

Table of contents

Volume 236

2019

◀ Previous issue Next issue ▶

The 1st International Conference on Fisheries and Marine Science 6 October 2018, East Java, Indonesia

Accepted papers received: 16 January 2019

Published online: 01 March 2019

Open all abstracts

Preface

OPEN ACCESS 011001

The 1st International Conference on Fisheries and Marine Science

+ Open abstract  View article  PDF

OPEN ACCESS 011002

Organizing Committee

+ Open abstract  View article  PDF

OPEN ACCESS 011003

Conference Photos

+ Open abstract  View article  PDF

OPEN ACCESS 011004

Peer review statement

+ Open abstract  View article  PDF

Papers

OPEN ACCESS 012001

The Increase in β -carotene Content in *Dunaliella salina* from the Application of Different Light Intensities

N Sugiati, E D Masithah, W Tjahjaningsih and A A Abdillah

+ Open abstract  View article  PDF

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more,

OPEN ACCESS and Cookies policy.

012002 

Ammonia-eliminating potential of *Gracilaria* sp. And zeolite: a preliminary study of the efficient ammonia eliminator in aquatic environment

M R Royan, M H Solim and M B Santanumurti

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012003

Identification of extracellular enzyme-producing bacteria (proteolytic, cellulolytic, and amylolytic) in the sediment of extensive ponds in Tanggulangrejo, Gresik

OA Artha, Sudarno, H Pramono and LA Sari

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012004

Addition of water from the treatment pond of pangasius fillet waste (*Pangasius* sp.) with different concentrations in the cultivation medium due to the population growth of *Daphnia* sp.

H P Alvian, E D Masithah and M H Azhar

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012005

The growth and survival rate in lettuce aquaponic systems (*Latuca sativa*) of eels in various stocking densities of eel (*Monopterus albus*)

N K Portalia, L Sulmartiwi and B S Rahardja

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012006

The prevalence of benedeniasis in humpback grouper (*Cromileptes altivelis*) in floating net cages in Situbondo Regency, East Java, Indonesia

S O Wijaya, S Subekti and Kismiyati

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012007

The prevalence of fungi on groupers (*Epinephelus* sp.) in cage mariculture systems of the northern coast of Surabaya, East Java

E Yuliasuti, R Kusdawarti and Sudarno

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012008

The spectrum of light and nutrients required to increase the production of phycocyanin *Spirulina platensis*

H A Wicaksono, W H Satyantini and E D Masithah

[+ Open abstract](#) [View article](#) [PDF](#)

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more,

[see our Privacy and Cookies policy.](#)

012009 

The growth and survival rate of the larvae of the sunu grouper (*Plectropomus leopardus*) in different temperatures

L Lutfiyah, D S Budi and M F Ulkhaq

[+](#) Open abstract [View article](#) [PDF](#)

OPEN ACCESS

012010

Preservation of common carp (*Cyprinus carpio*) sperm using 0.9% NaCl and ringer's lactate solution

D S Budi, L A Adawiyah and L Lutfiyah

[+](#) Open abstract [View article](#) [PDF](#)

OPEN ACCESS

012011

Comparison of the efficiency (flash point, freezing point, and viscosity test) of biodiesels from *Sargassum* sp.

M B Santanumurti, M R Royan, S H Samara, S Sigit and M A Alamsjah

[+](#) Open abstract [View article](#) [PDF](#)

OPEN ACCESS

012012

Study of patterns in the relationship of ecdysis with the age of freshwater crayfish *Cherax quadricarinatus* aged 76 Days

A H Fasya

[+](#) Open abstract [View article](#) [PDF](#)

OPEN ACCESS

012013

Maximum density in the *Moina macrocopa* culture able to produce parthenogenesis in female offspring

A S Mubarak, D Jusadi, M Z Junior and M A Suprayudi

[+](#) Open abstract [View article](#) [PDF](#)

OPEN ACCESS

012014

The oxygen content and dissolved oxygen consumption level of white shrimp *Litopenaeus vannamei* in the nanobubble cultivation system

D P Galang, A K Ashari, L Sulmatiwi, G Mahasri, Prayogo and LA Sari

[+](#) Open abstract [View article](#) [PDF](#)

OPEN ACCESS

012015

The effect of the epiphytes of *Chaetomorpha crassa* on the total chlorophyll-a and growth of *Gracilaria verrucosa*

A L L Handayani, R J Triastuti and L Sulmartiwi

[+](#) Open abstract [View article](#) [PDF](#)

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.

012016

Growth monitoring of koi fish (*Cyprinus carpio*) in natural hatchery techniques in Umbulan, Pasuruan, East Java

F P Putri and N N Dewi

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012017

Dynamic Ratio Correlation of N:P in relation to the Diatom Abundance in the Intensive System of the Vannamei (*Litopenaeus vannamei*) Shrimp Pond

E D Masithah, D D Nindarwi, T Rahma and dan R R Satrya P I

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012018

Dynamic ratio correlation of N:P on the abundance of Bluegreen algae in an intensive system in a white shrimp (*Litopenaeous vannamei*) pond

E D Masithah, D D Nindarwi, A L A Suyoso and D Husin

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012019

Dynamic ratio correlation of N:P toward phytoplankton explosions in intensive systems of white shrimp pond

E D Masithah, D D Nindarwi, D Husin and T Rahma

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012020

Development of water and nutrient management models to improve multitrophic seafarming productivity

J A Surbakti, I A L Dewi, M A Alamsjah and M Lamid

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012021

Pond soil characteristic in reclaimed tidal lowlands and its correlation with the water quality for aquaculture

M Fitriani, I Wudtisin, M Kaewnern and R H Susanto

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012022

The dynamics of total organic matter (tom) on sangkuriang catfish (*clarias gariepinus*) farming at upt ptpbp2kp and the effectiveness of freshwater bivalve (*anodonta woodiana*) in reducing the total organic matter with varying density

D Arfiati, C D G Putra, A H Tullah, S W A Permanasari and A W Puspitasari

[+ Open abstract](#) [View article](#) [PDF](#)

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.



