. Lutfi Yondri Paper Title: Utilization of marine Resources in the Cross Prehistoric Culture in The Pawon Cave-West Java



Date and Venue
13-14 July 2020
Fisheries and Marine Faculty
Khairun University Ternate-Indonesia

International Conference
On Fisheries and Marine
Online



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MODERATORS	M. Ridwan Lessy, MSi.	Khamsiah Ahmad, MSc	Dr. Nurhalis	Halikuddin, PhD	Nani Nagu, MT
PRESENTERS NAME & PAPER TITLE	Name: Muh. Irpan Sejati Paper Title: Modeling the impact of the COVID-19 pandemic on air emissions indicators of climate change originating from solid waste management in coastal settlements	Name: Hidayat Suryanto Paper Title: Grow-out of transfection and non-transfection black tiger shrimp broodstock, <i>Penaeus monodon</i> in concrete pond	Name: Riska Fatmawati Paper Title: Fish Behavior Characterization with an RGB-LED Intensity based on Pulse Width Modulation (PWM) System in Fixed Lift Net	Name: Sulastri Arsad Paper Title: The Effect of Tofu Liquid Waste Addition on Medium Cultivation of <i>Chlorella Pyrenoidosa</i> to Lipid, Carbohydrate, and Protein Content	Name: Rudianto Paper Title: Institutional Capacity Building of Bina Hang Buah Youth Organization and Tambaan Indah Garbage Unit Bank in the Context of Management of Plastic Waste to Fuel in Tambaan Urban Village, Pasuruan City



Date and Venue
13-14 July 2020
Fisheries and Marine Faculty
Khairun University Ternate-Indonesia

International Conference
On Fisheries and Marine
Online



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PRESENTERS NAME & PAPER TITLE	Name: Dr. Ngurah S. Yasa Paper Title: Induction of Hsp60, Hsp70, and Hsp90 in Formalin exposed White Shrimp (<i>L. vannamei</i>) Stress Test	Name: Dr. Indah Istiqamah Paper Title: Effect of dietary probiotics SEAL on growth performance of red tilapia (<i>Oreochromis</i> sp.) nilasa strain	Name: Novalina Serdiati Paper Title: Length-Weight Ratio and Condition Factor of Endemic Fish <i>Oryzias nigrimas</i> in Poso Lake, Central Sulawesi	Name: Vivi N. Febrieni Paper Title: Acceleration of <i>Chlorella vulgaris</i> Total Lipid Content by Light Intensity	Name: Raden Mas Wicaksono Paper Title: Strengthening Cross-Sectoral Institution for Indonesia Maritime Economic Development



Date and Venue
13-14 July 2020
Fisheries and Marine Faculty
Khairun University Ternate-Indonesia

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On Fisheries and Marine
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PRESENTERS NAME & PAPER TITLE	Name: Wahyu R. Prihatiningsih Paper Title: Status of Marine Radioecology in Indonesia after Fukushima Accident	Name: Erfan A. Hendrajat Paper Title: Daily water quality fluctuations on integrated rice and tiger shrimp (<i>Penaeus monodon</i>) cultivation pond	Name: Mirna Dwirastina Paper Title: Diversity of riparian plants in salah nama islands south sumatra	Name: Andi Parenrengi Paper Title: A preliminary experiment on the production of dsRNA by in-vivo and its application to tiger shrimp <i>Penaeus monodon</i> larvae to survival enhancement	Name: Dr. Maskun Paper Title: Obligations and Responsibilities of Flag States related to IUU Fishing based on ITLOS Case No. Advisory Opinion 21 and Its influence to Indonesia



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PRESENTERS NAME & PAPER TITLE	Name: Heny Suseno Paper Title: Recent Development in Marine Radioecology Research in Indonesia	Name: Abdul Gani Paper Title: Diversity Studies of Freshwater Goby Species from Three Rivers in Luwuk Banggai, Central Sulawesi, Indonesia	Name: Ria Faizah Paper Title: Size Distribution and Population Parameter of White-Spotted Gutterfish (<i>Rhynchobatus Australiae</i> , Whitley 1939) from The Eastern Indian Ocean, Indonesia	Name: Sri Andayani Paper Title: Potency of Jellyfish Alcaloid (<i>Aeginura</i> sp) on Kidney Histopathology and Relative Percent Survival (RPS) of Tiger Grouper (<i>Epinephelus fuscoguttatus</i>) Against <i>Vibrio harveyi</i>	Name: Hiqma Agustina Paper Title: Ecocriticism and Feminist Criticism in Gadis Pesisir



