

DOI:

10.22301/IJHMCR.2528-3189.469

Article can be accessed online on:
<http://www.ijhmcr.com>

INTERNATIONAL JOURNAL
OF HEALTH MEDICINE AND
CURRENT RESEARCH

ORIGINAL ARTICLE

IDENTIFICATION OF CHEMICAL COMPOUND OF OCTADECADIENAL ACID CONTAINED IN METHANOL EXTRACT OF PANGI LEAVE (PANGIUM EDULE REINW)

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ARTICLE INFO

Article History:

Received 10th April, 2017

Received in revised form

11th May, 2017

Accepted 17th June, 2017

Published online 30th June, 2017

Key words:

Pangi Leaf, Chemical Compound,
GC-MS.

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ABSTRACT

Pangi Plant (*Pangium edule Reinw*) or also called one of the germlasm flora that produces fruit that can be consumed and potentially as drugs and herbs. Pangi is used as a snack, seasonings, food preservatives, and antiseptic medicines. Pangi can be classified as a versatile tree species because almost all parts of this plant can be utilized. The purpose of this study was to identify the chemical compounds contained in the extract of methanol Leaf Pangi (*Pangium edule Reinw*). This type of research is a kind of pure experimental research using maseration method as separation technique and GC-MS is used to identify the compound contained in methanol extract of Pangi Leaf. The results showed that the main content of chemical compounds contained in methanol extract of Pangi Leaf was Octadecadienal acid 24,60%, Hexadecanoic acid 15,08%, Phytol 10,33%, Neophytadiene 5,21%, Squalene 21,22%, Anisole, M-(2-nitrovinyl) 4.07%, (9Z)-9.17-octadecadienal 3,01%.

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Citation: Merinli F. I. Tony^{1*}, Ama Tualeka¹, Mei Tongo-Tongo^{1,2}, 2017 "Identification Of Chemical Compound Of Octadecadienal Acid Contained In Methanol Extract Of Pangi Leave (*Pangium Edule Reinw*)", *International Journal of Health Medicine and Current Research*, 2, (02), 469-473.

INTRODUCTION

Indonesia was one of central of medicine plants in the world. 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, prevent diseases, and beautify self. The accomplishment to process those materials was descended by the great grandparents. (Parwanto, 2013).

Indonesia was known as rich area of natural sources, both from the numbers and its varieties. Government increased and held the using of nutrients sources of native Indonesia or the using of natural herbal medicines of Indonesia. The using of herbal was tight related with traditional treatment that descended hereditary and its making and sales were done by the healer of traditional herbs seller. (parwanto,2013). The using of materials as traditional medicine in Indonesia had been done by our great grandparents since the past centuries. Indonesia with number of citizen more than 200 million people, had traditional herbal medicine such as pangi leave. That plant produced secondary metabolite with molecule structure and identification of chemical molecule of pangi leave, 30.000 species of plants and 940 species of them included into biological plants with variety potential which was very good to be developed as traditional medicine products, at this case was horticulture.

Product of horticulture had important benefit for human life, such as as the source of vitamin and mineral. Moreover, horticulture product had value and could increase the farmers' income (Arini, 2012). Vegetable leave was vegetable that which used its leave and fruits (Wulandari,2011). Vegetable leave could be classified into two categories, commercial and non-commercial vegetables. Commercial vegetable leave was vegetable leave which could be sold with the price that only could be reached by certain economy level and had export opportunity.

Non commercial vegetable was vegetable leave which its price was relative low and preferred by the middle to low economy level and had low opportunity as export commodity. (Palungku, 2012). Papua land, mainly at the side of river or jati forest, there was often found plants at dry area, inundated with water, rocked land, or clay. Although it was easily cultivated, the information about the using of that pangi product and societies' knowledge about cultivation technique and the process of post harvest, cause the society wasn't interested to cultivate pangi plants so that its population was decreasing.

Pangi fruit could be processed became food materials such as: snack, vegetable oil (oil, kepayang), and cooking spices. Other functions of this fruit were as food preservative, medicines, and antiseptics. Pangi could be classified as multifunction tree because almost

all of its parts could be used as the leave, bark, stem, seed, fruit, and seed bungil (Aprianti, 2011). Needs of energy was increasing in line with industry development and also the development of citizen at the world. Main source of energy used nowadays was from fossil energy included petroleum, natural gas, and coal (Marchetti,et al.,2008). Result of the crude oil price that increased 78 dollar AS/ barrel. It was, especially for the industry countries which based on fossil energy (Kulkarni,et al.,2006).

Recently, the society started to process pangi fruit as snack material, so it needed information about its benefit and special function to be known by the societies and it hoped to be developed at the public forest and local society forest (Aprianti, 2011).

The using of pangi fruit (*Pangium edule Reinw*) as material of food preservative mightn't be well known and used widely by the societies. Basically, food product was differentiated into two classes that were fast food (without food preservative) and long term food (used food preservative). The using of preservative material was used in order to inhibit the grow and activities of microbe such as bacteria, mold or yeast so that the food could be stand for long time, increase the taste, color, keep the texture, prevent the color change and soon.

