

Korespondensi Penulis dengan Jordan Journal of Pharmaceutical Sciences

Article History

Submission	: 25 Juni 2019
Hasil Review-1	: 16 Januari 2020
Pengiriman Revisi-1	: 21 Januari 2020
Hasil Review-2	: 01 Juli 2020
Pengiriman Revisi-2	: 02 Juli 2020
Accepted	: 14 Januari 2021
Galley Proof	: 11 Februari 2021
Published	: Maret 2021



hendrik setia budi <hendrik-s-b@fkg.unair.ac.id>

[JJPS] Submission Acknowledgement

1 message

Ms. <jjps@ju.edu.jo>
To: hendrik-s-b@fkg.unair.ac.id

Tue, Jun 25, 2019 at 9:59 AM

Dr hendrik setia budi:

Thank you for submitting the manuscript, "The bleeding and clotting time analysis of ambonese banana stem extract (*Musa paradisiaca* var. *sapientum*) on hemostatic response" to Jordan Journal of Pharmaceutical Sciences. 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:

Manuscript URL: <https://journals.ju.edu.jo/JJPS/author/submission/104757>
Username: hsetiabudi

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

Ms.
Jordan Journal of Pharmaceutical Sciences

Jordan Journal of Pharmaceutical Sciences
<http://journals.ju.edu.jo/JJPS>

[JJPS] Editor Decision

2 messages

Mrs. <jjps@ju.edu.jo>
Reply-To: "Prof. Ibrahim Alabbadi" <jjps@ju.edu.jo>
To: hendrik-s-b@fkg.unair.ac.id

Thu, Jan 16, 2020 at 2:26 PM

Dr hendrik setia budi:

We have reached a decision regarding your submission to Jordan Journal of Pharmaceutical Sciences, "The bleeding and clotting time analysis of ambonese banana stem extract (*Musa paradisiaca* var. *sapientum*) on hemostatic response".

Our decision is: Revisions Required

Prof. Ibrahim Alabbadi
jjps@ju.edu.jo

Reviewer A:

Does the title agree with the contents?:
Is the abstract written in a proper way to reflect the results obtained?:
Are the methods used suitable for this research?:
Are the obtained results well presented?:
Do you think that the discussions agree with the results obtained?:
Do you think the conclusions agree with the results obtained?:
Do the illustrations and tables agree with the nature of this research?:
Are the references adequate?:
Is the article original?:
Do you have any suggestions that might enhance the quality of the article?:
Additional Comments:
Referee Opinion::

Reviewer B:

Does the title agree with the contents?:
yes

Is the abstract written in a proper way to reflect the results obtained?:
no. Not only the abstract, but the whole manuscript contains scientific inaccuracies (see comments and track changes in the uploaded document. The whole manuscript needs extensive revision by a native English speaker

Are the methods used suitable for this research?:
Two extremely primitive tests were used to detect hemostatic activity of the plant, which cannot draw the conclusions regarding the mechanism of such effect.

Are the obtained results well presented?:
No, The extensive language revision is needed as noted above

Do you think that the discussions agree with the results obtained?:
yes

Do you think the conclusions agree with the results obtained?:
yes

Do the illustrations and tables agree with the nature of this research?:
there is a mistake in the figure

Are the references adequate?:
yes

Is the article original?:
yes

Do you have any suggestions that might enhance the quality of the article?:
revise the manuscript extensively not for the English language but also for scientific correctness as shown in the comments

Additional Comments:
I advice to extend work using addition experimental tests investigating hemostasis, on additional animal species

Referee Opinion::
Not accepted for publication

Reviewer C:

Does the title agree with the contents?:
Yes

Is the abstract written in a proper way to reflect the results obtained?:
Needs modification

Are the methods used suitable for this research?:
Yes

Are the obtained results well presented?:
Yes

Do you think that the discussions agree with the results obtained?:
Yes

Do you think the conclusions agree with the results obtained?:
Yes

Do the illustrations and tables agree with the nature of this research?:
Yes

Are the references adequate?:
Yes

Is the article original?:
Yes

Do you have any suggestions that might enhance the quality of the article?:
Please more results to enrich results section

Additional Comments:
My comments are enclosed in the attached file

Referee Opinion::
Accept with major alterations

Jordan Journal of Pharmaceutical Sciences
<https://journals.ju.edu.jo/JJPS>

hendrik setia budi <hendrik-s-b@fkg.unair.ac.id>
To: "Prof. Ibrahim Alabbadi" <jjps@ju.edu.jo>

Thu, Jun 25, 2020 at 8:04 PM

Dear Editor

I am sorry to ask you about status of my manuscript. It is a long time to wait after my revision in januari 2020.
May I know the update of my manuscript?
Thanks in advance

Best Regards

Hendrik Setia Budi
Oral Biology/ Dental Pharmacology
Faculty of Dental Medicine Universitas Airlangga

Scopus ID: 57193403918
<http://orcid.org/0000-0002-5518-337>

[Quoted text hidden]

