Riwayat Korespodensi dengan Rasayan Journal of Chemistry

Manuscript Submission Kotak Masuk x

tita juwitaningsih <juwitaningsih@gmail.com> 26 Okt 2019, 09.17
kepada rasayanjournal

Dear Prof. (Dr.) Sanjay K. Sharma
Editor-in-Chief, Rasayan Journal of Chemistry

On the behalf of this email, I would like to submit my manuscript entitle "PHYTOCHEMICAL, ANTIBACTERIAL, ANTIOXIDANT AND ANTICANCER ACTIVITY STUDY OF *M. CANDIDUM* LEAF ACETONE EXTRACT". In this research, we have identified the activity of *M. Candidum* acetone extract as an antibacterial, antioxidant, anticancer and phytochemical through several chemical evaluations.

Furthermore, please kindly find our draft of manuscript and cover letter attached below for more detailed information related to our manuscript.

I really hope that my manuscript could be considered for publication in Rasayan Journal of Chemistry. Finally, please feel free to contact me towards my manuscript progress. Thank you and I hope to hear from you soon.

Yours sincerely
Dr. Tita Juwitaningsih

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Cover Letter

Manuscript Title: PHYTOCHEMICAL, ANTIBACTERIAL, ANTIOXIDANT AND ANTICANCER ACTIVITY STUDY OF *M. CANDIDUM* LEAF ACETONE EXTRACT

Name of authors: Tita Juwitaningsih*, Iis Siti Jahro, Ida Dumaritis, Elvira Hermawati, Yaya Rukayadi

Name and work address of Corresponding Author: Tita Juwitaningsih, Department of Chemistry, Faculty of Mathematics and Natural Sciences, Universitas Negeri Medan, Jl. Willem Iskandar, Pasar V Medan Estate, Medan 20221, North Sumatera, Indonesia

Country: Indonesia

To: Editor-in-Chief of Rasayan Journal of Chemistry

I, as the main corresponding author of the mentioned manuscript, would like to submit an original article entitled PHYTOCHEMICAL, ANTIBACTERIAL, ANTIOXIDANT AND ANTICANCER ACTIVITY STUDY OF *M. CANDIDUM* LEAF ACETONE EXTRACT for consideration for publication in Rasayan Journal of Chemistry.

Also, by signing the below letter, I declare that:

1. The manuscript is original work of authors. All data, tables, figures, etc. used in the manuscript are prepared originally by authors, otherwise the sources are cited and reprint permission is attached.
2. The manuscript has not been and will not be published elsewhere or submitted elsewhere for publication.
3. Authors mention that there is no conflict of interest in this study.
4. The paper, the final version of which I enclose, is not substantially the same as any that I/we have already published elsewhere.
5. No more changes in the authors or main results are accepted from my side after submitting to the journal.

If you have any further question, feel free to contact me. Thank you for your attention.

Yours Sincerely,
Dr. Tita Juwitaningsih
Department of Chemistry, Faculty of Mathematics and Natural Sciences, Universitas Negeri Medan, Jl. Willem Iskandar, Pasar V Medan Estate, Medan 20221, North Sumatera, Indonesia
juwitaningsih@gmail.com

Draf. Manuscript

PHYTOCHEMICAL, ANTIBACTERIAL, ANTIOXIDANT AND ANTICANCER ACTIVITY STUDY OF *M. CANDIDUM* LEAF ACETONE EXTRACT

Tita Juwitaningsih[1*], Iis Siti Jahro[1], Ida Dumariris[1], Elvira Hermawati[2], Yaya Rukayadi[3]

[1]Department of Chemistry, Faculty of Mathematics and Natural Sciences, Universitas Negeri Medan, Jl. Willem Iskandar, Pasar V Medan Estate, Medan 20221, North Sumatera, Indonesia
[2]Organic Chemistry Division, Faculty of Mathematics and Natural Sciences, Institut Teknologi Bandung, Jalan Ganesha 10, Bandung 40132, Indonesia
[3]Lab. of Natural Products, Institute of Bioscience, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor Darul Ehsan, Malaysia

*Email: juwitaningsih@gmail.com
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Address for Postal Correspondence: Komp. Dosen Unimed No. 11, Lapt Ondong, Medan, Indonesia

