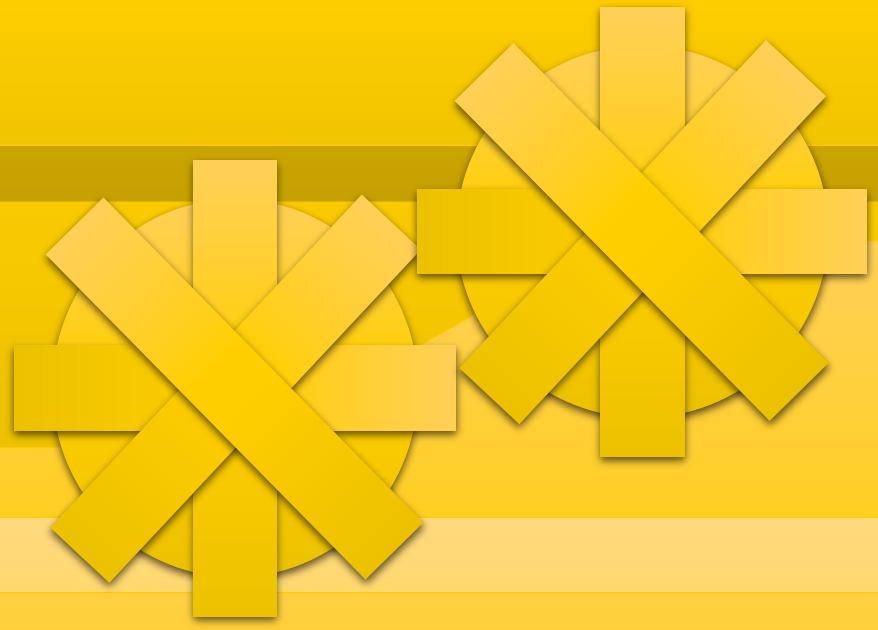

PUBLIC SENIOR HIGH SCHOOL 2 PALANGKA RAYA, CENTRAL KALIMANTAN

RESEARCHER 1 : LEO MAHENDRA

RESEARCHER 2 : ROSA NATHALIA

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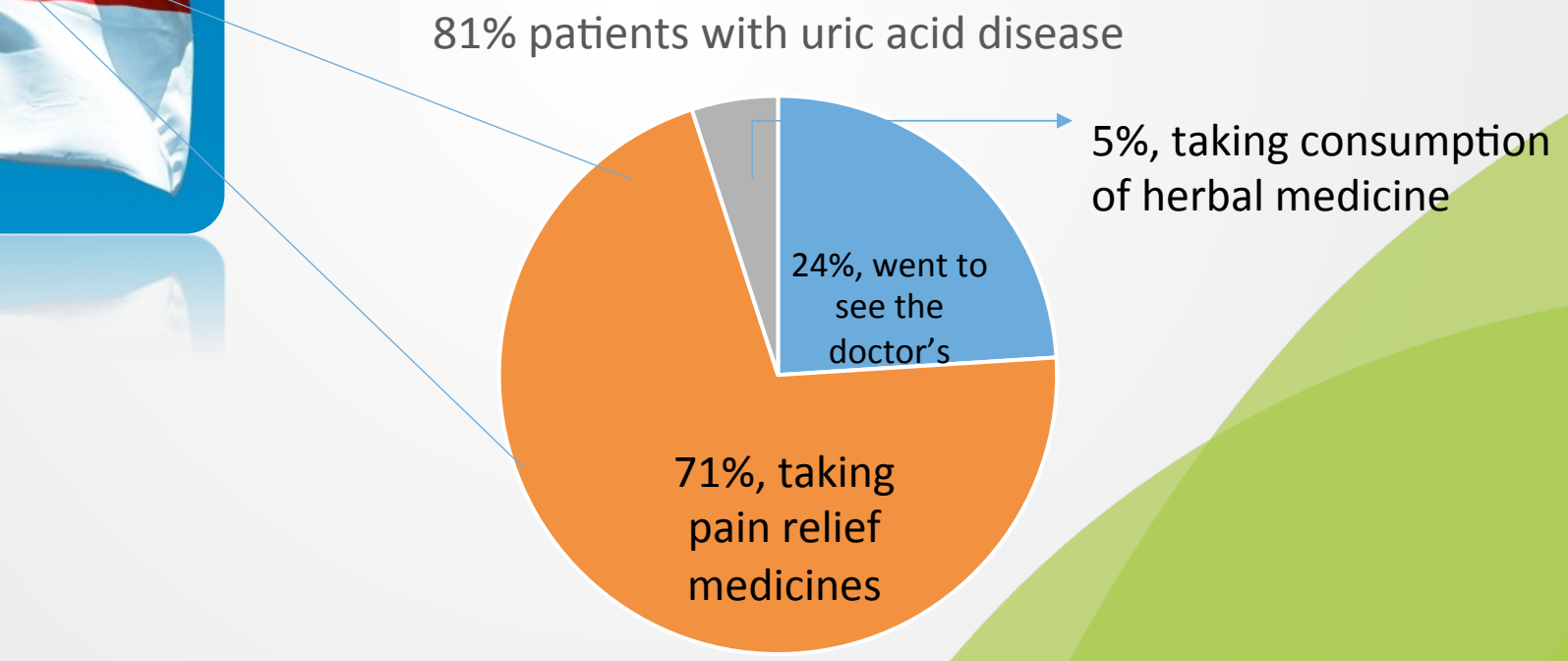
EFFECTIVENESS OF DAYAK MANYAN YOGHURT MADE OF KAMBE ONION WITH PEPEROMIA WEEDS FOLIUM IN DECREASING URIC ACID LEVEL