Reply to the reviewers' comments

Reviewer Number	Original comments of the reviewer	Reply by the author(s)	Changes done on page number and line number
1.	Explain what this design means	We thank to the reviewer for the suggestion and let me to explain it. It mean that the animals study population were randomly assigned, and get the datas for post treatment only. All the datas from experiment groups were compare with control.	Page 4
2	Please explain more about characteristics of the mice use (type, breed, sex, nutrition, age)?	We thank to the reviewer for the suggestion and let me to revise it. We used the mice of <i>Mus musculus</i> , male, 20-30 gram of body weight. Mice are generally feed containing low fiber (5%), protein (20%) and fat (5-10%) in pellet.	Page 4
3	After it was confirmed that the mice were anesthetized (how?)	We thank to the reviewer for the suggestion, and let me to revise it. Mice are put in a transparent box for easy viewing, which contains cotton with ether, and within a few seconds the activity of the mice begins to decline and then falls asleep	Page 4
4	Which kind of tube was used to collect blood?	We thank to the reviewer for the suggestion and let me to revise it in the text. The blood was taken using a tuberculin syringe directly	Page 5

		from the heart. The stopwatch was started to run along with the entry of blood on the syringe. The blood that had been taken was then inserted into capillary tube to measure the clotting time	
--	--	---	--



hendrik setia budi <hendrik-s-b@fkg.unair.ac.id>

[JJPS] Editor Decision

1 message

Mrs. <jjps@ju.edu.jo>

Thu, Jul 2, 2020 at 12:34 AM

Reply-To: "Prof. Ibrahim Alabbadi" <jjps@ju.edu.jo>

To: hendrik-s-b@fkg.unair.ac.id

Dr hendrik setia budi:

We have reached a decision regarding your submission to Jordan Journal of Pharmaceutical Sciences, "The bleeding and clotting time analysis of ambonese banana stem extract (*Musa paradisiaca* var. *sapientum*) on hemostatic response".

Our decision is: Revisions Required

Prof. Ibrahim Alabbadi

jjps@ju.edu.jo

Reviewer C:

The authors addressed my comments.

However, they need to add their response (in the reply box) into the text of the manuscript by adding more details to the methods sections as addressed in the comments.

Jordan Journal of Pharmaceutical Sciences

<https://journals.ju.edu.jo/JJPS>

Reply to the reviewers' comments

Reviewer Number	Original comments of the reviewer	Reply by the author(s)	Changes done on page number and line number
1.	The bleeding and clotting time analysis of the stem extract of <i>Musa paradisiaca</i> var. <i>sapientum</i> (L.) Kunze on hemostatic response	We thank to the reviewer for the suggestion and we have revised it in the manuscript	Page 1
2	which may	We thank to the reviewer for the suggestion and we have revised it in the manuscript	Page 2
3	and infections	We thank to the reviewer for the suggestion and we have revised it in the manuscript	Page 2
4	You should change and add: *Plant material and methods Collected from (exactly the place), when it was collected? Identified by..... and the address ** Preparation of the sample	We thank to the reviewer for the suggestion and we have revised it in the manuscript	Page 3



hendrik setia budi <hendrik-s-b@fkg.unair.ac.id>

[JJPS] Editor Decision

1 message

Mrs. <jjps@ju.edu.jo>
PMReply-To: "Prof. Ibrahim Alabbadi" <jjps@ju.edu.jo>
To: hendrik-s-b@fkg.unair.ac.id

Thu, Jan 14, 2021 at 5:13

Dr hendrik setia budi:

We have reached a decision regarding your submission to Jordan Journal of Pharmaceutical Sciences, "The bleeding and clotting time analysis of ambonese banana stem extract (*Musa paradisiaca* var. *sapientum*) on hemostatic response".

Our decision is to: Accept Submission for Publication in JJPS

Prof. Ibrahim Alabbadi
jjps@ju.edu.jo

Jordan Journal of Pharmaceutical Sciences
<https://journals.ju.edu.jo/JJPS>

[JJPS] The bleeding and clotting time analysis of ambonese banana stem extract (*Musa paradisiaca* var. *sapientum*) on hemostatic response

Jordan Journal Pharmaceutical Sciences <jjps@ju.edu.jo>

Thu, Feb 11, 2021 at 5:34 PM

To: hendrik setia budi <hendrik-s-b@fkg.unair.ac.id>, Wisnu Setyari Juliastuti <wisnu-s-j@fkg.unair.ac.id>, Yuniar Putri Sulistyowati <yuniar-p-s-09@fkg.unair.ac.id>

Dear authors

In order to complete the proofreading process of your accepted article in

the coming issue of JJPS, would you please provide the journal with

following:

-Arabic : Title,Abstract, Keywords

-Add 2-3 references for articles published in JJPS before to your reference

list.

Best Regards

Prof. Ibrahim Alabbadi

Editor in chief

Jordan Journal of Pharmaceuticals Sciences (JJPS) SCOPUS Q3

An International Refereed Research Journal,

Published by the Deanship of Academic Research,

University of Jordan

Amman 11942– Jordan

website: <http://dar.ju.edu.jo/jjps/index.html>

Tel.: (962-6) 5355000, Ext. : 25116, Fax: (962-6) 5300815

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1-104757-Hendrik Setia Budi.docx

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Scientific Research Support Fund



The Hashemite Kingdom
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مجلة علمية عالمية متخصصة تصدر بدعم من صندوق دعم البحث العلمي والابتكار

Jordan Journal of PHARMACEUTICAL Sciences

Specialized International Referred Journal
Issued by the Scientific Research Support Fund



مجلد (14) العدد (1)، آذار 2021
Volume 14, No.1, March 2021

Established 2007

ISSN: 1995-7157

EISSN: 2707-6253

Publisher

The University of Jordan
Deanship of Scientific Research
Amman 11942 Jordan
Fax: +962-6-5300815

National Deposit (23.3/2008/D)

(Journal's National Deposit Number at the Jordanian National Library)

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Jordan Journal of Pharmaceutical Sciences

Volume 14, Number (1), March 2021

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**A RESEARCH INTERNATIONAL SPECIALIZED REFEREED JOURNAL
ISSUED BY: SCIENTIFIC RESEARCH SUPPORT FUND AND THE UNIVERSITY OF JORDAN**

INSTRUCTIONS TO AUTHORS

Scopes:

Jordan Journal of Pharmaceutical Sciences (JJPS) is a scientific peer-reviewed publication that focuses on current topics of interest in pharmaceutical sciences.