ABSTRACT

M. Candidum has been frequently used as a traditional medicine to treat various diseases such as diarrhea, dysentery, haemorrhoids, cuts and wounds, toothache, and stomach ache. This research was aimed to identify the activity of *M. Candidum* acetone extract as an antibacterial, antioxidant, anticancer and phytochemical. Antibacterial activity test was performed in vitro against each of the two Gram-positive and Gram-negative bacteria by paper disc diffusion method followed by determination of the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) values. The antioxidant activity of extract was tested against 2,2-diphenyl1-picrylhydrazyl (DPPH), while the cytotoxic activity of the extract was evaluated against MCF-7 cells. Furthermore, identification of secondary metabolite content was determined by ^{1}H-NMR spectroscopy. Activity test results revealed that acetone extract of *M.Candidum* leaf was activity against four pathogenic bacteria, such as *P. acne* ATCC (27853), *S. saprophyticus* ATCC (49907), *S. mutans* ATCV (35668), *C. Jeanedii* ATCC 8090) with inhibition diameter of 5.70 ± 0.17 - 11.23 ± 0.25 with MIC values of 1250 - 2500 µg / mL and MBC between 1250 -> 5000 µg / mL. In conclusion, *M.Candidum* acetone extract has antioxidant and cytotoxic activity with IC_{50} value = 22.4761 µg / mL and IC_{50} = 601.09ug / mL respectively. In addition, the results of phytochemical tests indicated that *M. candidum* acetone extract contained terpenoids and aromatic compounds.

Keywords: *M. Candidum*, antibacterial, antioxidant, anticancer, fitokimia

INTRODUCTION

Natural compounds play an important role in the development of medicinal substances. Many compounds that come from natural ingredients have transformed into drug candidates, and even most of the drugs used today are derived from natural compounds, such as Quinine, theophylline,

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Thanks for sending your manuscript for possible Review and subsequent publication in RASĀYAN Journal of Chemistry.
Your manuscript is under **Preliminary Review**. After it, you'll be assigned you the **Manuscript Number**.
Thanks for contributing your research in RASAYAN Journal of Chemistry.

Best regards,

Dr. Sanjay K. Sharma, FRSC
Editor, **RASĀYAN Journal of Chemistry**

Best Regards,

***Editor,* RASĀYAN J. Chem.**

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ASSIGNING MANUSCRIPT NUMBER AND REVISION-1

Dear Author,

Thanks for submitting your valuable manuscript for the review and subsequent publication in RASĀYAN Journal of Chemistry, which is A SCOPUS (Elsevier) indexed [Since 2008* and the **CiteScore 2018** is 1.11] International Research Journal of Chemical Sciences. Its also approved by UGC (India) and included in its CARE list.

We are very happy to share with you that **SJR** powered by **SCOPUS (Elsevier)** announced the **Journal Ranking**# of Indian Journals abstracted in SCOPUS (Elsevier) and its matter of proud for us that **RASĀYAN J. Chem.** is on **2nd rank** in this list and having significantly high **H-index value = 18**; which is quite encouraging and a proved evidence of the international quality publications in this journal.

Your Manuscript No. is: RJC- 5614/2019. Please use this number always in any of your future correspondence with us.

Revision-1

1. Please refer the attached **SAMPLE PAPER** send your manuscript again, as **Revision-1** mentioning the assigned Manuscript No. in the subject line. **References in the paper must be STRICTLY formatted as per the TEMPLATE and SAMPLE PAPER.**
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Best regards,

Dr. Sanjay K. Sharma, FRSC

Editor, **RASĀYAN Journal of Chemistry**

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Sab, 9 Nov 2019, 12.51

Dear Dr. Sanjay K. Sharma
Editor, Rasayan Journal of Chemistry

Thank you for the opportunity towards the publication consideration of my manuscript. Please kindly check the attachment of my revised manuscript below and here are the list of potential reviewers as asked.

Saharman Gea
s.gea@usu.ac.id
Department of Chemistry, Universitas Sumatera Utara, Medan 20155, Indonesia

Goutam Brahmachari
Goutam.brahmachari@visva-bharati.ac.in
Professor, Chemistry Department, Visva-Bharati University, Santiniketan-731235, India.

Abdul Rauf
abduloafchem@gmail.com
Professor, Department of Chemistry, Aligarh Muslim University, Aligarh-202002, India

I would be very glad to receive feedback and review towards my manuscript. Lastly, I really look forwards to hear from you soon for any further information related to my manuscript.

