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INFLUENCE CONSUMPTION GOLOBE CAPSULES (HORNSTEDTIA ALLICEA) AGAINST INCREASED HEMOGLOBIN (HB) IN ADULTS IN THE VILLAGE PITU, WORK AREA PUBLIC HEALTH CENTER PITU, DISTRICT CENTRAL TOBELO, NORTH HALMAHERA

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ABSTRACT

Hemoglobin (Hb) is the main component of red blood cells or erythrocytes consisting of globin and heme consists of a porphyrin ring with one atom of iron (ferro). Golobe Halmahera (*Hornstedtia alliac*) is a fruit that contains flavonoids and antioxidants and, anti-inflammatory and antibiotic. This type of research used in this study is a quantitative treatment, research design quasy Experiment Design Control Group. untuk analyze the effect of consumption of extract capsules consumption golobe (*Hornstedtia alliac*) to increase hemoglobin (Hb). With a sample of 10 respondents in the village of Pitu, District Central Tobelo, which was taken with a sampling technique. Results of statistical analysis (SPSS Type 25.0) with a statistical test based on the output results Paired samples T-test known significant value or sign (two-tailed) was 0,000. Because the sign value ($0.000 < 0.05$), it can be concluded that the hypothesis is accepted. Compounds that contribute to increased levels of hemoglobin (Hb) is vitamin E, flavonoids, and stigmasterol. All three of these compounds act as antioxidantsto increase stamina, protects red blood cells that carries oxygen throughout the body. Based on the above results, it has been shown that there is influence consumption Golobe extract capsule (*Hornstedtia alliac*) to increase hemoglobin (Hb).

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INTRODUCTION

Hemoglobin(Hb) is the main component of red blood cells or erythrocytes consisting of globin and heme consists of a porphyrin ring with one atom of iron (ferro). Consists of four globin polypeptide chain is a polypeptide chain $\alpha_2 / (\alpha)_2$ and two beta polypeptide chains $\beta_2 / (\beta)_2$. Alpha polypeptide chain consisting of 141 amino acids and beta polypeptide chains composed of 146 amino acids. Hemoglobin (Hb) in the blood of normal adult hemoglobin consists of A (96-98%), hemoglobin F (0.5-0.8%) and hemoglobin A₂ (from 1.5 to 3.2%). The level of hemoglobin (Hb) is the size of a respiratory pigment in red blood granules. Total hemoglobin (Hb) in the blood of normal is about 15 grams per 100 ml of blood, and this number is usually called a "100 percent" (Evelyn, 2010). The normal range of hemoglobin values for a person difficult to determine because the hemoglobin level varies among ethnic groups. However, the WHO has set a normal hemoglobin levels based on age and gender.

Golobe Halmahera (*Hornstedtia alliacea*) is a fruit that contains flavonoids and antioxidants and are Alpha-Humules (12.46%), anti-inflammatory and hexadecanoid acid, ethyl ester (1.22%) containing antibiotics, anti-cancer, skin inflammation, anti allergic, anti-bacterial, anti-fungal, anti-viral, anti malaria are also used for healing injuries and infections. Golobe Halmahera (*Hornstedtia alliacea*) also contains vitamin E, which is strong enough to increase stamina, protects red blood cells that carries oxygen throughout the body, from damage, coping with stress, minimizing the risk of cancer, cardiovascular problems such as coronary heart disease and hypertension.

According to the World Health Organization (WHO) in 2013, the prevalence of anemia in the world amounted to 26.2% with the number of events for women of 49.1%. Anemia is prevalent in society, especially in adolescents and pregnant women, anemia in adolescent girls to this day is still quite high. There are approximately 370 million women in developing countries suffer from iron-deficiency anemia by 41% among non-pregnant women. The prevalence of anemia in India showed the number of 45% of young women have been reported to have iron-deficiency anemia by 41% among non-pregnant women. MoH RI (2013) showed a national prevalence rate of anemia among all age groups is 21.70%. The prevalence of anemia in women was relatively higher (23.90%) than men (18.40%). The prevalence of anemia based on the location of residence shows live in rural areas have a

higher percentage (22.80%) than live in urban areas (20.60%), while the prevalence of anemia in women aged 15 years or more amounted to 22.70%. Results Listiana study (2016) showed that the prevalence of iron deficiency anemia in adolescent girls in the first year of menstruation at 27.50%, with an average age of first menstruation at the age of 13 years.

Formulation of the problem

Based on the description of the problem in the above background, the researchers are interested in examining whether there is influence Golobe capsules (*Hornstedtia alliacea*) To increase hemoglobin (Hb) in adults In the village Pitu Tobelo District of Central?

