LAMPIRAN

Lampiran 1

SURAT PERMOHONAN IJIN

Hal : Permohonan Penggunaan Laboratorium

Lampiran : 1 Lembar

Yth.

Kepala Penanggung Jawab Laboratorium

Prodi D3 Analis Kesehatan Universitas Muhammadiyah Surabaya

Di Tempat

Dengan Hormat,

Assalamualaikum. Wr. Wb. Sehubungan dengan dilaksanakannya penelitian untuk penyusunan Karya Tulis Ilmiah T.A. 2016 - 2017, saya yang bertanda tangan dibawah ini :

Nama : Hani Ayu Annisak

Nim : 20140662037

Judul KTI : Pengaruh Lama Penyimpanan Bahan Kontrol *Pool* Serum Terhadap Stabilitas Pada Pemeriksaan BUN dan Kreatinin

Mengajukan permohonan izin menggunakan Laboratorium Patologi Klinik dan peminjaman alat sebagai terlampir. Demikian surat permohonan izin ini saya buat, atas izin Bapak/Ibu penanggung jawab saya ucapkan terimakasih. WassalamualaikumWr.Wb

Surabaya, 10 April 2017

Pemohon

Hani Ayu Annisak

Mengetahui,

Dosen Pembimbing I

Ir. Ruspeni Daesusi,M.Kes

Dosen Pembimbing II

Dra. Anik Handajati,M.Kes

SURAT PERMOHONAN IJIN

Hal : Permohonan Penggunaan Laboratorium

Lampiran : -

Yth.

Kepala Keamanan

Universitas Muhammadiyah Surabaya

Di Tempat

Dengan Hormat,

Assalamualaikum. Wr. Wb. Sehubungan dengan dilaksanakannya penelitian untuk penyusunan Karya Tulis Ilmiah T.A. 2016 - 2017, saya yang bertanda tangan dibawah ini :

Nama : Hani Ayu Annisak

Nim : 20140662037

Perihal : Peminjaman Laboratorium Patologi Klinik dan Laboratorium Kimia

Tanggal : 10 -30 April 2017

Jam : 08 - selesai

Demikian surat permohonan izin ini saya buat, atas izin Bapak/Ibu penanggung jawab saya ucapkan terimakasih. WassalamualaikumWr.Wb

Surabaya, 10 April 2017

Kepala Lab. D3 Analis Kesehatan

Diah Ariana, ST.M.Kes

Pemohon

Hani Ayu Annisak

Tembusan :

1. Kepala Penanggung Jawab Lab. Patologi Klinik
2. Kepala Penanggung Jawab Lab. Kimia

Lampiran 2

Berikut daftar alat-alat yang dipinjam :

No	Nama Alat	Jumlah
1	Spektrofotometer	1 buah
2	Centrifuge	1 buah
3	Mikropipet 500 µl	1 buah
4	Mikropipet 10 µl	1buah
5	Blue tip	50 buah
6	Yellow tip	50 buah
7	Tabung	5 buah
8	Rak tabung	1 buah
9	Cup sampel serum	25 buah
10	Beaker glass 250 ml	1 buah
11	Beaker glass 500 ml	1 buah
12	Botol penampung darah	2 buah
13	Tourniquet	1 buah
14	Kapas	1 buah
15	Alcohol 70 %	10 ml
16	Plester / hepafix	1 buah
17	Mikropipet 50 µl	1 buah

Berikut daftar reagen yang digunakan :

No	Nama Reagen	Jumlah
1	Reagen pemeriksaan BUN	25 ml
2	Reagen pemeriksaan Kreatinin	25 ml
3	Aquadest	500 ml

Lampiran 3

UNIVERSITAS MUHAMMADIYAH SURABAYA
FAKULTAS ILMU KESEHATAN
Program Studi : Keperawatan S1 dan D3 - Analis Kesehatan D3 - Kebidanan D3
Jln. Sutorejo No. 59 Surabaya 60113, Telp. (031) 3811966 - 3890175 Fax. (031) 3811967

Nomor : 008 / LAB / IV / 2017
Jenis bahan : Serum
Dikirim oleh : Hani Ayu Annisak
NIM : 20140662037
Alamat : Prodi D3 Analis Kesehatan FIK UMSurabaya
Judul : Pengaruh lama penyimpanan bahan kontrol *pool serum* terhadap kadar bun dan kreatinin
Diterima : 10 April 2017