RESEARCH BACKGROUND

Fig. 1
Gout

The prevalence of gout in the USA got two times higher within the population of people aged more than 75 years old from 21 per 1000 to 41 per 1000. Meanwhile, the prevalence of uric acid on adult population in the UK was 1,4% with the peak more than 7% from men aged 75 years old. (WHO, 2011).

In Indonesia, the occurrence of uric acid on adults aged under 34 years old is 32% and for those above 34 years old is 68%. According to WHO in 2013, there were 81% patients with uric acid disease.



Side Effect

- Neuropathy
- Heparin Disturbance
- Allergic Reaction

Alternative Medication

Tumpangan Air
(Pepper Elder/Shining Bush Plant)

Kingdom : Plantae
Division : Angiosperm
Class : Magnoliids
Series : Piperales
Family : Piperaceae
Genus : Peperomia
Species : *P. pellucida*

Bawang Kambe/Bawang Sabrang
(Kambe Onion)

Kingdom : Plantae
Division : Angiosperm
Class : Monocots
Series : Asparagales
Family : Iridaceae
Genus : *Eleutherine* Herb.
Species : *E. palmifolia*

Yoghurt is a sort of food which is produced by bacterial fermentation of milk. According to Oedjijono, the sourness on yoghurt comes from lactate acid which have the benefits to boost the body endurance and stamina

Kambe onion or Bawang Dayak is a plant categorized as orchid soil that have the same shape of tubers with common onion. Kambe onion is a local plant from Kalimantan that many Dayak people used for herbs. The area of its growing in Kalimantan are very various, from the highland until the rural areas. It usually grow well in the sandy area.

According to Heyne (1987), from the result of phytochemical filtering process on the part of stem tuber of kambe onion, it is found that there are secondary metabolites flavonoid, tannin and essential oils.

Peperomia Weeds or Pepper Elder is a wild bushes plant that usually grows in a humid soil such as in ditch or river bank.

According to Nwokocha *et* al. (2012), the secondary metabolites content in Peperomia is alkaloid. The other contents are flavonoid and tannin.

According to Amarson Atli (2014), yogurt mostly contain water and calories, also protein, carbs, sugar and fat.

Research Purpose:

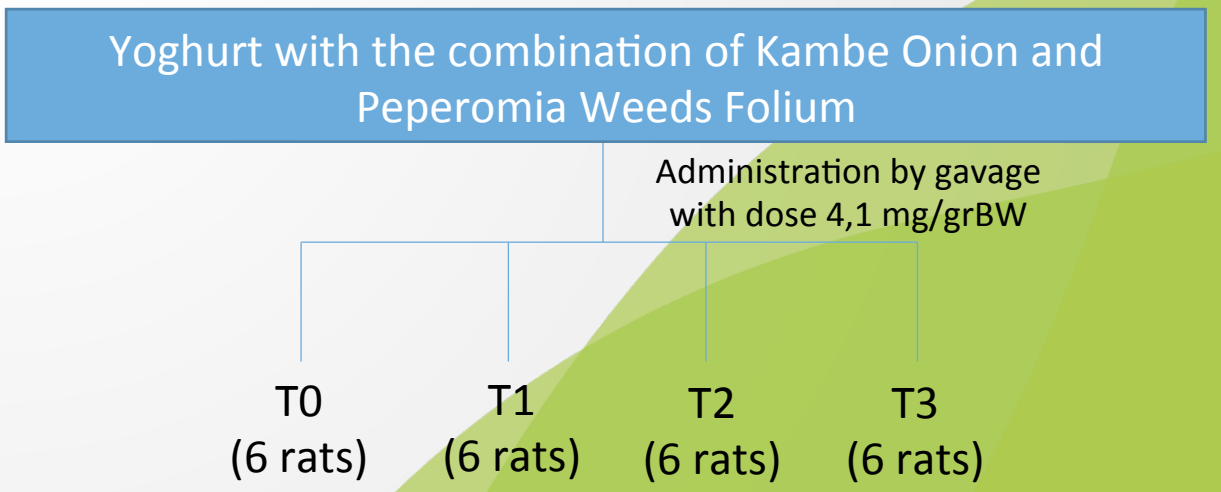
The purpose of this study is to test the combination of bulbus squamosus kambe onion and peperomia weeds folium in lowering uric acid level in blood given to adult male wistar rats (*Rattus norvegicus*) and male adults that taking this herbal medication and has the checking result

RESEARCH METHOD

Test on Rats

This research use an experimental *in vivo* design. Using RAL (complete randomized design) method, a direct test was conducted to find out the influence of Yoghurt of Dayak Manyan in lowering uric acid level in wistar rat's blood.

