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IDENTIFICATION OF HEXADECANOIC ACID COMPOUNDS IN DRAGON DRY LEAF METHANOL EXTRACTS (RAPHIDOPARA PINNATA SCHOOT)

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ABSTRACT

Indonesia is known to be rich in biological resources that have the potential to be used as medicinal raw materials. Based on the benefits that already exist, both empirically and clinically tested, the potential sources of natural materials contained in the earth in Indonesia need to be explored with as much as possible, utilized in the implementation of public health efforts. Research Objectives To identify compounds of Hexadecanoic Acid contained in the methanol extract of Tails Naga (*Rhaphidophora schottii* Hook.f.) using Gas-Mas Chromatography Spectrometer (GC-MS).

Type of Research: It is experimental research, which takes the Dragon Tail Leaves that are still fresh not young and not too old and then washed with running water, then dried by direct sunlight (from 7-10 am), after being dried then made into fine powder macerated using methanol liquid for 7 days after it was filtered and then applied until thick extract was obtained then GC-MS test
Research Results: obtained that Dragon Tail Leaves contain compound Hexadecanoic acid 2.06%.

Conclusion: From the results of GC-MS Dragon Tail Leaves obtained Hexadecanoic Acid compounds containing in Dragon Tail Leaves of 2.06% this compound serves as an anti-bacterial and antioxidant.

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INTRODUCTION

Indonesia is one country that has abundant biodiversity. One of the biological wealth in Indonesia is a medicinal plant that has many benefits for human health. Indonesia is very rich in plant species that can be used for the purpose of improving health, preventing disease and treating various diseases.

Various chemical compounds contained in each plant have long been carried out research on chemical compounds contained in plants that are efficacious as drugs. One of the medicinal plants spread in the territory of Indonesia is the Dragon Tail Leaf (*Raphidopora pinnata* Schoot). This plant grows and spreads throughout the tropical Asia region and has many regional names depending on the area where it grows. *Raphidopora Pinnata* Schoot plants contain flavonoids, tannins, steroids or triterpenoids, essential oils and glycosides which are thought to have the potential as anticancer agents. Cancer is a deadly disease that is difficult to treat.²

Previous studies using *in vitro* culture techniques include Heti (2008) who tested cytotoxicity of 70% methanol extract of Dragon scales on T47D cells, Abdillah (2012) tested antiproliferation of Dragon Tail Leaf water extracts for sustainable cells of HeLa Tumors. The main causes of death worldwide. The rapid increase in cancer incidence and the absence of therapy that is considered appropriate to overcome it triggers the community in general and researchers in particular to explore natural materials that are considered potential as an alternative anticancer agent. From the results of research that has been empirically carried out, this plant is used as a cure for breast cancer. This plant in Indonesia is abundant and can be found on the branches of large old trees and shrubs.

Utilization of Dragon Tail plants to be used as medicine needs to be scrutinized and scientifically developed. Therefore it is necessary to conduct scientific research on the potential of these plants on extraction cancer cells of bioactive compounds Dragon Scales Leaf has been carried out using methanol but the identification of Hexdecanoic acid compounds of Dragon Tail Leaves using methanol has never been therefore researchers want to conduct in-depth research on methanol extract of Leaves Dragon Tail.

Based on the background stated above, the researchers are interested in conducting research with the following findings: Identification of Hexdecanoic acid compounds in Dragon Tail Leaf Methanol Extract (*Rahpidophora pinnata* Schoot).

Problem Formulation

The Dragon Tail Leaf Methanol Extract (*Rahpidophora pinnata* Schoot) containing hexadecanoic acid compounds?

Research Objectives

The aim to be achieved in this study is to identify Hexdecanoic acid compounds in Dragon Tail Leaf Methanol Extract (*Rahpidophora pinnata* Schoot).

Benefits of Research

Benefits in this study are:

1. Theoretical Benefits
Can find out the efficacy of traditional Naga Daun Tail medicine as a cure for various diseases, one of which is cancer.
2. Practical benefits
To increase knowledge and information specifically to know the compound Hexdecanoic acid in methanol extract of Dragon Tail Leaf.

METHODS

Type of Research

The type of research used in this study is a type of experimental research with a sample of Dragon Tail Leaves (*Rahpidophora pinnata* Schoot).

Time and Place of Research

This research will be carried out starting from June to July 2018 at the Diploma Pharmacy Study Program Laboratory of Halmahera Health Sciences College.

Tools and Materials

a. Tool

The tools that will be used in this study include:

- a) Analytical Scales.
- b) Oven.
- c) Blender.
- d) Jar.
- e) Sieve.
- f) Stirring Rod.
- g) Filter Paper.
- h) Aluminum foil.
- i) Scissors.
- j) Erlenmeyer.
- k) Beaker glasses.
- l) Measuring Cup.
- m) Drop Pipette.
- n) Rotary Evaporator.

b. material

The materials used in this study are:

- a) Dragon Tail Leaves (*Rahpidophora pinnata* Schoot) obtained and taken in Gosoma Village, Central Tobelo District.
- b) Methanol Solvent
- c) Spiritus
- d) Preparation of Dragon Tail Leaf Extract (*Rahpidophora pinnata* Schoot)

The making of the Dragon Tail Leaf extract that is picked is an old leaf that is dark green, the pick is the 5th leaf from under the Dragon Tail Leaf and then washed thoroughly with running water and then dried to dry. After that the Dragon Tail Leaf is blended until smooth. Taken as much as 100 grams of blender and macerated for 7 x 24 hours or 7 days then filtered and separated by filtrate with residue. The solution is evaporated using a rotary evaporator and produces a thick extract.