OPEN ACCESS

012023

Growth and morphological changes in relation to the maturation of male Japanese eel, *Anguilla japonica* injected with human chorionic gonadotrophin (HCG) in the different interval in the tropical region

Y T Hee, F F Ching and S Senoo

[+](#) [Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012024

Genetic diversity of the endangered species *Sphyrna lewini* (Griffith and Smith 1834) in Lombok based on mitochondrial DNA

S Hadi, N P Anggraini, E Muttaqin, B M Simeon, B Subhan and H Madduppa

[+](#) [Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012025

Sex ratio and size at first maturity of razor clam *Solen* sp. in Pamekasan and Surabaya coastal area, East Java, Indonesia

N Trisyani, N I Wijaya and I Yuniar

[+](#) [Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012026

Improving productivity and water quality of catfish, *Clarias* sp. cultured in an aquaponic ebb-tide system using different filtration

E Setiadi, I Taufik, Y R Widyastuti, I Ardi and D Puspaningsih

[+](#) [Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012027

Different substrate of trickling filter on growth, survival rate, and water quality of common carp (*Cyprinus carpio*) cultivation by using an intensive recirculation system

E Setiadi, I Taufik, Y R Widyastuti, I Ardi and A Saputra

[+](#) [Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012028

Water quality dynamic, production and profitability of catfish, *Clarias* sp. cultured at different design construction of aquaponic

Y R Widyastuti, E Setiadi, I Taufik and L Setijaningsih

[+](#) [Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012029


Effect of C:N ratio on the spore production of *Bacillus* sp. indigenous shrimp pond

A Yuniarti, N B Arifin, M Fakhri and A M Hariati

[+](#) [Open abstract](#) [View article](#) [PDF](#)

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our [Privacy and Cookies policy](#).



-
- OPEN ACCESS** 012030
Comparative Test on Bacteria in the Digestive Tract of Vannamei Shrimp (*Litopenaeus vannamei*) at Intensive and Extensive Ponds in Ujungpangkah, Gresik
D Ningrum, M Arief and dan K T Pursetyo
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012031
Growth Performance of Laboratory-Scale *Chaetoceros calcitrans* in Different Containers
M Jannah, M F Ulkhaq, M H Azhar, Suciyono and dan W Soemarjati
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012032
Study of the Dynamic Density and Diversity of Plankton at Different Brackishwater Pond Managements in Gresik, East Java
O Tilahwatih, E D Masithah and dan B S Rahardja
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012033
The Effect of Demineralization Stage of Agar's Solid Waste on the Characterization of Activated Carbon
R Febrianto, Sudarno and R Kusdarwati
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012034
The Dynamic of Density and Diversity of Cyanophyta in Different Pond Bases in Educational Pond of Faculty of Fisheries and Marine Universitas Airlangga
S Z Cahyani, E D Masithah and Prayogo
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012035
Effect of Different Salinity Level within Water Against Growth Rate, Survival Rate (FCR) of Catfish (*Clarias* sp.)
D Prananingtyas, Prayogo and S Rahardja
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012036
Molecular identification and phylogenetic reconstruction of two fiddler crabs (*Uca forcipata* and *Uca triangularis*)
S Andriyono, H Pramono and H W Kim
[+](#) Open abstract [View article](#) [PDF](#)
-
- OPEN ACCESS** 012037
See our Privacy and Cookies policy. 

The molecular identification and phylogenetic reconstruction of Palaemonid and Penaeid shrimp from the southern part of Bangladesh

M J Alam, S Andriyono, A T M Eunos and H W Kim

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012038

Morphometric characteristics of Fur Cockles (*Anadara spp.*) in Wonokromo and Juanda Estuary, Surabaya

P B Pamungkas, K T Pursetyo, J Triastuti and N N Dewi

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012039

Stock status of ark clams (*Anadara spp.*) based on dredge fishing of the east coast of Surabaya, Indonesia

N N Dewi, K T Pursetyo, O P Darmono, F R Fachri, F S Puspitasari and A Damora

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012040

The distribution patterns and biomass of bivalves in Segoro Tambak estuary, Sedati, Sidoarjo, East Java

S H Liyana, L A Sari, N N Dewi, E D Masithah, A M Sahidu and K T Pursetyo

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012041

Inventorization of reef fish on Tabuhan Island, Banyuwangi, East Java, Indonesia

Suciyono, M A Azhar, M F Ulkhaq and H Kenconoati

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012042

Dynamic study on the effect of calcium hydroxide and sodium bicarbonate treatment on the N/P ratio and plankton abundance

M R N Tsany, E D Masithah, B S Rahardjo and D D Nindarwi

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012043

Distribution patterns and the biomass of bivalves at Segoro Tambak estuary, Sedati, Sidoarjo, East Java

S H Liyana, L A Sari, N N Dewi, E D Masithah, A M Sahidu and K T Pursetyo

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012044

Optimization of diatom *Hyaloele ostrearia* cultivation in different mediums and nutrients

Supriyanto and Coomes pole



S Arsad, C Stavrakakis, V Turpin, P Rossa, Y Risjani, L A Sari, F S Prasetya and J-L Mouget

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012045

Coastal ecosystem model based on environmental suitability and carrying capacity of the fishpond in Banyuwangi Region, East Java, Indonesia

E W Setyaningrum, Maghdalena, A T K Dewi, M. Yuniartik and E D Masithah

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012046

Development and succession of sessile macrofouling organisms on the artificial structure in the Shallow Coastal Waters of Sabah, Malaysia

M A M Affandy, J Madin, K P Jakobsen and M Auluck

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012047

Fish species difference around the light of metal halide lamps and LED lamps with mini purse seine operation

M A Sofijanto, D Arfiati, T D Lelono and A Muntaha

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012048

Status of coral diseases and compromised health syndromes on Pemuteran shallow reefs, North Bali island

W Karim

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012049

Management options for restoring artificial coral reefs in Indonesia: strengthening in institutional approach

Rudianto and Ahmad Zainul

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012050

Growth of salt-secretor and non-salt secretor mangrove seedlings with varying salinity and their relations to habitat zonation

M Basyuni, Ramayani, A Hayullah, Prayunita, M Hamka, L A Putri and S Baba

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012051

Distribution of *Ctenactis Echinata* and *Fungia Consinna* coral on Mamburit island,

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.