Preparation and Submission of Manuscripts

JJPS is a peer-reviewed Journal. It has been approved by the Higher Scientific Research Committee in the Ministry of Higher Education and Scientific Research. *JJPS* is a tri-annual publication, funded by Scientific Research Support Fund published by the Deanship of Academic Research and Quality Assurance - The University of Jordan. *JJPS* will be a continuation of Dirasat.

Type of Manuscripts

JJPS publishes research articles, research reports, technical notes, scientific commentaries, news, and views.

Review Articles are only submitted to JJPS upon a request from the Editorial Board.

Scientific notes can also be submitted to JJPS according to following criteria:

1. Maximum of 1500 words.
2. Tables, figures: maximum of two.
3. References: maximum of 15 references

Manuscript Preparation

The research paper should be typed on the computer; double spaced between lines, and shouldn't exceed 20 pages (5000 words, font size 13). Spelling, punctuation, sentence structure, spacing, length, and consistency in form and descriptions should be checked before submission. References should also be checked for accuracy. Ensure that all figures and tables are mentioned in the text, and that all references are cited in the text.

Title Page

The title should appear on a separate page and should be followed by the author(s) name(s) and the institution name and address. The title, author(s) name(s), and affiliations should all appear on their own respective line of text. Place an asterisk after the name of the author to whom enquiries regarding the paper should be directed and include that author's telephone and fax numbers and e-mail address. Author(s) affiliation(s) must be mentioned for each one in order.

Abstract

Authors should submit with their research two abstracts, one in English and it should be typed at the beginning of the paper followed by the keywords before the introduction.

The abstract, detailing in one paragraph the problem, experimental approach, major findings, and conclusions, should appear on the second page. It should be double spaced and should not exceed 200 words for **Full Papers and Reviews or 100 words for Notes and Rapid Communications**.

Compounds mentioned in the abstract, given as specific Arabic numbers in the text, should also be accompanied in the abstract by that same numeral. The abstract should appear on a separate page and should be untitled.

The other abstract in Arabic (Required only for Arab native speakers) should be typed at the end of the paper on a separate sheet, including author(s) name(s) and affiliation(s).

Keywords

Should be included at the end of the abstract page, not exceeding 7 words both in Arabic and in English.

Introduction

The manuscript should include an untitled introduction stating the purpose of the investigation and relating the manuscript to similar researches.

Results and Discussion

The results should be presented concisely. Tables and figures should be designed to maximize the presentation and comprehension of the experimental data. The discussion should interpret the results and relate them to existing knowledge in the field in a clear and brief fashion as possible. Authors submitting a manuscript as a Note should omit the heading Results and Discussion. For Full Papers of unusual length, subheadings may be included within the Results and Discussion section.

Bolded structural code numbers should only be used for new compounds and for those known compounds for which new biological data or spectroscopic values are being reported. Other known compounds should be referred to in the text by name, wherever necessary.

Experimental Section

The presentation of specific details about instruments used, sources of specialized chemicals and related experimental details should be incorporated into the text of the Experimental Section as a paragraph headed General Experimental.

Acknowledgments

The Acknowledgments section should include credits [initial(s) and last name(s)] for technical assistance, financial support, and other appropriate recognition.

References and Notes

References to the literature and all notes, regardless of their nature, should be numbered in order of appearance in the manuscript, and then cited under the heading References and Notes with superscript numbers. Each reference may have its own citation number, then should be assigned its own number in this section. References and notes should follow the format shown:

Journal

Taha M., Al-Bakri A. and Zalloum W. Discovery of potent inhibitors of pseudomonal quorum sensing via pharmacophore modeling and silico screening. *Bioorg. Med. Chem. Lett.* 2006; 16:5902-5906.

Book

Ancel H. C., Allen L. V. and Popovich N. G. *Pharmaceutical Dosage Forms and Drug Delivery Systems*; Lippicott Williams & Wilkins: New York. 1999, p 45.

Chapter in a Book

Aburjai T., Natsheh F. and Qasem A.: *In: Contemporary Perspective on Clinical Pharmaceutics*. Kohli K. (Ed.); Elsevier New York, 2006; 1st edition, Chapter 57, pp 623-633.

Chemical or Biological Abstract

Al-Hiari Y., Qaisi A., El-Abadelah M. and Wolfgang V., *Monatshefte fuer Chemei.* 2006; 137(2) 243-248, *Chem. Abstr.* 2007; 145, 397308.

Ph.D. or M. Sc. Thesis

Alkhalil S. The Alkaloids of *Thalictrum isopyroides*. Ph.D. Thesis, Pittsburgh University, PA. 1986, p 115.

Patent

Davis R. U.S. Patent 5,708,591, 1998.

The author is responsible for the accuracy and completeness of all references.

All references must be numbered and written “superscript “without parentheses in the Manuscript (e.g....according to guidelines pertaining to these techniques^{5,6,7});but with parentheses around in the references list (e.g. (1) Alkhalil S. The Alkaloids of *Thalictrum isopyroides*. Ph.D. Thesis, Pittsburgh University, PA. 1986, p 115).

Nomenclature

It is the responsibility of the author(s) to provide correct nomenclature.

Insofar as possible, authors should use systematic names similar to those used by Chemical Abstracts Service.

Abbreviations

Standard abbreviations should be used throughout the manuscript. All nonstandard abbreviations should be kept to a minimum and must be defined in the text following their first use. The preferred forms of some of the more commonly used abbreviations are: mp, bp, °C, K, s, min, h, mL, . μ L, kg, g, mg, ng, μ g, cm, mm, nm, mnl, mmol, , μ mol, ppm, TLC, GC, HPLC, NMR, MS, UV, and IR.

