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ORIGINAL ARTICLE

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IDENTIFICATION COMPOUND CHEMISTRY CONTAINED IN GOLOBE FRUIT METHANOL EXTRACT MARBLES (*ETLINGERA (Etingera Alba (Blume) A.D Poulsen)*)

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ABSTRACT

Background: The use of traditional medicines derived from plants develops rapidly and is widely used as an alternative by some people. The side effects of traditional medicines are relatively small, the price can be reached by the community, pharmacological effects that can be accelerated and strengthened by means of extreme purification and the existence of complete scientific data. This is an advantage of traditional medicine, and must always be developed by testing, research and development of efficacy safety of a plant. Research Objectives To identify compound compounds contained in a golobe marbles fruit (*Etingera Alba (Blume) AD Poulsen*) by using Gas-Mas Chromatography Spectrometer (GC-MS).

Research Type: This is an experimental study, where the golobe fruit in the picking marbles is then washed with running water, then dried with direct sunlight (from 7-10 am), after being dried, a fine powder is then macerated using methanol for 7 days after then filtered and then applied until thick extract is obtained and then performed GC-MS test

Results: It was found that Golobe fruit marbles contained compounds such as 2,4 pentanediol 1,39%, Caryophyllen 1,39%, Metoxyeugenol 15,32%, Hexadecanoic Acid, Ethyl Ester 4,02%, 9,12-Octadecanoic acid (Z, Z) -

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21.77%, Hexadecanoic Acid 22.45%, Cyclotetracosane 3.76%, Gamma-Sitosterol 5.20%.

INTRODUCTION

There are many plants and plants around us that have the potential as herbal medicines that are easy to find. Even parents in our family often use plants and plants as medicine. 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 its raw material needs is by strengthening research. 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.

The phytochemical screening results of the Zingiberaceae tribe from the *Hornstedtia zingiberaceae* (Golobe fruit) species contained flavonoid, saponin, terpenoid compounds and to see compounds that had high activity were carried out using GC-MS, Golobe fruit had fatty acids (palmitic acid and stearic acid).) has anti-bacterial activity, alpha humulone which can function anti-cancer, antioxidants.

Zingiberaceae plants are a group of chronic herbaceous plants, some species can grow to a height of 10 meters. The zingiberaceae tribe consists of the roots, stems, leaves, flowers and fruit where the stem consists of erect stems and rhizomes that grow from erect stems extending horizontally on the soil surface.

METHODS

The type of research carried out is experimental research that will be carried out at the Integrated Laboratory of Pharmacy Study Program Halmahera Health Sciences.

Research Tools And Materials

a. Tool

1. Oven
2. Stirring rod

3. Chemical glass
4. Measuring cup
5. Bunsen
6. Erlenmeyer
7. Rotavator
8. Three feet
9. Aluminum foil
10. Filter paper
11. Blender
12. 65mesh sieve
13. GC-MS tool

b. Material

1. Fruit Golobe marbles (*Etilingera Alba* (Blume) A.D. Poulsen)
2. Methanol
3. Spritus

PROCEDURE

Making fruit extract of golobe marbles (*Etilingera Alba* (Blume) A.D. Poulsen) Steps for making fruit extracts of golobe marbles are:

1. Golobe fruit picked directly from the trunk is collected and washed with running water
2. After washing the golobe is aerated on paper.
3. Golobe fruit weighing about 1 kg then dried without being exposed to direct sunlight to dry.
4. Fruit of Molobe dried marbles weighed and obtained weight of 600gr then made into powder with pollination until smooth.
5. Golobeyang fruit powder has been finely sifted and weighed and then put in containers and labeled.
6. Golobe fruit powder is put into a maceration container and then poured methanol liquid liquid through the golobe powder marbles
7. Cover and leave for 7 days protected from sunlight by stirring every day.
8. After 7 days, strain and residue are squeezed.
9. Golobe fruit residue plus enough liquid liquid to stir and stir.
10. The container is closed and left for 3-4 days and protected from sunlight
11. After 3-4 days, separate it by filtering it.
12. The extract liquid is evaporated on a water bath or with a rotavator until a thick extract is obtained.

13. Thick fruit extracts of golobe obtained marbles weighed and labeled.

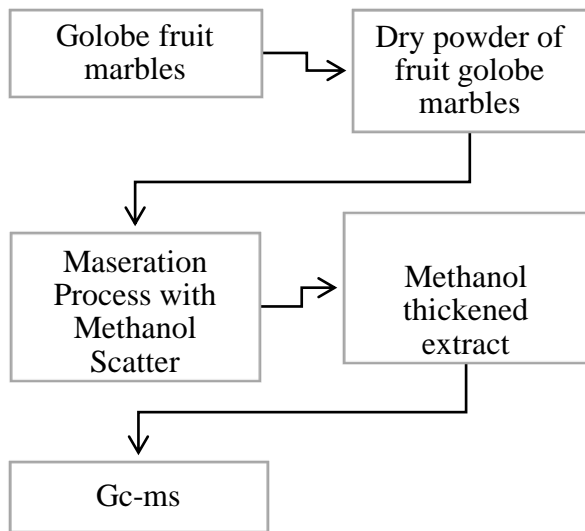


Figure 1. Workflow Identification of Fruit compounds golobe marbles ((*Etingera Alba (blume) A.D Poulsen*).