Inclusion Criteria	Exclusion Criteria
Normal male, aged 4-6 weeks before adaptation, normal weight (150-200 grams)	Rats dying during the 7-day acclimatization Dropout criteria: Rats getting diarrhea during the process of research which were found by the unformed stool, weight loss and dying during research.



The population of tested animals was male wistar rats

Given the serum of kambe onion and peperomia weeds folium by gavage with dose 4,1 mg/ grBW

The rats were then given some time to adapt for a week. During the adaptation, the rats fed in ad-libitum

The data obtained from *in vivo* test were analyzed using homogeneity testing, followed by ANOVA, MCA and Tukey HSD

Table 1. Experimental Design

Number (n)	Class of Experiment				The Treatment Length
	T0	T1	T2	T3	
1	R1	R1	R1	R1	3 days
2	R2	R2	R2	R2	
3	R3	R3	R3	R3	
4	R4	R4	R4	R4	
5	R5	R5	R5	R5	
6	R6	R6	R6	R6	

Description:

T0	:	**Original Yogurt (no additional substances)**
T1	:	Yogurt of Bulbous Squamosus Kambe Onion
T2	:	Yogurt of Peperomia weeds folium
T3	:	Yogurt made of mixed combination of Bulbous Squamosus Kambe Onion and Peperomia weeds folium
R	:	Rat

Test on Human

And Then, for the next step, *Quasi Experiment* was conducted used the arrangement of *Before and After no Control Group Design*. The sampling technique used was purpose sampling. The population in the study was all males. The sample of this study was the patients of hyperuricemia who got treatment from Doris Sylvanus Public Hospital in which there were 6 male participants, aged above 41 years old and have the body weight from 68-79 kg. The data-analysis technique used was T-Test.

RESULT

Table 1. Checking Result of Serum Uric Acid Day-1 on Rats (*Rattus novergicus*)

Experiment Class				
Number (n)	Control Group (T0)	Treatment Group (T1)	Treatment Group (T2)	Treatment Group (T3)
1	19,8	10	14,5	16,7
2	19,3	18,2	10,8	9,2
3	15,5	9,0	8,5	18,4
4	15,5	14,2	18,8	15,3
5	14,3	17,1	15,1	19,8
6	14,1	4,5	9,1	3,1
Total	98,5	73	76,8	82,5
Average	16,41	12,16	12,8	13,75

Description:

T0	:	Original Yogurt (no additional substances)
T1	:	Yogurt of Kambe Onion
T2	:	Yogurt of Peperomia weeds folium
T3	:	Yogurt made of mixed combination of Kambe Onion and Peperomia weeds folium
R	:	Rat

Table 2. Checking Result of Serum Uric Acid Day-2 on Rats (*Rattus novergicus*)

Experiment Class				
Number (n)	Control Group (T0)	Treatment Group (T1)	Treatment Group (T2)	Treatment Group (T3)
1	19,8	9,7	10,1	7,1
2	19,3	12,6	9,8	5,9
3	15,5	8,8	8,4	5,6
4	15,5	11,4	12,1	7,8
5	14,3	13,1	9,2	8,2
6	14,1	8,0	8,7	5,4
Total	98,5	63,6	58,3	40,0
Average	16,41	10,6	9,71	6,67

Description:

T0	:	Original Yogurt (no additional substances)
T1	:	Yogurt of Kambe Onion
T2	:	Yogurt of Peperomia weeds folium
T3	:	Yogurt made of mixed combination of Kambe Onion and Peperomia weeds folium
R	:	Rat

Table 3. Checking Result of Serum Uric Acid Day-3 on Rats (*Rattus novergicus*)

Experiment Class				
Number (n)	Control Group (T0)	Treatment Group (T1)	Treatment Group (T2)	Treatment Group (T3)
1	19,8	8,9	8,2	3,9
2	19,3	8,5	8,0	3,9
3	15,5	7,8	8,7	4,0
4	15,5	7,8	7,0	4,4
5	14,3	8,4	7,5	3,9
6	14,1	8,1	8,3	5,9
Total	98,5	49,5	47,7	26
Average	16,41	8,25	7,95	4,3