Sincerely Yours
Dr. Tita Juwitaningsih

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PHYTOCHEMICAL, ANTIBACTERIAL, ANTIOXIDANT AND ANTICANCER ACTIVITY STUDY OF *M. CANDIDUM* LEAF ACETONE EXTRACT

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INTRODUCTION

Natural compounds play an important role in the development of medicinal substances. Many compounds that came from natural ingredients have transformed into drug candidates, and even most of the drugs used today are derived from natural compounds, such as Quinine, theophylline,

tita juwitaningsih <juwitaningsih@gmail.com> 10 Feb 2020, 07.53

kepada RASAYAN

Dear Dr. Sanjay K. Sharma
Editor, Rasayan Journal of Chemistry

On the behalf of this email, I would like to confirm about my article progress.
Previously, I have sent it by November, 9th 2019 for revision 1.
Will you be so kind to inform me about its progress ? I will be very glad to conduct another revision needed and any publication payment.

I look forward to hearing from you. Thank you.

Kind Regards
Dr. Tita Juwitaningsih

***

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REVISION-2 :RJC-5614/2019

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Dear **Author**,

Greetings from **RASĀYAN Journal of Chemistry.**

We are starting final processing of your above mentioned manuscript for publication in the forthcoming issue of **Rasayan J. Chem., Vol. 13, No.2, April-June, 2020**.

You are requested to **Re-draft** your accepted manuscript **as per the Template attached** once again in the light of the followin points:

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We value your contribution and association with **RASAYAN**. **Kindly acknowledge this mail. It is necessary for follow-up.**

Best regards,

Dr. Sanjay K. Sharma, FRSC

Editor, RASĀYAN Journal of Chemistry

Reviewer's Report

SECTION-I :

Reviewer's Name:	
Complete Affiliation:	
E-Mail:	
Manuscript Number:	**RJC-5614**
Title (with Aothors):	
Date of receiving by Reviewer:	
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SECTION-II : Comments per Section of Manuscript

General comment:	1. Refer the Similarity Check Report of your manuscript. 2. Abstract must be brief and concise one paragraph, focusing the theme of the work clearly. Revise it. 3. Revise the whole manuscript as per the Journal's Guidelines. Better, please refer some latest papers of this journal. 4. Grammar Check, Specially. 5. Figures must be clear and of right resolution
Introduction and Literature Review:	References must be cited in text as per the journal's template and listed with their DOIs as per the style of the journal. Please refer Sample Paper.
Research Methodology:	Research Methodology/ Experimental should be precise and clear.
Results and Discussion:	1. This portion must be clearer and connected with the proposed/ used/reported methodology. 2. Use better Quality of Figures, if possible
Bibliography/References:	Latest references must be used.
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tita juwitaningsih <juwitaningsih@gmail.com> 31 Mar 2020, 16.19
kepada RASAYAN

Dear Dr. Sanjay K. Sharma, FRSC
Editor, Rasayan Journal of Chemistry

I hope this email finds you well
Thank you very much for your consideration towards our article progress.
We have revised the article accordingly and added some recent articles published from RASAYAN JOURNAL OF CHEMISTRY.
Moreover, the similarity check report (the one that you have sent previously) is kept for below 10 percent.

Please kindly find the revised article attached below, along with the answer to reviewer comments.
I hope it will be fine and hope to hear from you soon towards any updated information for our article progress.

Kind Regards
Dr. Tita Juwitaningsih

***

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Answers to Reviewer's Comments

General Comments:

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2. Abstract must be brief and concise one paragraph, focusing the theme of the work clearly. Revise it.
3. Revise the whole manuscript as per the Journal's Guidelines. Better, please refer some latest papers of this journal.
4. Grammar Check, Specially.
5. Figures must be clear and of right resolution

Answer

For all those feedback and comments, authors have revised, suited as the journal's guidelines, included the latest papers published from Rasayan Journal of Chemistry, and also provided figures in clear and right resolution. Thank you

Introduction and Literature Review:

References must be cited in text as per the journal's template and listed with their DOIs as per the style of the journal. Please refer Sample Paper.

Answer

Authors have adjusted as template and provided the references listed with DOIs. Thank you

PHYTOCHEMICAL, ANTIBACTERIAL, ANTIOXIDANT AND ANTICANCER ACTIVITY STUDY OF *M.CANDIDUM* LEAF ACETONE EXTRACT

Tita Juwitaningsih[1*], Iis Siti Jahro[1], Ida Dumariris[1], Elvira Hermawati[2], Yaya Rukayadi[3]

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*Email:juwitaningsih@gmail.com
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Address for Postal Correspondence: Komp. Dosen Unimed No. 11, Laut Dendang, Medan, Indonesia

ABSTRACT

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Keywords: *M. candidum*, antibacterial, antioxidant, anticancer, phytochemical.

