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## [STI] Submission Acknowledgement

1 pesan

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**Prof. Aldes Lesbani, Ph.D** <scitechindones@gmail.com>  
Kepada: "Dr.Rozirwan, S.Pi., M.Sc." <rozirwan@unsri.ac.id>

26 Juni 2023 pukul 15.43

Dear Dr.Rozirwan, S.Pi., M.Sc.:

Thank you for submitting your manuscript entitled "An Assessment of Heavy Metal Pollution in Waters, Sediments, and Mud Crabs (*Scylla Serrata*) from Mangrove Ecosystem Near Tanjung Api-Api Port Area, South Sumatra, Indonesia" to Science and Technology Indonesia. Now, your manuscript will be considered by the editor and section editor before further peer-review process. 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 website:

Submission URL: <https://scitechindonesia.com/index.php/jsti/authorDashboard/submission/828>

Username: rozirwan

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

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## [STI] Editor Decision

1 pesan

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Prof. Aldes Lesbani <scitechindones@gmail.com>

31 Juli 2023 pukul 12.12

Kepada: "Dr.Rozirwan, S.Pi., M.Sc." <rozirwan@unsri.ac.id>, Aning Puji Saputri <aningps13@gmail.com>, Redho Yoga Nugroho <redhoyn.29@gmail.com>, Nadila Nur Khotimah <nadilakhotimah1142@gmail.com>, Wike Ayu Eka Putri <wike\_ayu\_ep@unsri.ac.id>, Fauziyah <siti\_fauziyah@yahoo.com>, Anna Ida Sunaryo Purwiyanto <anna.ida3@gmail.com>

Dear Dr.Rozirwan, S.Pi., M.Sc., Aning Puji Saputri, Redho Yoga Nugroho, Nadila Nur Khotimah, Wike Ayu Eka Putri, Fauziyah, Anna Ida Sunaryo Purwiyanto:

Reviewers have now commented on your paper (attached below this email). You will see that they are advising that you must revise your manuscript. If you are prepared to undertake the work required, I would be pleased to reconsider my decision.

For your guidance, reviewers' comments can be read in your Author online interface. If you decide to revise the work, please submit a list of changes or a rebuttal against each point which is being raised when you submit the revised manuscript.

\*\*\*\*>>>Please be noted that you have up to **2 (two) weeks from now** to revise your manuscript, unless your manuscript will be considered as a new submitted manuscript. If you need additional time to complete your revision, please let us know by replying to this email and informing us of the date you expect to submit it. <<<<\*\*\*\*

To submit a revision, please upload your revised manuscript documents to SCIENCE AND TECHNOLOGY INDONESIA online submission interface at (<https://sciencetechindonesia.com>) after you log in as Author. Important: Please indicate the revision as RED-highlighting the revision sentences or words within your revised manuscript.

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The revised document files (three files) MUST include:

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For second and continuing order of revision of manuscript, please just add your latest version file(s), do not delete the previous round of file(s) of manuscript.

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The Graphical Abstracts should be submitted as a separate file during the revised manuscript submission system or otherwise, it can be submitted by email to: [sciencetechindonesia@gmail.com](mailto:sciencetechindonesia@gmail.com)

Thank you for submitting to this journal.

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### 2 lampiran

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14K

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**[STI] Editor Decision**

1 pesan

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**Prof. Aldes Lesbani** <scitechindones@gmail.com>

4 September 2023 pukul 13.28

Kepada: Rozirwan <rozirwan@unsri.ac.id>, Aning Puji Saputri <aningps13@gmail.com>, Redho Yoga Nugroho <redhoyn.29@gmail.com>, Nadila Nur Khotimah <nadilakhotimah1142@gmail.com>, Wike Ayu Eka Putri <wike\_ayu\_ep@unsri.ac.id>, Fauziah <siti\_fauziah@yahoo.com>, Anna Ida Sunaryo Purwiyanto <anna.ida3@gmail.com>

Dear Rozirwan, Aning Puji Saputri, Redho Yoga Nugroho, Nadila Nur Khotimah, Wike Ayu Eka Putri, Fauziah, Anna Ida Sunaryo Purwiyanto:

Your article "An Assessment of Pb and Cu in Waters, Sediments, and Mud Crabs (*Scylla serrata*) from Mangrove Ecosystem Near Tanjung Api-Api Port Area, South Sumatra, Indonesia," is has been pre-published in upcoming issue.