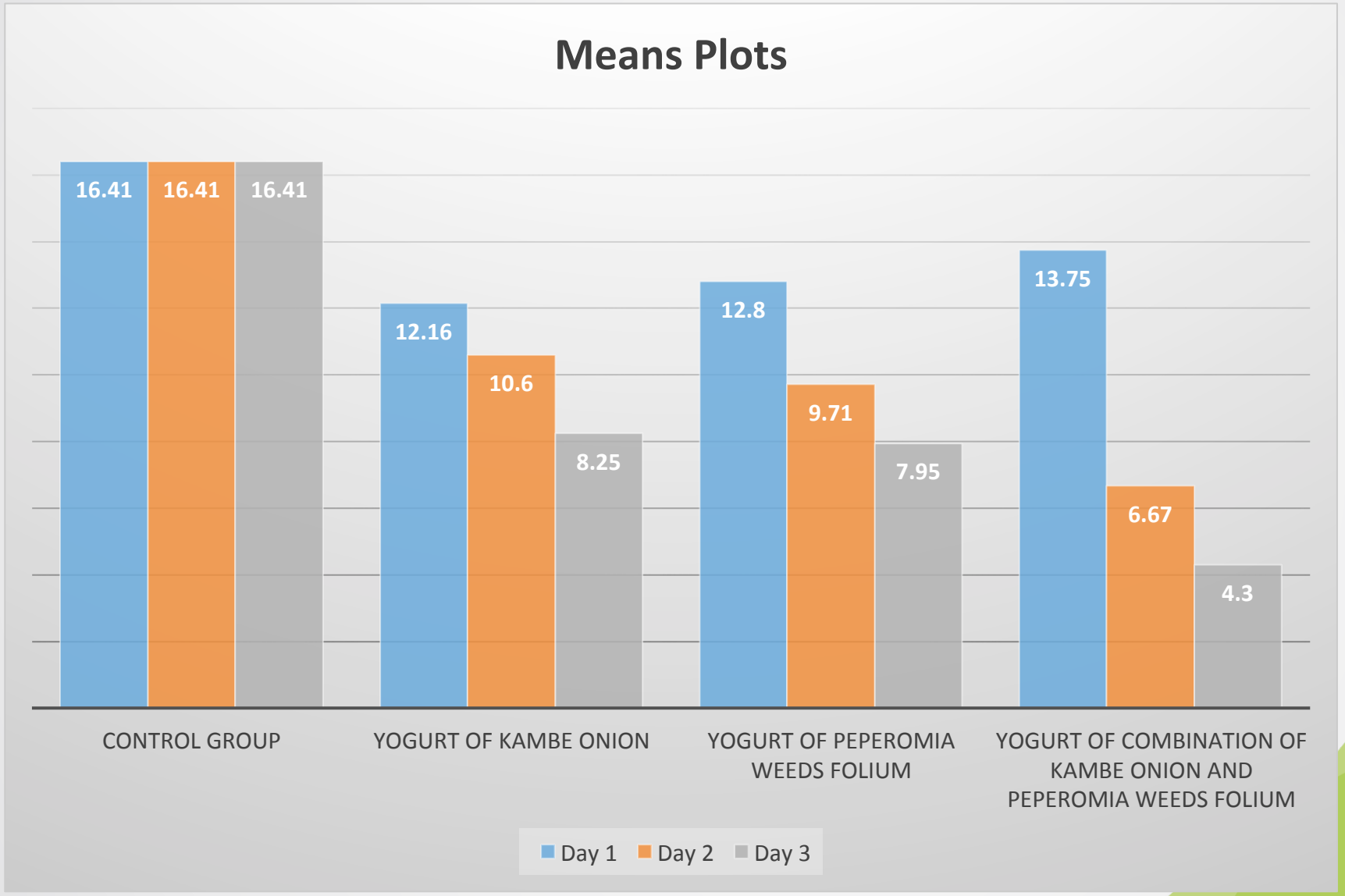
Description:

T0	:	Original Yogurt (no additional substances)
T1	:	Yogurt of Kambe Onion
T2	:	Yogurt of Peperomia weeds folium
T3	:	Yogurt made of mixed combination of Kambe Onion and Peperomia weeds folium
R	:	Rat

Descriptives

Asur

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
satu	6	16,417	2,5015	1,0212	13,791	19,042	14,1	19,8
dua	6	8,250	,4324	,1765	7,796	8,704	7,8	8,9
tiga	6	7,950	,6091	,2487	7,311	8,589	7,0	8,7
empat	6	4,333	,7916	,3232	3,503	5,164	3,9	5,9
Total	24	9,238	4,6930	,9580	7,256	11,219	3,9	19,8



Picture 4. Graphic of Rats Uric acid Level (Source : Observer Data)

ANOVA					
Asur					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	469,345	3	156,448	84,086	,000
Within Groups	37,212	20	1,861		
Total	506,556	23			

Picture 1. ANOVA Analysis (Source : Observer Data)

Multiple Comparisons						
Dependent Variable: Asur						
Tukey HSD						
(I) Perlk	(J) Perlk	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
one	Two	8,1667*	,7875	,000	5,962	10,371
	Three	8,4667*	,7875	,000	6,262	10,671
	Four	12,0833*	,7875	,000	9,879	14,288
two	One	-8,1667*	,7875	,000	-10,371	-5,962
	Three	,3000	,7875	,981	-1,904	2,504
	Four	3,9167*	,7875	,000	1,712	6,121
three	One	-8,4667*	,7875	,000	-10,671	-6,262
	Two	-,3000	,7875	,981	-2,504	1,904
	Four	3,6167*	,7875	,001	1,412	5,821
four	One	-12,0833*	,7875	,000	-14,288	-9,879
	Two	-3,9167*	,7875	,000	-6,121	-1,712
	Three	-3,6167*	,7875	,001	-5,821	-1,412
*. The mean difference is significant at the 0.05 level.						

Picture 2. *Multiple Comparison* Next Analysis (Sumber : Data Peneliti)

Asur				
Tukey HSD[a]				
Perlk	N	Subset for alpha = 0.05		
		1	2	3
Four	6	4,333		
Three	6		7,950	
Two	6		8,250	
One	6			16,417
Sig.		1,000	,981	1,000
Means for groups in homogeneous subsets are displayed.				
a. Uses Harmonic Mean Sample Size = 6,000.				

