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## IDENTIFICATION COMPOUND CONTAINED IN EXTRACT METHANOL LEAF WUNGU (*Graptophyllum Pictum* (L.) Griff)

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### ABSTRACT

**Introduction:** Wungu leaves (*Graptophyllum pictum* (L.) Griff) is one of the medicinal plants which has pharmacological activity in part of diabetes, antioxidants and estrogenic and is one of the medicinal plants that are widely used by the public. , flavonoids, saponins, steroids, anthocyanins and leucoanthocyanin. **Research Objectives** To identify compound compounds contained in Wungu Leaf Methanol Extract (*Graptophyllum Pictum* (L.) Griff) using Gas-Mas Chromatography Spectrometer (GC-MS).

**Type of Research:** It is an experimental study, where the wungu in the picking are still fresh, not young and not too old, then washed with running water, then dried by direct sunlight (from 7-10 am), after being dried, a fine powder is made and then macerated with using methanol liquid for 7 days after it was filtered and then applied until thick extract was obtained, then GC-MS test was carried out.

**Results:** found that Wungu leaves contain compounds such as Hexadecanoic acid, ethyl ester 1.31%; Hexadecanoic acid 12.02%; (2E) - 3,7,11,15-tetramethyl-2-hexadecem-1-ol 4,81%; Pyridine-3-carboxamide, oxime, N- (2-trifluoromethylphenyl) 2.13%; 9-Tricosene 1.20%; Squalene 1.92%; Gamma.-Tocopherol 12.10%, Stigmasterol 3.28%; Beta-sitosterol 3.62%; Beta-sitosterol 5.03%; Beta.-sitosterol 3.02%; 2,5,9-cyclotetradecatrien-1-ol, 2,6,10-trimethyl-13- (1-methylethenyl) -, **Conclusion:** From the results of GC-MS Wungu leaves obtained compounds that have a high concentration of Hexadecanoic Acid for this compound serves as an anti-bacterial and antioxidant 12.02 and Beta-sitosterol 3.28% which is a functional compound Beta-sitosterol

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can reduce cholesterol levels in in the blood and sometimes used in treating hypercholesterolemia.

## INTRODUCTION

Indonesian people have long known and used medicinal plants as an effort to overcome health problems. This knowledge is applied based on experience and skills that are hereditary. Indonesia is rich in plants both as a source of food and medicine to treat certain diseases. The more diverse types of diseases, some people are actually saturated with chemical drugs. So that the spirit arose again to explore drugs from nature known as herbal medicine<sup>1</sup>

In addition, the growth of the pharmaceutical industry in Indonesia ranges from 10-14% annually, meanwhile Indonesia itself still lacks raw material for medicines so that raw materials must be imported from outside. Thus, Indonesia is still dependent on raw materials which has the potential to make Indonesia a consumptive country. Nearly 96% of raw materials are still imported from abroad. The strategy that needs to be done so that Indonesia is independent in the needs of raw materials, one of which is by strengthening research<sup>2</sup>

According to the POM Republic of Indonesia data center in Nasir et al., (2016) the number of registered herbal medicines up to 2015 has greatly increased. One of the causes of the increasing use of herbal medicine is the low potential risk posed. With the development of science and technology, it is very possible in the world of medicine to experience changes and progress. Traditional medicine which was originally considered as an ancient treatment method is now starting to be looked at and researches on the content of natural ingredients<sup>2</sup>

Various studies were carried out and developed to reveal the content and secrets that exist in various plants. Not a few people switch to plants and consume vegetables as a medium of treatment or media to maintain health

Wungu leaves are one of the popular traditional medicines that are widely used in Indonesia. This leaf is used traditionally for the treatment of rheumatism, menstruation, hemorrhoids, urinary tract infections, scabies, swelling, sores, dermatitis, ear diseases, laxatives, and cancer<sup>1</sup>

Wungu leaves (*Graptophyllum pictum* (L.) Griff) is one of the medicinal plants that has pharmacological activities as antidiabetic, antioxidant and estrogenic and is one of the medicinal plants that are widely used by the community. In West Sumatra, this plant is used for the treatment of hemorrhoids by drinking boiled leaves once a day every morning regularly. While in Java, this plant is also used for treatment of hemorrhoids, swelling, pain, bleeding, laxative and heat (Trubus, 2002). From the literature search, Wungu leaves contain tannin, flavonoid, saponin, steroid, anthocyanin and leucoanthocyanine compounds. From several studies also known Wungu leaf extract has an activity of

estrogenic effects, antidiabetic activity, antioxidant activity and there has not been found a test of teratogenic effects of leaf wungu.

From the results of the above research and the absence of research on the types of compounds that have high activity contained in wungu leaves (*Graptophyllum pictum* (L.) Griff), the authors will identify the compounds contained in the methanol extract of wungu leaves (*Graptophyllum pictum* (L.) Griff).

Formulation of the problem

From the background described above, the following Problem Formulation was obtained: How to identify the compounds contained in Daun Wungu extract (*Graptophyllum pictum* (L.) Griff)?

Research purposes

To identify compound compounds contained in Daun Wungu Methanol Extract (*Graptophyllum pictum* (L.) Griff).

