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Judul Jurnal Ilmiah (Artikel) : Exploration of Symbiotic Microbe from Sea Cucumber Gut as an Anti-Multi-Drug Resistant Microbe Agent for Utilization in Hand Sanitizer Products

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- d. Penerbit : Bioflux SRL
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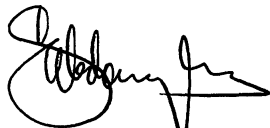
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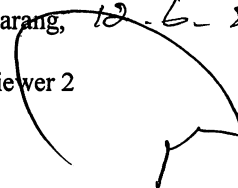
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NIP. 195806151985031001
Unit Kerja : FPIK UNDIP

Reviewer 2



Prof. Dr. Ir. Johannes Hutabarat, M.Sc
NIP. 195103231976031001
Unit Kerja : FPIK UNDIP

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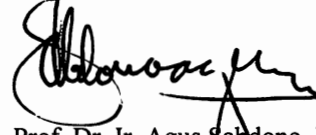
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Total = (100%)	40.00			Jumlah: 35,80
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Prof. Dr. Ir. Johannes Hutabarat, M.Sc
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Volume 12, Issue 3, June 2019, Pages 737-747

Explorations of symbiotic microbe from sea cucumber gut as an anti-multi-drug resistant microbe agent for utilization in hand sanitizer products (Article)

Pringgengies, D.^{a,b} , Yudiati, E.^{a,b} , Djunaedi, A.^{a,b} , Santosa, G.W.^{a,b} , Koesoemadji^{a,b}

^aDepartment of Marine Science, Faculty of Fisheries and Marine Science, Diponegoro University, Kota Semarang, Jawa Tengah, Indonesia

^bDiponegoro University, Faculty of Fisheries and Marine Science, Department of Marine Science, Tembalang, Jl. Prof. H. Soedarto, S.H. Street. No. 1, Kota Semarang, Jawa Tengah 50275, Indonesia

Abstract

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Sea cucumber is well known as medicinal food that has antimicrobial property. The purpose of the study was to determine the potency of symbiotic bacteria from the sea cucumber gut as an antibacterial against MDR pathogens, and its application as hand sanitizer products. In this study, two species of sea cucumber, namely *Holothuria atra* and *Holothuria leucospilota*, were examined. Through bacterial isolation, 42 bacteria were obtained from the sea cucumber's gut. The isolate were screened in order to get the ability against the anti-multi-drug resistant (MDR) i.e. MRSA and ESBL bacteria. Among all isolates, 11 candidates exhibited significant activity against MDR microbe from the Methicillin-Resistant *Staphylococcus aureus* (MRSA) while 15 isolates showed significant activity against Extended-Spectrum β Lactamase (ESBL) MDR microbe. The chosen isolate were identified biochemically and molecularly by DNA extraction, amplification, and sequencing. The antiseptic gel was prepared and then challenged by MRSA and ESBL bacteria at 100, 250, 500, and 1000 μg per disk. Five microbe samples (TB-7, TB-18, TB12, TH-20 and TH-15) showed synergic interaction to each other, which means it can be a bacterial consortium. Anti-microbial activity in ethyl acetate fraction against MRSA was found with 1.7 ± 0.60 mm and 2.8 ± 0.49 mm inhibitory zone diameter at concentration of 500 μg per disk and 1,000 μg g per disk, respectively. The study concluded that symbiotic bacteria found in the gut of sea cucumbers were from genus *Bacillus*. These bacteria produce anti-microbial substances against MDR strain microbes potentially as hand sanitizer products. © 2019, BIOFLUX SRL. All rights reserved.

Author keywords

[Anti-microbial](#) [ESBL](#) [Holothuria atra](#) [Holothuria leucospilota](#) [MRSA](#)

ISSN: 18448143

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Original language: English

Document Type: Article

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