Picture 3. Tukey HSD Analysis (Source : Observer Data)

- ANOVA analysis is a type of analysis that have the purpose to know are these treatments have a significant different results among the treatments.
- If the ANOVA result is positive, then the next statistical analysis is to use Multiple Comparison Analysis which have the purpose to compare which treatment has the significant different among these treatments.
- Then the next statistical analysis is to use Tukey HSD from Homogenous Subsets to find out which treatments affect the most between these treatments, the result in treatment 4 (which is the treatment yogurt of combination of kambe onion and peperomia weeds folium) in Subset 1 shows it has significant different of result compare with the treatment 3 (treatment of yogurt of peperomia weeds folium) or treatment 2 (treatment of yogurt of kambe onion).

Checking Result on Human

The Result of checking up on the uric acid in subject's blood		
Number of Subjects	Subjects before the intervention	Subjects after the intervention
1	15,5	5,4
2	12	7,3
3	14,6	5,9
4	13,3	5,4
5	15	6,2
6	14,6	5,5
Total	85	35,7
Average	14,16	5,95

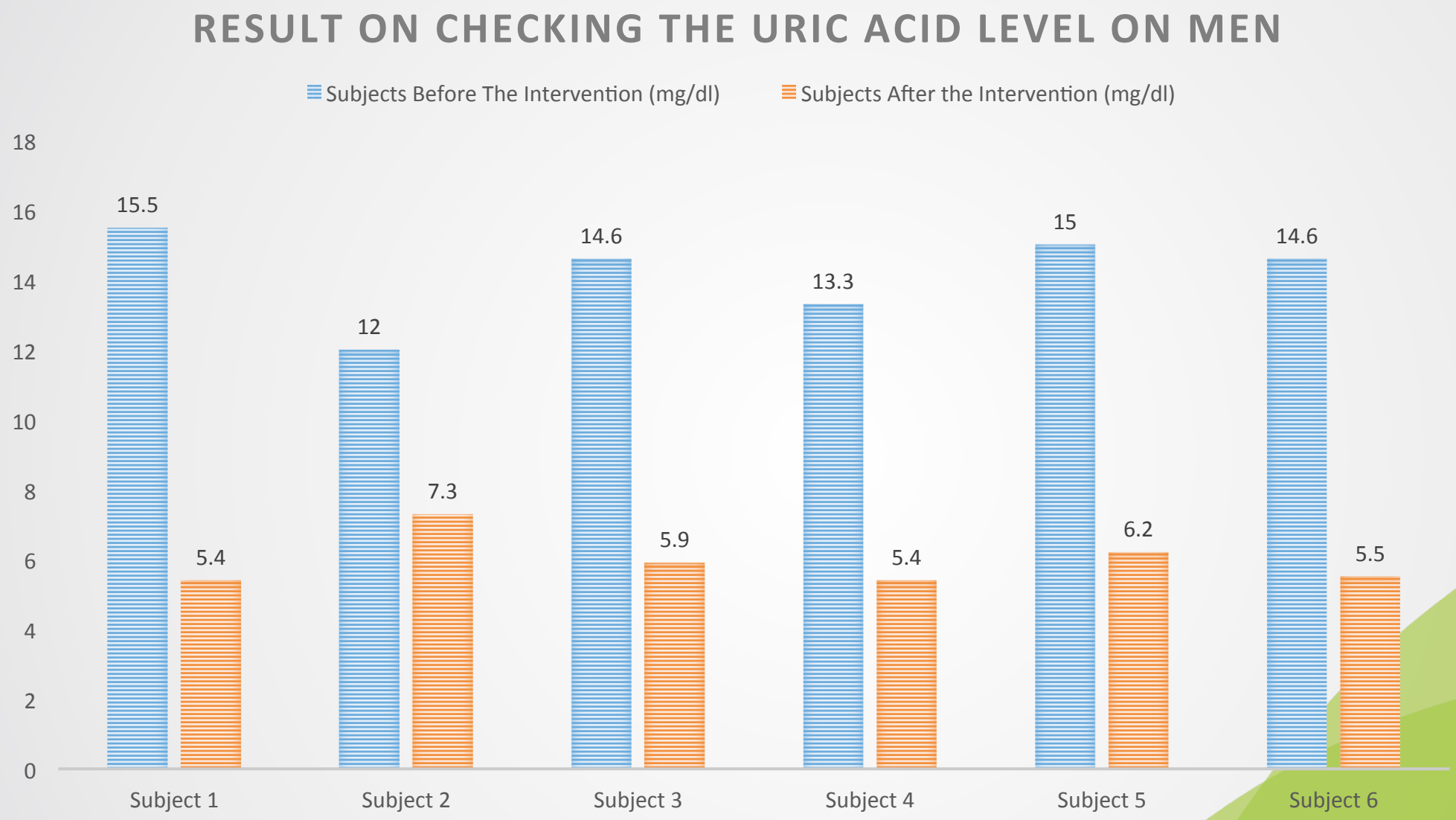
Picture 5. Result On Checking The Uric Acid Level On men (Source: Observer Data)