INTRODUCTION

Natural compounds play an important role in the development of medicinal substances. Many compounds that came from natural ingredients have transformed into drug candidates, and even most of the drugs used today are derived from natural compounds, such as Quinine, theophylline, penicillin G, morphine, paclitaxel, digoxin, vincristine, doxorubicin, cyclosporin, and vitamin A.[1] One of the approaches used to obtain natural compounds that have potential as medicinal compounds is performed through the assessment of potentially therapeutic plants through the ethno pharmacology approach.[2]

Plants of the *Melastomataceae* family are widely used for traditional medicine. Currently, the number of Melastoma species has not been exactly reported; Wong (2016) estimated that there are 80-90 species.[3] In Southeast Asia region, the genus Melastoma consists of 22 species,[4] one of which is *Melastoma candidum* that is commonly used as a medicinal plant in North Sumatra, Indonesia. *M. candidum* has the local name of "Senduduk" and the synonym name of *Melastoma malabathrum subsp. normale* (D. Don) K.Mey, *Melastoma polyanthum* Blume. *M. candidum* is an easy plant to grow and is commonly found in the province of North Sumatra, Indonesia. In North Sumatra, especially for Karo ethnicity, the *M.candidum* plant has been used as a traditional medicine to treat abscesses, thrush, diarrhea, bone fractures and oukup.[5,6] In addition to Bangladesh, India and Malaysia, *M.candidum* has been used to treat diarrhea, dysentery, haemorrhoids, cuts and wounds, toothache, and stomach ache.[4]

M.candidum, as a traditional medicine is widely known, that several studies have been carried out to investigate it. In detail, *M.candidum* plant extract has various pharmacological effects, such as antibacterial, antiviral, anti-parasitic, antioxidant, cytotoxicity, anticoagulant, platelet-activating factor inhibitory, wound healing, anti-ulcer, anti-diarrheal, anti-venom, anti-inflammatory,anti-nociceptive, and anti-pyretic.[4,7] Therefore, this research was aimed to observe and report the potential of *M.candidum* plant, which is commonly found in North Sumatra, as antibacterial agent, anti-oxidant, anticancer based on its phytochemical test.

EXPERIMENTAL

Plants extract preparation

Samples of *M. candidum* were obtained from herbal drug stores, CV. Sempurna Sembu, Medan, Indonesia. A total of 100 g of the dried sample was mashed, and then extracted by maceration process using a 500 mL 100% (v / v) acetone solvent for 3 x 24 hours at room temperature. Then, it was filtered with Whatman filter paper no.2 (Whatman International Ltd, Middlesex, England). The filtrate was evaporated at low pressure using a rotary evaporator (Heidolph VV 2011, Schwabach, Germany) at a temperature of 50°C, until the crude extract was obtained.

Antibacterial agents

As much as 100 g of *M.candidum* extract was dissolved in 1 mL DMSO. Then, it was diluted for 10 times to obtain a 1% solution in 10% DMSO (Sigma Aldrich), which was equivalent to 10,000 µg/mL. Also, chloramphenicol (500 µg/mL) was used as an antibiotic standard.

Antibacterial strains and inoculums preparation.

The four American Type Culture Collection bacteria used for the test bacteria consisted of two Gram-positive bacteria: *Propionibacterium acne* ATCC (27853), *Staphylococcus saprophyticus* ATCC (49907), and two Gram-negative bacteria: *Streptococcus mutans* ATCV (35668) and

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As much as 100 g of *M. candidum* extract was dissolved in 1 mL DMSO. Then, it was diluted for 10 times to obtain a 1% solution in 10% DMSO (Sigma Aldrich), which was equivalent to 10.000 µg/mL. Also, chloramphenicol 1500 mg/mL was used as an antibiotic standard.

Antibacterial strains and inoculums preparation

The four American Type Culture Collection bacteria used for the test bacteria consisted of two Gram-positive bacteria: *Propionibacterium acne* ATCC (27853), *Staphylococcus saprophyticus* ATCC (49907), and two Gram-negative bacteria: *Streptococcus mutans* ATCV (35668) and *Citrobacter freundii* ATCC 8090. The inoculum was prepared based on the growth method by taking 3-5 isolated bacterial colonies with the same morphological type from the culture plate and a sterilized cotton bud was used. Then, it was suspended to 4-5 mL of 0.9% NaCl. Furthermore, the turbidity of the suspension was adjusted to the turbidity of 0.5 Mc. Farland.

