

The effect of culture media on the number and bioactivity of marine invertebrates associated fungi

AGUS TRIANTO, OCKY KARNA RADJASA, MADA TRIANDALA SIBERO, AGUS SABDONO, DWI HARYANTI, WA ODE MARDHIYYAH ZILULLAH, ANNISA RORO SYANINDYTA, MUHAMMAD SYAIFUDIEN BAHRY, PRASTYO ABI WIDIANANTO, MUHAMAD HELMI, HARYO DWITO ARMONO6, SUPRIADI, YASUHIRO IGARASHI

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- 1) First submission : 19 Desember 2019
- 2) Manuscript received : 19 Desember 2019
- 3) Review result, Revision : 1 Januari 2020
- 4) Discussion with editor : 3 Januari 2020
- 5) Revised manuscript ; 3 Januari 2020
- 6) Paper accepted : 5 Januari 2020
- 7) Final mail : 5 Januari 2020

1) First Submission
19 Desember 2019

Comments for the Editor

Participants [Edit](#)

Dr. AGUS TRIANTO (atrianto)

Messages

Note	From
<p>Dear Editor of Biodiversitas,</p> <p>We are willing to submit a new manuscript entitled "The Effect of Culture Media on the Number and Bioactivity of Marine Invertebrates Associated Fungi" for publication in the Biodiversitas. We confirm that this work is original and has not been published or under consideration for publication elsewhere. The paper should be of interest to readers in the areas of microbiology, pharmaceutical, and marine culture.</p> <p>Please address all correspondence regarding this manuscript to agustrianto.undip@gmail.com or agustrianto@lecturer.undip.ac.id</p> <p>We are waiting for your positive response.</p> <p>Best wishes,</p> <p>Dr. Agus Trianto</p>	<p>atrianto 2019-12-19 08:35 AM</p>

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Dr. AGUS TRIANTO (atrianto)

Messages

Note	From
<p>Dear Editor of Biodiversitas,</p> <p>We are willing to submit a new manuscript entitled “The Effect of Culture Media on the Number and Bioactivity of Marine Invertebrates Associated Fungi” for publication in the Biodiversitas. We confirm that this work is original and has not been published or under consideration for publication elsewhere. The paper should be of interest to readers in the areas of microbiology, pharmaceutical, and marine culture.</p> <p>Please address all correspondence regarding this manuscript to agustrianto.undip@gmail.com or agustrianto@lecturer.undip.ac.id</p> <p>We are waiting for your positive response.</p> <p>Best wishes,</p> <p>Dr. Agus Trianto</p>	<p>atrianto 2019-12-19 08:35 AM</p>

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**2) Manuscript Received
19 Desember 2019**



Agus Trianto <agustrianto.undip@gmail.com>

[biodiv] Submission Acknowledgement

Ahmad Dwi Setyawan <smujo.id@gmail.com>

19 Desember 2019 16.01

Balas Ke: Ahmad Dwi Setyawan <editors@smujo.id>

Kepada: "Dr. AGUS TRIANTO" <agustrianto.undip@gmail.com>

Dr. AGUS TRIANTO:

Thank you for submitting the manuscript, "The Effect of Culture Media on the Number and Bioactivity of Marine Invertebrates Associated Fungi: Media Effect on Marine Fungi" to Biodiversitas Journal of Biological Diversity. With the online journal management system that we are using, you will be able to track its progress through the editorial process by logging in to the journal web site:

Submission URL: <https://smujo.id/biodiv/authorDashboard/submission/5099>

Username: atrianto

If you have any questions, please contact me. Thank you for considering this journal as a venue for your work.

Ahmad Dwi Setyawan

[Biodiversitas Journal of Biological Diversity](#)

**3) Review Result, Revision
1 Januari 2020**



Agus Trianto <agustrianto.undip@gmail.com>

[biodiv] Editor Decision

Smujo Editors <smujo.id@gmail.com>

1 Januari 2020 09.27

Balas Ke: Smujo Editors <editors@smujo.id>

Kepada: AGUS TRIANTO <agustrianto.undip@gmail.com>, Professor <ocky_radjasa@yahoo.com>, Professor <agus_sabdon@yahoo.com>, "Dr." <dwiharyanti@gmail.com>

AGUS TRIANTO, Professor, Professor, Dr.:

We have reached a decision regarding your submission to Biodiversitas Journal of Biological Diversity, "The effect of culture media on the number and bioactivity of marine invertebrates associated fungi".