Sawiya, D Arfiati, Guntur and U Zakiyah

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012052

Diversity species and condition of seagrass ecosystem in Teluk Awur and Prawean Jepara

I Riniatsih, A Ambariyanto, E Yudiati, R Hartati, W Widianingsih and R T Mahendrajaya

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012053

Copper (Cu) and Cadmium (Cd) toxicity on growth, chlorophyll-a and carotenoid content of phytoplankton *Nitzschia* sp

D Hindarti and A.W. Larasati

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012054

Vegetation Characteristic and Micro Environment of Mangrove Rehabilitation Forest at Coastal Areas of East Sinjai, South Sulawesi

H Setiawan

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012055

The Use of Water Lettuce (*Pistia stratiotes*) as Phytoremediator for Concentration and Deposits of Heavy Metal Lead (Pb) Tilapia (*Oreochromis niloticus*) Gills

A A D Amalia, B S Rahardja and Rr J Triastuti

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012056

The Effectiveness of Heavy Metals Pb, Cd and Zn Reduction in NPK Fertilizer Waste Combined with Biofilters of Seaweed (*Gracillaria* sp.), Blood Clam (*Anadara* sp.), and Zeolite

A R K Sari, R K Harryes, F A Anggraini, M A Alamsyah and dan A Ahadi

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012057

The Effectiveness of Combining *Gracilaria* Sp. Seaweed Biofilter and *Anadara granosa* Shell with Zeolite in the Decrease in the Level of Mercury (Hg) Heavy Metal

J A Spesatri, B S Rahardja and A A Abdillah

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012058

The Effectiveness of Combination of Seaweed (*Gracillaria* sp.), Blood Clam (*Anadara granosa*), and Zeolite as Biofilter in the Reduction of Heavy Metal Copper (Cu)

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our privacy policy.



[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012059

Bioaccumulation of Cadmium (Cd) Heavy Metal on Seaweed (*Gracilaria* sp.) in Traditional Fishpond of Jabon Subdistrict, Sidoarjo District

O Ardiyansyah, Sudarno and Rosmanida

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012060

Identification of Proteolytic Bacterial Isolates in Sediment Ecosystem of Gunung Anyar Mangrove Forest, Surabaya

P B Utomo, Sudarno and B S Rahardja

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012061

The Analysis of Cockle (*Anadara inaequalvis*) Gonad Maturity Level in the Estuary of Banjar Kemuning River, Sedati, Sidoarjo

R F Saputra, E D Masithah and P D Wulansari

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012062

Spatial and Temporal Variation of Biomass Blood Cockle (*Anadara* sp.) in Estuaries Dadapan, Sedati Sub-District, Sidoarjo, East Java

M R Ramadhan, K T Pursetyo, Prayogo and N N Dewi

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012063

Distribution Patterns and Biomass of Bivalve in Juanda and Segoro Tambak Estuary in Sedati, Sidoarjo, East Java

S H Liyana, E D Masithah and A M Sahidu

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012064

Analysis of Cadmium (Cd) Heavy Metal on Sediment and Mangrove Leaves *Avicennia marina* at Mangrove Ecotourism Wonorejo, Surabaya

W C Dermawan, Prayogo and B S Rahardja

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012065

Analysis of Lead (Pb) Value Comparison on Seaweed (*Euचेuma cottonii*) in Bluto and Saronggi Sumenep Marine, Madura, East Java

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our [Privacy](#) and [Cookies](#) policy.



[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012066

The potential addition of lemuru oil to commercial feed to increase the content of EPA and DHA in eels (*Monopterus albus*)

A Imanisa, M B Santanumurti, M Lamid and Agustono

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012067

Effect of lysine in addition to commercial feed on crude protein and the energy digestibility of gourami (*Osphronemus gouramy*)

D Setiyawan, S H Samara, Agustono and M A A Arif

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012068

Addition of the papain enzyme to commercial feed against protein retention and feed efficiency in eels (*Anguilla bicolor*)

DA Liono, M Arief, Prayogo and W Isoni

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012069

Combination of papain enzyme and phytase enzyme in commercial feed and the protein and energy retention of tilapia *Oreochromis niloticus*

A Saifulloh, M B Santanumurti, M Lamid and W P Lokapirnasari

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012070

The effect of giving cake artificial feed on the survival rate, and growth of Common carp (*Cyprinus carpio*) larva in an Installation of Freshwater Culture (IBAT) in Punten, Batu.

I P Zainiyah, Rozi, W H Satyantini and A M Sahidu

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012071

The Utilization of Phytase Enzymes and SEM Analysis in order to increase the Quality of Rice Bran as a Layer and Fish Feed

M Lamid, Anam Al-Arif and S H Warsito

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012072

The dynamic relationship of phytoplankton abundance and diversity in relation to white shrimp (*Litopenaeus vannamei*) feed consumption in intensive ponds

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our [Privacy and Cookies policy](#).



[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012073

Effect of partial replacement of fish meal with *Spirulina platensis* meal in practical diets and culture location on growth, survival, and color enhancement of percula clownfish *Amphiprion percula*

S Hudaidah, B Putri, S H Samara and Y T Adiputra

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012074

The Effect of Different level of Probiotic Addition on Commercial Feed against Digestibility and Efficiency of Nile Tilapia Feed (*Oreochromis Niloticus*)

D Taufik, M Arief and H Kenconoati

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012075

The Effect of Adding Synbiotics Into Commercial Feed Towards Protein Retention and Fat Retention of Dumbo Catfish (*Clarias sp.*)

H Syevadiana, M Arief and I S Hamid

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012076

The Effect of Adding Lysine in Commercial Feed on Growth Rate, Feed Efficiency, and Feed Conversion Ratio to Tambaqui (*Colossoma Macropomum*)

L V D Putra, U Agustono and S H Kenconoati

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012077

The Effect of Coconut Shell Liquid Smoke in Commercial Feed on Total Bacteria of *Pseudomonas Aeruginosa* in the Tilapia's Kidney (*Oreochromis niloticus*)

M Rahmawati, Sudarno and S Subekti

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012078

The Effect of Coconut Shell Liquid Smoke in Commercial Feed Towards Total *Pseudomonasaeruginosa* Bacteria on Gastrointestinal Tract Tilapia (*Oreochromis Niloticus*)

S Rahmadini, Sudarno and S Subekti

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012079

Antibacterial activity of honey in preserving high-pressure cooked milkfish stored at room temperature

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.



D A Hakim, W Tjahjaningsih and Sudarno

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012080

Bacterial composition in the gastrointestinal tract of *Uca* spp crabs fed on *Avicennia marina* leaf litter

M A B Kareho, E D Masithah and W Tjahjaningsih

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012081

The correlation between ectoparasite infestation and the total plate count of *Vibrio* sp. in pacific white shrimp (*Litopenaeus vannamei*) in ponds

G Mahasri, Rozi, A T Mukti, W H Satyantini and N M Usuman

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012082

In vitro study of an ethanolic extract of coffea leaves to inhibit freshwater pathogenic bacteria

H Kenconoajati, MF Ulkhaq, DS Budi and MH Azhar

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012083

The effect of noni fruits (*Morinda citrifolia*) with different ripeness stages against the total erythrocytes and leukocytes of comet goldfish (*Carassius auratus*) infested by *Argulus*

E Setyaningsih, Kismiyati and S Subekti

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012084

The protection capacity of the crude and whole protein spores of *Myxobolus koi* as an immunostimulant material development in goldfish (*Cyprinus carpio*) for preventing Myxobolus

G Mahasri, M Yusuf, R Woro and M B Santanumurti

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012085

Identification of white spot syndrome virus (WSSV) in pacific white shrimps (*Litopenaeus vannamei*) from ponds postexposure to immunogenic membrane proteins (*Zoothamnium penaei*)

P A Wiradana, G Mahasri, R E R Sari, U C Marwiyah and R Prihadhana

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012086

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.