URL of the issue in progress is here: <https://scitechindonesia.com/index.php/jsti/>

Thank you for your great contribution.

Best regards

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**Homepage:** <http://scitechindonesia.com/index.php/jsti>

## Response to Reviewers

Reviewer #A	Response to Reviewer
<b>Title</b>	
“Heavy Metal Pollution” change to “Pb and Cu”	We have revised it
<b>Abstrack</b>	
Add “which is”	We have added it
“value” to “values”	We have fixed it
Which one that the high quality ? Please describe your base opinion?	MWI and MIT are the main indicators to assess the safety level of biota consumption. In this study, the MWI and MIT values were in the safe category or it meant that <i>S. serrata</i> still had high quality for human consumption.
<b>Introduction</b>	
Is it true base on the economic development? How much economic growth in this area per year within last 5 years? “ <i>rapid economic development</i> ”	Based on the direct and indirect impacts, that economic growth contributes to an increase in anthropogenic activity. From the growing anthropogenic activities, it causes the potential for waste to pollute the environment, especially urban rivers, in this case, namely the Musi River. The area was urban river in Palembang City which has 5-6% economic growth per year.
What subject of it? “ <i>they are</i> ”	We have corrected it becomes “it has”
<b>Experimental Section</b>	
Why it is not filtered to remove the organic matters prior adding the acid? “ <i>prevent changes in organic matter by bacterial activity and transferred in an ice box</i> ”	Procedurally, the water sample is filtered after the organic matter destruction process by adding acid. We explained that at the beginning of the paragraph sub-chapter 2.4.
“Is that 100% sure, the blade of blender didn’t containing any of Pb or Cu?”	Yes, the blade was made from a stainless-steel scalpel so it protected more from contamination
<b>Results and Discussion</b>	
Since this is environmental data, what is your percent confidence level in this data? “ <i>Table I</i> ”	confidence level 95%
What is your reason for comparing the pH parameters in the study area with the pH of fresh water?	The pH of the waters is affected by salinity. Sea water has a salinity of 30-35 ‰ which causes the pH to become more alkaline (> 7). Meanwhile, the pH of fresh waters tends to be more acidic

	(<7) causing the salinity level to decrease to even zero. This theory states that the pH of the estuarine waters in this study tends to approach the pH of fresh waters, this is due to the fluctuating dynamics of the estuary.
Please attach calibration data of those parameters, in separate files	Attached
Please explain how did you get this data while the sediment being analyzed is in wet condition, and again the confidence's of your data? " <i>Table 2</i> "	There were two ways to analyze the grain size of sediments, the dry method and the wet method. By estimating clay sediment samples, the wet method was more appropriate to use. The procedure would be sieved in stages until it reached the smallest sieve mesh size (2 mm to 0.0625 mm). The wet method served to maximize the sieving process because dry sediment was prone to flying in the air.
Please attach data validation from the method that has been used! " <i>detected (nd)</i> "	Attached
Please add the appropriate units " <i>Table 3</i> "	We have added the units
Please add the error bar in this graft " <i>Figure 4</i> "	We have edited the graph to adding the error bar
<b>Reviewer #B</b>	
Please add more literatures in introduction to see the novelty of your research in this article	We have added it
Please aslo compare the results of other places that also analyzed heavy metal content on <i>S.serrata</i> or other crab and their species	We have added it
Please use statistic analysis to see is there any different between each location for your results rergarding heavy metal content	We have added it



Rozirwan unsri <rozirwan@unsri.ac.id>

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## Request Revisions\_Round 2 (STI-828)

4 pesan

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**Aldes Lesbani** <sciencetechindonesia@gmail.com>

15 Agustus 2023 pukul 10.42

Kepada: rozirwan@unsri.ac.id

Dear Author,

We have checked your revised article and there are still parts that you need to revise. Please revise your article based on the comments below:

- i) Please check Figure 3, there are parts that are cut off, please revise and improve the image quality.
- ii) Please revise Figures 4, 5, and 6 based on the journal format (see the article template on the website). Outline on the figure is just 1, no need to double and no need for lines on the background of the graph.