Graphics

The quality of the illustrations printed depends on the quality of the originals provided. Figures cannot be modified or enhanced by the journal production staff. Whenever possible, the graphic files furnished by authors on CD with revised submissions of accepted manuscripts are used in production of the Journal.

A- Layout

In preparing structures for direct photoreproduction, layout is critical. Equations, schemes and blocks of structures are presented in the Journal either in one-column or two-column format.

B- Content

Abbreviations such as Me for CH₃, Et for C₂H₅ and Ph (but not Φ) for C₆H₅ are acceptable.

C- Dimensions

For best results, illustrations should be submitted in the actual size at which they should appear in the Journal. Only original work or high quality photographic prints of originals should be submitted; photocopies do not reproduce well.

Chemical Structures

Structures should be produced with the use of a drawing program such as Chem-Draw. Structure drawing preferences are as follows:

1- Drawing settings:

Chain angle 120°

Bond spacing 18% of width

Fixed length 14.4 pt (0.508 cm, 0.2 in.), Bold width 2.0 pt (0.071 cm, 0.0278 in.), Line width 0.6 pt (0.021 cm, 0.0084 in.), Margin width 1.6 pt (0.056 cm, 0.0222 in.), Hash spacing 2.5 pt (0.088 cm, 0.0347 in.)

2- Text settings:

Font: Arial/Helvetica

Size: 10 pt

3- Preference:

Units: points

Tolerance: 3 pixels

4- Page setup:

Paper: US Letter

Scale: 100%

Tables

These should be numbered consecutively with Arabic numerals and should be grouped at the end of the paper.

Footnotes in tables should be given lowercase letter designations and be cited in the table by italic superscript letter.

Figures

Figures should be constructed in keeping with the column width and line width. All illustrations should be numbered as "Figures", with Arabic numerals.

The Arabic numbers (not the roman ones or the alphabets) are used to number the Tables and Figures which are not abbreviated into Fig. or Tab.

Informed Consent

All manuscripts reporting the results of experimental investigation involving human subjects should include a statement confirming that an informed consent was obtained from each subject or subject's guardian, after the approval of the experimental protocol by a local human ethics committee or IRB.

Copyright Status Form

A properly completed Copyright Status Form with an original signature in ink must be provided for each submitted manuscript.

Manuscript Submission

Manuscripts (in English), together with a cover letter from the author responsible for all correspondence, should be submitted.. Authors should take care to provide a valid e-mail address when submitting manuscripts.

Manuscript submission via *e-mail*: (jjps@ju.edu.jo). However, manuscript can be submitted on line <http://journals.ju.edu.jo/JJPS/>

Galley Proofs

Page proofs will be sent to the author who submitted the paper. The standard delivery method for galley proofs is by mail.

Correspondence

Correspondence regarding accepted papers and proofs should be directed to Jordan Journal of Pharmaceutical Sciences.

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INTRODUCTION

The Jordan Journal of Pharmaceutical Sciences (JJPS) is a peer-reviewed Journal, which publishes original research work that contributes significantly to further the scientific knowledge in pharmaceutical sciences' fields including pharmaceutical/medicinal chemistry, drug design and microbiology, biotechnology and industrial pharmacy, instrumental analysis, phytochemistry, biopharmaceutics and Pharmacokinetics, clinical pharmacy and pharmaceutical care, pharmacogenomics, bioinformatics, and also JJPS is welcoming submissions in pharmaceutical business domain such as PharmacoEconomics, Pharmaceutical Marketing, and Management. Intellectual property rights for pharmaceuticals, regulations and legislations are also interesting topics welcomed from our colleagues in Schools of Law.

On a current topic in Pharmaceutical Sciences are also considered for publication by the Journal. JJPS is indexed in SCOPUS (Q3). The Editorial Team wishes to thank all colleagues who have submitted their work to JJP). If you have any comments or constructive criticism, please do not hesitate to contact us at jjps@ju.edu.jo. We hope that your comments will help us to constantly develop JJPS as it would be appealing to all our readers.

Prof Ibrahim Alabbadi
Editor-in-Chief
School of Pharmacy- The University of Jordan
Amman 11942- Jordan

Letter from the Editor-in-Chief

Another year went by. It was an extraordinary year that none of us will soon forget, not only because of hard health times, but also because of the bad economic crisis. However, after every dusk comes the light, hoping that 2021 would be the start of the dawn. Jordan Journal of pharmaceutical Sciences (JJPS) completed 2020 publishing 4 issues on regular times; one issue per quarter (achieving an extra issue than the years before), besides having 10 articles per issue (instead of 5) in order to decrease the waiting time for the accepted articles to be published; trying to serve as much researchers as we can.



One of the achievements is the diversity areas of submissions to JJPS, the latter makes JJPS distinguished with an added value of a different taste that hopefully matches the journal readers' desires in Jordan as well as in the region. Nowadays we have submissions not only in the pharmaceutical chemistry, pharmacognosy and pharmacology, but also in pharmacy practice, clinical pharmacy, pharmaceutical care and behavioral areas related to humans and patients such as psychological considerations during the COVID-19 pandemic. Furthermore, JJPS received submissions from all around the world; giving readers the opportunity to be exposed more to different scientific research patterns worldwide with an increase in number of submissions by 62% in 2020 compared to 2019. Moreover, citations increased in 2020.

