



KOMISI ETIK RISET
FAKULTAS KEDOKTERAN
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PERSETUJUAN ETIK
Ethical Clearance
Nomor: 124/KER/FK/XII/2017

Komisi Etik Riset Fakultas Kedokteran Universitas Trisakti setelah mempelajari dengan seksama dan mendengarkan penjelasan dari peneliti utama tentang kemungkinan adanya dampak etis terhadap subyek riset, masyarakat dan lingkungan, menetapkan penelitian dengan judul:

"PENGARUH PEMBERIAN EKSTRAK BUAH *AEGLE MARMELLOS* TERHADAP STRES OKSIDATIF PADA PARU TIKUS *SPRAGUE DAWLEY* YANG DIINDUKSI HIPOKSIA"

Peneliti Utama : Natasha Olivia Christian

Lembaga/Tempat penelitian : FK Universitas Tarumanagara

Dinyatakan memenuhi persyaratan etik untuk dilaksanakan.

Jakarta, 18 Desember 2017

Ketua

Prof. DR. dr. Adi Hidayat, MS

Sekretaris

dr. Alvina, SpPK

Lampiran 2 : Lembar Identifikasi Buah Maja

	LEMBAGA ILMU PENGETAHUAN INDONESIA (INDONESIAN INSTITUTE OF SCIENCES) PUSAT PENELITIAN BIOLOGI (RESEARCH CENTER FOR BIOLOGY) Cibinong Science Center, Jl. Raya Jakarta - Bogor KM. 46 Cibinong 16911 Telp. (+62 21) 87907636 - 87907604, Fax. 87907612 Website : www.biologi.lipi.go.id	 
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Cibinong, Agustus 2017

Nomor : *icb/*IPH.1.01/If.07/VIII/2017
Lampiran : -
Perihal : Hasil identifikasi/ determinasi Tumbuhan

Kepada Yth.
Bpk./Ibu/Sdr(i). **Eric Eksany**
Univ. TARUMANAGARA
Jl. Letjend S. Parman No. 1
Jakarta 11440

Dengan hormat,

Bersama ini kami sampaikan hasil identifikasi/determinasi tumbuhan yang Saudara kirimkan ke "Herbarium Bogoriense", Bidang Botani Pusat Penelitian Biologi-LIPI Bogor, adalah sebagai berikut :

No.	No. Kol.	Jenis	Suku
1	Buah maja	<i>Aegle marmelos</i> (L.) Correa	Rutaceae

Demikian, semoga berguna bagi Saudara.


Kepala Bidang Botani
Pusat Penelitian Biologi-LIPI,
Dr. Joeni Setiyo Rahajoe
NIP. 196706241993032004

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Lampiran 3 : Tabel Aktivitas Spesifik Katalase

Tabel 1. Hasil Pengukuran Aktivitas Spesifik Katalase pada Darah Cekok

Sampel	Aktivitas Katalase (U/mL)	Rata-rata	Absorbansi Protein Sampel	Kadar	Aktivitas Spesifik Katalase (U/mg)	Rata-rata
		Aktivitas Katalase (U/mL)		Dalam Homogenat (mg/mL)		Aktivitas Spesifik Katalase (U/mg)
P1	0.1605	0.1370	0.1370	1.5719	0.1021	0.0925
	0.1385		0.1340	1.5359	0.0902	
	0.1201		0.1270	1.4519	0.0827	
	0.1287		0.1190	1.3560	0.0949	
P2	0.0895	0.0889	0.1380	0.0565	0.0565	0.0517
	0.0515		0.1720	0.0259	0.0259	
	0.1164		0.1560	0.0647	0.0647	
	0.0980		0.1430	0.0596	0.0596	
P3	0.0833	0.0708	0.1830	2.1238	0.0392	0.0328
	0.0650		0.1810	2.0998	0.0310	
	0.0662		0.1760	2.0398	0.0325	
	0.0686		0.2050	2.3878	0.0287	
P4	0.0417	0.0371	0.1770	2.0518	0.0203	0.0151
	0.0282		0.2130	2.4837	0.0114	
	0.0355		0.2280	2.6637	0.0133	
	0.0429		0.2370	2.7717	0.0155	

