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**IDENTIFICATION OF OCTADECANOIC ACID COMPOUND  
CONTAINED IN METHANOL EXTRACT OF BINAHONG LEAVE  
(BASELLA ALBA L.)**

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**ABSTRACT**

Background: This shows that herbal medicine products are potential to continue to be developed. Objective: To identify the compound contained in the leaf extract of binahong (*Basella alba L*) using Gc-Ms method, this research is experimental research. Result of research: Samples taken from fresh leaves are plucked directly then made powder with soaked by using methanol solvent. Conclusion: then tested using the Gc-Ms tool and it has been tested that the binahong leaf (*Basella alba L*) contains octadecenoic acid compounds with the content 6,53%. Based on the above conclusions, the research gives that the results of this study can be an additional reference for Pharmacy students especially to increase knowledge about medicinal plants.

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**INTRODUCTION**

The advance of modern science that was more rapidly and sophisticated this time, it couldn't make side natural medicine. This was proven from many interested persons of natural medicine.

Moreover, there was lack of knowledge and information about any kinds of plants that used as natural medicine to be certain therapy. <sup>1</sup>

Indonesia became one of central of medicine plants at around the world. Not all of those kinds of plants were known it's benefit and special quality. Any

kinds of plants, roots, and other natural material were made as medicinal herbal to cure disease. Those concoctions were used to keep body condition to be healthy. Thousands years before Christian, human being had had traditional knowledge about medical treatment by using the herbals concoctions. The utilization of herbal as main material of medical treatment had become part of culture of each nations in the world.<sup>2</sup>

In order to prevent disease and some of them to beautify self. The accomplishment in mixing those materials was ascended by the ancestor hereditary. Indonesia had more than 30.000 kinds of herbal species where 960 of them had been registered as useful plants, and 283 of them were important plants for traditional medicine industries.<sup>3</sup> Recently, the using of medicine plants in Indonesia was more increasing, while the cultivation of these medical plants was very limited, moreover there many kinds of potential medical plants at this tropical area which hadn't been used optimally.<sup>4</sup> Had high traditional knowledge in using the medical plants. Based on the findings above, the researcher wanted to study deeply the potential of Indonesian special plants in creating the health of society, animals, and environment. According to Tukiman, the fact showed that by the helping of those medicines from herbal materials, the society could solve the health problems faced.

This showed that the medicines from natural materials had showed it's contribution in creating societies' health efforts. The special quality of medicine plants such as there was no side effect or small side effect and the price was relatively cheap if the society could to plant it or found it at the yard. Then, this save characteristic didn't need tied control in it's using so it didn't need medical staff or paramedic in using it, but only the family member itself who helped using the medicine if the diagnose was clear.

Based on the previous research, it was known that herbal medicine had been accepted widely in all nations. As stated by WHO in journal of Hotnida sitorus et.al (2011), states in Africa, Asia and Latin America used herbal medicine as the supplement of primary medical treatment they got. Moreover, in Africa, about 80% of population used herbal medicine for their treatment.

Medial plants was defined as substance with one or more organs which containing characteristics that could be used for therapeutic purposes or that could be used as precursor for synthetic of any medicines. Medicine plants contained much biologic active compound such as carbohydrate, protein, enzyme, fat

and oil, mineral, vitamin, alkaloid, kuinon, terpenoid, flavonoid, carotenoid, sterol, simple fenolic glycoside, tannin, saponin, polifenol, and others. Traditional therapy referred to health practice, knowledge and belief that merged plants, animals, and medicines based minerals, spiritual therapy, manual technique and training, implemented individually or in combination to cure, diagnose and prevent the disease or keep the health.<sup>5</sup>

The using of plants for medical needs was back to past. The newest research was focused on product alternative of natural plants for restraining disease in Indonesia as developing country. Majority of village's residents didn't have access toward modern health treatment, so they were much depended on the appropriate writer.<sup>6</sup>

Medical plants for preventing or killing diseases. Medical plants were cheaper, easier to be accessed by most of citizens in the world. Therefore, there was need to support the using of medical plants as potential source of new medicine. As a result, there was an increasing of interest toward herbal treatment in Indonesia, some parts of the world through putting the medical herbals into orthodox medical practice. There were many kinds of plants available at all the world that had been used for multifunction activities. India and China were two big nations which were rich of medical plants species in all nations. Shruthi et al. / A Review of the Importance of Medicine from *Basella alba* L.<sup>7</sup>

## METHODS

### Type Of Research

This was experimental research which would be conducted at Integrated Laboratory of Pharmacy Study Program of Sekolah Tinggi Ilmu Kesehatan Halmahera.