Writing purpose

General purpose

Knowing the influence of capsule consumption golobe (*Hornstedtia alliacea*) To increase hemoglobin (Hb) in adults in the village of Pitu, District Central Tobelo.

Special purpose

1. To measure the average level of hemoglobin (Hb) experimental group before and after consuming capsules golobe (*Hornstedtia alliacea*).
2. To determine the effect of supplementation golobe (*Hornstedtia alliacea*) To increase hemoglobin (Hb) in the experimental group.

Benefits of Research

for researchers

As a means to increase knowledge and insight into the impact golobe capsule (*Hornstedtia alliacea*) To increase hemoglobin (Hb) in adults.

For Educational Institutions

- 1) Provide additional scientific knowledge and additional research references in the College of Health Sciences Makariwo Halmahera.
- 2) Informasitersebut can be made as a comparison for conducting advanced research for students and lecturers.

for the Community

Provide information to the public about the influence golobe (*Hornstedtia alliacea*) To increase hemoglobin (Hb) in adults.

For Further Research

As a reference source for the study of other researchers who did the same study, in order to further develop similar research like this.

Literature review

Overview Hemoglobin (Hb)

Definition of Hemoglobin (Hb)

Hemoglobin(Hb) is a hemoprotein composed of four different globin polypeptide chain and containing about 141 to 146 amino acids (Dorland, 2011). Hemoglobin is a substance in the color of the red blood cells are handy for transporting oxygen and carbon dioxide.

Hemoglobin(Hb) is the main component of red blood cells and serves as a transporter of oxygen and carbon dioxide in the blood. Hemoglobin levels are reported as grams of hemoglobin per deciliter of blood (g / dL). Normal levels of hemoglobin value ranges may vary slightly among different laboratories.

Functions Hemoglobin (Hb)

Hemoglobin (Hb) has several functions, among them:

1. Transporting oxygen (O₂) to the body's tissues.
2. Transports carbon dioxide (CO₂) and protons from peripheral tissues to the organs of respiration.
3. As the dye in the blood.
4. Acid-base balance in the body.

Value Hemoglobin (Hb)

Age group	Rated normal levels of hemoglobin (Hb)
5-11 Years	<11.5 g / dl
12-14 Years	≤ 12.0 g / gl
> 15 Years Male	> 12.0 g / dl
> 15 Years of Women	> 13.0 g / dl

Formation of Hemoglobin (Hb) in the Body

Hemoglobin(Hb) is a complex compound formed globlin 4 subunits, each containing a cluster hem conjugated to a polypeptide. Heme is a derivative porofirin containing iron (Fe). Hemoglobin become one with the air oxygen present in the lungs to form that oxyhemoglobin, which will release oxygen to the cells of the body's tissues. Oxyhemoglobin process requires

iron in ferrous form in the hemoglobin molecule. Oxygen bound equal the number of iron atoms. Each gram of hemoglobin to transport oxygen around 1.34 ml. Therefore iron is important in the formation of hemoglobin, myoglobin, and other substances such as cytochrome, cytochrome oxidase, peroxidase and catalase.

The absorption of iron in the body is assisted by ascorbic acid (Vitamin C). Vitamin C can increase iron absorption up to fourfold. According Patimah (2007) that the iron is an indispensable precursor in the formation of hemoglobin and red blood cells (erythrocytes). Iron absorption efficient and effective is in the form of Fero because soluble. For that, we need the acid environment in the stomach and compounds that can transform into Fero Ferries in the gut. The compound in question is ascorbic acid (vitamin C). Iron absorption speed is also affected by the plasma iron levels.

Factors Affecting Hemoglobin (Hb)

Various factors that affect the levels of hemoglobin (Hb) include nutrition, excessive bleeding, infections, nutritional status, as well as chronic diseases such as tumors and the destruction of the bone marrow, kidney disease, sickle cell disease, and heart failure. The intake of nutrients has an important role to hemoglobin (Hb), particularly iron for the synthesis of hemoglobin (Hb). Frequency of eating three times a day or more had a better tendency in the frequency of nutrition compared to eating less than three meals a day.

Nutritional status is multifactorial. The most influential factor is the expected changes in diet and lifestyle. Food intake is generally in the portion of the lot and most often are high in fat, sugar and preservatives, and low in essential nutrients such as fruits, vegetables, and animal food sources of quality.