Date and Venue
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Fisheries and Marine Faculty
Khairun University Ternate-Indonesia

**International Conference
On Fisheries and Marine
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PRESENTERS NAME & PAPER TITLE	Name: Murdahayu Makmur Paper Title: Ecological Risk Assessment of Plutonium the Primary Inlet of Indonesia Through Flow (ITF)	Name: Samsul Rizal Paper Title: Brackish Water Pond Management Strategies based on Salinity and Pyrite Distribution in the Mahakam Delta, East Kalimantan	Name: Prihatiningsih Paper Title: Reproductive biology, growth and mortality of silver pomfret (<i>Pampus argenteus</i>) in Tarakan waters, North Kalimantan	Name: Wendy A. Tanod Paper Title: Effects of dichloromethane <i>Sarcophyton</i> sp. extract on the Lipopolysaccharide-induced expression of cell adhesion molecules (VCAM-1 and ICAM-1) in mice	Name: Aryandini Novita Paper Title: Maritime Archeology Resources Potential in Belitung Waters



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Fisheries and Marine Faculty
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PRESENTERS NAME & PAPER TITLE	Name: M. Nur Yahya Paper Title: Novel Design and Implementation Extraction Cs-137 from Seawater Integrated with Water Quality Checker	Name: Sulaeman Paper Title: Potential use of Amphipod-Crustacean as live food for blue swimmer crab (<i>Portunus pelagicus</i>) crablet	Name: Pratiwi Lestari Paper Title: Population Parameters of Rabbitfishes (<i>Siganus corallinus</i> and <i>Siganus virgatus</i> , Valenciennes, 1835) in Karimun Jawa Reef Waters, Centre of Java	Name: Aldi P. Wijaya Paper Title: Molecular Identification and Screening of Anticancer Activity of Rose-pigmented Marine Bacterium HPP.4A from <i>Holothuria atra</i>	Name: Rainey Windayanti Paper Title: Potential, Carrying Capacity, and Suitability of Coral Reef Ecosystem in West Buleleng MPA



Date and Venue
13-14 July 2020
Fisheries and Marine Faculty
Khairun University Ternate-Indonesia

International Conference
On Fisheries and Marine
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PRESENTERS NAME & PAPER TITLE	Name: Deddy Irawan Permana Paper Title: A review on determination of 90Sr from alkaline waters using precipitation of Ca(OH) ₂ and Ba(Ra)SO ₄	Name: Adi Susanto Paper Title: The Effects of Dietary Carbohydrate Level on the Growth Performance of Juvenile Kelabau (<i>Osteochilus melanoplueura</i>)	Name: Umi Chodrijah Paper Title: Growth, Mortality and Exploitation Rate of Indo Pacific King Mackerel (<i>Scomberomorus guttatus</i>) BLOCH and SCHNEIDER, 1801) in the Tarakan Waters, North Kalimantan	Name: Evan H Frederik Paper Title: Preliminary Evaluation of Anti Fish Pathogenic Bacteria and Metabolite Profile of Andaliman Fruit (<i>Zanthoxylum acanthopodium</i>)	Name: Dr. Yunita Ramili Paper Title: Genetic diversity information of seagrass <i>Enhalus acaroides</i> and <i>Cymodoceae rotundata</i> for local genetic conservation at North Maluku



Date and Venue
13-14 July 2020
Fisheries and Marine Faculty
Khairun University Ternate-Indonesia

International Conference
On Fisheries and Marine
Online



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PRESENTERS NAME & PAPER TITLE	Name: Yogi Priasetyono Paper Title: Updating of Baseline Radionuclides Concentration in Jakarta Bay	Name: Dr. Samliok Ndobe Paper Title: robotic enrichment of commercial feed to improve tilapia (<i>Oreochromis niloticus</i>) growout performance	Name: Gatut Bintoro Paper Title: Biological aspect of mackerel scad (<i>Decapterus macarellus</i> Cuvier, 1833) in Prigi Waters Trenggalek Regency East Java Indonesia	Name: Krisnayanti Lubis Paper Title: Screening of Antibacterial Activity Against Acne-Causative Agents from Coral-Associated Actinobacteria	Name: Junardi Paper Title: Preliminary Study on Population and Reproductive Characteristics of Black-Nypa Palm Worm <i>Namalycastis cf. terrestris</i> (Polychaeta: Nereididae) in Sungai Kakap Estuary West Kalimantan