Tabel 2. Hasil Pengukuran Aktivitas Spesifik Katalase pada Darah Kontrol

Sampel	Aktivitas Katalase (U/mL)	Rata-rata Aktivitas Katalase (U/mL)	Absorbansi Protein Sampel	Kadar Protein Dalam Homogenat (mg/mL)	Aktivitas Spesifik Katalase (U/mg)	Rata-rata Aktivitas Spesifik Katalase (U/mg)
P1	0.1422	0.1192	0.1660	1.9198	0.0741	0.0702
	0.1164		0.1320	1.5119	0.0770	
	0.1140		0.1420	1.6319	0.0699	
	0.1042		0.1510	1.7399	0.0599	
P2	0.0600	0.0793	0.1650	1.9078	0.0314	0.0425
	0.0478		0.1520	1.7519	0.0273	
	0.0968		0.1570	1.8119	0.0534	
	0.1127		0.1680	1.9438	0.0580	
P3	0.0613	0.0509	0.1620	1.8719	0.0327	0.0246
	0.0502		0.1780	2.0638	0.0243	
	0.0441		0.1890	2.1958	0.0201	
	0.0478		0.1920	2.2318	0.0214	
P4	0.0392	0.0270	0.2210	2.5797	0.0152	0.0103
	0.0172		0.2320	2.7117	0.0063	
	0.0270		0.2190	2.5557	0.0106	
	0.0245		0.2260	2.6397	0.0093	

Tabel 3. Hasil Pengukuran Aktivitas Spesifik Katalase pada Hati Cekok

Sampel	Aktivitas Katalase (U/mL)	Rata-rata Aktivitas Katalase (U/mL)	Absorbansi Protein Sampel	Kadar Protein Dalam Homogenat (mg/mL)	Aktivitas Spesifik Katalase (U/mg)	Rata-rata Aktivitas Spesifik Katalase (U/mg)
P1	1.5074	1.5146	0.1150	3.3776	0.1021	0.0925
	0.8410		0.0240	0.6481	0.0902	
	2.1954		0.0450	1.2780	0.0827	
	3.3111		0.0370	1.0380	0.0949	
P2	0.6985	1.7560	0.1530	4.5173	0.0565	0.0517
	2.2656		0.1570	4.6373	0.0259	
	2.3038		0.1250	3.6775	0.0647	
	1.9933		0.2120	6.2870	0.0596	
P3	0.2757	1.4206	2.7750	3.2576	0.0392	0.0328
	2.7759		8.1500	9.7063	0.0310	
	1.2101		2.1750	2.5377	0.0325	
	1.9540		1.7750	2.0578	0.0287	
P4	0.3309	0.4819	2.3750	2.7777	0.0203	0.0151
	0.1998		2.7250	3.1976	0.0114	
	0.9150		2.1000	2.4477	0.0133	
	0.0475		2.0250	2.3578	0.0155	

Tabel 4. Hasil Pengukuran Aktivitas Spesifik Katalase pada Hati Kontrol

Sampel	Aktivitas Katalase (U/mL)	Rata-rata	Absorbansi Protein Sampel	Kadar	Aktivitas Spesifik Katalase (U/mg)	Rata-rata
		Aktivitas Katalase (U/mL)		Dalam Homogenat (mg/mL)		Aktivitas Spesifik Katalase (U/mg)
P1	0.1422	1.8882	0.0630	1.8179	0.0741	0.0702
	0.1164		0.1360	4.0074	0.0770	
	0.1140		0.0670	1.9378	0.0699	
	0.1042		0.2090	6.1970	0.0599	
P2	0.0600	2.0851	0.0780	2.2678	0.0314	0.0425
	0.0478		0.1430	4.2174	0.0273	
	0.0968		0.2610	7.7567	0.0534	
	0.1127		0.2330	6.9168	0.0580	
P3	0.0613	1.7477	0.7800	23.3236	0.0327	0.0246
	0.0502		0.4740	14.1454	0.0243	
	0.0441		0.2150	6.3770	0.0201	
	0.0478		0.1090	3.1976	0.0214	
P4	0.0392	0.7079	0.2900	8.6265	0.0152	0.0103
	0.0172		0.2260	6.7069	0.0063	
	0.0270		0.6470	19.3344	0.0106	
	0.0245		0.1760	5.2072	0.0093	