HASIL PEMERIKSAAN

Kadar BUN dan Kreatinin Pada Bahan Kontrol *Pool Serum*

No	Kode Sampel	Kadar BUN (Blood Urea Nitrogen) mg/dl Pada Lama Penyimpanan				
		0 minggu	1 minggu	2 minggu	3 minggu	4 minggu
		BUN	BUN	BUN	BUN	BUN
1	A1	24,91	24,60	21,95	22,74	21,03
2	A2	20,89	21,83	21,21	23,11	21,60
3	A3	21,85	21,87	20,89	22,02	23,45
4	A4	23,11	22,17	24,12	21,65	21,85
5	A5	25,12	21,97	24,91	21,61	23,72

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No	Kode Sampel	Kadar Kreatinin (Cr) mg/dl Pada Lama Penyimpanan				
		0 Minggu	1 minggu	2 minggu	3 minggu	4 minggu
		Kreatinin	Kreatinin	Kreatinin	Kreatinin	Kreatinin
1	A1	1,07	1,01	0,92	1,19	0,80
2	A2	1,02	0,86	0,99	0,85	1,01
3	A3	1,13	0,81	1,24	0,97	0,71
4	A4	0,86	0,88	0,94	0,79	0,86
5	A5	1,26	0,85	0,87	1,13	1,25

Surabaya, 10 Juli 2017

Mengetahui
Kepala Laboratorium

Nugroho Ari W, S.Kep.Ns, M.Kep

Pemeriksa

Hani Ayu Annisak

UREA liquicolor (BUN)

Enzymatic Colorimetric Test for Urea

Package Sizes

REF	10505	100 ml	Complete Test Kit
	10506	1000 ml	Reagent 1, Enzyme, Standard
	10507	1000 ml	Reagent 2
	10104	9 x 3 ml	Standard

IVD

Method[1,2,3]

Urea is hydrolysed in the presence of water and urease to produce ammonia and carbon dioxide. In a modified Berthelot reaction the ammonium ions react with hypochlorite and salicylate to form a green dye. The absorbance increase at 578 nm is proportional to the urea concentration in the sample.

Contents

	10505	10506	10507	10104
REF				
RGT1	100 ml	1000 ml		
RGT2	100 ml		1000 ml	
ENZ	1 ml	10 ml		
STD	3 ml	3 ml		9 x 3 ml

RGT1 **Reagent 1**

Phosphate buffer (pH 7.0)	120 mmol/l
Sodium salicylate	60 mmol/l
Sodium nitroprusside	5 mmol/l
EDTA	1 mmol/l

RGT2 **Reagent 2**

Phosphate buffer (pH < 13)	120 mmol/l
Hypochlorite	< 0.6 g/l Cl

Irritates eyes and skin. Keep out of reach of children. Upon contact with the eyes, rinse thoroughly with water and consult a doctor.

ENZ **Enzyme**

Urease	> 500 KU/l

STD **Standard**

Urea	80 mg/dl or 13.3 mmol/l
equivalent to BUN	37.28 mg/dl or 6.2 mmol/l
Sodium azide	0.095 %

Reagent Preparation

RGT2 and STD are ready for use.

The Enzyme reagent 1a is prepared by mixing the contents of bottle ENZ with bottle RGT1:

e.g. 1 ml ENZ + 100 ml RGT1 or
10 ml ENZ + 1000 ml RGT1

Reagent Stability

The reagents are stable up to the stated expiry date when sealed and stored at 2...8°C.

RGT1, RGT2 and ENZ are stable after opening for **6 weeks** at 2...8°C or **2 weeks** at 15...25°C.

STD is stable up to the expiry date even after opening.

The Enzyme reagent 1a is stable for **4 weeks** at 2...8°C or **2 weeks** at 15...25°C.

Contamination after opening must be avoided.

Specimen

Serum, plasma, except ammonium heparinate plasma, and urine. Dilute urine 1 + 100 with distilled water.

Do not use lipemic sera.

Serum or plasma can be stored for up to 3 days at 4°C, for longer periods they should be kept frozen at -20°C. (Serum atau Plasma dpt disimpan sampai 3 hari pada suhu 4°C, u/wkt yg lama mereka harus terus dibekukan pada suhu -20°C.