How to identify using GC-MS

The working principle of GC-MS is a sample in the form of a liquid injected into the injector then evaporated. Vapor-shaped samples are carried by the carrier gas to the column for the separation process. After separating each component, it will pass through the ionizing chamber and bombard the dichlorelectron so that ionization occurs. The resulting ion fragments will be captured by the detector and mass spectrum is produced.

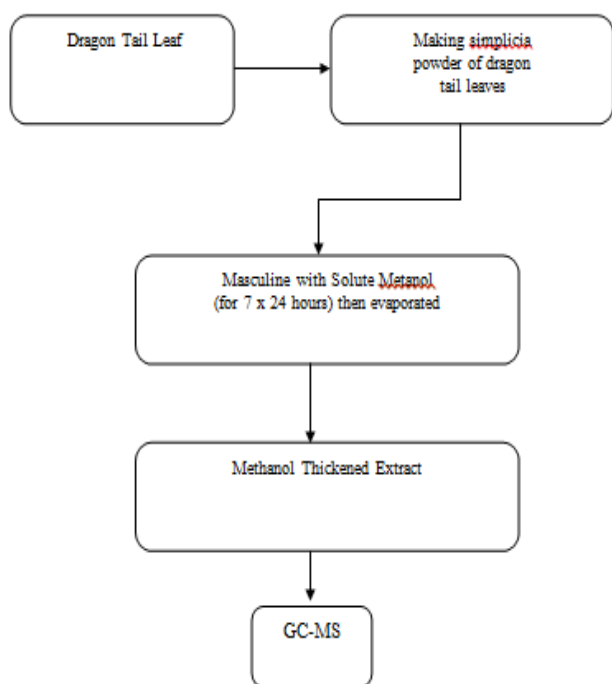


Figure 1. Framework

RESULTS

Collecting samples of Dragon Tail Leaves (*Rhaphidophora schottii* Hook.f.) conducted in Gosoma village, Tobelo District, North Halmahera Regency in August. Samples that have been collected are then washed with running water and then made chopped and dried. The dried simplicia was smoothed with a blender then soaked with methanol for 5 days with stirring every day. After 5 days the marinade was then filtered and the residue soaked again with methanol for 2 days and after two days re-screening was carried out. Filtrate or filtered methanol liquid with greenish black is evaporated until a thick extract is obtained.

The thick extract obtained is greenish black 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:

Table 1. Gc-Ms Test Results of Dragon Tail Leaf Thickened Extract (*Rhaphidophora schottii* Hook.f.).

SAMPEL	COMPOUND	CONNECTION (%)
Dragon Tail Leaves (<i>Rhaphidophora schottii</i> Hook.f.)	Hexadecanoic acid	2.06

From the results above that the Dragon Tail Leaf has or contains one compound, Hexadecanoic acid (palmitic acid).

DISCUSSION

Dragon tail plants come from Himalayas, are herbaceous, epiphytic, creeping, climbing plants with a height of 5 to 20 meters (Figure 1). The root of a dragon tail plant is attached to its pedestal like a wall or tree and also has a hanging root. Dragon tail leaf is a plant part of the areceae family. In general, people consume this plant by drinking decoction water to treat cancer, reduce body fat, rheumatic antihypertension, vein (sprained), cough and stroke therapy, while the active substance of the

dragon tail is the content of secondary metabolites in tail plants. Dragons are in the form of alkaloid compounds, flavonoids, saponins, tannins, triterpenoids / steroids. Further research on compounds in Dragon Tail Leaves found that the species on dragon tail leaves are palmitic acid and the average level of palmitic acid Dragon Tail Leaf is 2.06%. This compound is a class of compounds that can cause inhibition of cell division through inhibition and formation of cell membranes, especially inhibition of protein formation that contains tyrosine so that it is often used for antibacterials, and besides that there are groups of tannin compounds that can shrink the surface layer of the intestine thereby reducing the absorption of food essence in the intestine, the class of alkaloid, saponin, tannin and triterpenoid compounds work based on cytotoxic effects which interfere with the development of good cells of ovum cells in the ovary so that the synthesis of the hormones progesterone and estrogen will also be disrupted or cells making up the endometrial and myometrial layers

CONCLUSION

By going through a series of steps to get the Dragon Tail Leaf extract and GCMS test, one of the leaf extracts of the dragon's chord is, Hexadecanoic Acid 2.06%, this compound functions as an anti-bacterial and antioxidant

Suggestions

From the conclusions above, the researcher gives the following suggestions:

1. For the Government, in the future it will be more supportive and more helpful in terms of adequate facilities and infrastructure in researching natural medicine ingredients so that students can further improve their work.
2. For Educational Institutions, so that the results of this study become additional knowledge for students in adding insight, especially medicine.
3. For the community, to be able to add knowledge about medicinal plants and be able to use them in everyday life both to prevent and treat diseases that are possible with natural ingredients.
4. For further researchers, the results of this study are expected to be a reference for developing further research so that it can become an herbal preparation and benefit the wider community.

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