Date and Venue
13-14 July 2020
Fisheries and Marine Faculty
Khairun University Ternate-Indonesia

**International Conference
On Fisheries and Marine
Online**



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PRESENTERS NAME & PAPER TITLE	Name: Noir P. Purba Paper Title: Vulnerability of Java Sea marine protected areas affected by marine debris trajectory	Name: Fittrie Pratiwy, PhD Paper Title: Circadian Rhythms of Feeding Activity in Nile Tilapia (<i>Oreochromis niloticus</i>)	Name: Henita Aditya Paper Title: Behavioral response of blue swimming crab (<i>Portunus pelagicus</i>) to the different entrance gate of collapsible pot	Name: Kevin G. Bondar Paper Title: Identification of Marine bacterium HPP.T13 using DNA barcoding and its anticancer activity against P388 murine leukemia cell	Name: Dr. Noer Indriati Paper Title: Effectiveness Conservation of Marine Protected Area in Indonesiaan Archipelago Concept



Date and Venue
13-14 July 2020
Fisheries and Marine Faculty
Khairun University Ternate-Indonesia

**International Conference
On Fisheries and Marine
Online**



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PRESENTERS NAME & PAPER TITLE	Name: Nadia F. Marelsa Paper Title: The Potential Study of Ocean Wave Energy as Electric Power in Mentawai Island	Name: Bethsy Pattiasina Paper Title: Application Asexual Reproduction and Growability of Sand seacucumber <i>Holothuria scabra</i>	Name: Syahnul S. Titaheluw Paper Title: Distribution of Day Fish in Ternate City Water Based on Chlorofil-a	Name: M. Nur Findra Paper Title: Characteristics of Cytochrome C Oxidase Subunit I Gene in Giant Clam from Wakatobi National Park Waters, Indonesia	Name: Fitri Ariani Paper Title: Suitability and Carrying Capacity Analysis for marine Ecotourism Development og th Sujono Beach, Batubara District, Province of North Sumatera



Date and Venue
13-14 July 2020
Fisheries and Marine Faculty
Khairun University Ternate-Indonesia

International Conference
On Fisheries and Marine
Online



PARALLEL SESSIONS					
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PRESENTERS NAME & PAPER TITLE	Name: Riesti Triyanti Paper Title: Management of Coastal Resources in Mandalika in an Era of Disruptive Innovation Waves	Name: Dr. Muh. Irfan Paper Title: Seaweed <i>Kappaphycus alvarezii</i> Cultivation Production Based on Season in Indari Waters, West Bacan Subdistrict, Regency of South Halmahera, Province of North Mollucas, Indonesia	Name: Mujiyanto Paper Title: Institutional Restructurization for Fisheris Management of Humphead Wrasse (<i>Chelinus undulatus</i> Rüppell 1835) in Anambas and Natuna, Riau Archipelago Province	Name: Rinto M. Nur Paper Title: Characterization of Morphology and Identification of Bioactive Compounds Worm Laor (<i>Eunice viridis</i>) at the Waters of Morotai Island	Name: Dony Apdillah Paper Title: Potency, Status and Carrying Capacity of Coral Reef Ecosystem on Small Island for Sustainable Marine Ecotourism Development; (Study Case Benan Island and Surrounding Area, Kepulauan Riau



Date and Venue
13-14 July 2020
Fisheries and Marine Faculty
Khairun University Ternate-Indonesia

**International Conference
On Fisheries and Marine
Online**



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PRESENTERS NAME & PAPER TITLE	Name: Abdi T. Priyanto Paper Title: Prioritising management actions on reefs threatened by multiple stressors	Name: Dr. Indah Istiqamah Paper Title: Phagocytes response to dietary probiotics SEAL and Aeromonas hydrophila infection in red tilapia (<i>Oreochromis</i> sp.) nilasa strain	Name: Yunus P. Paulangan Paper Title: Fishing season and participatory mapping of fishing ground of target fishes in Depapre Bay, Jayapura Regency, Papua Province, Indonesia	Name: Nuke A. Anabella Paper Title: The motility of Tor soro fish (Valenciennes, 1842) using post cryopreservation sperm: The effect of grape juice (<i>Vitis vinifera</i>) as a natural antioxidant	Name: Andi N. Apung Paper Title: A Dynamic Simulation of Mangrove Ecotourism Management at the Lantebung of Makassar City