Lampiran 4 : Hasil Uji Mann-Whitney

DPPH

Best-fit values	
Slope	0.09932 ± 0.01145
Y-intercept when X=0.0	23.35 ± 1.403
X-intercept when Y=0.0	-235.1
1/slope	10.07
95% Confidence Intervals	
Slope	0.06290 to 0.1357
Y-intercept when X=0.0	18.89 to 27.81
X-intercept when Y=0.0	-432.8 to -142.2
Goodness of Fit	
R square	0.9617
Sy.x	1.739
Is slope significantly non-zero?	
F	75.30
DFn, DFd	1.000, 3.000
P value	0.0032
Deviation from zero?	Significant
Data	
Number of X values	5
Maximum number of Y replicates	1
Total number of values	5
Number of missing values	0
Equation	$Y = 0.09932 * X + 23.35$

Vitamin C

Best-fit values	
Slope	15.07 ± 0.5829
Y-intercept when X=0.0	-6.266 ± 2.473
X-intercept when Y=0.0	0.4157
1/slope	0.06634
95% Confidence Intervals	
Slope	13.22 to 16.93
Y-intercept when X=0.0	-14.14 to 1.603
X-intercept when Y=0.0	-0.1203 to 0.8415
Goodness of Fit	
R square	0.9955
Sy.x	1.843
Is slope significantly non-zero?	
F	668.7
DFn, DFd	1.000, 3.000
P value	0.0001
Deviation from zero?	Significant
Data	
Number of X values	5
Maximum number of Y replicates	1
Total number of values	5
Number of missing values	0
Equation	$Y = 15.07 * X - 6.266$

Fenolik

Best-fit values	
Slope	0.0007280 ± 4.881e-005
Y-intercept when X=0.0	0.1254 ± 0.02536
X-intercept when Y=0.0	-172.3
1/slope	1374
95% Confidence Intervals	
Slope	0.0005727 to 0.0008833
Y-intercept when X=0.0	0.04469 to 0.2061
X-intercept when Y=0.0	-357.7 to -50.90
Goodness of Fit	
R square	0.9867
Sy.x	0.01544
Is slope significantly non-zero?	
F	222.4
DFn, DFd	1.000, 3.000
P value	0.0007
Deviation from zero?	Significant
Data	
Number of X values	5
Maximum number of Y replicates	1
Total number of values	5
Number of missing values	0
Equation	$Y = 0.0007280 \cdot X + 0.1254$

Flavonoid

Best-fit values	
Slope	0.01248 ± 0.0003456
Y-intercept when X=0.0	0.005600 ± 0.004233
X-intercept when Y=0.0	-0.4487
1/slope	80.13
95% Confidence Intervals	
Slope	0.01138 to 0.01358
Y-intercept when X=0.0	-0.007870 to 0.01907
X-intercept when Y=0.0	-1.650 to 0.5887
Goodness of Fit	
R square	0.9977
Sy.x	0.005465
Is slope significantly non-zero?	
F	1304
DFn, DFd	1.000, 3.000
P value	< 0.0001
Deviation from zero?	Significant
Data	
Number of X values	5
Maximum number of Y replicates	1
Total number of values	5
Number of missing values	0
Equation	$Y = 0.01248 * X + 0.005600$

Uji Toksisitas

Best-fit values	
Slope	0.0003664 ± 8.423e-006
Y-intercept when X=0.0	0.4107 ± 0.004727
X-intercept when Y=0.0	-1121
1/slope	2729
95% Confidence Intervals	
Slope	0.0003301 to 0.0004026
Y-intercept when X=0.0	0.3903 to 0.4310
X-intercept when Y=0.0	-1293 to -978.8
Goodness of Fit	
R square	0.9989
Sy.x	0.006590
Is slope significantly non-zero?	
F	1892
DFn, DFd	1.000, 2.000
P value	0.0005
Deviation from zero?	Significant
Data	
Number of X values	4
Maximum number of Y replicates	1
Total number of values	4
Number of missing values	0
Equation	$Y = 0.0003664 * X + 0.4107$