### Time Of Research

The research was conducted during 1 month started from June until July 2017.

### Sample Of Research

Sample was part of numbers of characteristics that owned by the population that was used for the research.<sup>12</sup> Sample of this research was fresh binahong leave (*Basella alba* L) taken from North Halmahera Regency, MKCM Village.

### EQUIPMENTS:

- Digital weight

- Chocolate bottle
- Reaction tube
- Oven
- Mesh Riddle 20
- Scale
- Measurement glass
- Erlenmeyer
- Aluminum foil

## MATERIALS:

- Binahong leave ( *Basella alba L* )
- Methanol
- Spirit

## WORK PROCESS

### Making of Daun Binahong ( *Basella alba L* ) extract

The fresh Binahong Leave ( *Basella alba L* ) directly picked with hands. The collected Binahong leaves ( *Basella alba L* ) from MKCM village were cleaned or washed with flow water, then dried. The clean leaves then was dried sorted and powdered. The Binahong powder ( *Basella alba L* ) was extracted by maserasi method. Firstly 1000 gram powder of binahong leave ( *Basella alba L* ) was given maserasi with methanol during 3x24 hours in the glass container or jar about 1 – 3 cm above the powder. The filtrate was collected, then evaporated with rotavapor until being got the thick extract of methanol.

### Ways of Working to Identify Nonadecade Compound by Using GC-MS tool.

The thick extract of methanol was fractioned into chemical glass, then was done by using GC tool that functioned to examine the purity of certain material, or separated as component from the mixture and could help

in identifying complex compound, and then continued to use MS tool that functioned as compound of certain sample became positive and negative ions which resulted from plants source.

## DISCUSSION

This research done in the village of Mkcm,District,Tobelo North Halmahera District on June 1 - 30 June 2017 with a purpose for the extraction of raw materials or samples leaves binahong ( *Basella alba L* ) in take on the morning of the day. Fresh leaves after the in take,in bersikan and in the dishwasher on the flowing water and then in the dry with the way in jemur under sunlight with time jemur from 07:00 - 10:00 In the morning for 4 days . After dry leaves binahong ( *Basella alba L* ) in blend with using the blender until a fine powder,after that in macerasion with liquid solvent methanol and the time in need during 5x24 hours or for 5 days.

Then the samples in macerasion or soak with liquids or solvents methanol in the sieve and in take extracting methanol from the leaf binahong ( *Basella alba L* ) green , after that in the complete evaporation process for several hours in starting at 1:00 day, after mendidi remain green color and after a few hours and then after at 3:pm changes color to black so that produce thick extract methanol from the leaf binahong ( *Basella alba L* ).

**Table 1.** The leaf binahong gc-ms test

The type of Samples	Compound	The womb %
	Neophytadiene	3.71
2 The hexadecene,3,7,11,15-tetramethyl-,[r-[r <sup>*</sup> -(e)]-(2e)-3,7,11,15tetramethyl-2-hexadecen-1-01		1.58
Methyl (10e,13e)-10,13-octadecadienoate		1.24
(9e)-9 the octadecenoic acid		4.27
(9e)-9 the octadecenoic acid		1.46
Cis-vaccenic acid		6,53
(9e)-9 the octadecenoic acid		4.05
		1.55

The type of Samples	Compound	The womb %
The leaf binahong	(9e)-9 the octadecenoic acid	1.31
	9e-9-octadecenoic acid	1.54
	Cis-vaccenoic acid	3.68
	Geranylgeraniol	1.27
	4 of 2-methoxy-butyn-1-01	1.53,
	The 12,24 3-yi acetane	1.72
	dioxocholam	
	D:c-friedo-b':a'-neogammacer-	4,40
	9(11)-en-6-one	
	The-8-24 Lanosta dien-3-one	1.82
	D:c-friedo-b':a'-neogammacer-	4.03
	9(11)-en-6one	
	D:c-friedo-b':a'-neogammacer-	1.76
	9(11)-en-6one	
	D:c-friedo-b':a'-neogammacer-	1.19
	9(11)-en-6one	
	The-8,24 Lantosa dien-3-one	1.26

### Analysis of compounds with GC-MS

Unpack the thick Octadecenoic acid active in the analysis of the components of the compound which is contained therein using chromatography columns Mass Gas-Spektroskopi ( GC-MS). The results of the analysis Kromotografi extracting thick with GC.

Kromatogram shows that the results of the analysis of thick extract produces some of the top dominant,summit was then analyzed with a wide spectrum of the masses.mass spektrometri analysis results of each peak and then compared with the mass spektrometri database so that it can be in dyga the building blocks of extracting thick.