Date and Venue
13-14 July 2020
Fisheries and Marine Faculty
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International Conference
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PRESENTERS NAME & PAPER TITLE	Name: M Furqan Ismail Paper Title: Circulation dynamics of the Banda Sea estimated from Argo profiles	Name: Dr. Indah Istiqamah Paper Title: Complement activation by dietary probiotics SEAL in red tilapia (<i>Oreochromis</i> sp.) nilasa strain	Name: Grace Hutabessy Paper Title: Maturity Measurement on Big Eye Scad (<i>Selar crumenophthalmus</i>) to Indicate Overfishing	Name: Abigail A. Moore Paper Title: Sharks and Rays (Chondrichthyes) around Banggai Island, Banggai MPA, Indonesia: biodiversity data from an environmental DNA pilot study	Name: Muh Irpan Sejati Paper Title: Coral Reef Ecosystem Assessment and Monitoring Using Coral Point Count with excel extentions (CPCe) Software in Wakatobi Marine National Park, Indonesia



Date and Venue
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PRESENTERS NAME & PAPER TITLE	Name: Adnan Aditya Putra Paper Title: Comparative Analysis of Harmonic Constituents and Tidal Predictions of Sunda Strait Waters using Badan Informasi Geospasial Tide Model and Sebesi Tide Station Data	Name: Ramal Yusuf Paper Title: The Use of seaweeds extract and benzyamino purin in shoot initiation of shallot in vitro	Name: I Nyoman Adiasmara Giri Paper Title: Optimizing protein, lipid and carbohydrate levels in diets for growth of juvenile hybrid grouper (Epinephelus fuscoguttatus ♀ x E. lanceolatus ♂)	Name: Putut Har Riyadi Paper Title: Anti-Inflammatory Potential from Tilapia (<i>Oreochromis niloticus</i>) Viscera Hydrolyzate with Bioinformatics Analysis (PASS Server)	Name: Ali Yansyah Abdurrahim Paper Title: Biodiversity and social aspects of the Sawo-Lahewa Marine Conservation Area, North Nias: a social-ecological mapping



Date and Venue
13-14 July 2020
Fisheries and Marine Faculty
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PRESENTERS NAME & PAPER TITLE	Name: Umar Tangke Paper Title: Distribution of Sea Surface Temperature and Chlorophyll-a Concentration in Relationship with Small Pelagic Fish Catches in Dodinga Bay	Name: Diode Yonata Paper Title: Optimization of maltodextrin in the process of seaweed flavoring microencapsulation with freeze drying technique	Name: Dr. Sumardi Paper Title: Light intensity of RGB Prototype with Pulse Width Modulations (PWM) As Tool of Fish Attracting Based on Microcontroller for Fishing Stationary Lift Net	Name: Gunarto Paper Title: The Application of Erythromycin, Elbaju and Rica-1 Probiotic on Mangrove Crab, <i>Scylla paramamosain</i> Larva Rearing	Name: Helmi Zuryani Paper Title: Plankton type and abundance in Rawa Gambut Kayu Agung Ogan Kemiring Iilir District (OKI) South Sumatera



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PRESENTERS NAME & PAPER TITLE	Name: Umar Tangke Paper Title: Organoleptic Quality of Tuna Porridge Canned with Fortified Tuna Bone Meal	Name: I Ketut Sumandiarsa Paper Title: Nutritional composition and Alginate characteristics of Sargassum polycystum (C. Agardh, 1824) growth in Sebesi Island coastal, Lampung-Indonesia	Name: Indra Muhiardi Paper Title: The effect of tomato juice (<i>Lycopersicon esculentum</i>) as natural antioxidant to fertilization rate spermatozoa of kancra fish (Tor soro) 24 hours postcryopreservation	Name: Dr. Siti Aisah Paper Title: In silico study of ethyl acetate extract of <i>Nauclea subdita</i> Korth. Steud. leaves as a peptidoglycan glycosyltransferase inhibitor in <i>Aeromonas hydrophila</i>	Name: Risandi Dwirama Putra Paper Title: The Condition of Economical Important Coral Reef Fishes in Eastern and Western Small Outer Island Indonesia