Assay

Wavelength:	Hg 578 nm, 570 - 600 nm
Optical path:	1 cm
Temperature:	20...25°C or 37°C
Measurement:	Against reagent blank. Only one reagent blank per series is required.

Pipetting Scheme

Pipette into cuvettes	Reagent blank	Sample or STD
Sample/STD	---	10 µl
Enzyme reagent 1a	1000 µl	1000 µl
Mix and incubate for 5 min. at 20...25°C or for 3 min. at 37°C.		
RGT2	1000 µl	1000 µl
Mix, incubate for 10 min. at 20...25°C or for 5 min. at 37°C. Measure the absorbance of the sample (A_{sample}) and the STD (A_{STD}) against the reagent blank within 60 min.		

Calculation of Urea and BUN Concentration

$$C = \frac{A_{sample}}{A_{STD}} \times \text{Factor}$$

Factor	C (UREA)		C (BUN)	
for Serum/plasma	[mg/dl]	[mmol/l]	[mg/dl]	[mmol/l]
	80	13.3	37.28	6.2
for Urine	[g/l]	[mmol/l]	[g/l]	[mmol/l]
	80.8	1343	37.65	626.2

Conversion Factor for BUN, Urea

C (BUN) = 0.466 x C (Urea)

C (Urea) = 2.14 x C (BUN)

Performance Characteristics

Linearity

Serum/plasma:	up to 400 mg/dl	or	66.6 mmol/l (Urea)
Urine:	up to 400 g/l	or	6600 mmol/l (Urea)

Samples with a higher urea concentration have to be diluted 1+1 with distilled water. Repeat the assay and multiply the results by 2.

Typical performance date can be found in the Verification Report, accessible via

www.human.de/data/gb/vr/su-urlqc.pdf or

www.human-de.com/data/gb/vr/su-urlqc.pdf

Normal Values[4,5]

Serum (Urea):	10 - 50 mg/dl	or	1.7 - 8.3 mmol/l
Urine (Urea):	20 - 35 g/24 h	or	333 - 583 mmol/24 h

Quality Control

All control sera with urea or BUN values determined by this method may be employed.

We recommend to use our quality control sera HumaTrol based on animal serum or our SERODOS based on human serum.

Automation

Proposals to apply the reagents on analysers are available on request. Each laboratory has to validate the application in its own responsibility.

Notes

1. STD contains sodium azide (0.095%) as preservative. Do not swallow. Avoid contact with skin and mucous membranes.
2. RGT2 contains sodium hypochlorite in alkaline solution. RGT2 is irritant to eyes, skin and mucous membranes. In case of contact with eyes, skin and mucous membranes flush with co-pious amounts of water and consult a doctor.

References

1. Berthelot M., Report Chem. Applique **1**, 284 (1859)
2. Fawcett J.K., Scott J.E.; J. Clin. Path. **13**, 156 (1960)
3. Tobacco A. *et al.*, Clin. Chem. **25**, 336 (1979)
4. MacKay E.M., MacKay L.L., J. Clin. Invest. **4**, 295 (1927)
5. Sarre H., Nierenkrankheiten, Georg Thieme Verlag Stuttgart (1959)

SU-URLQC INF 1050501 GB 06-2008-18

CE

Human

Human Gesellschaft für Biochemica und Diagnostica mbH
Max-Planck-Ring 21 · 65205 Wiesbaden · Germany
Telefon +49 6122-9988-0 · Telefax +49 6122-9988-100 · e-Mail human@human.de

CREATININE liquicolor

Jaffé Reaction
Photometric Colorimetric Test for Endpoint Measurement of Creatinine, Method with Deproteinisation

Package Size

REF	10051	200 ml	Complete Kit
IVD			

Method [1,2]

Creatinine forms in alkaline solution an orange-red coloured complex with picric acid. The absorbance of this complex is proportional to the creatinine concentration in the sample.

Principle

Creatinine + Picric acid ⟶ Creatinine-picrate complex

Contents

PIC	**1 x 100 ml Picric Acid**	26 mmol/l
NaOH	**1 x 100 ml Sodium Hydroxide** Corrosive (R 35) (S 26-37/39-45)	1.6 mol/l
STD	**1 x 25 ml Standard** Creatinine	2 mg/dl or 176.8 µmol/l

Reagent Preparation

Mix PIC and NaOH in the ratio 1 + 1. STD is ready for use.

