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INFLUENCE OF CONSUMING LILIN VEGETABLE (*Setaria Palmifolia*) TO THE REDUCTION OF URIC ACID DEGREE AT GOUT ARTHRITIS SUFFERER

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ABSTRACT

Gout Arthritis is disease that caused by stack of acid or uric crystal in the tissue, especially in the joint tissue. *Tricosane* inside lilin vegetable played role to reduce uric acid degree at the gout arthritis sufferers.

This research was used quantitative research with research design of *Quasy Eksperiment Design with Pre – Post Test Control Group* in order to analyze the influence of consuming lilin vegetable to the reduction of uric acid at gout arthritis sufferers in Ngoali Village. Population in this research were 30 people taken by using *random sampling* technique with total 10 sample that divided into 2 groups, they were experiment and control groups. Data taken by using interview and measurement of uric acid degree directly, and was analyzed by using T-Test at SPSS 23 with means level $\alpha = < 0,05$.

The result of experiment group showed value of T-counting = 4,636 (> value of T-Table 2,776) with *sig.(2-tailed)* or ρ value 0,010 (< 0,05) and control group showed value of T-counting 1,490 (< T-table 2,776) with *sig. (2-tailed)* or ρ value 0,211 (> 0,05).

Based on the research result, it could be concluded that there was an influence of consuming lilin vegetable to the reduction of uric acid degree at the experiment group, whereas at the control group there was not any influence. This was because lilin vegetable contained some compounds such as *Tricosane* that was effective to reduce uric acid degree at the gout arthritis sufferers.

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INTRODUCTION

Uric acid is acid in the crystal form that was resulted from purin metabolism (derivative of nucleoprotein) which was one of nucleate acid component contained in cell's nucleus of the body. (Milind, Parle. 2013).

Gout was closely related with problem of purin metabolism that stimulated the increasing of uric acid degree in the blood (*hiperurisemia*), if the uric acid degree in the blood more than 7,5 mg/dl. Normal degree of uric acid in the blood for male was 7 mg/dl, whereas for female was 6 mg/dl (Junaidi, 2013 : 80).

Uric acid was final product of purin metabolism that come from metabolism in the body/endogen factor (genetic) and come from out of body/exogenous factor (food source). Uric acid produced by each living thing as result of cell metabolism process that functioned to keep the viability. (Kanbara, 2010).

Risk factors of Gout Arthritis were chronically kidney, age, gender, dehydration, eating habit, obesity, consuming alcohol, and post operation. (Lingga, 2012).

Table 1. Normal Value of Uric Acid according to WHO (*World Health Organization*)

Gender	Low Value	Limit Value
Male	2,5 mg/dl	7,5 mg/dl
Female	2,5 mg/dl	6,5 mg/dl

To become Gout Arthritis, uric acid must pass through certain steps which signed the ways of this disease. First indication signed by hiperurisemia then growth became gout and it's complication raised. The process was long enough depended on the strong or weak of risk had been around by the *hiperurisemia* sufferer. (Lingga, 2012:20).

If hiperurisemia wasn't well cared, sooner or later the sufferer would get acute gout attack. If the uric acid degree was still high during some years, that sufferer would get inter-critical stadium. After entering this phase, it didn't need long time into final phase that called chronical Gout stadium. (Lingga, 2012:20).

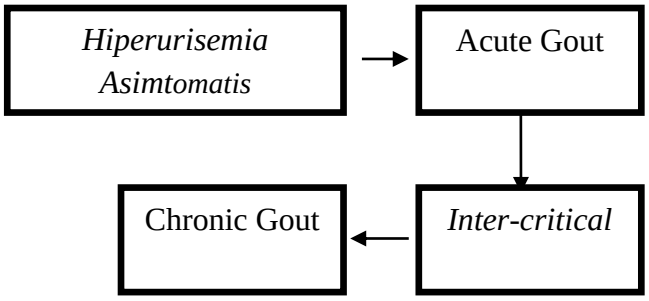

Figure 1. Risk increasing phase of gout arthritis disease

Lilin vegetable (*Setaria palmifolia*) included into horticulture plants, that used it's leaf and stem. This plant had prominent characteristics, such as: generally it's leaf is green so it is useful for health because has high nutrient, it is non-durable plant because it is perishable so mostly needed was the freshly leaf, and this vegetable is very sensitive to the pest and disease. (Palungkun, R. dan A. Budiarti, 2000).