Gills and swimming leg histopathologies in pacific white shrimp (*Litopenaeus vannamei*) from ponds exposed to the immunogenic membrane proteins of *Zoothamnium penaei*

R E R Sari, G Mahasri, P A Wiradana and U C Marwiyah

[+](#) [Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012087

Total plate count and identification of vibrio in pacific white shrimp (*Litopenaeus vannamei*) from ponds and in those exposed to immunogenic protein membrane *Zoothamnium penaei*

U C Marwiyah, G Mahasri, R E Ratnasari and P A Wiradana

[+](#) [Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012088

Effectiveness of *Nitrobacter* on the specific growth rate, survival rate and feed conversion ratio of dumbo catfish *Clarias* sp. with density differences in the aquaponic system

A S Taragusti, M B Santanumurti, B S Rahardja and Prayogo

[+](#) [Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012089

The erythrocyte and leucocyte profile of saline tilapia (*Oreochromis Niloticus*) in a cultivation system with nanobubbles

M Gunanti, P D Wulansari and K Kinzella

[+](#) [Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012090

The prevalence and intensity of ectoparasites infecting vanname shrimp (*Litopenaeus vannamei*) reared in different ponds

N Nurlatiffah, Kismiyati and MF Ulkhaq

[+](#) [Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012091

Protozoan parasites of Vannamei Shrimp (*Litopenaeus vannamei*) in farmed fish from Pasuruan, Indonesia

U Hafidloh and P D W Sari

[+](#) [Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012092

Growth of *Bacillus* sp. and *Flavobacterium* sp. in culture media with the addition of liquid whey tofu waste

W H Satyantini, R M Pratiwi, A M Sahidu and D D Nindarwi

[+](#) [Open abstract](#) [View article](#) [PDF](#)

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our [Privacy and Cookies policy](#).



OPEN ACCESS

012093

The effect of noni *Morinda citrifolia* L. fruit extracts on the gill histopathological changes of Nile tilapia *Oreochromis niloticus*

A T Mukti, E Dewi, W H Satyantini, L Sulmartiwi, Sudarno and M Hassan

[+ Open abstract](#)[View article](#)[PDF](#)

OPEN ACCESS

012094

Prevalence and intensity of ectoparasites in Pacific white shrimp (*Litopenaeus vannamei*) seeds from a pond and hatchery

G Mahasri, T Hidayat and Sudarno

[+ Open abstract](#)[View article](#)[PDF](#)

OPEN ACCESS

012095

Prevalence and intensity of ectoparasites in gabus fish (*Channa striata*) at Cangkringan Fishery Cultivation Technology Development Center, Sleman, Yogyakarta

E N Fitriani, Rozi, M Arief and H Suprpto

[+ Open abstract](#)[View article](#)[PDF](#)

OPEN ACCESS

012096

Antibacterial activity of bitter melon (*Momordica charantia* L.) leaf extract against *Aeromonas hydrophila*

D A Masithoh, R Kusdarwati and D Handijatno

[+ Open abstract](#)[View article](#)[PDF](#)

OPEN ACCESS

012097

Determination of the *aerolysin* gene in *Aeromonas hydrophila* using the polymerase chain reaction (PCR) technique

G Christy, R Kusdawarti and D Handijatno

[+ Open abstract](#)[View article](#)[PDF](#)

OPEN ACCESS

012098

Bioaccumulation and histopathological effect on the gills and liver of silver barb (*Barbonymus gonionotus*) exposed to the heavy metal nickel

I Purwanti, W Arroisi, B S Rahardja and L Sulmartiwi

[+ Open abstract](#)[View article](#)[PDF](#)

OPEN ACCESS

012099

Identification and prevalence of the ectoparasite *Octolasmis* in sand lobster (*Panulirus homarus*) and bamboo lobster (*Panulirus versicolor*) in Floating Net Cages in Sape, Bima Regency, West Nusa Tenggara Province, Indonesia

L. Yusgita, Kismiyati, S. Subekti, P D Wulansari and M K Amiin

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.

[+ Open abstract](#)[View article](#)[PDF](#)

OPEN ACCESS

012100

Treatment of *Chlorella sp.* extract on heat shock cluster (HSC) response from the tissue and bloodcells proliferation of *Epinephelus fuscoguttatus-lanceolatus* infected by *Viral Nervous Necrosis*

U Yanuhar, I Al-Hamidy and N R Caesar

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012101

Superoxide dismutase (SOD) and metallothionein (MT) *Tubifex tubifex* at the acute mercury exposure

I M Widiastuti, A M S Hertika, M Musa and D Arfiati

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012102

Antifungal activity of marine sponges (Class Demospongiae) collected from Biak, Indonesia

R D Kasitowati, K Wittriansyah, A Trianto, D C Pratiwi and M A P Panjaitan

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012103

Antibacterial activities of *Physalis angulata* herb extract on white feces diseases (WFD) in *Litopenaeus shrimp vannamei*

E Saraswati and AS Wijaya

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012104

The Effects of Mercury Chloride (Hgcl₂) on the Changes in Hematology and Blood Sugar Level in Carps (*Cyprinus carpio*)

I Setiyowati, H Suprpto and G Mahasri

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012105

Change in Two-Spot Catfish Histopathological Liver (*Mystus nigriceps*) Accumulated with Heavy Metal Cadmium (Cd) in Ketingan Estuary, Sidoarjo - East Java, Indonesia

L Anggitasari, H Suprpto and dan D D Nindarwi

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012106

Effectiveness of Pepaya Leaf Extract (*Carica Papaya L.*) to Control Ectoparasite *Argulus* on Common Carp (*Cyprinus Carpio*)

L S Azizah, Kismiyati and A H Fasya

[+ Open abstract](#) [View article](#) [PDF](#)
This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.