Standar Protein

Best-fit values	
Slope	0.8335 ± 0.02395
Y-intercept when X=0.0	0.05981 ± 0.01024
X-intercept when Y=0.0	-0.07177
1/slope	1.200
95% Confidence Intervals	
Slope	0.7748 to 0.8921
Y-intercept when X=0.0	0.03475 to 0.08488
X-intercept when Y=0.0	-0.1081 to -0.03947
Goodness of Fit	
R square	0.9951
Sy.x	0.01806
Is slope significantly non-zero?	
F	1211
DFn, DFd	1.000, 6.000
P value	< 0.0001
Deviation from zero?	Significant
Data	
Number of X values	8
Maximum number of Y replicates	1
Total number of values	8
Number of missing values	0
Equation	$Y = 0.8335 \cdot X + 0.05981$

Aktivitas Spesifik Katalase Darah Cekok

Table Analyzed	Aktivitas Spesifik Darah Cekok
Column A	P1
vs.	vs.
Column B	P2
Mann Whitney test	
P value	0.0286
Exact or approximate P value?	Exact
P value summary	*
Significantly different? ($P < 0.05$)	Yes
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,B	26.00 , 10.00
Mann-Whitney U	0.0
Difference between medians	
Median of column A	0.09255
Median of column B	0.05805
Difference: Actual	0.0345
Difference: Hodges-Lehmann	0.03635

Table Analyzed	Aktivitas Spesifik Darah Cekok
Column A	P1
vs.	vs.
Column C	P3
Mann Whitney test	
P value	0.0286
Exact or approximate P value?	Exact
P value summary	*
Significantly different? ($P < 0.05$)	Yes
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,C	26.00 , 10.00
Mann-Whitney U	0.0
Difference between medians	
Median of column A	0.09255
Median of column C	0.03175
Difference: Actual	0.0608
Difference: Hodges-Lehmann	0.06035

Table Analyzed	Aktivitas Spesifik Darah Cekok
Column A	P1
vs.	vs.
Column D	P4
Mann Whitney test	
P value	0.0286
Exact or approximate P value?	Exact
P value summary	*
Significantly different? (P < 0.05)	Yes
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,D	26.00 , 10.00
Mann-Whitney U	0.0
Difference between medians	
Median of column A	0.09255
Median of column D	0.0144
Difference: Actual	0.07815
Difference: Hodges-Lehmann	0.07785

Aktivitas Spesifik Katalase Darah Kontrol

Table Analyzed	Aktivitas Spesifik Darah Tidak Cekok
Column A	P1
vs.	vs.
Column B	P2
Mann Whitney test	
P value	0.0286
Exact or approximate P value?	Exact
P value summary	*
Significantly different? (P < 0.05)	Yes
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,B	26.00 , 10.00
Mann-Whitney U	0.0
Difference between medians	
Median of column A	0.0720
Median of column B	0.0424
Difference: Actual	0.0296
Difference: Hodges-Lehmann	0.02605

Table Analyzed	Aktivitas Spesifik Darah Tidak Cekok
Column A	P1
vs.	vs.
Column C	P3
Mann Whitney test	
P value	0.0286
Exact or approximate P value?	Exact
P value summary	*
Significantly different? (P < 0.05)	Yes
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,C	26.00 , 10.00
Mann-Whitney U	0.0
Difference between medians	
Median of column A	0.0720
Median of column C	0.02285
Difference: Actual	0.04915
Difference: Hodges-Lehmann	0.04705

Table Analyzed	Aktivitas Spesifik Darah Tidak Cekok
Column A	P1
vs.	vs.
Column D	P4
Mann Whitney test	
P value	0.0286
Exact or approximate P value?	Exact
P value summary	*
Significantly different? (P < 0.05)	Yes
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,D	26.00 , 10.00
Mann-Whitney U	0.0
Difference between medians	
Median of column A	0.0720
Median of column D	0.00995
Difference: Actual	0.06205
Difference: Hodges-Lehmann	0.0612

Aktivitas Spesifik Katalase Hati Cekok

Table Analyzed	Aktivitas Spesifik Cekok
Column A	P1
vs.	vs.
Column B	P2
Mann Whitney test	
P value	> 0.9999
Exact or approximate P value?	Exact
P value summary	ns
Significantly different? (P < 0.05)	No
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,B	18.00 , 18.00
Mann-Whitney U	8.000
Difference between medians	
Median of column A	0.6639
Median of column B	0.7770
Difference: Actual	-0.1131
Difference: Hodges-Lehmann	-0.02820