Golobe Halmahera (*Hornstedtia alliic*)

Definition Golobe Halmahera (*Hornstedtia alliic*)

Golobe Halmahera (*Hornstedtia alliacea*) is a fruit-producing plants, a member of the ginger family (Zingiberaciaea). The fruit is sweet, slightly acidic usually eaten fresh. Grow about 3.5 m, and form dense clumps. Leaves forming a narrow lancet, upside down, about 55 to 65 x 5 -12 cm, hairy on both surfaces, and it has a tail like the end. Bunches of flowers in the spindle-shaped, with a length of about 11 cm including the stem. Labellum reached 3 cm long, longer than the petals, and the center is thickened, while the rounded edges with corrugated ends. When fruitful, then the bulge clusters similar to a large onion, with a diameter of 4-5 cm;

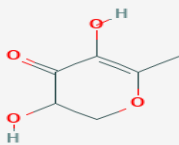
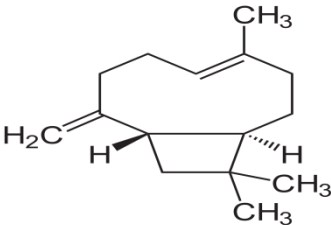
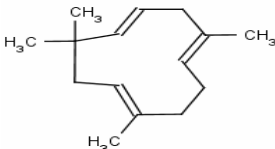
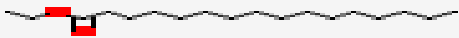
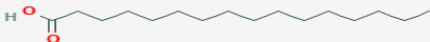
berries covered with elliptical leaves a protective layer upon layer, about 3 × 2 cm. Seeds are small, about 2 mm, black and covered with silvery white coated with a mucus-like sweet and sour taste.


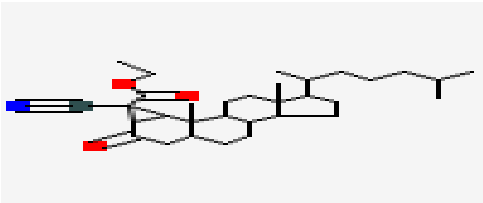



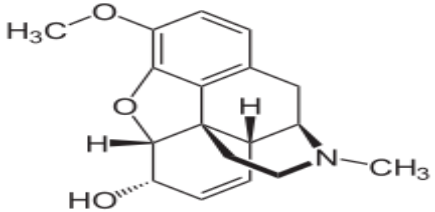

Scientific classification Golobe (*Hornstedtia alliac*)

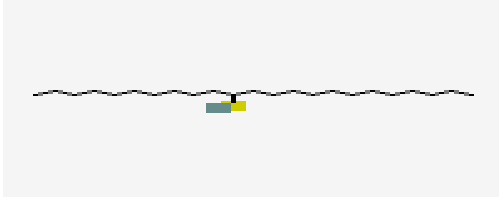
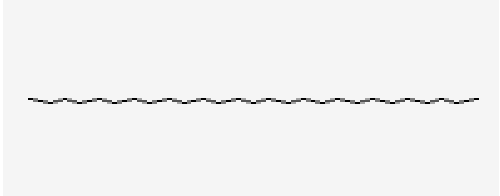
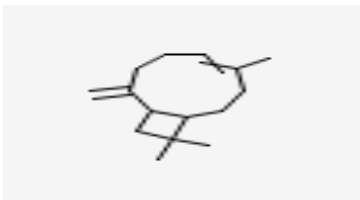
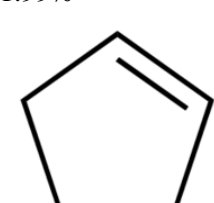
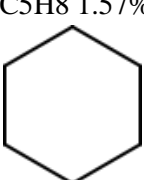
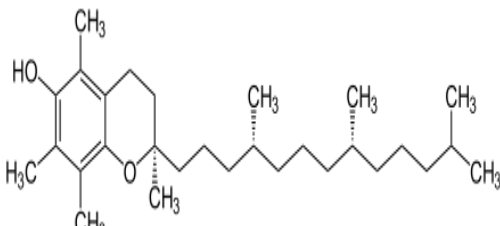
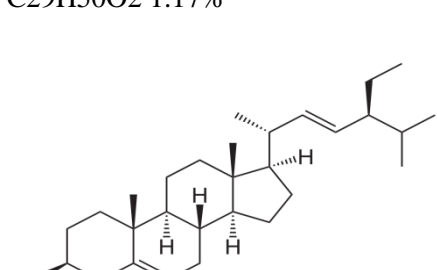
Scientific classification Golobe (*Hornstedtia alliac*) are as follows:

<i>Regnum</i>	:	<i>Plantae</i>
<i>divisio</i>	:	<i>Magnoliophyta ff</i>
<i>Classis</i>	:	<i>lilopsida</i>
<i>The Order</i>	:	<i>zingiberales</i>
<i>Familia</i>	:	<i>Zingiberaceae</i>
<i>genus</i>	:	<i>Hornstedtia</i>
<i>species</i>	:	<i>Hornstedtia allia</i>