RESULTS

Collection of samples of marbles Golobe fruit (*Etingera Alba (Blume) A.D. Poulsen*) conducted in the village of Idamdehe District, Jailolo West Halmahera Regency in August. Samples that have been collected are then washed with running water and dried. The dried simplicia was smoothed with a blender then soaked with methanol for 5 days with stirring every day.

After 5 days of immersion then filtered the taken filtrate and the residue is removed. Then it is evaporated with a water bath until a thick extract is obtained. The thick extract obtained with a weight of 10 grams. The thick extract obtained was tested for active substances at Gc-Ms, extracts of the sample were given a pressure of helium or nitrogen so that the sample was in the form of steam before being 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.

Table 1. Gc-Ms Test Results Golobe Fruit Thickened Marbles (*Etingera Alba (Blume) A.D.Poulsen*)

SAMPLE	CONNECTION	COMPOUNDS (%)
	<i>2,4 pentanediol</i>	1,39
Golobe	<i>Hexadecanoic acid</i>	22,45
Fruit	<i>Caryophyllen</i>	1.39
Marbles	<i>Metoxyeugenol</i>	15,32
(<i>Etingera</i>	<i>Hexadecanoic acid,</i>	4,02
<i>Alba</i>	<i>Ethyl Ester</i>	
(<i>Blume</i>)	<i>12-Octadecanoic acid</i>	21.77
<i>A.D.</i>	<i>(Z,Z)-</i>	
<i>Poulsen</i>)	<i>Cyclotetracosane</i>	3,76
	<i>Gamma – Sitosterol</i>	5,20

DISCUSSION

Golobe marbles fruit (*Etingera Alba (Blume) A.D. Poulsen*) is a plant part of the family Zingiberaceae or Jahe-jahean tribe. Traditionally, the average Zingiberaceae Tribe has antibacterial, anti-inflammatory, anti-oxidant, one Golobe properties (one zingiberaceae tribe has the GCMS-identified chemical compounds containing fatty acids (palmitic acid, stearic acid commonly used for antimicrobials, antifungal, class terpenoids namely alpha humulene for anti-cancer as well as containing high antioxidants and research results for this type of Golobe function as a retrovirus.

The methanol extract of Golobe marbles contains the highest amount of Asthma Palmitate (Hexadecanoic acid) compound, which is 22.45%. Hexadecanoic acid is one of eight molecules that have a chromanol ring (a chroman ring with one alcoholic hydroxyl group) a 12-carbon aliphatic side chain containing two methyl groups in the middle and more than two methyl groups at the end. Hexadecanoic acid is a compound that can be used as an antibacterial such as the results of research on phytochemical screening of active compounds. Red algae obtained results that red algae contain 12.5% hexadecanoic acid and empirically used for antibacterial.

One compound that is also found in Golobe marbles is gamma-sitosterol which is one of several phytosterols (sterols in plants) that have the same chemical structure as the structure of cholesterol. Sitosterol is a white powder like wax and has a distinctive flavor. Sitosterol is hydrophobic and dissolves in alcohol. Both alone and together with the same phytosterol, Beta-sitosterol can reduce cholesterol levels in the blood and is sometimes used in treating hypercholesterolemia.

Beta-sitosterol inhibits cholesterol absorption in the intestine. After being absorbed in the intestine, the sterols will be transported by lipoproteins and combined

into cell membranes. Phytosterol and phytostanol both inhibit biliary cholesterol intake and food cholesterol, so LDL cholesterol and total cholesterol in the serum are reduced. Because the structure of Beta-sitosterol is very similar to the structure of cholesterol, Beta-sitosterol takes the position of food cholesterol and biliary in the micelle produced in the intestinal lumen. This causes a decrease in cholesterol absorption in the body. Gamma-sitosterol is also found in Saw Palmetto berry, cernilton (pollen extract), and Pygeum africanum (African plum) which have been clinically evaluated for use in the treatment of mild prostatic hyperplasia.

CONCLUSION

By going through a series of steps to get the Golobe fruit extract marbles and then tested with the GC-MS tool, it can be concluded that Golobe fruit marbles contain compounds: 2,4 pentanediol 1.39%, Caryophyllen 1.39%, Methoxyeugenol 15, 32%, Hexadecanoic Acid, Ethyl Ester 4.02%, 9,12-Octadecanoic acid (Z, Z) - 21.77%, Hexadecanoic Acid 22.45%, Cyclotetracosane 3.76%, Gamma - Sitosterol 5.20%. Of these compounds, which have the highest amount of content is Hexadecanoic Acid as much as 21.77 these compounds function as anti-bacterial and antioxidant. In addition, in Golobe fruits marbles also have gamma-sitosterol compounds which can reduce cholesterol.

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