Date and Venue
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Fisheries and Marine Faculty
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	Name: M. Ridwan Lessy Paper Title: Benthic Marine Litter Accumulation at Selection Beaches in Ternate Island, Indonesia				Name: Mira Clenia Paper Title: Carrying capacity of small island for tourism development



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PRESENTERS NAME & PAPER TITLE	Name: Halikuddin Umasangaji Paper Title: Status of Polychlorinated Biphenyl (PCBs) Contamination in Several Marine and Freshwater Sediments in the World during the Last Three Decades				

COMPOSITION OF PIGMENT, TOTAL PHENOLIC CONTENT AND
ANTIOXIDANT ACTIVITY OF BROWN SEAWEED
Sargassum olygocystum

Grace Sanger, Lexy K. Rarung, Bertie E. Kaseger



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1. INTRODUCTION

Identified

6.000 species
of seaweeds

Classified

green algae
(Chlorophyceae)

brown algae
(Phaeophyceae)

red
(Rhodophyceae)

Bioactive
compound

Carotenoids, pigments, polyphenols, enzymes, diversese functional polysaccharides. Seaweeds are excellent source of vitamin A, B₁, B₁₂, C, D and E [Domettila *et al.*, 2013].

**Human
body**

**Free Radical
(ROS)**

Superoxide (O_2^-), hydroxyl ($HO\cdot$), hydrogen peroxide (H_2O_2) and nitric oxide (NO).

**Extreme
amount
of ROS**

Injury the
essential
biological
molecules

various diseases
disorders such as
cancer, diabetes, stroke,
cataract, myocardial
infarction,
atherosclerotic and
Parkinsons diseases.

In order to diminish or avoid this damage of the human body by ROS antioxidants are believed to be protective all cell from injury (Wu et al., 1998, Halliwell et al., 1995).

**Natural
antioxidant**

Non-toxic and Non
carcinogenic effect

Safe for using as ingredients in
medicine, dietary supplements,
nutraceuticals and cosmetics

improving human health, reducing the belongings of
damaging diseases and other broader aspects of
immune system function (Shahidi, 2009, Pangestuti
and Kim 2011, Yip et al., 2014).

seaweeds have potential defensive properties to against oxidative stress in target tissues and lipid oxidation in foods.