Reagent Stability

The reagents are stable up to the stated expiry data when stored at 15...25°C.

The combined working reagent is stable for 8 hours at 15...25°C.

Specimen

Serum, heparinised plasma or urine

Avoid hemolysis!

Stability: 24 hours at 2...8°C

Dilute urine 1 + 49 with dist. water.

Only fresh specimen should be used

Deproteinisation / Dilution

Use trichloroacetic acid (1.2 mol/l) as deproteinising solution which should be available in the laboratory.

Pipette into tubes (samples into centrifuge tubes)						
	Macro			Semi micro		
	Rb	STD	S	Rb	STD	S
Serum/Plasma/ Dil. Urine	---	---	1 ml	---	---	0.5 ml
STD	---	1 ml	---	---	0.5 ml	---
Dist. Water	1 ml	---	---	0.5 ml	---	---
Deprotein. solution	1 ml	1 ml	1 ml	0.5 ml	0.5 ml	0.5 ml
Mix carefully, centrifuge **samples (S)** at high speed for 5 - 10 minutes.						

S = Sample, STD = Standard, Rb = Reagent blank

Assay

Wavelength : Hg 546 nm (500-550 nm)
Optical path: 1 cm
Temperature : 25°C
Measurement: Against reagent blank. Only one reagent blank (Rb) per series is required.

Pipetting scheme

	Macro		Semi micro	
Pipette into cuvettes	Rb	STD/S	Rb	STD/S
Dil. standard/ supernatant(s)	---	1 ml	---	0.5 ml
Dil. Rb mixture	1 ml	---	0.5 ml	---
Working reagent	1 ml	1 ml	0.5 ml	0.5 ml
Mix, incubate for exactly 20 min. at 25°C and read the absorbance of the standard and sample against reagent blank (ΔA).				

Calculation

1. Serum / Plasma

Please use only the standard supplied with the kit.

$$c = 2.0 \times \frac{\Delta A_{sample}}{\Delta A_{STD}} \quad [mg/dl]$$

$$c = 176.8 \times \frac{\Delta A_{sample}}{\Delta A_{STD}} \quad [\mu mol/l]$$

2. Urine

$$c = 100 \times \frac{\Delta A_{sample}}{\Delta A_{STD}} \quad [mg/dl]$$

Creatinine concentration in 24 h urine:

c = mg/dl x ml urine/24 h x 0.01 [mg/24 h]
c = mg/24 h x 0.00884 [mmol/24 h]

$$\text{Creatinine Clearance} = \frac{\text{mg creatinine/dl urine x ml urine/24 h}}{\text{mg creatinine/dl serum x 1440}} \quad [ml/min]$$

Conversion of [mg/dl] into [µmol/l] and vice versa:

[mg/dl] x 88.402 = [µmol/l]
[µmol/l] x 0.0113 = [mg/dl]

Performance Characteristics

Linearity

The test is linear up to a creatinine concentration of 10 mg/dl or 884 µmol/l, in urine 300 mg/dl or 26,521 µmol/l.

Dilute samples with a higher concentration in serum, plasma or diluted urine 1 + 5 with physiological saline (0.9%) and repeat the assay. Multiply the result by 6.

Typical performance date can be found in the Verification Report, accessible via

www.human.de/data/gb/vr/su-crea.pdf or
www.human-de.com/data/gb/vr/su-crea.pdf

Reference values [2,4]

Serum	[mg/dl]	[µmol/l]
Men	0.6 - 1.1	53 - 97
Women	0.5 - 0.9	44 - 80
Urine	1000 - 1500 mg / 24 hours	
Creatinine clearance:		
Men	98 - 156 ml/min.	
Women	95 - 160 ml/min.	

Quality Control

All control sera with creatinine values determined by this method can be employed. We recommend the use of our animal serum based HUMATROL or our human serum based SERODOS quality control sera.

Automation

Proposals to apply the reagents on analysers are available on request. Each laboratory has to validate the application in its own responsibility.