Please submit your article before August 23, 2023. Thank you.

Sincerely Yours,

Editor-in-Chief

**Prof. Aldes Lesbani, Ph.D.**

Science & Technology Indonesia

<http://sciencetechindonesia.com>

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**Rozirwan unsri** <rozirwan@unsri.ac.id>

18 Agustus 2023 pukul 09.24

Kepada: Aldes Lesbani <sciencetechindonesia@gmail.com>

Dear Editor

Here, we would like to resubmit our revised article based on your comments above.

Thank you

Warm regards

[Kutipan teks disembunyikan]

--

**Dr. Rozirwan**

Head of Marine Bioecology Laboratory

Department of Marine Science

Faculty of Mathematics and Natural Sciences

Sriwijaya University

Jalan Raya Palembang-Prabumulih KM 32, Indralaya  
Ogan Ilir, Sumatera Selatan, Indonesia, Pos Code: 30862  
Email: [rozirwan@unsri.ac.id](mailto:rozirwan@unsri.ac.id), [rozirwan@gmail.com](mailto:rozirwan@gmail.com)

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3316K

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**Aldes Lesbani** <[sciencetechindonesia@gmail.com](mailto:sciencetechindonesia@gmail.com)>  
Kepada: Rozirwan unsri <[rozirwan@unsri.ac.id](mailto:rozirwan@unsri.ac.id)>

21 Agustus 2023 pukul 13.26

Dear Author,

we have checked your article, but there is still something to be revised in the image section which we attach to the following word file.

Please submit your article before August 24, 2023. Thank you.

Sincerely Yours,

Editor-in-Chief  
**Prof. Aldes Lesbani, Ph.D.**  
Science & Technology Indonesia  
<http://sciencetechindonesia.com>

[Kutipan teks disembunyikan]

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 **Figure Revision STI-828.docx**  
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**Rozirwan unsri** <[rozirwan@unsri.ac.id](mailto:rozirwan@unsri.ac.id)>  
Kepada: Aldes Lesbani <[sciencetechindonesia@gmail.com](mailto:sciencetechindonesia@gmail.com)>

21 Agustus 2023 pukul 15.17

Dear Editor

Here, we would like to resubmit our revised article based on your comments in the image sections.

Thank you  
Kind regards

[Kutipan teks disembunyikan]



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## [STI] Editor Decision

1 pesan

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**Prof. Aldes Lesbani** <scitechindones@gmail.com>

22 Agustus 2023 pukul 11.17

Kepada: "Dr.Rozirwan, S.Pi., M.Sc." <rozirwan@unsri.ac.id>, Aning Puji Saputri <aningps13@gmail.com>, Redho Yoga Nugroho <redhoyn.29@gmail.com>, Nadila Nur Khotimah <nadilakhotimah1142@gmail.com>, Wike Ayu Eka Putri <wike\_ayu\_ep@unsri.ac.id>, Fauziyah <siti\_fauziyah@yahoo.com>, Anna Ida Sunaryo Purwiyanto <anna.ida3@gmail.com>

Dear Dr.Rozirwan, S.Pi., M.Sc., Aning Puji Saputri, Redho Yoga Nugroho, Nadila Nur Khotimah, Wike Ayu Eka Putri, Fauziyah, Anna Ida Sunaryo Purwiyanto:

We have reached a decision regarding your submission to Science and Technology Indonesia, "An Assessment of Heavy Metal Pollution in Waters, Sediments, and Mud Crabs (*Scylla Serrata*) from Mangrove Ecosystem Near Tanjung Api-Api Port Area, South Sumatra, Indonesia".