Biological
activity of
Seaweed



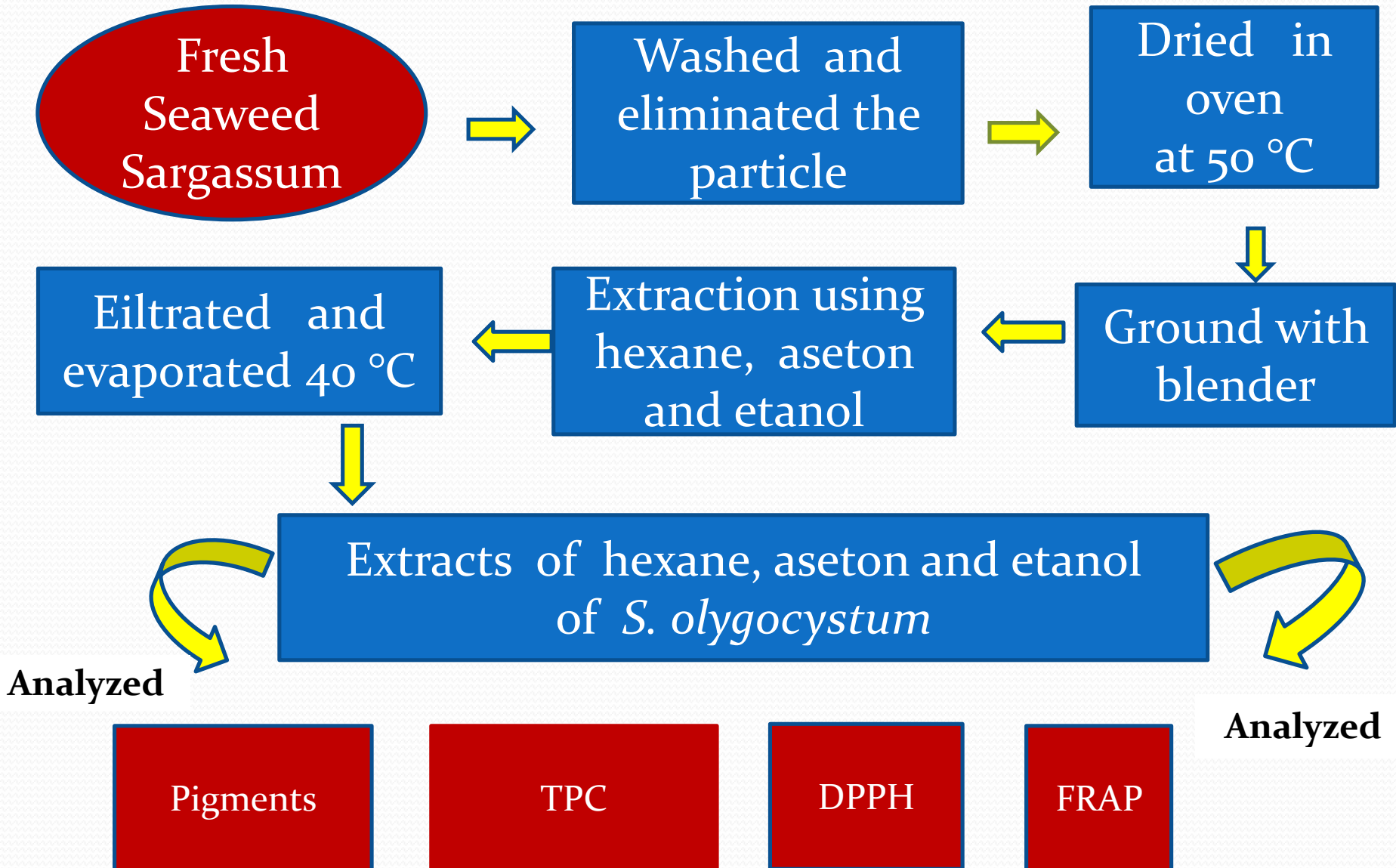
antioxidant, anti-bactery,
anti-cholesterol
anticancer, anti-
anti-inflammatory,
anti-obesity,
anti-angiogenic
and neuroprotective
activities. (Pangestuti and
Kim, 2011).

Potential defensive properties of seaweeds against oxidative stress in target tissues and lipid oxidation in foods. Consequently consumption of antioxidant and addition of antioxidant in food materials protect the body as well as against oxidative stress.

Although seaweeds possess extensive applications in food and pharmaceutical industries, the pigments and antioxidant activities of many types of seaweeds in Indonesian area are still unexplored. Hence, the present study was proposed to explore the pigments and antioxidant properties of *S. olygocystum* which grows plentifully in North Sulawesi.

2. MATERIAL AND METHOD

2.1. sample preparation



Method of analysis:

1. Composition of pigment

The pigments were quantified using UV-Visible spectrophotometer by reading the absorbance at their respective wave lengths, The pigments consisted of:

- Chlorophyll Chl a (mg g⁻¹) (Arnon,1949).
- Total Chlorophyll (mg g⁻¹) (Jeffrey et al, 1961). -
- Chlorophyll C₁+C₂ (mg g⁻¹) Yentsh, 1956). -
- Carotenoids (Seely et al, 1972).
- Fucoxanthin (mg g⁻¹) (Sudhakaret al., 2013)
- Phycoerythrin (μg g⁻¹) (Beer and Eshel,1985) -
- Phycocyanin(μg g⁻¹) (Beer and Eshel,1985);

2. The TPC of the extracts was measured using Follin Ciocalteu method as described by Ganesan et al., (2008).

3. Scavenging ability of stable 1,1-diphenyl-2-picrylhydrazyl (DPPH) radicals by the seaweeds antioxidant using the method describe by Chew. et al., (2008).

4. Ferric Reducing Antioxidant Power (FRAP) of seaweed extract was determined by the method prescribed by Chewet al., (2008).

3. RESULT AND DISCUSSION

1. Chemical Composition

Table 1. Chemical composition of *S. olygocystum*

Parameter	Composition (%)
Water	16.66
Protein	3.66
Carbohidrate	56.06
Fat	0.33
Ash	23.29

. Seaweeds are low in fat but have vitamins and bioactive compounds such as terpenoids, sulfated polysaccharides and polyphenol compounds, the latter being a potential natural antioxidant not found in land plants (Chew et al., 2008). Algal polysaccharides participate in essential functions as free radical-scavengers in-vitro and antioxidants for the avoidance of oxidative damage in living organisms. Seaweeds could eliminate free radicals by acting as free radical scavengers (Molyneux 2004) or by donating a hydrogen atom to the free radical (Re et al 1999).