Notes

1. The reaction is sensitive to temperature. The selected reaction temperature must be kept constant for standard and sample.
2. PIC is harmful when inhaled, swallowed or in contact with the skin. If PIC comes into contact with the skin or mucous membranes wash with plenty of water. In case of sickness, contact a doctor.
3. The assay can be affected by the presence of reducing compounds. The interference can be partially eliminated by boiling the urine for a short time.
4. A slight precipitant in the sodium hydroxide is insignificant.

References

1. Mod. method of Bartels H. *et al.*, Clin. Chim. Acta **32**, 81 (1971)
2. Mod. method of Popper H. *et al.*, Biochem Zeitschr. **291**, 354 (1937)
3. Schirmeister J. *et al.*, Dtsch. med. Wschr. **89**, 1018 and 1640 (1964)
4. Sarre H., Nierenkrankheiten, Thieme-Verl. Stuttg. (1959)

SU-CREA INF 105101 GB 07-2008-15

CE

Human

Human Gesellschaft für Biochemica und Diagnostica mbH
Max-Planck-Ring 21 · 65205 Wiesbaden · Germany
Telefon +49 6122-9988-0 · Telefax +49 6122-9988-100 · e-Mail human@human.de

Lampiran 4

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
BUN	25	22.5672	1.33139	20.89	25.12
KREATININ	25	.9708	.15708	.71	1.26

One-Sample Kolmogorov-Smirnov Test

		BUN	KREATININ
N		25	25
Normal Parameters[a,,b]	Mean	22.5672	.9708
	Std. Deviation	1.33139	.15708
Most Extreme Differences	Absolute	.219	.158
	Positive	.219	.158
	Negative	-.104	-.085
Kolmogorov-Smirnov Z		1.097	.792
Asymp. Sig. (2-tailed)		.180	.557

a. Test distribution is Normal.

b. Calculated from data.

Oneway

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
BUN	Minggu ke 0	5	23.1760	1.85569	.82989	20.8719	25.4801	20.89	25.12
	minggu ke 1	5	22.4880	1.18795	.53127	21.0130	23.9630	21.83	24.60
	minggu ke 2	5	22.6160	1.79749	.80386	20.3841	24.8479	20.89	24.91
	minggu ke 3	5	22.2260	.67069	.29994	21.3932	23.0588	21.61	23.11
	minggu ke 4	5	22.3300	1.18741	.53103	20.8556	23.8044	21.03	23.72
	Total	25	22.5672	1.33139	.26628	22.0176	23.1168	20.89	25.12
KREATININ	Minggu ke 0	5	1.0680	.14687	.06568	.8856	1.2504	.86	1.26
	minggu ke 1	5	.8820	.07596	.03397	.7877	.9763	.81	1.01
	minggu ke 2	5	.9920	.14516	.06492	.8118	1.1722	.87	1.24
	minggu ke 3	5	.9860	.17286	.07730	.7714	1.2006	.79	1.19
	minggu ke 4	5	.9260	.21149	.09458	.6634	1.1886	.71	1.25
	Total	25	.9708	.15708	.03142	.9060	1.0356	.71	1.26

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
BUN	2.339	4	20	.090
KREATININ	1.241	4	20	.326

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
BUN	Between Groups	2.760	4	.690	.347	.843
	Within Groups	39.782	20	1.989		
	Total	42.542	24			
KREATININ	Between Groups	.100	4	.025	1.017	.422
	Within Groups	.492	20	.025		
	Total	.592	24			

Post Hoc Tests

Multiple Comparisons

Tukey HSD

Dependent Variable	(I) factor	(J) factor	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
BUN	Minggu ke 0	minggu ke 1	.68800	.89199	.936	-1.9812	3.3572
		minggu ke 2	.56000	.89199	.969	-2.1092	3.2292
		minggu ke 3	.95000	.89199	.822	-1.7192	3.6192
		minggu ke 4	.84600	.89199	.874	-1.8232	3.5152
	minggu ke 1	Minggu ke 0	-.68800	.89199	.936	-3.3572	1.9812
		minggu ke 2	-.12800	.89199	1.000	-2.7972	2.5412
		minggu ke 3	.26200	.89199	.998	-2.4072	2.9312
		minggu ke 4	.15800	.89199	1.000	-2.5112	2.8272
	minggu ke 2	Minggu ke 0	-.56000	.89199	.969	-3.2292	2.1092
		minggu ke 1	.12800	.89199	1.000	-2.5412	2.7972
		minggu ke 3	.39000	.89199	.992	-2.2792	3.0592
		minggu ke 4	.28600	.89199	.998	-2.3832	2.9552
	minggu ke 3	Minggu ke 0	-.95000	.89199	.822	-3.6192	1.7192