Compounds and Contents of Lilin Vegetable

Table 2. Contents and Compounds Contained in Lilin Vegetable

Compounds	Contents
Hencicosane	(1,95%)
Tricosane	(19,05%)
Tetracosane	(2,03%)
Docasane	(8,54%)
z-12 Pentacosene	(6,04%)
Nonadecane	(7,31%)
Nonadecyl	(30,76%)
Trifluoroacetate	(2,51)
Celidoniol Deoxy	(12,26%)
Triacontyl Acetate	(6,74)
z-14-Nonacosane	

METHODS

Research design was reference framework for researcher to examine the relationship among the variables in a research (Arikunto, S. 2010), and was a place to answer research question or examine the hypothesis validity. This was quantitative research with research design of *QuasyExperiment Design With Pre - Post Test Control Group* (Mapanawang, 2016).

This research was aimed to analyze the Influence of consuming lilin vegetable (*Setaria palmifolia*) to the reduction of uric acid degree at Gout Arthritis sufferers in Ngoali Village, West Kao, North

Halmahera Regency. Intervention group in this research was patients who would get intervention procedure by consuming lilin vegetable.

At the experiment group, measurement of uric acid degree was done before and after intervention. At the control group, they only got the measurement of uric acid degree (*pre-post*) without being given the intervention (consuming lilin vegetable).

The research design could be described as follow:

Pretest	Intervention	Posttest
O_1	x	O_3
O_2		O_4

Explanation :

O_1 : Measurement result of uric acid degree before consuming lilin vegetable at the intervention group (experiment)

O_2 : Measurement result of uric acid at the control group

X : Intervention by consuming lilin vegetable

O3 : Measurement result of uric acid degree after consuming lilin vegetable at the intervention group (experiment)

O4 : Measurement result of uric acid at the control group

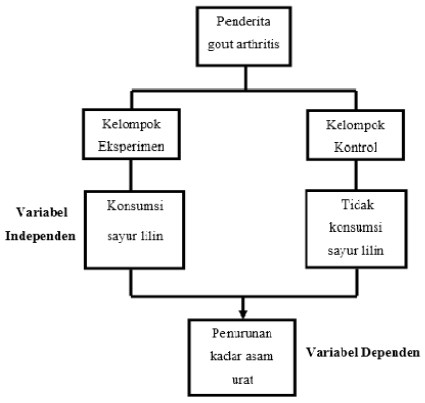

Figure 2. Research Framework

SAMPEL

Number of sample was found from the population based the on the respondents who would get intervention procedures by consuming lilin vegetable extract in Ngaoli Village, West Kao Sub district, North Halmahera regency. In this research, the researcher used sampling technique of *non probability sampling* by using saturated sampling, sampling that was done if all population used as sample. This sampling method was done by taking all population members as the sample. This was done if the number of population was relative small, for example if the sample was less than 30 persons, so all members of that population taken as research sample. other term of saturated sample was censuses, where all members of population was become the sample. (Mapanawang, 2016)

Number of sample used were 10 persons, 5 persons for experiment group and 5 others for control group.

INTERVENTION PROCEDURES

a. Intervention Group

1. Researcher assured the respondents who would be given intervention procedure and introduced self to the respondents.
2. Researcher gave explanation to the respondents about the signification, objective, method, benefit of lilin vegetable (*Setaria palmifolia*) for the respondent and time of implementation, and procedure of consuming lilin vegetable. Materials: 2 pieces lilin vegetables which steamed for ± 15 minutes, consumed in the morning (08.00 WIT) and 2 pieces in the night (20.00 WIT). Equipment: container for steaming.
3. Giving opportunity to the respondents to ask questions and gave *informed consent*, asked signatures as agreement proof for the respondents who were willing to include in research activities.
4. Checked up the uric acid degree, then asked the respondents to consume lilin vegetable during 7 days without consuming foods that could stimulate the increasing of uric acid.
5. Did the second check up of uric acid degree on the 8^{th} day. Equipments: *Glucose Uric Acid (GU) Easy Touch*, Observation sheets.

b. Control Group

Respondents at the control group only got checking of cholesterol that was done 2X and health education without being given the intervention (consuming lilin vegetable).

RESULTS

The research was conducted on June 2016 during 1 month. Data, which was collected by doing check up of uric acid degree and directly interview with 10 respondents, were documented by using observation sheet prepared. Basen od the interview and observation result, it was found the respondents' characteristic

according to age, profession, as displayed in the following tables:

Table 3. Respondents' Characteristic Based on Age

No	Age	F	Percentage (%)
1	20-30 tahun	1	10
2	31-40 tahun	3	30
3	41-50 tahun	4	40
4	>50 tahun	2	20
Sum	10100		

Table 4. Respondents' Characteristic Based on Profession

No	Kinds of Proffesions	F	Percentage (%)
1	IRT	5	50
2	Petani	3	30
3	Wiraswata	2	20
	Sum	10	100

Table 5. Respondents' Characteristic Based on Education Background

No	Education Background	F	Percentage (%)
1	SD	6	60
2	SMP	1	10
3	SMA	3	30
	Sum	10	100

Uric acid degree that meant in this research was the measurement result of uric acid degree which was done before and after intervention at the Gout Arthritis sufferers. For more clear explanation, it could be seen the uric acid degree before and after intervention in the table 10.