Preservative material was differentiated into two: GRAS (*Generally Recognized as Safe*) that was safe material and didn't have toxic effect such as salt, sugar, pepper, vinegar. Other type was ADI (*acceptable daily intake*) that was preservative material which permitted in processed fruits in order to keep customers' health. One of chemical preservative material used at numbers of food products and even became problem was formalin that used as antiseptic to kill bacteria and mold, at the concentration of 2-8% formalin was used to sterilize medical equipments, preserve the corps and biological specimens. From this point, it was clear that formalin wasn't for using as additional component of food, because it gave negative impact so that it was needed the safer natural preservative material and relative easy to be got. Parwanto (2010).

METHODS

The research method was scientific ways to get result in order to get certain benefit. Based on the purpose, type of this research could be classified into basic research, scientific, object to be studied. Then, based on the purpose, research method could be classified into experiment research.

The research method used at this research was using experiment research method (quantitative method)

EQUIPMENTS:

- Oven
- Spatula
- Chemical glass
- Bunsen
- Erlenmeyer
- Rotavapor
- GC-MS tool
- Measurement glass

MATERIALS:

- Pangi leave extract(*Pangium edule Reinw*)
- Methanol
- Sprits

WORK PROCESS

Making of pangi leave extract

Pangi leave was taken the fresh one; the sample collected from each village then was dried during 5 days and powdered. The powder was extracted by using maserasi and infudation methods. Firstly, 100g of pangi leave powder was done with maserasi with ethanol 90% 5x24 hours in the different glass container until 1-3 cm above the powder. The filtrate was collected then evaporated with rotavapor until being got methanol or ethanol extract of 170% and 96%.

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

Methanol thick extract was fractioned with chemical glass, then it was done with Gc tool that functioned to examine the purity of certain material,

separated any component from the mixture and could form in identifying traditional medicines from pangi leave (*Pangium edule Reinw*) the chemical compound and was become complex thick extract and then continued with using Ms tool that functioned as changer of chemical compound of a sample became positive and negative ions and resulted from plants source.

RESULTS

This research done in the village of Goin,Kecamatn North Mother,Regency of West Halmahera. On 1 June - 30 June 2017 with a purpose for the extraction of raw materials or samples leaves Pangi (*Pangium edule Reinw*) 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 5 days . After dry leaves pangi (*Pangium edule Reinw*) in blend with using the blender until a fine powder,after that in maceration with liquid solvent methanol and the time in need during 5x24 hours or for 5 days.

Then the samples in maceration or soak with liquids or solvents methanol in the sieve and in take extracting methanol from the leaves of the pangi (*Pangium edule Reinw*) 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 leaves of the pangi (*Pangium edule Reinw*).

Table 1. Gc-ms Test on the leaves pangi (*pangium edule reinw*)

The type of samples	Compound	The womb %
Pangi leaves (<i>Pangium edule Reinw</i>)	3R-acetamido-4C,6C-	1.03
	Bis(acetoxy)-5T-dimethylamino-cyelohexene	
	Neophytadiene	5.21
	(+)-2-endotracheal intubation,3-endotracheal intubation dimethylbornane	1.25

The type of samples	Compound	The womb %
	Neophytadiene	1.94
	Hexadecanoic acid	15.08
	Hexadecanoic acid	2.06
	Phytol	10,33
	(9Z)-9,17-octadecadienal	3.01
	Octadecadienal acid	24,60
	3,5-dimethyl-1-(dimethyldodecylsilyloxy)benzene	1.62
	Squalene	21,22
	Vitamin E	1.84
	Anisole, m-(2-nitrovinyl)	4,07
	2-(1-methyl-3-(2-methyl-3-pyridyl)pyridin-4-yl)pyridine	2.59
	Spinasterone	1.23

Analysis of compounds with GC-MS

Unpack the thick Octadecadienal acid (24,60) is 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 can be speculated the building blocks of extracting thick.

DISCUSSION

The plants leaves Pangi (*Pangium edule Reinw*) classified in nonkomersiyal herbs and only made or used as vegetable, oil produced from the fruit of the leaf Pangi which can be consumed by local msayarakat. From the information revealed by successive known that

in addition to be used or consumed as food for local communities can also removes cholesterol. The Leaf Pangi (*Pangium edule Reinw*) usually used as ingredients or vegetables inside it contains a compound Octadecadienal acid (24,60) contained in extracting methanol leaves Pangi (*Pangium edule Reinw*) using the appliance Kromotografi Spektrometeri Gas Gas (Gc-Ms).

CONCLUSION

The results anslisis GC-MS specify that the leaf extract pangi (*Pangium edule Reinw*) contains various compounds bioaktif but only one in the life of the compound Octadecadienal acid (24,60) which have the nature of drugs such as cure Cholesterol, fatty acid

Suggestions

Based on the results of research in find on extracting methanol leaves pangi (*Pangium edule Reinw*). Can obtain a lot of information to broaden the knowledge and apply one of the pharmaceutical on the

use of medicinal plants in the community, which is useful as : Seasoning, food, oil goring and nutritional namely : Water 51,0, Protein 10,0, Carbohydrate 13.5, fat/oil 24,0, calcium (Ca)0,040, Phosphor(P)0.10, Iron(Fe)0,002, Vitamin B1 0,00015, Vitamin C 0.03, Energy(shallow/grams)2.73.

ACKNOWLEDGEMENTS

Government of North Halmahera Regency, Medika Mandiri halmahera Foundation, Pharmacy Laboratory of Stikes Halmahera North Maluku.

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