Antibacterial activity

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PHYTOCHEMICAL, ANTIBACTERIAL, ANTIOXIDANT AND ANTICANCER ACTIVITY STUDY OF *M. candidum* LEAF ACETONE EXTRACT

Tita Juwitaningsih[1,*], Iis Siti Jahro[1], Ida Dumariris[1], Elvira Hermawati[2] and Yaya Rukayadi[3]

[1]Department of Chemistry, Faculty of Mathematics and Natural Sciences, Universitas Negeri Medan, Jl. Willem Iskandar, Pasar V Medan Estate, Medan 20221, North Sumatera, Indonesia
[2]Organic Chemistry Division, Faculty of Mathematics and Natural Sciences, Institut Teknologi Bandung, Jalan Ganesha 10, Bandung 40132, Indonesia
[3]Lab. of Natural Products, Institute of Bioscience, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor Darul Ehsan, Malaysia
*E-mail:juwitaningsih@gmail.com

ABSTRACT

M. Candidum has been frequently used as a traditional medicine to treat various diseases such as diarrhea, dysentery, haemorrhoids, cuts and wounds, toothache, and stomach ache. This research was aimed to identify the activity of *M. candidum* acetone extract as an antibacterial, antioxidant, anticancer and phytochemical. Antibacterial activity test was performed in vitro against each of the two Gram-positive and Gram-negative bacteria by paper disc diffusion method followed by determination of the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) values. The antioxidant activity of the extract was tested against 2,2-diphenyl1-picrylhydrazyl (DPPH), while the cytotoxic activity of the extract was evaluated against MCF-7 cells. Furthermore, the identification of secondary metabolite content was determined by ^{1}H-NMR spectroscopy. Activity test results revealed that acetone extract of *M.Candidum* leaf was active against four pathogenic bacteria, such as *P. acne* ATCC (27853), *S. saprophyticus* ATCC (49907), *S. Mutans* ATCV (35668), *C. Xerosis* ATCC 8090) with inhibition diameter of 5.70 ± 0.17 - 11.23 ± 0.23 with MIC values of 1250 - 2500 µg /mL and MBC between 1250 - > 5000 µg /mL. *M.candidum* acetone extract has antioxidant and cytotoxic activity with IC_{50} value = 22,4761 µg / mL and IC_{50} = 501,00 µg / mL respectively. Also, the results of phytochemical tests indicated that *M. candidum* acetone extract contained terpenoids and aromatic compounds.

Keywords: *M. candidum*, Antibacterial, Antioxidant, Anticancer, Phytochemical.

INTRODUCTION

Natural compounds play an important role in the development of medicinal substances. Many compounds that came from natural ingredients have transformed into drug candidates, and even most of the drugs used today are derived from natural compounds, such as Quinine, theophylline, penicillin G, morphine, paclitaxel, digoxin, vincristine, doxorubicin, cyclosporin, and vitamin A.[1] One of the approaches used to obtain natural compounds that have potential as medicinal compounds are performed through the assessment of potentially therapeutic plants through the ethnopharmacology approach.[2]

Plants of the *Melastomataceae* family are widely used for traditional medicine. Currently, the number of Melastoma species has not been exactly reported; Wong (2016) estimated that there are 80-90 species.[3] In the Southeast Asia region, the genus Melastoma consists of 22 species,[4] one of which is *Melastoma candidum* that is commonly used as a medicinal plant in North Sumatra, Indonesia. *M. candidum* has the local name of "Senduduk" and the synonym name of *Melastoma malabathricum subsp. normale* (D. Don) K.Mey, *Melastoma polyanthum* Blume. *M. candidum* is an easy plant to grow and is commonly found in the province of North Sumatra, Indonesia. In North Sumatra, especially for Karo ethnicity, the *M.candidum* plant has been used as a traditional medicine to treat abscesses, thrush, diarrhea, bone

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Acceptance Letter

Dear **Dr. Tita Juwitaningsih,**

We are glad to inform you that your manuscript, entitled-

MS No. RJC- 5614/2019: PHYTOCHEMICAL, ANTIBACTERIAL, ANTIOXIDANT AND ANTICANCER ACTIVITY STUDY OF *M. CANDIDUM* LEAF ACETONE EXTRACT

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