		minggu ke 1	-.26200	.89199	.998	-2.9312	2.4072
		minggu ke 2	-.39000	.89199	.992	-3.0592	2.2792
		minggu ke 4	-.10400	.89199	1.000	-2.7732	2.5652
	minggu ke 4	Minggu ke 0	-.84600	.89199	.874	-3.5152	1.8232
		minggu ke 1	-.15800	.89199	1.000	-2.8272	2.5112
		minggu ke 2	-.28600	.89199	.998	-2.9552	2.3832
		minggu ke 3	.10400	.89199	1.000	-2.5652	2.7732
KREATININ	Minggu ke 0	minggu ke 1	.18600	.09920	.362	-.1109	.4829
		minggu ke 2	.07600	.09920	.937	-.2209	.3729
		minggu ke 3	.08200	.09920	.919	-.2149	.3789
		minggu ke 4	.14200	.09920	.616	-.1549	.4389
	minggu ke 1	Minggu ke 0	-.18600	.09920	.362	-.4829	.1109
		minggu ke 2	-.11000	.09920	.800	-.4069	.1869
		minggu ke 3	-.10400	.09920	.830	-.4009	.1929
		minggu ke 4	-.04400	.09920	.991	-.3409	.2529
	minggu ke 2	Minggu ke 0	-.07600	.09920	.937	-.3729	.2209
		minggu ke 1	.11000	.09920	.800	-.1869	.4069
		minggu ke 3	.00600	.09920	1.000	-.2909	.3029

		minggu ke 4	.06600	.09920	.962	-.2309	.3629
	minggu ke 3	Minggu ke 0	-.08200	.09920	.919	-.3789	.2149
		minggu ke 1	.10400	.09920	.830	-.1929	.4009
		minggu ke 2	-.00600	.09920	1.000	-.3029	.2909
		minggu ke 4	.06000	.09920	.973	-.2369	.3569
	minggu ke 4	Minggu ke 0	-.14200	.09920	.616	-.4389	.1549
		minggu ke 1	.04400	.09920	.991	-.2529	.3409
		minggu ke 2	-.06600	.09920	.962	-.3629	.2309
		minggu ke 3	-.06000	.09920	.973	-.3569	.2369

Homogeneous Subsets

BUN

Tukey HSD[a]

factor	N	Subset for alpha = 0.05
		1
minggu ke 3	5	22.2260
minggu ke 4	5	22.3300
minggu ke 1	5	22.4880
minggu ke 2	5	22.6160
Minggu ke 0	5	23.1760
Sig.		.822

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

KREATININ

Tukey HSD[a]

factor	N	Subset for alpha = 0.05
		1
minggu ke 1	5	.8820
minggu ke 4	5	.9260
minggu ke 3	5	.9860
minggu ke 2	5	.9920
Minggu ke 0	5	1.0680
Sig.		.362

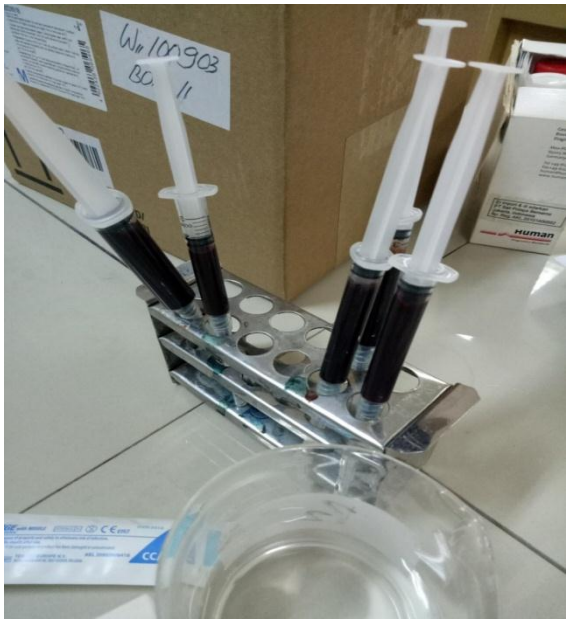
Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