-
- OPEN ACCESS** 012107
Bacterial Identification from Marine Ornamental Fish in Fish Quarantine, Quality Control and Fishery Products Safety Class I Denpasar, Bali
N R Rukmana, G Mahasri, S N Hidayah, M F Ulkhaq and H Kenconoajati
[+ Open abstract](#) [View article](#) [PDF](#)
-
- OPEN ACCESS** 012108
Prevalence and Intensity of Ectoparasites of Tilapia (*Oreochromis niloticus*) in Ponds with Low, Medium and High Stocking Density
M Indahsari, Kismiyati and M F Ulkhaq
[+ Open abstract](#) [View article](#) [PDF](#)
-
- OPEN ACCESS** 012109
Texture profile of the bread produced from composite flour *Bruguiera gymnorrhiza* flour (BGF) and wheat flour
M N G Amin, M N Hasan, Zakariya, S A Pralebda, H Pramono, E Saputra, S Subekti and M A Alamsjah
[+ Open abstract](#) [View article](#) [PDF](#)
-
- OPEN ACCESS** 012110
The potential of seaweed waste (*gracilaria* sp. and *eucheuma cottonii*) as a medium density fiberboard (mdf)-based pot material for better water use efficiency in tomato plants
H Kurnia, R R Rifadi, Agustono, M N G Amin, S A Sudjarwo and M A Alamsjah
[+ Open abstract](#) [View article](#) [PDF](#)
-
- OPEN ACCESS** 012111
Characterization of edible coating based on surimi fillet catfish as biodegradable packaging
E Saputra
[+ Open abstract](#) [View article](#) [PDF](#)
-
- OPEN ACCESS** 012112
Characteristics of the fish protein isolate recovered from Sardine by-products using the Isoelectric Solubilization- Precipitation method
H. Pramono, N T Irawan and M R A Firdaus
[+ Open abstract](#) [View article](#) [PDF](#)
-
- OPEN ACCESS** 012113
The potential of peptides derived from the chymotrypsin hydrolysate of soft shelled turtle yolk against the Angiotensin I Converting Enzyme
D Y Pujiastuti and J L Hsu
[+ Open abstract](#) [View article](#) [PDF](#)

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.



OPEN ACCESS

012114

Kappa and iota carrageenan combination of *Kappaphycus alvarezii* and *Eucheuma spinosum* as a gelatin substitute in ice cream raw material product

I Suryani, D I Permata Sari, D M Astutik and A Abdillah

[+ Open abstract](#)[View article](#)[PDF](#)

OPEN ACCESS

012115

Detection of antibiotic-resistant *Salmonella* sp. in the seafood products of Surabaya local market

H Pramono, A Kurniawan, N Andika, T F Putra, M A R Hazwin, S Utari, A P Kurniawan, E D Masithah and A M Sahidu

[+ Open abstract](#)[View article](#)[PDF](#)

OPEN ACCESS

012116

The effect of kappa-carrageenan fortification on the physicochemical and organoleptic properties of milkfish galantin

D Darmawan, L Sulmartiwi and A A Abdillah

[+ Open abstract](#)[View article](#)[PDF](#)

OPEN ACCESS

012117

The application of a high voltage electric field (HVEF) to reduce *Escherichia coli* and *Salmonella thyphimurium* bacteria in red snapper (*Lutjanus* sp.) fillets

D J Subakti, H Pramono and J Triastuti

[+ Open abstract](#)[View article](#)[PDF](#)

OPEN ACCESS

012118

Isolation and identification of fish import consumption bacteria in a fish quarantine center, focusing on the quality control and safety of fishery products at Tanjung Priok, Jakarta

H S Farizky and W H Satyantini

[+ Open abstract](#)[View article](#)[PDF](#)

OPEN ACCESS

012119

Replacement of gum arabic by dry *Spirullina* sp. biomass as a food emulsifier in bread making

D Wulandari, M N G Amin, E D Masithah, M Lamid and M A Alamsjah

[+ Open abstract](#)[View article](#)[PDF](#)

OPEN ACCESS


012120

Nutrient improvement of *Bruguiera gymnorrhiza* peel fruit through fermentation using commercial tempeh (Indonesian fermented soybean) mold

M N G Amin, R A Prastiya, M N Hasan, Zakariya and M A Alamsjah

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our [Privacy and Cookies policy](#).

[+ Open abstract](#)[View article](#)[PDF](#)

-
- OPEN ACCESS** 012121
DPPH scavenging property of bioactives from soft corals origin palu bay, Central Sulawesi, Indonesia
W A Tanod, U Yanuhar, Maftuch, D Wahyudi and Y Risjani
[+](#) [Open abstract](#) [View article](#) [PDF](#)
-
- OPEN ACCESS** 012122
Extraction of bioactive compounds fruit from *Rhizophora mucronata* using sonication method
Ernawati, E Suprayitno, Hardoko and U Yanuhar
[+](#) [Open abstract](#) [View article](#) [PDF](#)
-
- OPEN ACCESS** 012123
Harvesting *Chaetoceros gracilis* by flocculation using Chitosan
W AA Yamin, S R M Shaleh, F F Ching, R Othman, M Manjaji-Matsumoto, S Mustafa, S Shigeharu and G Kandasamy
[+](#) [Open abstract](#) [View article](#) [PDF](#)
-
- OPEN ACCESS** 012124
The Use of Rajungan (*Portunus Pelagicus*) Shells as Flour in Wet Noodles Ingredient
A Rahma, A A Abdillah and E Saputra
[+](#) [Open abstract](#) [View article](#) [PDF](#)
-
- OPEN ACCESS** 012125
The Potential of Lindur Fruit Flour (*Bruguiera Gymnorhiza*) in Reducing Oil Absorption of Milkfish Nugget during the Deep Frying Process
A Widyastuti, AA Abdillah and Laksmi Sulmartiwi
[+](#) [Open abstract](#) [View article](#) [PDF](#)
-
- OPEN ACCESS** 012126
Chemical and Sensory Characteristics of Flakes Made from Seaweed (*Eucheuma cottonii*) and Soybean (*Glycine max* (L.) Merrill)
I R Firdarini, Kismiyati and A Manan
[+](#) [Open abstract](#) [View article](#) [PDF](#)
-
- OPEN ACCESS** 012127
The Effect of Maltodextrin Concentration on the Characteristics of Snappers' (*Lutjanus* sp.) Peptone
R Ningsih, Sudarno and Agustono
[+](#) [Open abstract](#) [View article](#) [PDF](#)
-
- OPEN ACCESS** 012128
This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more,
[open our Privacy and Cookies policy.](#) 

Physics and Chemical Characteristics of Sargassum Sp. Seaweed with Addition of Sodium Alginate Stabilizer to Different Concentrations

M Via, A A Abdillah and M A Alamsjah

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012129

The Effect of Sorbitol Addition on the Characteristic of Carrageenan Edible Film

M Rahmawati, M Arief and W H Satyantini

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012130

The Utilization of Flower Crab (*Portunus Pelagicus*) Shell as Pasta Flavor

R Rahmawati, E Saputra and A A Abdillah

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012131

Income analysis of catching fish using dogol (demersal danish seine) in the sub-district of Brondong, Lamongan

