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ORIGINAL ARTICLE

IDENTIFICATION OF HEPTACOSANE CONTAINED IN GOLOBE EXTRACT (*Hornstedtia Alliacea*)

Ismail¹, Arend L. Mapanawang², Nurwahida Do Abbas³, Averous F. Budiadji⁴

¹ Pharmacy Department of Sekolah Tinggi Ilmu Kesehatan Halmahera
² Yayasan Medika Mandiri

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***Correspondence to Author:**

Ismail

STIKES Halmahera, Yayasan
Medika Mandiri Halmahera

E-mail:

ismail@yahoo.com

ABSTRACT

Biological varieties in Indoensia were very big and could be used maximally, especially in the effort of developing the natural resources potential. Biological resources such as plants, in the form of it's extract, generally used in the medicine and industry fields.

Any diseases in the body were caused by free radical.

Golobe fruit extract (*Hornstedtia alliacea*) or pining bawang was kind of plant producing fruit member of zinger caste (*Zingiberacea*) that was parental herbal plant with rhizome fruit contained evaporator oil so it had aromatic smell. It's fruit was sweat to sour and should be eaten freshly. It's other name was bang ketamin (Lampung). This fruit could be also called as marshmallow. In order to know it's benefit as herbal plant toward hypertension, diabetes mellitus, asam urat, body defense, cholesterol, trouble of liver, and trouble of kidney.

This activity was objected to know about golobe fruit extract (*Hornstedtia alliacea*) in the chemical compounds that we hadn't known and found the compounds by using Gc-Ms tools.

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INTRODUCTION

Any disease inside the body caused by any factors, one of them was free radical. Free radical was radical based on oxygen or nitrogen with unpaired electron that generally produced inside the body at the metabolism process. Excessive free radical could cause any diseases such as degenerative disease, diabetes, coronary hearth, and cancer (Winarsi,2011). Free radical that found in the environment were some metals such as iron and copper, smoke, medicine, packed food, addictive material, etc.

Heptacosane was family of linier hydrogen of alkana from the molecule formula $C_{27}H_{56}$. This was found in the candle of apples' bark.

Name IUPAC : Heptacosane

Molecule Formula : $C_{27}H_{56}$

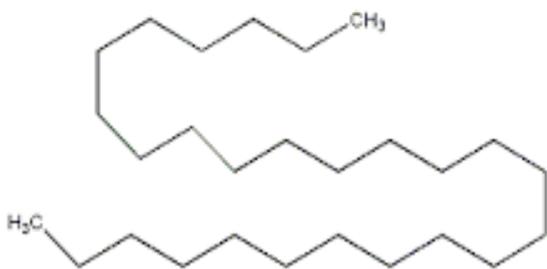


Figure 1. Structure of Heptacosane

Antioxidant was compound that could close to free radical inside the body. In protecting the body from free radical fighting, antioxidant substance was functioned to return free radical by completing the lacking electrons, from free radical so it hampered chain reaction (Windo et all,2001).

The research of Windono at all (2001) stated that antioxidant was compound that could/ be used to protect foods from the damage, rancidity, or coloring change caused by oxidation. Antioxidant was able played as developer of hydrogen radical or played as acceptor of free radical so it could cancel the initiation stage of free radical formed..

Natural antioxidant such as fenolik compound or it's synthetic could defense lipid oxidation, prevent the damage of organic component change inside the foods so that made longer the storage time (Rohdiana,2001).

Any diseases inside the body was caused by free radical. Free radical was atom or cluster that had one or more unpaired electron. Free radical was also met in the environment, any metals (iron, copper), smoke, car pollution, medicine, packed food, addictive material, etc (Droge, 2002).

Mechanism principle at antioxidant was through

radical resistance by stabilizing and preventing free radical reactivity (Molyneux, 2004). Consuming plants or foods that was containing antioxidant could help the body to down free radical content inside the body (Elmastas etall,2006).

METHODS

Riset was general term for research and related with science and technology it could be defined as a systematic effort to find validity started from an idea that raised because there was problem, then it was conducted the planning concept arrangement until deciding scientifically .

The research used was experiment that was conducted in Laboratory of Pharmacy Department of STIKES Halmahera. Sample used in this research was globe fruit (*Hornstedtia alliacea*) which found from Gayok Village, Malifut Sub district that would be processed to be extract.

TOOLS AND MATERIALS

a. TOOLS

1. Oven
2. Spatula
3. Chemical Glass
4. Bunsen
5. Erlenmeyer
6. Rotavapor
7. GC-MS tools
8. Measurement Glass

b. MATERIALS

1. Golobe Fruit (*Hornstedtia alliacea*)
2. Methanol
3. Methylated Spririt

PROCEDURES

Making of Golobe Fruit Extract (*Hornstedtia alliacea*)

Sample of Golobe (*Hornstedtia allicea*) that was picked directly by using hands and gathered from Gayok village then cleaned from the sticky waste with flowing water and dried. After getting dry, sample was smalls sliced and then powdered and extracted by using maserasi and infundasi methods. Firstly, 100 gram of globe fruit powder given maserasi with methanol during 3 X 24 hour in the different glass compartments until 1-3 cm above the powder. Filtra was gathered and then evaporated by using rotavapor until getting thick extract of methanol.

Identification Process of *Heptacosane* Compound by using GC-MS tools.

Thick extract of methanol was fractionated in chemical glass, then used by using GC tool that functioned to test the purity of certain material, or separate any components from the mixture and could help in identifying complex compound.