The new members in the editorial board are distinguished professors representing almost all fields of pharmaceutical sciences from different backgrounds coming from diversified research schools from USA, Canada, Europe, Australia, and Jordan. Also, they came from different work environments: governmental and private higher education institutions. The latter started smart and hard work toward becoming one of your choices to submit your article in any of the pharmaceutical fields.

In the new issues of JJPS in 2021, we will see an editorial commentary written by one of our colleagues in JJPS expressing one of the interests and thoughts related to the status que in general from their point of view.

Finally, it is really a great honor to have a new advisory board consisting of well-known scientists from different regional and international countries representing almost all pharmaceutical fields; the JJPS family is sure that the respected scientists will have a positive impact and will add value particularly in the quality of manuscripts accepted for publication. Looking forward to more achievements in 2021.

Prof Ibrahim Alabbadi
Editor-in-Chief

Editorial Commentary

Dear Colleagues and Researchers,

As one of the Editorial Board members of the Jordan Journal of Pharmaceutical Sciences (JJPS), it is my pleasure to write for all my colleagues in the field of pharmaceutical analysis. Although JJPS is a peer-reviewed journal for original research articles, review articles, and short communications related to all aspects of pharmaceutical sciences, I am encouraging you to submit your most recent advances and research work in pharmaceutical and biomedical analysis fields, including drug analysis, analytical methodology, quality control, and instrumentation.

JJPS is indexed in Scopus (Elsevier), Ulrich's Periodicals Directory, Google Scholar, and EBSCO. Furthermore, JJPS has an open access policy, which enables your research to become available to all scientists in the field and thus, increases exposure and citation.

It has to be mentioned that the journal is overseen by an Editorial Advisory board, which consists of eminent and competent researchers in all fields of pharmaceutical sciences. In addition, the editorial board members have rich academic qualifications. Therefore, with the network of both boards, the widespread of the journal is distinguished.

At the end, I encourage all scientists involved in the pharmaceutical analysis field to submit their work, or their postgraduate students work and sense the professionalism that they will encounter from JJPS editorial staff and board. At JJPS, we believe in a quick scientific reviewing process since responding to authors promptly is ideal for pursuing widespread scientific knowledge.

Hoping for more collaborations between us in the future.

Professor Wael Abu Dayyih

Department of Pharmaceutical Medicinal Chemistry and Pharmacognosy
Faculty of Pharmacy and Medical Sciences
University of Petra
wabudayyih@uop.edu.jo

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The bleeding and clotting time analysis of the stem extract of *Musa paradisiaca* var. *sapientum* (L.) Kunze on hemostatic response

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ABSTRACT

A herbal medicine that can be used to accelerate bleeding is the Ambonese banana stem sap (*Musa paradisiaca* var. *Sapientum*) through secretion of Adenosin Diphosphate (ADP) and von Willebrand Factor (vWF) in the process of platelet adhesion on the injury vessels. The aim of this study to test the influence of Ambonese banana stem extract in a concentration of 25%, 50% and 100% against hemostatic response on mice. 24 animal study were randomly assigned into four groups. Group 1 was the control, group of 2 was given 25% extract concentration, group of 3 was given 50% extract concentration and group of 4 was given 100% extract concentration of Ambonese banana stem per-oral. Then all the groups were examined their bleeding and clotting time. The administration of Ambonese banana stem extract at the concentrations of 25%, 50 %, and 100% significantly shortened both bleeding time and clotting time compared to control group ($p = 0.00$). The group with 100% extract of the Ambonese banana stem having the shortest bleeding time and clotting time. The conclusions of this study showed Ambonese banana stem extract has potential as the hemostatic agent by shortening bleeding and clotting time on mice.

Keywords: Ambonese banana stem extract, bleeding time, clotting time, hemostatic.

1. INTRODUCTION

The surgical procedures come with a risk of complications which may include pain, nerve injury, swelling, excessive bleeding (hemorrhage), and infections. Severe intraoperative or postoperative hemorrhage is one of the few life-threatening complications for which a dentist may have to initiate management.^{1,2} The bleeding disorder, it doesn't clot fast enough. This results in too much bleeding or long-lasting bleeding, and become port de entry of infection.^{3,4}

Hemostasis is a complex process that leads to the formation of a blood clot at the site of vessel injury and three phases can be distinguished by vascular spasm,

formation of a platelet plug and coagulation. Primary hemostasis starts immediately after damage of the vessel wall with vasoconstriction as a result of local contraction of vascular smooth muscle cells.⁵ The von Willebrand factor (VWF) binds to the exposed subendothelial collagens. Platelets are tethered to the site of endothelial cell injury through the binding of VWF to the glycoprotein Ib receptor of the platelet.⁶

In major oral and maxillofacial surgical procedures, electrocautery and suture ligatures are most commonly used to control bleeding from small and major vessels. However, when the use of pressure is not effective, the use of electrosurgical instruments could endanger teeth or nerves, systemic and, or topical hemostatic agents may be needed.^{7,8} The study shown the effectiveness of Plasma Rich in Growth Factors (PRGF) in controlling bleeding after dental extractions in patients with haemophilia. In this fascinating study there were no risks related to the use

Received on 25/6/2019 and Accepted for Publication on 16/7/2020.

of blood derivatives, yet good haemostasis and healing of soft tissues were achieved. In other words, the post-extraction socket healed better and faster which can prevent further bleeding.⁹

Indonesia is a rich-tropical country in natural resources with the second highest biodiversity in the world after Brazil. Natural resources, such as plants and animals in Indonesia, are very varied, which can be used for improving natural products. The importance of biodiversity, e.g., in traditional medicine and agriculture, is deep-rooted in Indonesian society.¹⁰ A plant that can be efficacious as a drug and has long been used to accelerate wound healing and tooth pain relief by the people of the village of Trunyan, Bali is Ambonese banana stem extract.¹¹ In banana plants, there are significant compounds, such as saponins, flavonoids, anthraquinones, and tannins contained in both its fruit and sap, as well as lectin compounds found in banana stems. Lectin plays a role in stimulating mitotic cells which has an effect on accelerating wound healing and bleeding cessation.^{12,13} Meanwhile, tannins are astringent, stopping bleeding in the wound.¹⁴ This study aimed to prove Ambonese banana stem extract (*Musa paradisiaca* var. *Sapientum*) administration can accelerate wound healing through hemostatic response.