A Aulia, A M Sahidu and Agustono

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012132

Area development based on conservation and ecotourism on the Cemara Beach (Pine Trees Beach), Pakis, Banyuwangi, East Java Province, Indonesia

E W Setyaningrum, A T K Dewi, K P Prapti, Z Erwanto and H D Susanti

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012133

Socioeconomic and institutional factors affecting the sustainable development for fisheries in Bontang City, Indonesia

B I Gunawan

[+ Open abstract](#) [View article](#) [PDF](#)

OPEN ACCESS

012134

Factors influencing the market requirements fulfillment in small medium enterprise fish processors in East Java

W Sulistyowati, Soemarno, A Efani and M Primyastanto

[+ Open abstract](#) [View article](#) [PDF](#)

JOURNAL LINKS

[Journal home](#)

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more,

[see our Privacy and Cookies policy.](#)



Information for organizers

Information for authors

Contact us

Reprint services from Curran Associates

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our [Privacy and Cookies policy](#).



PAPER • OPEN ACCESS

Bacterial composition in the gastrointestinal tract of *Uca* spp crabs fed on *Avicennia marina* leaf litter

To cite this article: M A B Kareho *et al* 2019 *IOP Conf. Ser.: Earth Environ. Sci.* **236** 012080

View the [article online](#) for updates and enhancements.

You may also like

- [Molecular identification and phylogenetic reconstruction of two fiddler crabs \(*Uca forcipata* and *Uca triangularis*\)](#)
S Andriyono, H Pramono and H W Kim
- [Production of Rhizophora Mangrove Leaf Litter in The Sungai Bersejarah Mangrove Ecosystem, Siak Regency](#)
E Efriyeldi, B Amin and T Hersa
- [Application of fungi *Aspergillus* sp. from leaf litter *Rhizophora mucronata* Lamk. to accelerate decomposition on various salinity levels in Belawan](#)
Yunasfi, N Hakiki and I E Susetya



244th Electrochemical Society Meeting

October 8 – 12, 2023 • Gothenburg, Sweden

50 symposia in electrochemistry & solid state science

Abstract submission deadline:
April 7, 2023

Read the call for papers &

submit your abstract!

Bacterial composition in the gastrointestinal tract of *Uca* spp crabs fed on *Avicennia marina* leaf litter

M A B Kareho¹, E D Masithah² and W Tjahjaningsih^{2*}

¹ Aquaculture Study Program, Faculty of Fisheries and Marine, Universitas Airlangga.

² Department of Marine, Faculty of Fisheries and Marine, Universitas Airlangga.

*Corresponding author: wahju_fpk@yahoo.com

Abstract. *Uca* spp, found in mangrove areas, has a role in sediment reworking by making a burrow for air circulation. The nutrient content remains stable and sediment fertility for vegetation growth is maintained. *Uca* spp has the feeding behavior of eating the residue of plants, separating the detritus and microbes and removing the residue of the plant. The presence of bacteria in the mangrove ecosystem has an important place in the decomposition of the mangrove leaf litter into organic material, used as a source of nutrients for mangrove forest organisms. This study aims to determine the composition of bacteria in the digestive tract of *Uca* spp., after the consumption of *A. marina* leaf litter. The results of the bacterial identification shows that the bacterial composition contained in *Uca* spp 's digestive tract is *Acinetobacter* sp. and *Actinobacillus* sp, which are bacteria contained in the leaf litter of *A. marina*.

1. Introduction

The fiddler crab habitat is closely related to the mangroves, but it is not entirely dependent on mangroves for shelter or food. Decaying mangrove leaves can enrich the muddy substrates that provide the main food for crabs [1]. Most species of fiddler crabs ingest benthic microalgae and bacteria [2]. As a feeder on detritus, fiddler crabs eat the microheterotrophs (bacteria and protozoa) and meiofauna (nematodes) present in the mud or on the surface of sand particles [1]. Crabs handle a large amount of detritus in the mangrove environment, but the oxidation of organic carbon is mediated by anaerobic microbial processes [3].

The source of organic carbon in the mangrove environment is due to the accumulation of litter that falls on the surface of the sediment and creates an anoxic sediment layer. The activity of digging fiddler crabs causes the translocation of oxygen to the anoxic layer and increases aerobic respiration, iron reduction and nitrification [4]. Transportation and sediment mixing occurs during burrow maintenance and feeding activities change the dynamics of the sediment and the availability of food sources for microbial, faunal and mangrove communities and adjacent ecosystems [5]. Excavation activities by fiddler crabs can improve drainage and substrate oxidation, increase the rate of debris and plant decay and promote the growth of micro-organisms [6].

The mangrove litter causes the mangrove ecosystem to have a very high level of productivity. The mangrove litter consisting of leaves, twigs, flowers, fruits and other biomass falls into the category of nutrient sources for aquatic biota and this determines the productivity of marine fisheries [7]. Leaf litter has fallen and begun the decomposition process is one of the factors of fertility in the mangrove ecosystem. The rate of the decomposition process contributes to the amount of organic matter, which in turn contributes to the growth and development of vegetation, fish, shrimp, crabs and other



microorganisms in the mangrove forests [8]. The presence of bacteria in the mangrove ecosystem has a very important place in decomposing the litter of mangrove leaves into organic material that is then used as a source of nutrients for mangrove forest organisms[9].

Microbial detritus complexes are the most prevalent in the *Uca* spp species diet. The detritus complex is widely capable of providing suitable sources of energy for detritivores [10]. This laboratory study aims to determine the bacterial composition contained in the digestive tract of *Uca* spp crab associated with *Uca* spp crabs being a detritus feeder.

2. Materials And methods

2.1. Materials

The materials used in this study were the digestive tract *Uca* spp. females before and after being fed *A. marina* litter, living substrate *Uca* spp., substrate water, *A. marina* leaf litter, aquadest and a physiological solution (NaCl 0.85%). The materials used for bacterial identification were Gram A (gentian violet), Gram B dye (iodine Lugol), Gram C dye (acetone alcohol), D gram dye (safranin), Tryptone Soya Agar (TSA) media, Triple Sugar media Ion Agar (TSIA), Lysine Iron Agar (LIA) medium, citrates medium, urea medium, gelatin nutrient medium, methyl red reagent, naphtol, KOH 3%, KOH 40%, emersion oil, H₂O₂ 3%, distilled water, paper oxidase, liquid paraffin, Kovac reagents and oxidative fermentative media.