2. Composition of Pigmen

Table 2. Composition of Pigmen of *S. plygocystum*

Parameter	Pigment Content of Seaweeds extract	
	Hexane	Acetone
Chlorophyl a (mg/g)	0.046787	0.039748
Chlorofil b (mg/g)	0.043884	0.03399
Chlorophyl C ₁ +C ₂ (mg/ml)	1.01925	0.62507
Carotenoid (µg/g)	19.546	24.911
Fucosantin (mg/g)	0.037044	0.006454
Phycoerythrin (µg/g)	0.62000	0.611

- The result of analysis showed the highest content of pigment was chlorophyll C₁+C₂ (1.01925 (mg/g)) and the lowest content of pigment was fucosantin (0.006454 mg/g). Naziret al., (2013), the concentration of carotenoids, phycoerythrin and phycocyanin in red seaweeds were found higher than green seaweeds, Pereira et al, 2012 reported that red seaweeds possess more phycocyanin than green strain. Red seaweeds observed are insignificant variation in chlorophyll a and phycocyanin (Plastino et al., 2004). Pereira et al, 2012, seaweeds contain three main photosynthetic pigments i.e. chlorophylls, carotenoids and phycobilins. These pigments provide protection against high light intensity and also support in light absorption and energy transfer to the reaction centre.

3. Total Fenolic content (TPC), DPPH and FRAP.

Parameter	Acetone	Ethanol	BHT
TPC ($\mu\text{g GAE/g}$)	45.282	44.885	-
DPPH (mg/mL)	3.0101	2.6093	0.12167 ± 0.012
Frap ($\mu\text{M Fe}^{2+}/\text{mg}$)	14.05 ± 0.02	9.01 ± 0.02	42.5 ± 1.46

The antioxidant characteristics of these algae have been associated to their phenolic composition. Phenolic compounds or polyphenols have attained substantial attention due to their physiological purposes, counting antioxidant, antimutagenic, antitumor and anticancer activities (Souza et al 2017; Ahmad et al 2014; Sanger et al 2017).

Table. 4. Antioxidant activity (DPPH Method) extract ethanol of *S. olygocystum*

Konsentrasi (ppm)	Nilai absorbansi		Nilai penghambatan	
	Ke-1	Ke-2	Ke-1	Ke-2
0	1,141	1,090		
100	1,134	1,049	0,61	3,76
200	1,091	1,046	4,38	4,03
300	1,089	1,016	4,55	6,78
400	1,068	1,015	6,39	6,88