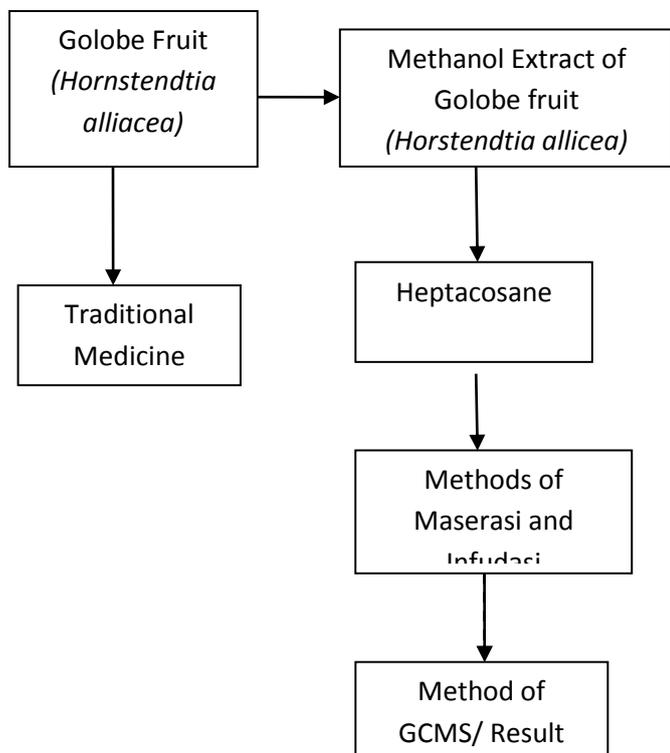


Figure 2. Conceptual Framework

RESULTS

Golobe fruit (*Hornstedtiaalliacea*) that had gathered from Gayok village was cleaned from sticky waste by using flowing water and then it was spread out in the sun to dry in the morning at 07.00-10.00 am, until 18.00 pm. After getting dry, the sample was small sliced, grinded by using blender, and then the powder was extracted with maserasi method.

Golobe fruit powder (*Hornstedtiaalliacea*) that would be filtered was put into maserasi container. Pour 100 ml methanol into the maserasi container contained golobe fruit extract slowly and then let the fluid soaked the golobe fruit extract for 3 x 24 hours. Stirring and maserasi were done until the extract getting transparent. Then, it was filtered in new compartment so it got fluidextract. Then the filtering result was gathered and evaporated by using rotavavor or konfor until it was got thick extract and then dried by evaporating, and finally got the dry methanol extract.

Table 1. Identification of Compounds inside Golobe (*Hornstedtia alliacea*)

SAMPLE	COMPOUND	CONTENT %
GOLOBE	2,3,Dyhidro-3,5-Dthidroxi-6-methyl	5,31
GOLOBE	Beta-Caryophiline	4,74
GOLOBE	Alpha-Humulene	1,22
GOLOBE	Hexadecanoic acid,ethyl ester	7,29
GOLOBE	Palmitit Acid	2,22
GOLOBE	2-formyl-5-ispropil-8-methyispiro	1,40
GOLOBE	3,H-Cycloprop(1,2)-5-cholest-1-en	14,19
	9,17-octadecadienal	2,81
	Nonacosane	5,88
	2,6-Dyethylpiridine	2,94
	C6-d-indolinocodeine	6,13
	Docosane	1,38
	11-tricosane	1,96
	Heptacosane	1,99
	Transs-Caryophiline	1,57
	Cyclopentane	3,94
	Cyclohexane	

DISCUSSION

Evaporation was process of vapor forming from liquid surface. The speed of vapor forming depended on vapor diffusion through the limit layer above the

pertinent liquid. Here, happened the principle of mass transference and partial pressure was it's supporting power. At the evaporation, the vapor forming run very slowly, so the liquid was boiled. During the boiling, the vapor was released through air bubbles that released from the liquid. The speed of evaporation was designed in order to be able to give maximal heat transference to the liquid. Therefore, the surface must be as broad as possible and the limit layer was decreased. In order to choose appropriate tools, must pay attention to the materials that would be evaporated.

The evaporation of extract was aimed to get thicker extract concentration. There were 3 kinds of extract, they were (1) Liquid extract, that found from filtering biological material which still contained extracted solution, (2) Thick extract, that had got evaporation process, and didn't contain extracted solution anymore, but it's consistency was liquid at room temperature, and (3) Dry extract, that had got evaporation process, didn't contain extracted solution anymore, and it's consistency was dry.

Factors that influenced evaporation were:

A. Temperature

Temperature was influenced in the evaporation speed, the higher of temperature so that the higher evaporation. Besides influencing evaporating speed, temperature was also played role toward material damage that was evaporated. .

B. Time

Time was also very influenced in evaporation. The implementation of high temperature at short time was not really caused damage than long time implementation of low temperature.

C. Humidity

Some chemical compounds was easier decomposed in high humidity, especially at the rising temperature.

D. Evaporation way

Result often determine the appropriate evaporation way.

E. Concentration

At the evaporation, the liquid would be thicker, so the degree of it's solid form would be more increased. This case would cause the boiling point rising of that liquid. By the rising of temperature and solid degree, it would step up the damage risk of the substance that was thermo labile and decrease the temperature difference that was supporting power to transfer the heat.

Golobe fruit extract (*Hornstedtiaalliacea*) must

be mixed with methanol soaked during 3 days, then evaporated until becoming thick extract.

CONCLUSION

Based on the result and discussion explained in the previous chapter, it could be concluded that inside the golobe fruit (*Hornstedtiaalliacea*) contained chemical compounds, especially compound that taken from *Heptacosane* compound which contained inside Golobe Fruit.

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