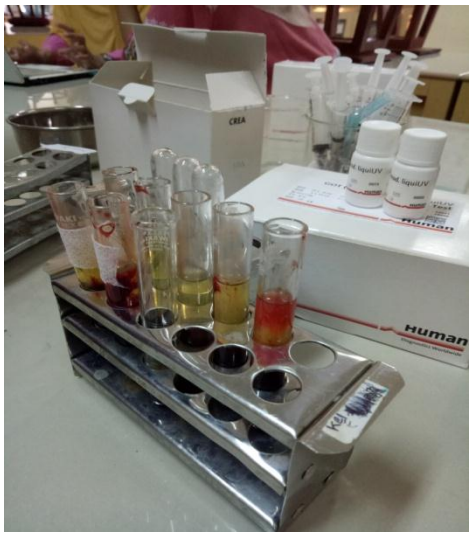
Lampiran 5

Dokumentasi

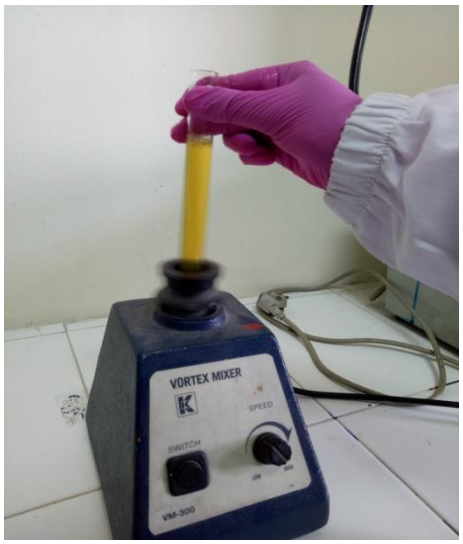
Darah Mahasiswa



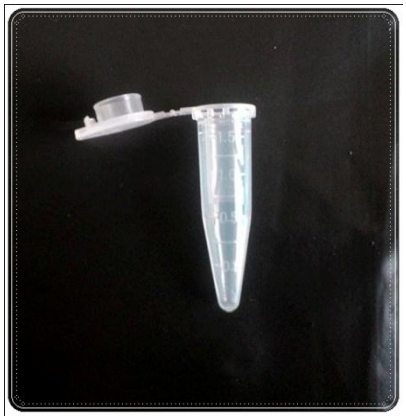
Serum Mahasiswa



Serum Campuran *(Pool Serum)*

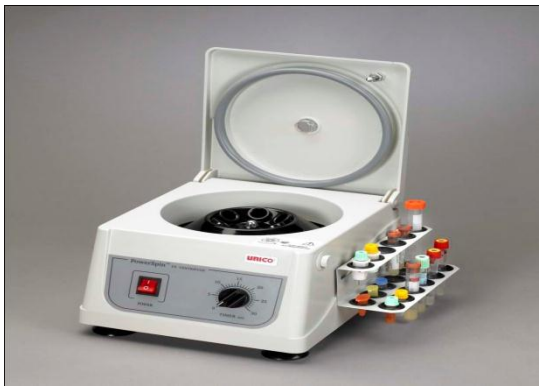


Wadah sampel (cup sampel)



Melakukan Pemeriksaan Kadar Bun dan Kadar Kreatinin

Alat Centrifuge



Alat Spektrofotometer

Lampiran 6

AKADEMI ANALIS KESEHATAN
UNIVERSITAS MUHAMMADIYAH SURABAYA
Jl. Sutorejo No. 59 Surabaya Telp. 031-3890175

KARTU BIMBINGAN KTI

NAMA : Hani Ayu Annisak
NIM/NPM : 20140662037
JUDUL KTI : Pengaruh Lama penyimpanan bahan kontrol pool serum terhadap stabilitas pada pemeriksaan BUN (Blood urea Nitrogen) dan Creatinin.
DOSEN PEMBIMBING: 1. Ibu Ir. Ruspeni Daesusi, M.Kes
2. Ibu Dra. Anik Handajati, M.Kes