### DISCUSSION

Plants binahong (*Basella alba L*) including in the family Basellaceae is one of the medicinal plants that have great potential to further examined,plants have been in use in the treatment of human diseases over thousands of years and many have shown positive effects on the function of the male oduksi repr.

Some diseases that can heal with the use of the plant is : renal impairment, diabetes, enlargement of the heart, vomiting blood, typhoid, stroke, hemorrhage, rhematik, recovery after the operation of the restoration after birth, heal all the wounds in and circumcision, enteritis, waged and normalize your circulatory and blood pressure, constipation, dyspnea, ariawan weight, dizziness,, stomach ache, reduce high heat, fertilising the

womb, gastric problems,uric acid, whiteness, swelling of the heart , enhance vitality and durability of the body.

The leaf binahong ( *Basella alba L* ) is usually in use as drugs that includes contains a compound octadecenoic acid contained in the leaf extract binahong ( *Basella alba L* ) with using the appliance Gas Gas Spektrometri Kromotografi ( GC-MS )

Extracting the leaf Binahong octadecanoid compounds contain acid (6,53%) while the previous research conducted by Dr Arend Mapanawang 2016, about ekstrak Golobe fruit that also contains a compound octadecanoid acid (3,21%), so it leaves binahong octadecanoid compounds acid higher than extracting fruit golobe compounds.

### CONCLUSION

The results anslisis GC-MS specify that the leaf extract pinahong (*Basella alba L*) contains various compounds bioaktif but onl y one in the life of the compound octadecenoic acid which have the nature of drugs such as cure diabetes and diarrhea.

### Suggestions

Based on the results of research in find can obtain much information to broaden the knowledge and apply one of the pharmaceutical on the use of medicinal plants in the community.

And also researchers suggested as follows:

1. For education istitusi

The results of this research can be an additional reference for students of Pharmacy especially to increase the knowledge about the medicinal plants.

2. For the Community

So that the results of this research can be input for the community to know the medicinal plants and are able to take advantage of for the treatment of disease.

3. For Researchers

Then the results of this research can be input and able to develop further researchers about the importance of medicinal plants and can be used as the treatment of disease.

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## REFERENCES

1. Dalimartha S. Atlas of medical plants in Indonesia. Jakarta: trubus agriwidya; 2000.
2. Lee, K.H.,H.K. Wang, H. Itokawa, and S.L. Morris-Natschke. Current perspectives on Chinese medicines and dietary supplements in china,Japan and the unitet states,journal of food and Drug Analysis. 2000; 8:219-228.
3. J.B, H. Fitochemical Method of Determining the Modern Ways in Analyzing Plants. bandung: ITB Press; 2005.

4. Kuzuma & zaky Material of Medical Indonesia. 2005.
5. Sofowora A. Plants of Traditional Medicine in Africa. 2 and Edn. Karthala Ibadan Nigeria.1993.
6. Ms Shruthi. SD,Asisten Profesor, P.G. Biotechnology Department, The Oxford Collage of Science, Bangalore 2012; 4 : 560 102.
7. IJPSDR April-juni 2012; 14(2): 110-114.
8. Suman Bhusan Chakraborty, Tamás Molnár, László Ardó,Galina Jeney, CsabaHancz,Oral Administration of Basella alba Leaf Methanol Extract Genistein Enhances the Growth and Non-Specific Immune Responses of Oreochromis,. Turkish Journal of Fisheries and Aquatic Sciences 2015; 15: 167-17.
9. A.K. Azad, W.S. Wan Azizi, Z.M. Babar, Zubair Khalid Labu and S. Zabin.An Overview on Phytochemical, Anti-Inflammatory and Anti-Bacterial Activity of Basella alba Leaves Extrac.Middle-East, Journal of Scientific Research, 2013; 14 : 650-655.
10. Roshan Adhikari, Naveen Kumar HN, Shruthi SD, A review on medicinal importance of Basella alba L,Internasional journal of pharmaceutical sciences and drug research 2012;4:110-114.
11. Thomas K. Monsees and Paul Fewou Moundipa, Edouard Akono Nantia ,Carine Travert Faustin-Pascal T. Manfo Serge Carreau. Effects of the Methanol Extract of Basella alba L (Basellaceae) on Steroid Production inLeydig Cells.Int. J. Mol. Sci. 2011;12:376-384; doi: 10.3390-12010376.
12. Mapanawang,A.L. Research of Health Field. Tobelo: medika mandiri Halmahera; 2016.

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