Materials and Methods

Plant material and methods

Collected from the Plant Conservation Center Botanical Gardens Purwodadi, Pasuruan, Indonesia, Ambonese banana tree will be able to be harvested at age 12-13 months, with the height is about 2.5-3 m, and the stem diameter is about 17.3-18.9 cm wide. Determination was carried out by the Indonesian Institute of Sciences (LIPI) Purwodadi, Pasuruan, Indonesia number 1036/IPH.UPT.03.4/HM/IX to prove that the type of banana tree used is a type of Ambonese banana.

Preparation of the sample

To get Ambonese banana stem's sap in large quantities, the stem need to be cut at the lower end part, then clean it to remove the impurities. After that, made it into small

pieces weighing 200 grams, add 200 ml of sterile distilled water and blend until smooth. The sap and water that have been mixed together are then filtered using a Buchner funnel connected with a vacuum pump (Gast, USA brand) with whatman filter paper number 1. The filtration results are dried using a freeze dryer so that it can be stored for a long time. The making of Ambonese banana stem extracts with concentration of 25%, 50% and 100% was carried out by dissolving dried preparations in sterile aquadest.

Experimental design

The ethical approval to conduct the study was taken from the Research Ethics Committee, Faculty of Dentistry, Universitas Airlangga. This research used a randomized post-test only control group design. We used 24 male mice divided into 4 groups. The first group was the control group with the administration of vehicle. The second group was given Ambonese banana stem extract at a concentration of 25%. The third group was given Ambonese banana stem extract at a concentration of 50%. The fourth group was given Ambonese banana stem extract at a concentration of 100%. Those extracts were given for 3 consecutive days. Bleeding and clotting time examinations then were conducted in each group.

Bleeding time experimental

The mice (*Mus musculus*), male, 20-30 gram of body weight were anesthetized with diethyl ether using inhalation method. Mice are put in a transparent box for easy viewing, which contains cotton with ether, and within a few seconds the activity of the mice begins to decline and then falls asleep. The mice's tail was cut 3 cm long from the tip of the tail, blood that came out after cutting was dropped on absorbed paper. The stopwatch was started to run along with the visible blood coming out of the mice that had been cut. Blood dripped on absorbent papers that should not touch the wound. The stopwatch was then stopped when blood did not drip anymore on the absorbent papers.¹⁵ Mice are generally feed containing low fiber (5%), protein (20%) and fat (5-10%) in pellet.

Clotting time experiment

Blood was taken from the heart of anesthetized mice by surgery using a scalpel, and then 1cc of blood was taken using a tuberculin syringe directly from the heart. The stopwatch was started to run along with the entry of blood on the syringe. The blood that had been taken was then inserted into capillary tube to measure the clotting time. Afterwards, the tubes were tilted slowly and re-stood up at 10-second intervals until the blood in the tubes did not flow again when they were tilted to a tilt angle of 90°. The stopwatch was stopped when the blood had not flowed even though the tubes were tilted at an angle of 90°. Surgical wounds then were stitched and oral antibiotics and analgesics were given.¹⁶

Statistical analysis

All the data were tabulated and assessed using the

Statistical Package for Social Sciences (SPSS) version 20.0. Comparison of various time among four study groups were done using ANOVA test and post hoc Tukey test. A p-value ≤ 0.05 was considered to be statistically significant.

Results

Phytochemical components

The Saponin, flavonoid, tannin, anthraquinone and lectin levels were analyzed using UV-Visible Spectrophotometer by comparing the absorbance values of standard compounds with the extract of Ambon banana stem sap. Detection of saponin compounds with a wavelength of 215 nm, flavonoids with wavelengths of 226 nm, tannins with wavelengths of 275 nm, anthraquinones with wavelengths of 285 nm and lectins with wavelengths of 228 nm (see table 1).

Table 1. The concentration of each component in Ambonese banana stem extract

<i>Components</i>	<i>Number of replicant</i>	<i>Concentration (mg/100mL)</i>
<i>Saponin</i>	3	1.30
<i>Flavonoid</i>	3	0.28
<i>Tannin</i>	3	1.50
<i>Antraquinone</i>	3	0.30
<i>Lectin</i>	3	0.11

Hemostatic properties of plant extract

Bleeding time is a clinical laboratory test performed to evaluate platelet function. It involves the creation of a standardized incision and timing the cessation of bleeding. At sites of vascular injury, platelets are recruited to exposed subendothelial extracellular matrix components via specific platelet receptors involved in adhesion and aggregation. The herbal medicines contain a lot of different compounds which some of them have great complexities. Plants substances such as polysaccharides, mucilages and tannins may modulate and modify the effects of "active components".

Results of the One-way ANOVA test showed that the administration of Ambonese banana stem extract at the concentrations of 25%, 50 %, and 100% significantly shortened both bleeding time and clotting time compared to control group ($p = 0.00$). Ambonese banana stem extract at the concentrations of 100% even had the shortest bleeding time compared to the other groups. In other words, the higher the concentration is, the shorter the bleeding time is. Similarly, in the clotting time examination, the group given Ambonese banana stem extract at the concentration of 100% had the shortest clotting time compared to the other groups (see table 2).