Ingredients and compounds Golobe Halmahera (*Hornstedtia alliac*)

Compound	Molecular structure of Formula & Gynecology (%)
2,3, Dihydro-3,5Dthidroxyl-6methyl	 <chem>C6H8O4</chem> 5.31%
BetaCaryophiline	 <chem>C15H24</chem> 4.74%
Alpha-Humulene	 <chem>C15H24</chem> 12.46%
HexadecanoicAcid, Ethyl Ester	 <chem>C18H36O2</chem> 1.22%
Palmitit Acid	 <chem>C16H32O2</chem> 7.29%

Compound	Molecular structure of Formula & Gynecology (%)
2-formyl-5Ispropil-8Methyispiro	 $C_{12}H_{15}NO_3$ 2.22%
3, Hcycloprop (1.2) 5-Cholest-1-En	 $C_{32}H_{49}NO_3$ 1.40%
9.17-Octadecadienal	 $C_{18}H_{32}O$ 14.19%
nano Cosane	 $C_{29}H_{60}$ 2,81%
2,6Dyethylpiridine	 C_5H_4N (CH ₃) 5.88% C_6H_7N or
C6-Dindolino codeine	 $C_{18}H_{21}NO_3$ 2.94%
Docosane	 $C_{22}H_{46}$ 6.13%

Compound	Molecular structure of Formula & Gynecology (%)
11-Tricosane	 $C_{23}H_{48}S$ 1.38%
Heptacosane	 $C_{27}H_{56}$ 1.96%
Transs - Caryophiline	 $C_{15}H_{24}$ 1.99%
CyclopentanePentae	 C_5H_8 1.57%
Cyclohexane (Flantonoid)	 C_6H_{12} 3.94%
vitamin E	 $C_{29}H_{50}O_2$ 1.17%
stigmasterol	 $C_{29}H_{48}O$ 3.80

METHODS

This study is treated quantitatively using two or more groups that have the characteristics of relatively similar, using quasy Experimental Design Control Group by dividing the two experimental groups, measurements were performed one measurement before (pre-test) for the experimental group, after the measurement again (post-test) in the group to see a comparison of hemoglobin (Hb) in the experimental group before (pre-test) and after (post-test) is treated.

Place and time of research

This research will place in the village of Pitu, District Central Tobelo, North Halmahera. The research will be conducted for one month, commencing from June to July 2019.

Population and Sample

Population

Population is the number which consists of: Object / Subject that has the quality of a particular characteristic obtained by researchers to learn and then drawn conclusions.

Overall population research object or object under investigation is the study population. The population in this study is the village community Pitu, District Central Tobelo, North Halmahera.

Samples

The sample is part of the number and characteristics possessed by the population. The sample is part of the subject of the population who have a certain way to be considered to represent the population.

In taking this sample used in ways specific techniques so that the sample is representative of the population as much as possible. This technique is referred to as a sampling technique.

In this case the number of samples obtained from a population is as much as 10 in the experimental group of adults. Interventional procedures consume extract Pitu golobe Village, District Central Tobelo, North Halmahera. In this study the sampling technique used is consecucieve sampling, sampling consecucieve this is the type of non-probability sampling technique is to take all the members of the population being sampled, this is done if the amount is relatively small populations.

Total population gained as much as 10 to be used as a sample sebnyak 10 people to experiment.

Data collection technique

1. Primary data

a. Interview (interview)

Data obtained from respondents of interview data directly to the respondents to obtain valid data and details that can support this research.

b. Observation (Observation)

Observations in the preparation of this report is done by observing and recording directly on the object of study so that the data obtained from the study can be used as a comparison to the one delivered from the respondents and developers.

2. secondary data

Secondary data were obtained from the literature, the study of literature, journals - journals related research and supporting research, as well as data obtained from the working area Pitu Public Health Center, District Central Tobelo, North Halmahera.

Data Collection Procedures

Research data collection procedure is as follows:

Administrative procedures

1. Data collection was conducted after obtaining permission from the village chief Pitu (license attached).
2. Conducting research on the socialization plan Pitu village chief, and people aged 20-40 years of decreased levels of hemoglobin (Hb) in the study. The study describes the purpose of research, as well as the benefits of the research procedure, then discussed about consuming technique extracts golobe undergoing interventional procedures increase in hemoglobin (Hb).
3. The study will determine the client that the intervention levels of hemoglobin (Hb). Researchers gave information about the purpose and procedure that will be done then ask to be respondents with sheet signed an informed consent.
4. Conduct the election in accordance with the criteria for inclusion respondents
5. Respondents were grouped into first groups that get the default action to extract golobe.
6. Researchers determine the client in the first group and then the client is given the serial number of the respondent in accordance with the number on the study.