Our decision is to accept your submitted manuscript for publication in

Thank you for publishing with us and please do not hesitate to contact us if you have any inquiry.

### Science and Technology Indonesia

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**Proofread and Invoice Article (STI-828)**

3 pesan

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**Aldes Lesbani** <sciencetechindonesia@gmail.com>  
Kepada: Rozirwan unsri <rozirwan@unsri.ac.id>

3 September 2023 pukul 22.52

Dear Author,

I am sending the proof of the manuscript for your approval and final check before publishing it in Science and Technology Indonesia. If anything needs to be changed, please inform us as soon as possible.

To cover processing costs and provide open access for articles that have been accepted, the Journal now charges a publication fee of 3,700,000 IDR. This publication fee should be transferred to the bank account shown below, and details of the transfer either e-mailed to <[admin@sciencetechindonesia.com](mailto:admin@sciencetechindonesia.com)> and <[sciencetechindonesia@gmail.com](mailto:sciencetechindonesia@gmail.com)>.

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Sincerely Yours,

Editor-in-Chief

**Prof. Aldes Lesbani, Ph.D.**

Science &amp; Technology Indonesia

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**2 lampiran** **STI-INVOICE ARTICLE (828).pdf**  
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**Rozirwan unsri** <rozirwan@unsri.ac.id>  
Kepada: Aldes Lesbani <sciencetechindonesia@gmail.com>

4 September 2023 pukul 06.02

Dear Editor,

We have checked the manuscript and we would like to attach the invoice of the publication fee 3,700,000 IDR

Thank you

Regards

[Kutipan teks disembunyikan]

--

**Dr. Rozirwan**

Head of Marine Bioecology Laboratory

Department of Marine Science

Faculty of Mathematics and Natural Sciences

Sriwijaya University

Jalan Raya Palembang-Prabumulih KM 32, Indralaya

Ogan Ilir, Sumatera Selatan, Indonesia, Pos Code: 30862

Email: [rozirwan@unsri.ac.id](mailto:rozirwan@unsri.ac.id), [rozirwan@gmail.com](mailto:rozirwan@gmail.com)



**Invoice\_STI.jpg**  
92K

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**Aldes Lesbani** <sciencetechindonesia@gmail.com>  
Kepada: Rozirwan unsri <rozirwan@unsri.ac.id>

4 September 2023 pukul 13.31

Dear Author,

We have received your publication fee, please find the attached file. Your article has been included in the Upcoming Issue section. Thank you for your cooperation.

Sincerely Yours,



## ARTICLE INVOICE

Invoice Date: 03/09/2023

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Reference Number: STI-828-Manuscript

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1	Article Fee: An Assessment of Pb and Cu in Waters, Sediments, and Mud Crabs ( <i>Scylla serrata</i> ) from Mangrove Ecosystem Near Tanjung Api-Api Port Area, South Sumatra, Indonesia	1	Rp. 3,700,000	Rp. 3,700,000
2	Discount (as Reviewer)	1	Rp. 0	Rp. 0
3	Discount (as Editor)	1	Rp. 0	Rp. 0
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Nama Pengirim ROZIRWAN

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Berita Publication Fee Rozirwan  
et al 4 September 2023

Nominal Rp3.700.000

Biaya Admin Rp2.500

**Total Rp3.702.500**

## An Assessment of Pb and Cu in Waters, Sediments, and Mud Crabs (*Scylla serrata*) from Mangrove Ecosystem Near Tanjung Api-Api Port Area, South Sumatra, Indonesia

Rozirwan<sup>1\*</sup>, Aning Puji Saputri<sup>1</sup>, Redho Yoga Nugroho<sup>2</sup>, Nadila Nur Khotimah<sup>2</sup>, Wike Ayu Eka Putri<sup>1</sup>, Fauziyah<sup>1</sup> Anna Ida Sunaryo Purwiyanto<sup>1</sup>

<sup>1</sup>Department of Marine Science, Sriwijaya University, Indralaya, 30862, Indonesia