Table 2. Bleeding and clotting time test

Groups	$\bar{X} \pm SD$	
	Bleeding Time (second)	Clotting Time (second)
1	149.5 ^a ± 33.2	183.3 ^a ± 19.5
2	75.2 ^b ± 23.2	128 ^b ± 25.8
3	53.2 ^c ± 7.9	94.7 ^c ± 17.1
4	35 ^d ± 8.53	86.33 ^c ± 13.2

The values with different superscript letters in a column are significantly different (p<0.05).

Discussion

The results of this research showed that bleeding time and clotting time in Group 1 (control) had a significant difference when compared with Group 2 (given Ambonese banana stem extract at the concentration of 25%), Group 3 (given Ambonese banana stem extract at the concentration of 50%) and Group 4 (given Ambonese banana stem extract at the concentration of 100%). In other words, the

administration of Ambonese banana stem extract at the concentrations of 25%, 50%, and 100% can accelerate both bleeding time and clotting time in mice. Moreover, it is also known that Group 1 needed the longest bleeding time compared to the other groups (see figure 1). Ambonese banana stem extract actually contain various active compounds, namely lectins and tannins.^{17,18}

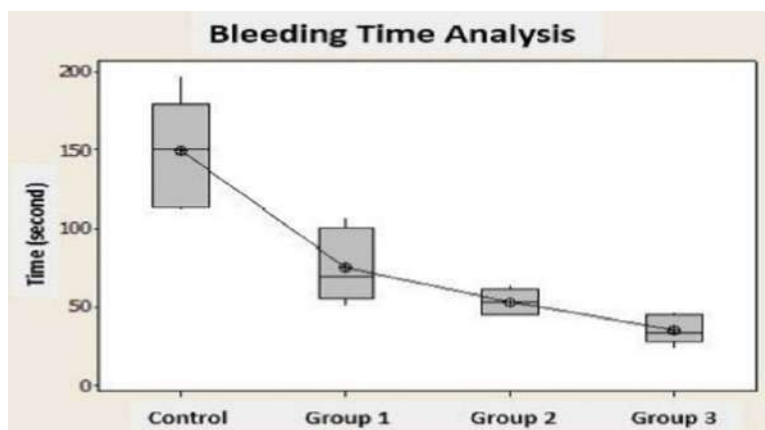


Figure 1. Examination of bleeding time by cutting the mice's tail.

C-type lectins are a subgroup of lectins, carbohydrate-recognizing proteins, which recognize and bind carbohydrates in a Ca²⁺ ion-dependent manner. They play a crucial role in hemostasis, a complex system to stop bleeding, which encompasses coagulation, platelet activation, and thrombus formation.¹⁹ The mechanism of lectin in accelerating the process of hemostasis is through some stages.²⁰ After an injury to a blood vessel, platelets

normally in a state of silence will turn into active and move towards an injured blood vessel to form a platelet plug at an initial phase. This phase is called platelet adhesion, which is the attachment of platelets to injured tissue.²¹⁻²³

Tannic acid is a commercial compound which is similar to the plant polyphenol tannin, that stops bleeding from mucous membrane via vasoconstriction.² Tanin is another active compound contained in Ambonese banana

stems playing a role in increasing ADP secretion in blood. ADP compound is a vasoactive chemical substance released by the body during vascular injury. ADPs and other chemicals, including serotonin, then trigger platelets to deform irregularly and become sticky with each other. Thus, one platelet and another will be easier to bind. An increase ADP levels in the blood then will result in high platelet aggregation so that platelet plugs as a mechanism for body hemostasis will soon be formed and will accelerate the bleeding time indicated in this research by the rapid cessation of blood coming out of the mice that were cut off.²⁴

Ambonese banana stem extract at the concentration of 100% is thought to have higher active compounds of tannin and lectin than concentrations of 25% and 50%. This high level of the active compounds, tannins and lectins, can increase platelet activity to adhesion and aggregate platelets when a vascular injury occurs. This is in accordance with the results of this research that showed

that the group of mice with Ambonese banana stem extract at the concentration of 100% had the shorten bleeding compared to the other groups.

In addition to accelerating the bleeding time, the administration of Ambonese banana stem extract at the concentrations of 25%, 50% and 100% can also accelerate the process of clotting time in mice (see figure 2). According to Ogle (2008), clotting time is an ability of blood to change from liquid to semi-solid. After the platelet plug is formed, the blood clotting cascade begins.⁷ This process runs through extrinsic and intrinsic blood clotting pathways involving 13 blood clotting factors. After the process, a prothrombin activator is formed which has a task of converting prothrombin to thrombin. Next, thrombin converts soluble fibrinogen into solid fibrin polymer threads. These fibrin threads will later become nets that will capture plasma, blood cells, and platelets to become a clot.^{9,25}

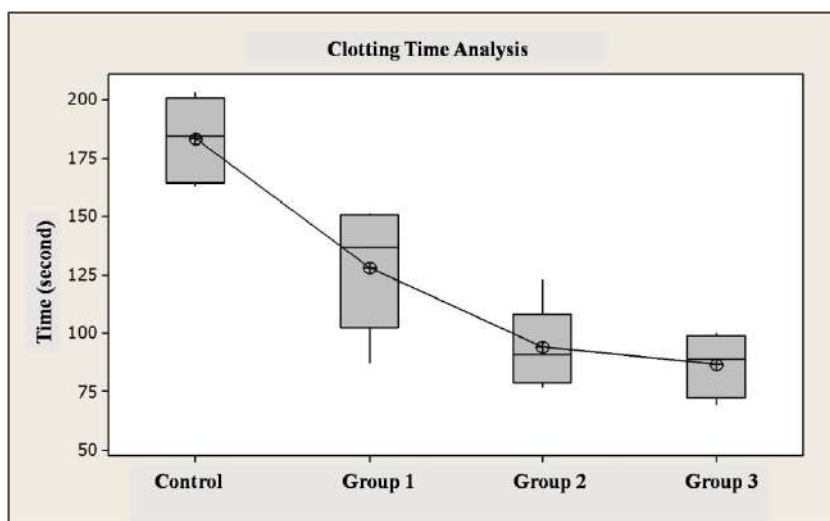


Figure 2. Examination of clotting time with modified Lee and White tube methods.