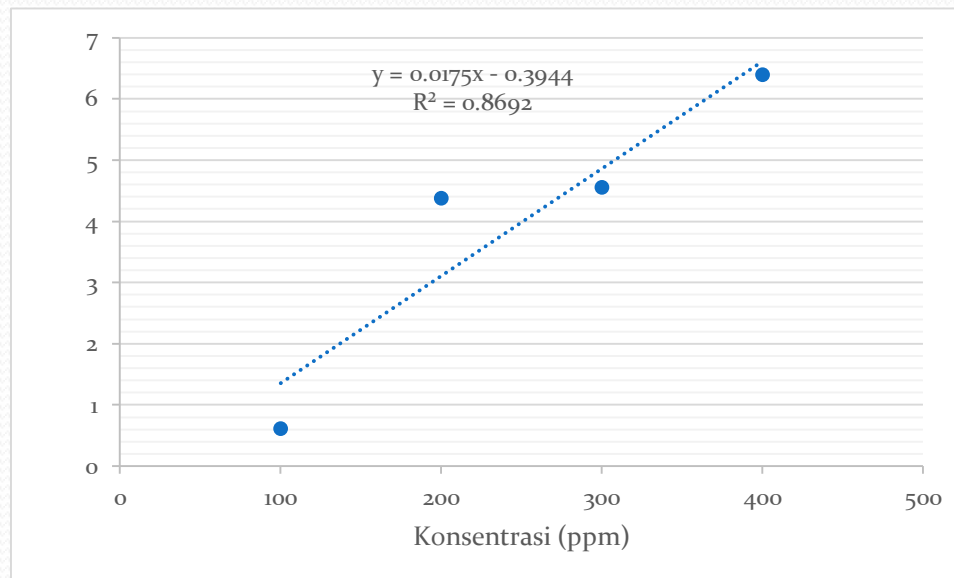
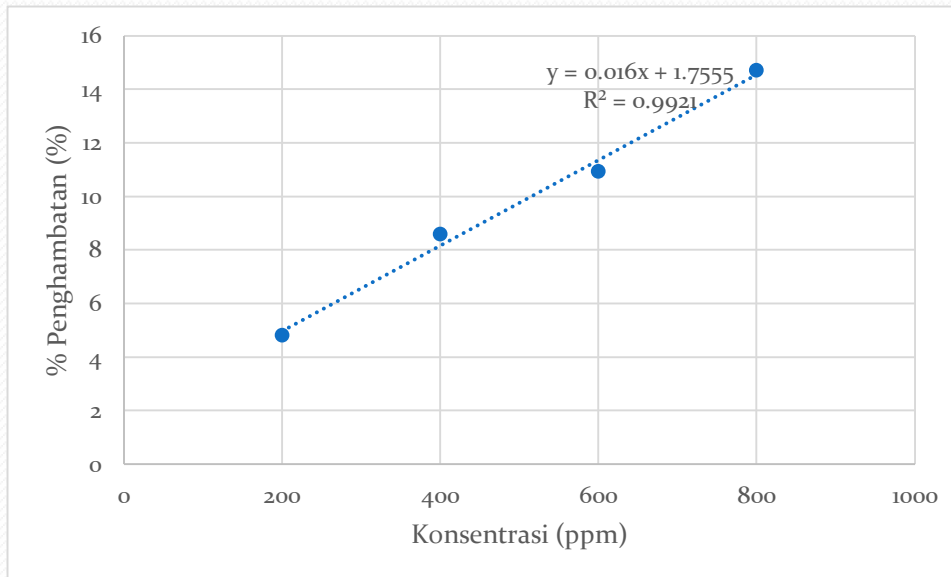


Table. 4. Antioxidant activity (DPPH method) extract acetone of *S. olygocystum*

Konsentrasi (ppm)	Nilai absorbansi		Nilai penghambatan	
	Ke-1	Ke-2	Ke-1	Ke-2
0	0,769	0,764		
200	0,732	0,739	4,8	3,3
400	0,703	0,704	8,6	7,8
600	0,685	0,675	10,9	11,6
800	0,656	0,665	14,7	12,9



Radical DPPH scavenging activity in acetone and ethanol extract of *S. olygocystum* were IC_{50} 3.0101 ± 0.242 and 3.4093 ± 0.54 mg/mL

All organisms have multifaceted regularities of antioxidant enzymes, for example thioredoxin enzyme. Some of these enzymes are preserved throughout growth and are need for a normal development. Antioxidants in biological systems have various purposes, are a counter for oxidative destruction and have a contribution in cell pathways. The most important action of antioxidants in cells is to inhibit the destruction caused by reactive oxygen groups (Haliwell et al 1992; Borek 1993).

- Humans are impacted by many free radicals especially reactive oxygen species (ROS). ROS constitutes superoxide (O_2^-), hydroxyl ($HO\cdot$), hydrogen peroxide (H_2O_2) and nitric oxide (NO). These molecules are unsteady and highly reactive, and can harm cells by chain reactions, such as lipid peroxidation or configuration of DNA adducts .
- Pigment shows several capability to maintain immune system, to help prevent cancer and is being utilized in cancer therapy, to aid to invigorate and energize the body detoxification of the liver, to normalize blood pressure and to struggle bad odors, bad breath as well as body odor by reason of the magnesium salts that it contains (Ferruzzi and Blakeslee, 2007).

5. CONCLUSION

- In the present investigation the acetone and ethanol extracts of *S. olygocystum* exhibited content of chlorophyll carotenes, phycoerythrin and phycocyanin. The TPC, antioxidant activity by DPPH assay and reducing power are high.
- Thus *S. olygocystum* could be used as a source of natural pigment and source of antioxidant which is potential to be applied in food product as functional food, medicine and cosmetic.
- Future study is required for identification of the active compound of *S.olygocystum* and measure the biological activities.



Thank you



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This is to certify that

Grace Sanger

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