Group Statistics

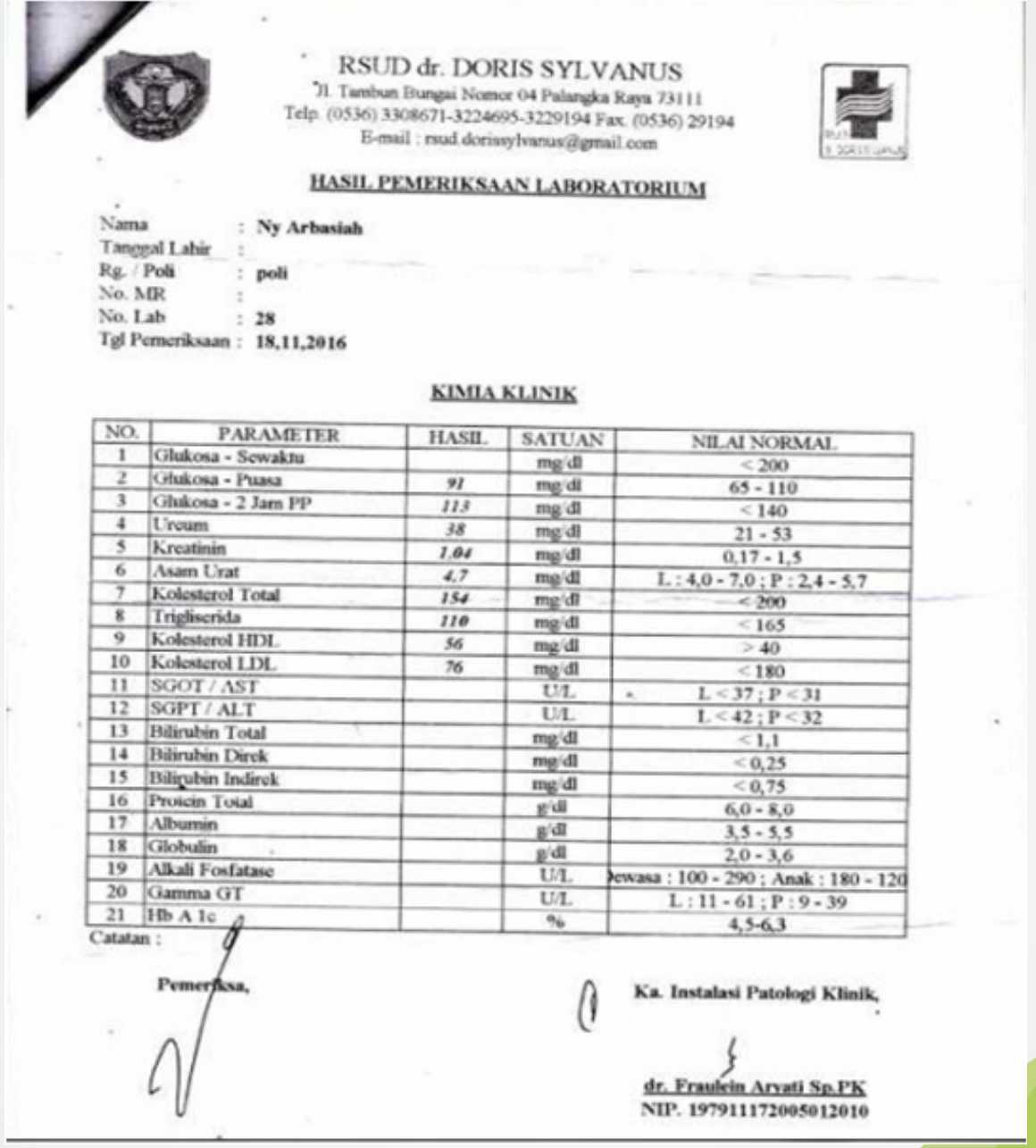
	Perlk	N	Mean	Std. Deviation	Std. Error Mean
Asur	satu	6	14,167	1,2879	,5258
	dua	6	5,950	,7342	,2997

Table 8. The Result of T-Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Before - After	8,2167	1,8638	,7609	6,2608	10,1726	10,799	5	,000


RESULT ON CHECKING THE URIC ACID LEVEL ON MEN
Subjects Before The Intervention (mg/dl)
Subjects After the Intervention (mg/dl)
18
16
14
12
10
8
6
4
2
0
15.5
5.4
12
7.3
14.6
5.9
13.3
5.4
15
6.2
14.6
5.5
Subject 1
Subject 2
Subject 3
Subject 4
Subject 5
Subject 6

Picture 5



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E-mail : rsud.dorissylvanus@gmail.com

HASIL PEMERIKSAAN LABORATORIUM

Nama : **Ny Arbasiah**
Tanggal Lahir :
Rg. / Poli : **poli**
No. MR :
No. Lab : **28**
Tgl Pemeriksaan : **18,11,2016**