Our decision is: Revisions Required

Smujo Editors
editors@smujo.id

Reviewer A:Recommendation: Revisions Required

Biodiversitas Journal of Biological Diversity



A-03-DEC-RCS-The effect of culture media - diedit.doc

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4) Discussion with Editor
3 Januari 2020



Agus Trianto <agustrianto.undip@gmail.com>

[biodiv] New notification from Biodiversitas Journal of Biological Diversity

Smujo Editors <smujo.id@gmail.com>

3 Januari 2020 16.17

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Kepada: "Dr. AGUS TRIANTO" <agustrianto.undip@gmail.com>

You have a new notification from Biodiversitas Journal of Biological Diversity:

There is new activity in the discussion titled "Revised manuscript atrianto-The effect of culture media" regarding the submission "The effect of culture media on the number and bioactivity of marine invertebrates associated fungi".

Link: <https://smujo.id/biodiv/authorDashboard/submission/5099>

Ahmad Dwi Setyawan

[Biodiversitas Journal of Biological Diversity](#)

**5) Revised Manuscript
3 Januari 2020**

The effect of culture media on the number and bioactivity of marine invertebrates associated fungi

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⁸Biotechnology Research Center, Toyama Prefectural University, 5180 Kurokawa, Imizu, Toyama 939-0398, Japan

Manuscript received: xxx. Revision accepted: xxx December 2019.

Abstract. Trianto A, Radjasa OK, Sibero MT, Sabdono A, Haryanti D, Zilullah WOM, Syanindyta AR, Bahry MS, Widiananto PA, Helmi M, Armono HD, Supriadi, Igarashi Y. 2020. The effect of culture media on the number and bioactivity of marine invertebrates associated fungi. *Biodiversitas* 21: xxx. Marine ecosystem is rich with microorganisms such as bacteria and fungi either as free living or in association with macro organisms. Marine invertebrates provide suitable habitats for fungi by supplying space, food, and other chemicals stuff that in some cases is as reciprocal relationship or called as mutualism symbiotic. Some of marine invertebrates have interesting activities that are useful for human life such as anticancer, antifungal, and antibacterial. Many reports indicated that the fungal growth and their production of bioactive compounds were highly affected by the media or the nutrition. In order to understand the effect of media on the number and bioactivity of the isolates, we collected the samples of marine invertebrates from two locations in Makassar. Invertebrate specimens were collected by hand during SCUBA diving at 3-10 m depths. The fungi were isolated by tapping method either on potato dextrose agar (PDA) or poor marine agar (PMA). The samples were collected from the Samalona water as much as 16 specimens that provided 30 and 18 fungal isolates on PDA and PMA, respectively, while, from the Barrang Cadi water, a total 14 specimens were collected to provide 12 and 3 isolates on PDA and PMA, respectively. All fungi from PMA inhibited the *V. harveyi*, *V. vulnificus*, and *V. parahaemolyticus* with weak, medium, and strong activities, while, the isolates from PDA were mostly not active against the *Vibrios*. Based on the molecular analyses, the active isolates were identified as *Aspergillus flavus*, *A. oryzae*, *A. aculeatus*, *Talaromyces minioluteus*, *Hypocrea jecorina*, *Gliomastix murorum*, *Myrothecium inundatum*, and *Curvularia avinis*. In conclusion, the isolates from PMA showed higher potential as source of antivibrio substances.

Keywords: Sponge, tunicate, nudibranch, fungi, vibrio

INTRODUCTION

Marine microorganisms are widely studied as source of secondary metabolites that are useful for human life (Pham et al. 2019, Carroll et al. 2019). Among all marine microorganisms, fungi get a special concern due to its productivity on producing novel bioactive compounds (Tarman et al. 2011; Zhou et al. 2014; Lindequist 2016). One of bioactive compounds from marine fungi is Plinabulin which is isolated from *Aspergillus* sp.. It is being investigated by Food and Drug Administration (FDA) to be applied for cancer therapy (Pereira 2019). Furthermore, plenty bioactive compounds from marine fungi are isolated every year in order to obtain new drugs for human health (Imhoff 2016; Lindequist 2016). Marine fungi have also been reported that produce antimicrobial

compounds such as isaridins, cristatumins, and stachyins (Xu et al. 2015). The capability on producing novel bioactive compounds leads a massive isolation of marine fungi from various hosts and locations.