NO	Tgl/Bln/Thn	MATERI BIMBINGAN	PARAF Mhs	PARAF PEMBIMBING I	PARAF PEMBIMBING II
1.	19-12-2016	ACC ~~Pengajuan~~ Judul KTI			
2.	27-12-2016	ACC Matriks			
3.	26-3-2017	ACC Bab I			
4.	28-3-2017	Revisi Bab II			
5.	10-4-2017	ACC Bab II			
6.	19-4-2017	Revisi Bab III			
7.	20-4-2017	Revisi Bab III, IV dan V			
8.	11-7-2017	ACC Bab III, IV dan V			
9.	11-7-2017	Revisi Semua			
10	12-7-2017	Revisi Semua			
11.	12-7-2017	ACC Semuanya.		ACC	

Ketua Program Study

Fitrotin Azizah, S.ST, M.Si

Lampiran 7

PANITIA UJIAN AKHIR PROGRAM (UAP)
PRODI D-III ANALIS KESEHATAN
FAKULTAS ILMU KESEHATAN UMSURABAYA
Jl. Sutorejo 59 Tlp. (031) 3890175

LEMBAR PENGESAHAN HASIL REVISI

NAMA : Hani Ayu Annisak
NIM : 201406620 37
JUDUL KTI : Pengaruh Lama penyimpanan Bahan Kontrol pool serum Terhadap Kadar BUN Dan Kadar Kreatinin
TANGGAL SIDANG : 18 Juli 2017

PENGUJI	NAMA PENGUJI	TANDA TANGAN
I	Ir. Ruspeni Daesusi, M.Kes	
II	Dra. Anik Handayati, M.Kes	
III	Nastiti Kartikorini, ST., M.Si	

Sudah revisi acc 29/8/2017

Surabaya, ...
KaProdi

Fitrotin Azizah S.ST.,M.Si

Lampiran 8

UNIVERSITAS MUHAMMADIYAH SURABAYA
PUSAT BAHASA
Jl. Sutorejo 59 Surabaya 60113 Telp. 031-3811966, 3811967 Ext (130) Gd. A Lt 2
Email: pusba.umsby@gmail.com

ENDORSEMENT LETTER
527/PB-UMS/EL/IX/2017

This letter is to certify that the abstract of the thesis below

Tittle	:	Effect of Storage Duration in Subtance Control *Pool Serum* toward BUN Levels (Blood Urea Nitrogen) and Kreatinin (Cr) Levels
Student's name	:	Hani Ayu Annisak
Reg. Number	:	20140662037
Department	:	D3 Analis Kesehatan

has been endorsed by Pusat Bahasa *UMSurabaya* for further approval by the examining committee of the faculty.

Surabaya, 5 September 2017
Chair,

Waode Hamsia, M.Pd.

Lampiran 9

HALAMAN PERNYATAAN PERSETUJUAN PUBLIKASI TUGAS AKHIR UNTUK KEPENTINGAN AKADEMIS

Sebagai civitas akademika Universitas Muhammadiyah surabaya, Saya yang bertanda tangan di bawah ini :

Nama : Hani Ayu Annisak
NIM : 20140662037
Program Studi : D3 Analis Kesehatan
Fakultas : Ilmu Kesehatan

Demi pengembangan ilmu pengetahuan, menyetujui untuk memberikan kepada Program Studi D3 Analis Kesehatan Fakultas Ilmu Kesehatan Universitas Muhammadiyah Surabaya Hak Benas Royalti Non-Eksklusif (Non – exclusive Royalti free right) atas karya ilmiah saya yang berjudul : besertaperangkat yang (jika diperlukan). **PENGARUH LAMA PENYIMPANAN BAHAN KONTROL *POOL SERUM* TERHADAP KADAR BUN (Blood Urea Nitrogen) DAN KADAR KREATININ (Cr).** Dengan hak bebas royalti non-exclusivf ini, program Studi D3 Analis Kesehatan Fakultas Ilmu Kesehatan Universitas Muhammadiyah Surabaya berhak menyimpan, mengalih media/formatkan, mengolah dalam bentuk pangkalan data (database), merawat dan mempublikasikan tugas akhir saya selama tetap mencantumkan nama saya sebagai penulis/ pencipta dan atau dengan pembimbing saya sebagai pemilik Hak Cipta.

Demikian pernyatan ini saya buat dengan sebenarnya.

Surabaya, 14 September 2017
Yang Menyatakan,

(Hani Ayu Annisak)