Benefits of research

The benefits that can be obtained from this research are

a. Theoretical benefits

From a scientific standpoint, this research is expected to add insight into the knowledge of medicinal plants and become a reference material in similar research in development.

b. Practical benefits

1. For researchers, it is hoped that they can obtain a lot of information to broaden their knowledge and utilize the results of this study for the use of herbal medicines.
2. For the community, it is hoped that they can gain knowledge in knowing medicinal plants and use them for herbal medicine.

## RESULTS

Leaf Wungu (*Graptophyllum pictum* (L.) Griff) conducted in the village of Duma, Galela Barat District, North Halmahera District in July 2018. Samples that have been collected are then washed with running water and then made chopped and dried. The dried simplicia is smoothed with a blender and then soaked with methanol for 7 days with stirring every day. After 7 days the marinade is then filtered. Filtrate or filtered methanol liquid with greenish black is evaporated until a thick extract is obtained.

Extract thick, greenish color with a weight of 5 grams. The thick extract obtained was tested by the active substance using GC-MS, where the extracted sample was given a pressure of helium or nitrogen so that the sample was in the form of steam before injected into the column (GC). From the GC column to the detector (MS) to be separated into fragments. The resulting fragments indicate the presence of compounds that will appear on the GC-MS device, and the following results are obtained: 4.1 Table of Gc-Ms Test Results of Dragon Tail Leaf Thickened Extract (*Rhaphidophora*

schottii Hook.f.) SAMPLE OF COMPOUNDS Wungu (*Graptophyllum pictum* (L.) Griff) 1. (23) -ethylcholest-5-en-3.beta.-ol: 18.09% 2. 9,12,15-Octadecatrienoic acid: 12,58% 3. Stigmasta-5,22-dien-3-ol (3.beta.): 11.11% 4. Neophytadiene 7.17 5. Hexadecanoic acid (Palmitit) 7.55% 6. 2-Hexadecen-1-ol, 3,7,11,15-tetram 5.96% 7. Vitamin E 4,20% 8. 2-Hexadecene, 3, 7, 11, 15-tetramethyl 2.40% 9. Ergost-5-en-3-ol (3.beta.) 2.02% 10. Gamma tocopherol 1.86% 11. 1-Hexadecanaminium, N, N, N-trimethyl 1.85% 12. Cycloeucaenol 1.81% 13. Octadecanoic acid 1.78% 14. 2,6,10,14,18,22-Tetracosahexaene 1.47% 15. Hexadecanoic acid, methyl ester 1.47% 16. Norolean-12-ENE 1.18%

## DISCUSSION

The results of the GC-MS analysis showed that there were 16 types of active ingredients. The compound (23) -ethylcholest-5-en-3.beta.-ol has the highest percentage of 18.09% and the lowest Norolean-12-ENE is 1.18%. The active ingredients detected in Wungu plants have their respective functions to support body health, but until now there is still very little information that details the function of each active ingredient.

The active ingredient Tetradecanoic acid is a synonym of myristic acid, hexadecylic acid synonyms of palmitic acid, dodecanoic acid synonyms of lauric acid and octadecanoic acid synonymous with stearic acid, all of these chemical components are included in the group of saturated fatty acids<sup>6</sup>. Ergosterol and stigmasterol belong to the steroid group.

Ergosterol belongs to a group of unsaponifiable fats which are insoluble in water, but soluble in organic solvents Ergosterol is a precursor to the formation of vitamin D<sub>2</sub> with the help of ultraviolet radiation. Beta tocopherol and gamma tocopherol along with vitamin E belong to a group of vitamins which are useful as anti-degenerative, anti-aging and anti-tumor<sup>10</sup>.

These two chemical components are used as biological antioxidant ingredients that play a role against lipid peroxides which produce free radicals that cause tissue damage. Vitamin E fights free radicals caused by pollutants, premature aging, heart disease, neurological development, cancer, and the immune system. Vitamin E deficiency will cause the body to be powerless, decreased sexual activity, abnormal fat deposits in the muscles, degeneration changes in the liver and muscles, dry skin, and an increased risk of cancer<sup>10</sup>. Alpha tocopherol and gamma tocopherol increase the production of nitrogen oxides and nitrogen oxide activity, while gamma tocopherol also prevents changes in nitrogen oxides to NO. Nitrogen oxide is produced from the amino acid L-arginine by the enzyme nitric oxidase, which acts to control blood vessel tone, blood flow, blood pressure, movement of the gastrointestinal tract, respiratory tract and urinary tract.

Stigmast-5-en-3ol (3.beta.) Functions as an anti-immune during periods of high stress. While (7R, 8S) -

cis-anticis-7,8-Epoxytric (2-Hexadecen-1-ol, 3,7,11,15-tetram) acts as an anti-tumor agent<sup>1</sup>.

## CONCLUSION

Through a series of steps to get leaf extract wungu and GC-MS analysis results showed that there were 16 types of active ingredients. Where compound (23) -ethylcholest-5-en-3.beta.-ol has the highest percentage of 18.09% and the lowest Norolean-12-ENE is 1.18%.

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