KIMIA KLINIK

NO.	PARAMETER	HASIL	SATUAN	NILAI NORMAL
1	Glukosa - Sewaktu		mg/dl	< 200
2	Glukosa - Puasa	*91*	mg/dl	65 - 110
3	Glukosa - 2 Jam PP	*113*	mg/dl	< 140
4	Ureum	*38*	mg/dl	21 - 53
5	Kreatinin	*1.04*	mg/dl	0,17 - 1,5
6	Asam Urat	*4,7*	mg/dl	L : 4,0 - 7,0 ; P : 2,4 - 5,7
7	Kolesterol Total	*154*	mg/dl	< 200
8	Trigliserida	*110*	mg/dl	< 165
9	Kolesterol HDL	*56*	mg/dl	> 40
10	Kolesterol LDL	*76*	mg/dl	< 180
11	SGOT / AST		U/L	L < 37 ; P < 31
12	SGPT / ALT		U/L	L < 42 ; P < 32
13	Bilirubin Total		mg/dl	< 1,1
14	Bilirubin Direk		mg/dl	< 0,25
15	Bilirubin Indirek		mg/dl	< 0,75
16	Protein Total		g/dl	6,0 - 8,0
17	Albumin		g/dl	3,5 - 5,5
18	Globulin		g/dl	2,0 - 3,6
19	Alkali Fosfatase		U/L	ewasa : 100 - 290 ; Anak : 180 - 120
20	Gamma GT		U/L	L : 11 - 61 ; P : 9 - 39
21	Hb A 1c		%	4,5-6,3

Catatan :