Table 6. Distribution of Uric Acid Degree Pre Test and Post Test at the Experiment Group

Uric Acid Degree		
No	**Pre Test**	**Post Test**
1	7.4 mg/dl	6.0 mg/dl
2	8.2 mg/dl	5.0 mg/dl
3	8.4 mg/dl	5.0 mg/dl
4	10.4 mg/dl	5.1 mg/dl
5	8.4 mg/dl	6.3 mg/dl

Table 7. Distribution of Uric Acid Degree Pre Test and Post Test at the Control Group

Uric Acid Degree		
No	**Pre Test**	**Post Test**
1	9.2 mg/dl	9.0 mg/dl
2	13.0 mg/dl	9.7 mg/dl
3	7.4 mg/dl	7.3 mg/dl
4	8.4 mg/dl	8.0 mg/dl
5	8.6 mg/dl	8.1 mg/dl

Table 8. Result of Paired Statistical Test of Test Sample at the Experiment Group

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	pre - post	3.0800	1.4856	.6644	1.2354	4.9246	4.636	4	.010

Table 9. Result of Paired Statistical Test of Test Sample at the Control Group

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre – Post	.9000	1.3509	.6042	-.7774	2.5774	1.490	4	.211

DISCUSSION

The height of uric acid degree could be influenced by some factors such as eating habit (Lingga,2012). Eating habit became one of the factor that caused the height of someone's uric acid because there were some foods that contained purin.

Purin entry from foods would add number of purin inside the body. Technically, the addition of purin inside the blood depended on the number of purin from foods. It meant, more consuming of foods with purin, so it would be higher the uric acid (final product of purin metabolism) inside the body. (Lingga, 2012:98).

Uric acid was final product of purin metabolism from the metabolism inside the body/endogen factor (genetic) and from out of the body/exogenous factor (food source). Uric acid was produced by each living thing as the result of cell metabolism that functioned to keep viability (Kanbara,2010).

The height of uric acid in the blood would stimulate Gout Arthritis disease. Gout Arthritis was a disease caused by the stack of acid or tendon crystal at the tissue, especially at the joint tissue. (Junaidi, 2013 : 80)

The influence of consuming lilin vegetable to reduce uric acid degree at gout arthritis sufferer occurred because lilin vegetable contained tricosane that played role in reducing uric acid degree.

Investigation at ethanol extract of marunggai's leaf and pod had produced isolation and structures of active compounds. From 100 active compounds inside the marunggai, there was similar compound contained in lilin vegetable, that was *Tricosane* which could play role to reduce uric acid degree in caring Gout Arthritis, *Source : Rubeena Saleem, "Studies In The Chemical Constituents Of Moringa Oleifera Lam And Preparation Of Potential Biologically Significant Derivatives Of 8-Hydroxyquinoline", University of Karachi/ H.E.J Research Institute of Chemistry, eprints.hec.gov.pk, 1995.*

Consuming lilin vegetable routinely and appropriately could reduce uric acid degree at gout arthritis sufferers. Active compound of *tricosane* inside was functioned as antioxidant which could reduce uric acid degree..

CONCLUSION

In this research, it was known that there was significant influence by doing intervention with consuming lilin vegetable at the gout arthritis sufferers. This could be known from result analysis of SPSS 16.0, by using T-Test, it got the result of value *p= 0,010.*

Based on the comparison of t counting and t table:

a. If counting statistic (number t output) > Table statistic (T table), so Ho rejected
b. If counting statistic (number t output) < Table statistic (T table), so Ho accepted

Result of T-Test analysis showed value of T counting 4.636 (bigger than value of T table 2.776) with value *α=0.010.* From the research result, it had got value *α=0.010,* therefore it had proofed that Ha accepted and Ho rejected (if value α <0.05), there was influence of consuming lilin vegetable toward uric acid degree at Gout Arthritis sufferers.

The influence of consuming lilin vegetable to reduce uric acid degree at gout arthritis sufferers because lilin vegetable contained senyawa *Tricosane* which played role in reducing uric acid degree.

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