

THESIS
ISOLATION AND ANTIOXIDANT ASSAY OF SECONDARY
METABOLITE COMPOUNDS FROM ETHYL ACETATE
EXTRACT OF *Clausena harmandiana*'s STEM BARK



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UNIVERSITAS AIRLANGGA
2022

DEGREE REQUIREMENTS

ISOLATION AND ANTIOXIDANT ASSAY OF SECONDARY METABOLITE COMPOUNDS FROM ETHYL ACETATE EXTRACT OF *Clausena harmandiana*'s STEM BARK

THESIS

To obtain a Master's Degree
In the Master of Chemistry Study Program
At the Faculty of Science and Technology Universitas Airlangga

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FACULTY OF SCIENCE AND TECHNOLOGY
UNIVERSITAS AIRLANGGA**

December 2022

APPROVAL PAGE

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ACKNOWLEDGEMENT

First and foremost, I would like to praise and thank Buddha, the almighty, who has granted countless blessings, knowledge, and opportunity to the writer, so that I have been finally able to accomplish a thesis manuscript entitled "Isolation and Antioxidant Assay of Secondary Metabolite Compounds from Ethyl Acetate Extract of *Clausena harmandiana*'s Stem Bark". This thesis was prepared as one of the requirements that must be met by students to achieve a Master's degree in the Master of Chemistry (S2) study program at the Department of Chemistry, Faculty of Science and Technology, Universitas Airlangga, Surabaya. On this occasion, the author would like to thank all parties who have played a role in the preparation of this thesis, in particular:

1. Prof. Dr. Nanik Siti Aminah, M.Si. as a supervisor I for the direction, guidance, and assistance during the preparation of this thesis.
2. Dr. Khun Nay Win Tun as supervisor II for the motivation, advice, and guidance during the preparation of this thesis.
3. Yanuardi Raharjo, S.Si., M.Si., Ph.D. as the head of the Master of Chemistry Study Program and Mochamad Zakki Fahmi, M.Si., Ph.D. as chairman of the Department of Chemistry, Faculty of Science and Technology, Universitas Airlangga.
4. Dr. Alfinda Novi Kristanti, DEA who has provided knowledge and advice on the author's academic career at Department of Chemistry, Faculty of Science and Technology, Universitas Airlangga, Surabaya.
5. All lecturers of the Master of Chemistry Study Program (S2) who have provided knowledge, advice, and experience during the author's education at the Master of Chemistry Study Program (S2), Department of Chemistry, Faculty of Science and Technology, Universitas Airlangga, Surabaya.
6. The author's parents and the author's extended family always provide support and prayers to complete the thesis and continue to support the author in studying

at the Chemistry Masters Study Program (S2) Department of Chemistry, Faculty of Science and Technology, Universitas Airlangga, Surabaya.

7. The author's friends always provide inspiration, assistance, direction, and encouragement to the author during the research and writing of the thesis manuscript.
8. The author's classmate from the Master of Chemistry (S2) class at Universitas Airlangga in Surabaya who have always supported and helped in any circumstance.
9. All parties that the author cannot mention who have provided prayers, motivation, support, direction, passion, and recommendations throughout the process of writing this thesis manuscript.

The author realizes that there are still many shortcomings in the writing of this thesis, so constructive criticism and suggestions are highly expected for the perfection of this thesis manuscript.

Surabaya, Dec 2022

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Theint Su Wai

Su Wai, Theint, 2022, Isolation and Antioxidant Assay of Secondary Metabolite Compounds from Ethyl Acetate Extract of *Clausena harmandiana*'s Stem Bark, this final project is under the guidance of Prof. Dr. Nanik Siti Aminah, M.Si. and Dr. Khun Nay Win Tun. Department of Chemistry, Faculty of Science and Technology, Universitas Airlangga, Surabaya.

ABSTRACT

Clausena harmandiana is a species of the genus *Clausena* and the family Rutaceae that has the potential as a source of bioactive chemical compounds. This research aims to isolate secondary metabolite compounds from *Clausena harmandiana* and determine antioxidant activity by using a DPPH assay. The extraction method used was the maceration method using methanol solvents and partitioned with n-hexane solvent, then with ethyl acetate and methanol solvents. The ethyl acetate extract was evaporated with a rotary vacuum evaporator to become a thick extract. The obtained ethyl acetate extract was separated and purified using vacuum liquid chromatography (VLC) and gravity column chromatography (GCC) techniques. The pure secondary metabolite compounds obtained were structurally determined based on UV-Vis, FTIR, and 2D NMR spectroscopy data. Three pure compounds have been isolated from ethyl acetate extract, namely clausine Z (**1**), 7-methoxyheptaphylline (**2**), and 7-hydroxyheptaphylline (**3**). The antioxidant test results showed the IC₅₀ values of ethyl acetate extract and ascorbic acid were 825.33 ppm and 87.28 ppm, respectively. The percent inhibition of clausine Z (**1**) and 7-methoxyheptaphylline (**2**) with a concentration of 250 ppm was 17.11 % and 2.87 %, respectively. It can be assumed that the ethyl acetate extract is very weak as an antioxidant and the isolated pure compounds have no potential as an antioxidant agent.

Keywords: 7-methoxyheptaphylline; 7-hydroxyheptaphylline; antioxidant; *Clausena harmandiana*; clausine Z; DPPH

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