2.2. Methods

The samples were taken randomly from the digestive tract of the *Uca* spp females in the study tank. Sampling was done before they were fed *A. marina* and after 30 days of being fed on *A. marina*. This was done by taking part of the digestive tract of *Uca* spp., the leaf litter of *A. marina*, substrates where they lived and the substrate water.

The bacteria was isolated from the digestive tract sample in the TSA medium. Media incubation was conducted at 20-24°C for 24-48 hours [11]. The next growing colony was identified. The identification of the bacteria was performed to determine the bacteria isolated from the digestive tract of *Uca* spp., from within the litter of the *A. marina*' leaves, from the subsector of *Uca* spp., and from the substrate water. This was done through 1) a morphological test of both the colony and cells, 2) Gram staining of the bacterial colony and 3) biochemical tests.

The macroscopic morphological test was done by looking at the shape and color of the colony. The cell morphological tests were performed with the aim of observing the microscopic cell forms. Biochemical tests were performed through several stages: catalase test, oxidase test, Triple Sugar Iron Agar (TSIA) test, oxidative fermentative (O/F) test, motility indole ornithine (MIO) test, Indole test, citrate test, gelatin test, urea, Lysine Iron Agar (LIA) test, Methil Red (MR) test and the Voges-Proskauer (VP) test. Furthermore, to identify the bacterial isolates, the researcher used Cowan and Steel's Manual for the Identification of Medical Bacteria[12].

3. Result

The results of the isolation sample obtained from the gastrointestinal tract of *Uca* spp. before and after being given *A. marina* leaf litter, from the leaf litter of *A. marina*, from the substrates where they lived and the substrate water showed there to be a number of colonies growing on each medium. The growing colony had a convex elevation with flat edges and was colored red and cream. The results showed that most of the bacteria were short and Gram-negative (Table 1). All of the bacteria in the oxidase and catalase test were positive. The catalase test was characterized by the incidence of gas bubbles in the preparation whereas oxidase was indicated by a color change on the oxidase paper. In the motility test, most of the bacteria were not motile. The Indole test results showed that most of the bacteria were not able to produce indole. In the oxidative/fermentative testing, most of the bacteria exhibited fermentative properties in which the bacteria were able to live without free oxygen. The results of the identification of the three dominant bacterial isolate samples in *were* that the samples were fermentative, so it can be deduced that they can live without utilizing free oxygen / anaerobic respiration (Table 1).

All bacteria produce catalase and oxidase enzymes characterized by positive oxidase and catalase test results (Table 1). The results of the oxidative/fermentative test showed positive and positive fermentative oxidation. This means that some bacteria have oxidative properties related to glucose, and that some bacteria have fermentative properties. From the results, the identification found there to be seven isolates that were not motile and two isolates of bacteria that were motile.

Table 1. The results of the bacterial identification test on the sample.

Sample	Cell Morphology	Gram Staining	Catalase	Oxidase	Motile	Indole	O/F
P1	Short rod	-	+	+	-	-	F
P2	Rod	-	+	+	-	-	O/NR
P3	Short rod	-	+	+	-	-	F
K1	Short rod	-	+	+	-	-	F
K2	Short rod	-	+	+	+	-	F
K3	Short rod	-	+	+	-	-	F
Litter	Rod	-	+	+	-	-	NR
Water	Short rod	-	+	+	+	-	F
Substrate	Short rod	-	+	+	-	-	F

Description: P: *Uca* spp. after littering, K: *Uca* spp. before littering of O / F: oxidative/ fermentative, NR: Non- Reagents

Table 2. Types of bacteria in the gastrointestinal tract and place of life of *Uca* spp.

Sample	Type of Bacteria
P1	<i>Actinobacillus lignieresii</i>
P2	<i>Acinetobacter</i> sp.
P3	<i>Actinobacillus lignieresii</i>
K1	<i>Actinobacillus</i> sp.
K2	<i>V. alginolyticus</i>
K3	<i>Actinobacillus</i> sp.
Litter	<i>Acinetobacter</i> sp.
Water	<i>Vibrio</i> sp.
Substrate	<i>Actinobacillus</i> sp.

Description: P1, P2, P3: the digestive tract *Uca* spp. after littering, K1, K2, K3: the digestive tract *Uca* spp. before littering

4. Discussion

A. marina is a type of mangrove that is tolerant to a wide salinity range and is a vegetation pioneer that determines mangrove quality at an early stage of growth [13]. The results of the bacteria identification from the leaf litter samples of *A. marina* found *Acinetobacter* sp. which is a Gram-negative bacterium with a short stem shape that is positive in oxidase, positive in catalase, not motile and fermentative. According to Shovitri et al [14], bacteria identified from the *A. marina* samples on the Wonorejo coast had a more diverse composition that genera *Bacillus*, *Amphibacillus*, *Lampropedia*, *Acinetobacter*, and *Planococcus*. According to Wijiyono [15], the bacterial colonization dominating the decomposition of *A. marina* leaf litter was *Bacillus subtilis*, *Bacillus cereus* and *Pseudomonas aeruginosa*. The genus *Acinetobacter* was successfully identified from the microbial flora in *A. marina* mangrove leaves and rotting *Rhizophora apiculata*, in addition to the genera *Flavobacterium*, *Vibrio*, *Pseudomonas*, and *Corynebacterium*. Mangrove samples were collected from the mangrove forests in Pichavaram located on the southeast coast of India [16].

According to Abdel-El-Haleem [17], *Acinetobacter* bacteria is a Gram-negative bacteria that is negative in oxidase, not motile and aerobic. *Acinetobacter* sp. includes bacteria that have the ability to ferment, resulting in the production of a number of products such as lipase, protease and cyanophycine.

Acinetobacter is one of the bacteria types that can reduce and eliminate various organic and inorganic compounds. According to Shovitri et al [14], *Acinetobacter* is included in Rhizobacteria, which includes bacteria that live on plant roots or rhizosphere. The function of Rhizobacteria is as a growth promoter (biostimulant) by synthesizing and regulating the concentration of growth-regulating substances (phytohormone).

Based on the results of the identification, *Acinetobacter* sp. was also found in the digestive tract of *Uca* spp. after being given *A. marina* leaf litter. The presence of *Acinetobacter* sp found in both the mangrove leaf litter and *Uca* spp digestive tract proves that the mangrove litter feeds *Uca* spp. Longonje and Raffaelli [18] proved that mangrove material is a major component of the crab's diet. Crab plays a significant ecological role in the functioning of the mangrove ecosystems by influencing mangrove recruitment and biogeochemical functions. According to Natania [19], violin crabs (*Uca* spp) are one of the crustaceans that have an important role in the mangrove ecosystem as detritus based on the observations conducted on Enggano Island, which is the outermost small island of Bengkulu Province. The mangrove ecosystem can still be classified as natural.