<sup>2</sup>Environmental Management Study Program, Sriwijaya University, Palembang, 30139, Indonesia

\*Corresponding author: rozirwan@unsri.ac.id

### Abstract

Heavy metal pollution from anthropogenic activities can harm aquatic ecosystems. This study aims to determine the concentration of heavy metals (Pb and Cu) in waters, sediments, and mud crabs (*Scylla serrata*), and to analyze the relationship between environmental parameters and *S. serrata* which is consumed by humans. Samples were taken in the mangrove ecosystem around the Tanjung Api-Api port area in South Sumatra, Indonesia. Pb and Cu analysis used the Atomic Absorption Spectrophotometer (AAS). Pb and Cu linkages in waters, sediments, and *S. serrata* analyzed by SigmaPlot V12.5 and Principal Component Analysis (PCA) analyzed by XLSTAT 2022. The limit consumption of *S. serrata* was calculated using MWI (Maximum Weekly Intake) and MIT (Maximum Intake Tolerance). Based on the results, the heavy metal Pb in water was 0.1055 – 0.1322 mg.L<sup>-1</sup>, and Cu was not detected. Furthermore, Pb in sediments ranged from 7.0104 – 11.8186 mg.kg<sup>-1</sup>, Cu 3.7127 – 4.5347 mg.kg<sup>-1</sup>, and Pb in *S. serrata* ranged from 0.0001 – 0.0021 mg.kg<sup>-1</sup>, and Cu ranged from 0.03 – 0.0791 mg.kg<sup>-1</sup>. The concentration of heavy metals in water, sediment, and *S. serrata* had not exceeded the specified quality standard, except for Pb in water. The principal component analysis obtained F1 (44.35%), F2 (27.53%) and F3 (17.83%) groups. Based on MWI and MIT values that *S. serrata* was still safe for human consumption.

### Keywords

Anthropogenic Activities, Heavy Metals, Mud Crab, Sediment

Received: 26 May 2023, Accepted: 22 August 2023

<https://doi.org/10.26554/sti.2023.8.4.675-683>

## 1. INTRODUCTION

The rapid economic development in coastal areas, such as industrial activities, household waste, agriculture, and port activities, produces substantial quantities of pollutants discharged into coastal waters (Apri et al., 2021; Rizk et al., 2022). The waste generated from these activities can cause a decrease in water quality, impacting aquatic ecosystems (Rozirwan et al., 2022). One of the causes of the decline in water quality is heavy metal pollution because it has toxic, persistent, and bioaccumulate characteristics in nature, which can have detrimental effects on global ecosystems and human health (Briffa et al., 2020; Rizk et al., 2022). Heavy metals belong to the group of pollutants because they are difficult to decompose (non-degradable) and are easy to accumulate with a weight of 5 g.cm<sup>-3</sup> (Shrestha et al., 2021).

In general, heavy metals for the growth and development of organisms are divided into two categories: essential and non-essential heavy metals. Many essential heavy metals such as Cu, Fe, Mn, Co, Zn, and Ni are essential for maintaining the human

body metabolism as long as they are not used excessively. Non-essential heavy metals such as Cd, Pb, Hg, Cu, and Al are not even needed in small amounts for every metabolic process and can cause poisoning (toxicity) (Bharti and Sharma, 2022). These metals pollute the waters and accumulate in sediments and organisms (Rizk et al., 2022). The high level of heavy metals in the waters negatively influences the biochemical and morphological traits of microbes, organisms, and the human body, causing many serious diseases such as cancer, paralysis, and carcinogens. Human well-being can be threatened due to heavy metals, which are considered the main components of pollutants in environmental waters (Briffa et al., 2020).

Organisms from the crustacean class can be used as bioindicators of heavy metal contamination in waters and sediments because of their ability to accumulate heavy metals. *S. serrata* lives in muddy substrates, so it has the potential as a bioindicator of heavy metal pollution (Soegianto et al., 2022). *S. serrata* is one of the highest export commodities in Indonesia and is among the most prominent fishery products in Banyuasin