Indonesia's marine ecosystems are considered to host enormous untapped marine fungi. Marine fungi are commonly found as a free-swimming organisms or living in association with other macro-organisms such as sponge, coral and tunicate (Grossart et al. 2016; Hassett and Gradinger 2016; Chen et al. 2018; Sibero and Triningsih et al. 2018; Xu, Guo, L. Gong, et al. 2018). Therefore, spermonde archipelago in Makassar, South Sulawesi Indonesia is suggested as one of prospective locations that harbor marine fungi due to its diversity of marine invertebrates (De Voogd et al. 2006; Litaay et al. 2018). Several genus such as *Aspergillus*, *Cladosporium*, *Daldinia*, *Eutypella*, *Fusarium*, *Lasiodiopodia*,

Talaromyces minioluteus is an important fungal genus because of its ubiquity which was isolated from soil, plants, sponges, and foods. Some of the species are heat resistant. Some of the species are famous because of their enzymes applicable in the synthesis of saccharides, preparation of chiral building blocks or biotransformations, and for its application in pest biocontrol. Many of its species are used in food and agricultural production (Jie et al. 2016). The pantropical ascomycete *Hypocrea jecorina* (anamorph *Trichoderma reesei*) is known as an industrial producer of cellulolytic enzymes (Lynd et al. 2002). The mechanism, which *H. jecorina* induces cellulases has remained enigmatic, especially since cellulases are only formed upon induction but the natural inducer (=cellulose) cannot pass the cell wall and plasma membrane and thus cannot enter the cell (Schmoll and Kubicek 2005). *Curvularia affinis* is an ecologically and economically important genus and is known as an anamorph of *Cochliobolus Drechs.* Pleosporales (class Dothideomycetes, Ascomycota). The approximately 54 species are included in the genus and are usually known as subtropical and tropical facultative parasites on herbaceous plants (Yanagihara et al. 2010).

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Commented [b2R1]: We have add the reference.

**6) Paper Accepted
5 Januari 2020**



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[biodiv] Editor Decision

Smujo Editors <smujo.id@gmail.com>

5 Januari 2020 17.59

Balas Ke: Smujo Editors <editors@smujo.id>

Kepada: AGUS TRIANTO <agustrianto.undip@gmail.com>, OCKY KARNA RADJASA <ocky_radjasa@yahoo.com>, MADA TRIANDALA SIBERO <author@smujo.id>, AGUS SABDONO <agus_sabdono@yahoo.com>, DWI HARYANTI <dwharyanti@gmail.com>

AGUS TRIANTO, OCKY KARNA RADJASA, MADA TRIANDALA SIBERO, AGUS SABDONO, DWI HARYANTI, WA ODE MARDHIYAH ZILULLAH, ANNISA RORO SYANINDYTA, MUHAMMAD SYAIFUDIEN BAHRY, PRASTYO ABI WIDIANANTO, MUHAMAD HELMI, HARYO DWITO ARMONO, SUPRIADI, YASUHIRO IGARASHI:

The editing of your submission, "The effect of culture media on the number and bioactivity of marine invertebrates associated fungi," is complete. We are now sending it to production.

Submission URL: <https://smujo.id/biodiv/authorDashboard/submission/5099>Smujo Editors
editors@smujo.id

[Kutipan teks disembunyikan]

7) Final Mail
5 Januari 2020



Agus Trianto <agustrianto.undip@gmail.com>

[biodiv] Editor Decision

Agus Trianto <agustrianto.undip@gmail.com>

5 Januari 2020 19.27

Kepada: Smujo Editors <editors@smujo.id>

Cc: OCKY KARNA RADJASA <ocky_radjasa@yahoo.com>, MADA TRIANDALA SIBERO <author@smujo.id>, AGUS SABDONO <agus_sabdono@yahoo.com>, DWI HARYANTI <dwharyanti@gmail.com>

Dear Editor,

Thanks for accepting our paper.

Best regards

Agus

[Kutipan teks disembunyikan]