Intervention procedures

1. Experiment group

- a. Researchers ensure that clients will do the procedure intervention hemoglobin (Hb) and introduce yourself to the respondent
- b. Researchers briefed the respondents about the meaning, purpose, method golobe extract benefits for respondents and timing of implementation procedures golobe extract for 1 week.
- c. Provide an opportunity to the respondent to ask questions and make informed consen. Request a signature as proof of approval for respondents willing to participate in research activities.

Data processing

Pengelolaan data will be done using a computer through a stage - following stages:

Editing

This activity is performed to check for any data at the time of data collection or when the data is collected so that all valid data to be processed and aims to re-examine the validity of data obtained.

Coding

Providing code (numeric / number) on each data information that has been collected, so as to facilitate the processing of data and speed up the data entry process

Tabulating

Enter data (research) to the table and then processed using a computer.

Data entry

The data have been collected and then fed into a computer for further analysis of the data using statistical program programme for social science (SPSS).

Data analysis

Univariate analysis

Data analysis is the process of simplifying the data into a form that is easier to read and presentations. In this process done statistics, one of its functions simplify large amounts of research data into information that is simple and easy to understand.

Namely univariate statistical analysis techniques involving statistical data related only one variable.

Bivariate analysis

Bivariate analysis conducted for knowing form of relationship both independent and dependent variables. The tests used are:

Test T:

Doing bivariate analysis for the independent variable of type kategonik pairs. Measurement of pre-test and post test experimental control group. Measurements before and after giving golobe extract capsules. The test is performed to identify the effect of golobe extract capsules to increase hemoglobin (Hb) in adults by comparing the values before and after treatment. The test results are then determined based on the test or the probability value (P-Value) value <0.05 using programme statistical program for social science (SPSS).

DISCUSSION

The research was conducted in July 2019 with the number of respondents as many as 10 people are Pitu Village community. This study uses a quantitative research study design QuasiExperiment Design with pre-post Experiment Group. This study aims to obtain empirical evidence and the correlation between the consumption of capsules Golobe (*Hornstedtia Alliacea*) to increase platelets in normal adults in the village of Pitu.

The result of research in view based on gender. Terlihat that the respondents were male sex as much as 6 people, and respondents who were female as many as four people. These results showed that the number of respondents male sex the most highest, while the lowest is the female of 4 people.

Hemoglobin(Hb) has an important role in the formation of red blood cells (erythrocytes). Factors affecting the levels of hemoglobin and red blood cells (erythrocytes) in someone's diet, age, gender, activity, smoking, and the accompanying diseases such as leukemia, thalassemia, and tuberkulosi. The female sex is easier decreased than men, especially during menstruation.

From the results of research done about elevated levels of hemoglobin (Hb) in the experimental group, in doing intervention provides golobe extract capsules (*Hornstedtia alliac*) contained elevated levels of hemoglobin (Hb). The content contained in Golobe (*Hornstedtia alliac*) that can increase levels of hemoglobin (Hb) are flavonoids and antioxidants, it also contains vitamin E, which is strong enough to increase stamina, protects red blood cells that carries oxygen throughout the body.

In a previous study done by DR. Dr. Arend L Mapanawang SP. Pd. FINASIM about the effect of the capsule spinach (*Amaranthus tricolor L*) To increase hemoglobin (Hb) in pregnant women in 2017, an

increase in hemoglobin (Hb). Besides spinach known plant sources of iron, Vitamin A, Vitamin C and Calcium. Spinach also contains carotenoids and flavonoids which is an addictive substance with antioxidant functions that can increase levels of hemoglobin (Hb).

CONCLUSION

From the results of research and discussion that has been done, then it can be concluded as follows:

Based on the research I did on the village community Pitu, there are increased levels of hemoglobin (Hb) before (Pree test) and after (post-test) Golobe extract capsules (Hornstetia Allicea). There is the effect of consumption Golobe extract capsule (Hornstetia Allicea) to increase hemoglobin (Hb).

Based on the results of statistical test output Paired samples T-test known significant value or sign (two-tailed) was 0,000. Because the sign value (0.000 <0.05), it can be concluded that there is an influence of consumption golobe extract capsules(Hornstedtia alliac) to increase hemoglobin (Hb) in adults in the village of Pitu, District Central Tobelo, North Halmahera.

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