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Research Journal of Pharmacy and Technology

Paper ID: 211017152502233431 Date of Submission: 17-Oct-2021

Paper Title: **Identification of active compound and antibacterial activity against gram-positive and gram-negative bacteria of Chromolaena odorata leaf extract**

Authors: **Zainab; Nurlailah; Muhammad Ikhwan Rizki**

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Paper ID: 211017152502233431 Date of Submission:

Paper Title: Identification of active compound and antibacterial activity against gram-positive and gram-negative bacteria of Chromolaena odorata leaf extract

Authors: Zainab; Nurlailah; Muhammad Ikhwan Rizki

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Research Journal of Pharmacy and Technology

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Paper Title: Identification of active compound and antibacterial activity against gram-positive and gram-negative bacteria of Chromolaena odorata leaf extract

Authors: Zainab; Nurlailah; Muhammad Ikhwan Rizki

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Paper Title: Identification of active compound and antibacterial activity against gram-positive and gram-negative bacteria of Chromolaena odorata leaf extract

Authors: Zainab; Nurlailah; Muhammad Ikhwani Rizki

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Thank you so much

Best Regards

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Research Journal of Pharmacy and Technology

Paper ID: 211017152502233431 Date of Submission: 17-Oct-2021

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Authors: Zainab; Nurlailah; Muhammad Ikhwan Rizki

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Authors: **Zainab; Nurlailah; Muhammad Ikhwan Rizki**

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Paper ID: 211017152502233431 Date of Submission: 17-Oct-2021

Paper Title: **Identification of active compound and antibacterial activity against gram-positive and gram-negative bacteria of Chromolaena odorata leaf extract**

Authors: **Zainab; Nurlailah; Muhammad Ikhwan Rizki**

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Author's Name:Zainab, Nurlailah, Muhammad Ikhwan Rizki

Paper Title: Identification of active compound and antibacterial activity against gram-positive and gram-negative bacteria of Chromolaena odorata leaf extract



Acceptance of Manuscript

With reference to your article titled 'Identification of active compound and antibacterial activity against gram-positive and gram-negative bacteria of Chromolaena odorata leaf extract' Author by Zainab, Nurlailah, Muhammad Ikhwan Rizki. We wish to bring to your kind notice the following:

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- The above mentioned article have been accepted for publication in Year : 2022, Vol: 15, Issue: 10 of the journal.

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Bank Operation Code:
:22P:CHRD
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Ordering Customer:
:50K:70000000296377601
IBU ZAINAB
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Research J. Pharm. and Tech. 15(10): October 2022

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RESEARCH ARTICLE

Identification of active compound and Antibacterial activity against gram-positive and gram-negative bacteria of *Chromolaena odorata* leaf extract

Zainab^{1*}, Nurlailah², Muhammad Ikhwan Rizki³

¹Nursing Program, Poltekkes Kemenkes Banjarmasin, Indonesia.

²Medical Laboratory Technology Program, Poltekkes Kemenkes Banjarmasin, Indonesia.

³Department of Pharmacy, Faculty of Mathematics and Natural Sciences, Universitas Lambung Mangkurat, Indonesia.

*Corresponding Author E-mail: zainabzen76@gmail.com

ABSTRACT:

Antibacterial from natural ingredients, such as medical plants can be used as an alternative medicine. The aims of this study were to identify active compounds and antibacterial activity from the leaf extract of *Chromolaena odorata*, especially to against gram-positive bacteria and gram-negative bacteria. The methods of this study were making simplicia powder, extracting the leaves using ethanol, phytochemical screening using the tube method with specific reagents. Fractionated with chloroform and ethyl acetate and analyzed by Gas Chromatography-Mass Spectrometry (GC-MS) to identify the active compounds. Antibacterial activity used diffusion method. We also determined the minimum inhibitory concentration (MIC) and minimum kill concentration (MKC). The results of the chloroform fraction showed 14-Methyl-Pentadecanoic Acid; 9-Octadecanoic; 2(2-(2, 5-Difluorocyclopentyl)-N-Propyl-3 Isopropanol; Bis (dichloromethyl)-ether. The results on the ethyl acetate fraction were 4-oxopentanoic acid or Levulinic acid; 4, 4- diciteno-hepten-1-ol; 1, 2, 2-trichloro-1, 1-difluoromethane; and 1-ethyl-2-methyl-3-oxohexanoic acid. In addition, inhibition zone leaf extract 10% w/v against *S. epidermidis* 18.44 mm; *S. mutans* 19.32 mm; *S. aureus* 19.50 mm; *P. aeruginosa* 12.70 mm; *E. coli* 0.00 mm; and *S. typhi* 0.00 mm. MIC of *S.aureus*, *S.mutans*, *S.epidermidis*, and *P.aeruginosa* were 6250 ppm, 6250 ppm, 1562.5 ppm, and 9375 ppm, respectively. MKC of *S.aureus*, *S.mutans*, *S.epidermidis*, and *P.aeruginosa* were 6250 ppm, 6250 ppm, 1562.5 ppm, and 12500 ppm, respectively. The conclusions of this study were the leaf extract of *Chromolaena odorata* contained terpenoid, phenolic and flavonoid. Antibacterial activity of this extract showed strong activity on *S. aureus*, *S. mutans*, *S. epidermidis*, and *P. aeruginosa* bacteria.

KEYWORDS: Antibacterial, *Chromolaena odorata*, leaf extract, GC-MS, MIC, MKC.

INTRODUCTION:

Antibiotic-resistant bacteria are a global problem in the world, including Indonesia. This condition has occurred because of lack of research¹. It is necessary to explore antibacterial from natural ingredients, such as medical plants^{2,3}. Further, it can be used as an alternative medicine due to effectiveness, safety considerations, as well as the cost^{4,5}.

Indonesia has the second biggest which has medical plants in the world. The natural wealth of Indonesian medicinal plants consists of 25,000 and 30,000 species⁶. Medicinal plants have been used since ancient time and can be used for treatment the disease⁷. One of the plants used for alternative medicine is *Chromolaena odorata*, called kelambu menjangan in Kalimantan island, Indonesia. *Chromolaena odorata* leaf is used to treat skin disease, such as *Propionibacterium acnes*, anti-inflammatory, analgesic, antioxidant, antifungal, as well as antibacterial effects⁸. Previous study mentioned that leaf extract *Chromolaena odorata* has antibacterial activity against *Staphylococcus aureus*^{9,10}. However, there is still limited reference in terms of antibacterial activity against the others bacteria.

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