Uca spp's eating habits involve taking leaf litter that has been mixed in mud containing algae, detritus, fungi, and microbes and then putting it into its mouth, allowing the *Acinetobacter* sp. contained in the substrate to enter the digestive tract. According to Kwok and Tang [1], crabs repeatedly erode substrate pieces with minor chelipeds and then put it into its mouth, so then it looks like it is eating mud. Even the maxillipeds of the mouth section function in a complex way, separating edible matter from inorganic particles. Maxilliped crabs have spoon-tipped setae that serve to sort out the sand particles. Inorganic material is released back into the ground in pellet form. At mealtimes, the crabs move slowly forward, leaving the pelleted lines of food behind them, visible from the burrow.

Fiddler crabs are important consumers of the benthic detritus, bacteria, fungi and microalgae present in coastal swamps, mangroves, sand flats and mudflathabitats [20]. This is evidenced by the discovery of *Actinobacillus* sp bacteria in the substrate samples, and in the gastrointestinal tract of *Uca* spp before and after littering. The result of the identification of *Actinobacillus* sp. showed Gram-negative bacteria with a short stem shape, positive in oxidase, positive in catalase, not motile and fermentative.

Bacteria *Vibrio* sp. was found in the water samples and gastrointestinal tract of *Uca* spp before consuming the litter. The characteristics of *Vibrio* sp bacteria are Gram-negative with a short rod shape, positive in oxidase, positive in catalase, motile and fermentative properties. According to Kaysner [21], the genus *Vibrio* is a Gram-negative, asporogenous rod-shape which is straight and motile with a single polar flagellum when grown in a liquid medium.

Vibrio spp. can be found naturally in brackish water and estuarine ecosystems with optimal salinity and temperature conditions [22]. *Vibrio* spp. is widespread in marine and estuarine environments, and some *Vibrio* species are pathogenically associated with outbreaks of *Vibrio* infection [23]. The results of the study identified the presence of *V. alginolyticus* in the digestive tract of *Uca* spp. before being given the litter of *A. marina*. The presence of *V. alginolyticus* in the *Uca* spp digestive tract is in accordance with Gomathi [24].

5. Conclusion

The composition of the bacteria in *Uca* spp's digestive tract, which feeds on *A. marina* leaf litter, has been identified as *Acinetobacter* sp. and *Actinobacillus* sp.

6. References

- [1] Kwok W P W, Tang W-sze 2006 *Biodivers* Issue **12** 1-7
- [2] Bouillon S, Koedam N, Raman A V, Dehairs F 2002 *Oecologia* **130** 441-48
- [3] Kristensen E, Andersen F Ø, Holmboe N, Holmer M, Thongtham N 2000 *Aquat. Microb. Ecol.* **22** 199–213
- [4] Mokhtari M, Ghaffar M A, Usup G, Cob Z C 2016 *Biol.* **57** 1-12
- [5] Kristensen E, Alongi D M 2006 *Limnol. Oceanogr.* **51(4)** 1557–71

- [6] Bones L 1983 *The behaviour and ecology of the Hong Kong fiddler crabs, with special reference to Uca lactea and Uca vocans*. Ph. D. Thesis. (Hong Kong: The University of Hong Kong)
- [7] Zamroni Y, Rohyani I S 2008 *Biodiver.* **9(4)** 284-7 [in Indonesia]
- [8] Ulqodry T Z 2008 *Produktifitas Serasah Mangrove dan Potensi Kontribusi Unsur Hara di Perairan Mangrove Tanjung Apiapi Sumatera Selatan* Tesis (Bogor: Institut Pertanian Bogor) [in Indonesia]
- [9] Feliatra 2001 *JN* **3(2)** 104-12 [in Indonesia]
- [10] Saher N U, Qureshi N A 2014 *Rom. J. Biol. – Zool.* **59(1)** 35-46
- [11] Woodland J 2004 *Bacteriology. NWFHS Laboratory Procedures Manual*. Arizona: Pinetop) p 1-44
- [12] Barrow G I, Feltham R K A 1993 *Cowan and Steel's Manual for the identification of medical bacteria* Third Ed (Cambridge: Cambridge University Press)
- [13] Yunasfi 2006 *Dekomposisi Serasah Daun Avicennia marina Oleh Bakteri dan Fungi Pada Berbagai Tingkat Salinitas* Disertasi (Bogor: Sekolah Pascasarjana Institut Pertanian Bogor) [in Indonesia]
- [14] Shovitri M, Tutik N, Enny Z, Nova M A, Purwanti 2011 *Rhizobakteria di Rhizosfer Avicennia marina dan Pluchea indica* Seminar Kelautan Nasional VII (Surabaya: Universitas Hang Tuah) pp 2-8 [in Indonesia]
- [15] Wijiyono 2009 *Keanekaragaman Bakteri Serasah Daun Avicennia marina yang Mengalami Dekomposisi pada Tingkat Salinitas di Teluk Tapan Nauli* Tesis (Medan: Universitas Sumatera Utara) p 77 [in Indonesia]
- [16] Rajendran N, Kathiresan K 2007 *Rev. Biol. Trop.* **55(2)** 393-400
- [17] Abdel-El-Haleem D 2003 *Afr. J. of Biotechnol.* **2** 71-4
- [18] Longonje S N, Raffaelli D 2014 *AEER* **12 (4)** 959-73
- [19] Natania T, Herliany N E, Kusuma A B 2017 *Jurnal Enggano* **2 (1)**: 11-24 [in Indonesia]
- [20] Backwell P R, Jennions M, Wada K, Murai M, Christy J 2006 *Acta Ethol* **9** 22-5
- [21] Kaysner C, De Paola A J 2004 U.S. *Food and Drug Administration; Bacteriological Analytical Manual; Methods for specific pathogens* (<http://www.fda.gov/Food/scienceResearch/LaboratoryMethods/BacteriologicalAnalyticalManualBAM/ucm070830>) chapter 9 Vibrio.
- [22] Espeneira M, Atanassova M, Vieites J M, Santaclara F J 2010 *Food Microbiol.* **27** 122-31
- [23] Igbinsa E O, Okoh A I 2008 *Res. Microbiol.* **159** 495-506
- [24] Gomathi R S, Vinothkumar R, Arunagiri K 2013 *Int.J.Curr.Microbiol.App.Sci.* **2(2)** 36-43