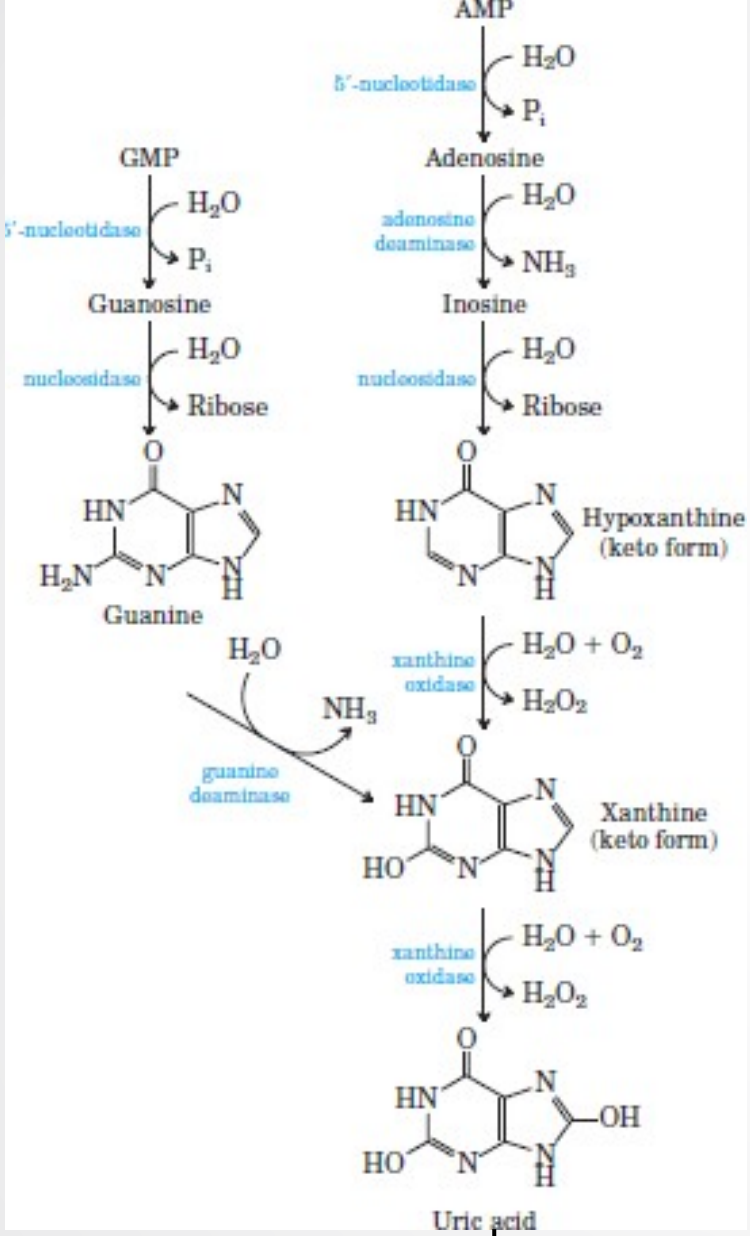
Pemeriksa,

Ka. Instalasi Patologi Klinik,

dr. Fraulein Aryati Sp.PK
NIP. 197911172005012010

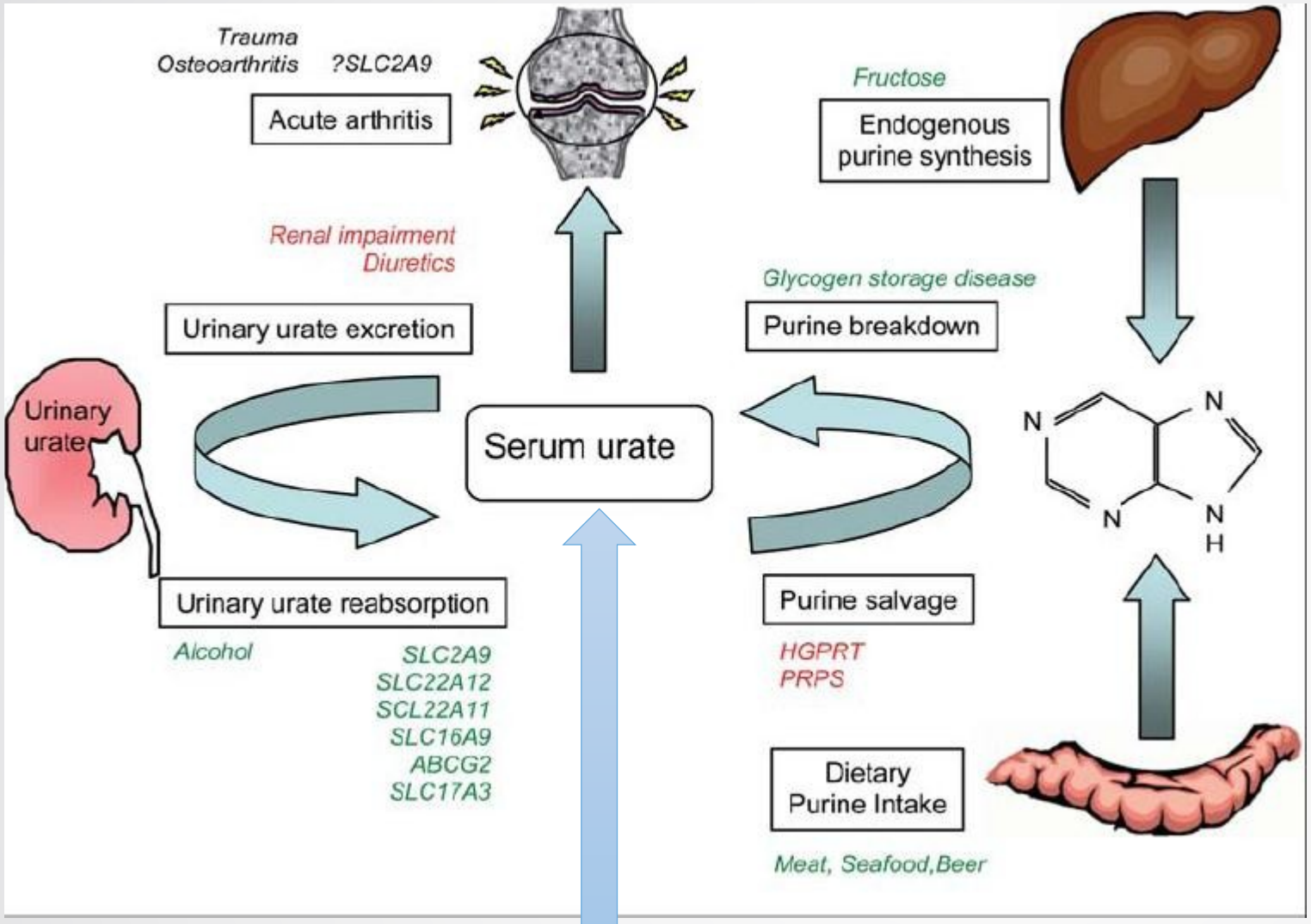
Picture 5. Checking Result of Serum Uric Acid Level Before Consuming 11.7 mg/dl And After Consuming 4,7 mg/dl User of Dayak Manyan Analeptics (Source: Observer Data)

DISCUSSION



Hypourichemic

DAYAK MANYAN ANALEPTICS FITOTHERAPY



Picture 6. Dayak Manyan Analeptics Fitotherapy Process In Controling The Uric Acid Through Uric Metabolism

CONCLUSION

The result of the statistical analytic test showed that the effect of the decreasing of uric acid level by Dayak Maanyan yogurt on treatment of combination of kambe onion and peperomia weeds folium was significantly different compared to the other treatments. It shows the significant difference on third day. Meanwhile, the result of statistical analytic test of the uric acid level of male clients using the yogurt of combination of kambe onion and peperomia weeds showed significantly different effects between subjects before and subjects after intervention. It shows significant difference after 1 week.

REFERENCES

(1) Heyne, K. 1987. *Tumbuhan Berguna Indonesia I*, translated version from Research and Development of Ministry of Forestry, *Sarana Wana Jaya* Foundation, Jakarta.
(2) Nwokocha, C.R, D.U. Owu., K. Kinlocke., J. Murray., R. Delgoda., K. Thaxter., G. McCalla., and L. Young. 2012. Possible Mechanism of Action of the Hypotensive Effect of Peperomia pellucida and Interactions between Human Cytochrome P450 Enzymes. Medicinal and Aromatic Plants. 1:1-5.
(3) Rahmatini. 2015. *Evaluasi Khasiat dan Keamanan Obat (Uji Klinik)*. West Sumatera: Andalas Medical Magazine, No.1. Vol.34. January-June 2010.
(4) Simarta, Y.B.C., Saragih, A., Bahri, S. 2012. The effect of hyperuricemia from the extract of Arrowleaf Sida (*Sida rhombifolia L*) on male house mouse. Journal of Pharmaceutics and Pharmacology, 1 (1): 21-28.
(5) WHO. (2011). *Prefalensi Asam Urat.* (*http://www.prevalensi.datawho-tentang-penyakitasam-urat.html)*(accessed on 20 September 2017).

Let’s get healthy with yogurt!