High platelet aggregation activities, furthermore, were found in the group with the administration of Ambonese banana stem extract since the effects of the active compounds, tannins and lectins, will be directly

proportional to the increased clotting time in mice. The solid fibrin threads formed then will attract more platelets carrying out more aggregation. As a result, the blood clotting process will occur faster. The results of this

research are the same as those reported by Bamidele, et al. (2010), examining the effects of methanol *ageratum conyzoides* leaf extract on hemostatic responses in mice. The research conducted by Bamidele, et al. (2010), finds that a decrease in bleeding time will compensate for a decrease in clotting time in mice.²⁶

Based on the previous hypothesis, the higher the concentration of Ambonese banana stem extract is, the higher the platelet aggregation activity occurs. If more platelets are attached to one another, then the fibrin threads that have formed in the initial phase of blood clotting will attract more thrombocytes, and blood clots will also occur faster. But, the decrease in clotting time in the group with Ambonese banana extract at the concentration of 100% was not significantly different from the group with Ambonese banana extract at the concentration of 50%. Even though at the concentration of 100% had the fastest clotting time compared to the other groups. However, based on the results of Duncan's distance test, Ambonese banana extract at the concentration of 50% did not differ significantly compared to that at the concentration of 100%.

This may occur due to the influence of blood clotting factors working on blood clotting cascade. Before the formation of fibrin threads which will later capture blood cells and plasma, blood clotting cascade occurs first, affected by various factors including 13 intrinsic and extrinsic blood clotting factors, such as fibrinogen, prothrombin, thromboplastin tissue, calcium, and vitamins K. In this study, unfortunately, there was no observation on the blood clotting factors. Hence, it is assumed that there was less significant difference between the group with the administration of Ambonese banana stem extract at the 100% and the group with that at the concentration of 50%. This finding may be influenced by the blood clotting factors.

Finally, based on the results, it can be said that the study hypothesis has been proven. The administration of Ambonese banana stem extract has an effect on accelerating the hemostasis response in mice characterized by an increase in both bleeding time and clotting time. The active compounds of tannins and lectins working synergistically in mice can lead to an effect on accelerating both bleeding time and clotting time.

Indonesia is a rich-tropical country which plants are used as an alternative medicines. However, deeper research needs to be done to prove the efficacy of drugs from plants in order to be used by the community. Although this research has proven the benefits of Ambonese banana stem sap as hemostatic, the platelet activity on the wound needs to be known to support this study.

The use of plant-derived medicines continues to be developed through biomolecular research so that they can be used as a standardized medicine. Ambonese banana stem has the potential to be developed into hemostatics through several studies that have been done before, and even has been patented for cancer therapy. Topical and hemostatic drugs are also capable for tooth extraction or scaling and root planning in gum disease that are needed for patients with blood disorders, such as hemophilia, which are still common in Indonesia, even in the world.

Conclusions

Ambonese banana stem extract (*Musa paradisiaca* var. *Sapientum*) have a potential as hemostatic agent by shortening bleeding and clotting time on mice.

Acknowledgements

The authors would like to acknowledge the contributions of Departement of Oral Biologi staff for supporting the data processing.

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تحليل زمن النزف والتخثر لمستخلص ساق *Musa paradisiaca var. sapientum* (L.) Kunze على الاستجابة المرفقة

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ملخص

أحد الأدوية العشبية التي يمكن استخدامها لتسريع النزيف هو عصارة جذع الموز الأمبونية (*Musa paradisiaca var. Sapientum*) من خلال إفراز **Adenosin Diphosphate (ADP)** وعامل **von Willebrand (vWF)** في عملية التصاق الصفائح الدموية على الأوعية المصابة. تهدف هذه الدراسة إلى اختبار تأثير مستخلص جذع الموز الأمبوني بتركيز 25% و 50% و 100% استجابة مرقى على الفئران. تم تقسيم 24 دراسة حيوانية بشكل عشوائي إلى أربع مجموعات. المجموعة الأولى كانت المجموعة الضابطة، المجموعة الثانية أعطيت 25% تركيز المستخلص، المجموعة الثالثة أعطيت تركيز المستخلص 50% والمجموعة الرابعة أعطيت تركيز 100% من مستخلص جذع الموز الأمبوني عن طريق الفم. تم فحص جميع المجموعات وقت النزيف والتجلط. أدى إعطاء مستخلص جذع الموز الأمبوني بتركيزات 25% و 50% و 100% إلى تقصير وقت النزف ووقت التخثر بشكل كبير مقارنة بمجموعة التحكم ($p = 0.00$). أظهرت استنتاجات هذه الدراسة أن مستخلص جذع الموز الأمبوني لديه القدرة على أن يكون عامل مرقى عن طريق تقصير وقت النزف والتخثر على الفئران.

الكلمات الدالة: مستخلص جذع الموز الأمبوني، زمن النزف، زمن التخثر، مرقى.

تاريخ استلام البحث 2019/6/25 وتاريخ قبوله للنشر 2020/7/16.