Table Analyzed	Aktivitas Spesifik Cekok
Column A	P1
vs.	vs.
Column C	P3
Mann Whitney test	
P value	0.3429
Exact or approximate P value?	Exact
P value summary	ns
Significantly different? (P < 0.05)	No
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,C	22.00 , 14.00
Mann-Whitney U	4.000
Difference between medians	
Median of column A	0.6639
Median of column C	0.3200
Difference: Actual	0.3440
Difference: Hodges-Lehmann	0.3341

Table Analyzed	Aktivitas Spesifik Cekok
Column A	P1
vs.	vs.
Column D	P4
Mann Whitney test	
P value	0.3429
Exact or approximate P value?	Exact
P value summary	ns
Significantly different? ($P < 0.05$)	No
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,D	22.00 , 14.00
Mann-Whitney U	4.000
Difference between medians	
Median of column A	0.6639
Median of column D	0.2032
Difference: Actual	0.4608
Difference: Hodges-Lehmann	0.3908

Aktivitas Spesifik Katalase Hati Kontrol

Table Analyzed	Aktivitas Spesifik Katalase Tidak Cekok
Column A	P1
vs.	vs.
Column B	P2
Mann Whitney test	
P value	0.6571
Exact or approximate P value?	Exact
P value summary	ns
Significantly different? ($P < 0.05$)	No
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,B	20.00 , 16.00
Mann-Whitney U	6.000
Difference between medians	
Median of column A	0.4848
Median of column B	0.3628
Difference: Actual	0.1221
Difference: Hodges-Lehmann	0.1221

Table Analyzed	Aktivitas Spesifik Katalase Tidak Cekok
Column A	P1
vs.	vs.
Column C	P3
Mann Whitney test	
P value	0.3429
Exact or approximate P value?	Exact
P value summary	Ns
Significantly different? (P < 0.05)	No
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,C	22.00 , 14.00
Mann-Whitney U	4.000
Difference between medians	
Median of column A	0.4848
Median of column C	0.2533
Difference: Actual	0.2316
Difference: Hodges-Lehmann	0.2594

Table Analyzed	Aktivitas Spesifik Katalase Tidak Cekok
Column A	P1
vs.	vs.
Column D	P4
Mann Whitney test	
P value	0.0286
Exact or approximate P value?	Exact
P value summary	*
Significantly different? (P < 0.05)	Yes
One- or two-tailed P value?	Two-tailed
Sum of ranks in column A,D	26.00 , 10.00
Mann-Whitney U	0.0
Difference between medians	
Median of column A	0.4848
Median of column D	0.09565
Difference: Actual	0.3892
Difference: Hodges-Lehmann	0.3892

Korelasi Darah cekok dan Hati cekok

Pearson r	
r	0.9012
95% confidence interval	-0.4476 to 0.9979
R square	0.8122
P value	
P (two-tailed)	0.0988
P value summary	ns
Significant? (alpha = 0.05)	No
Number of XY Pairs	4

Korelasi Darah kontrol dan Hati kontrol

Pearson r	
r	0.9876
95% confidence interval	0.5207 to 0.9998
R square	0.9753
P value	
P (two-tailed)	0.0124
P value summary	*
Significant? (alpha = 0.05)	Yes
Number of XY Pairs	4

Lampiran 5 : Buah Maja







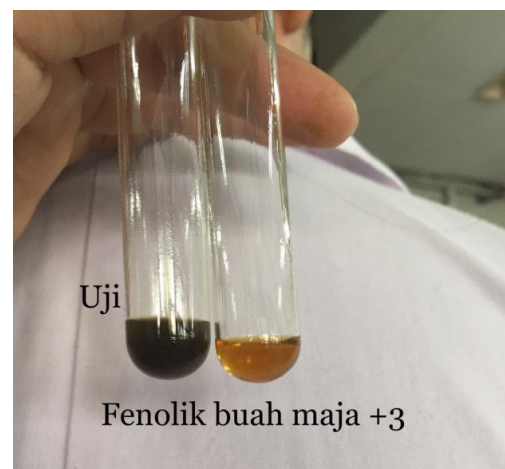
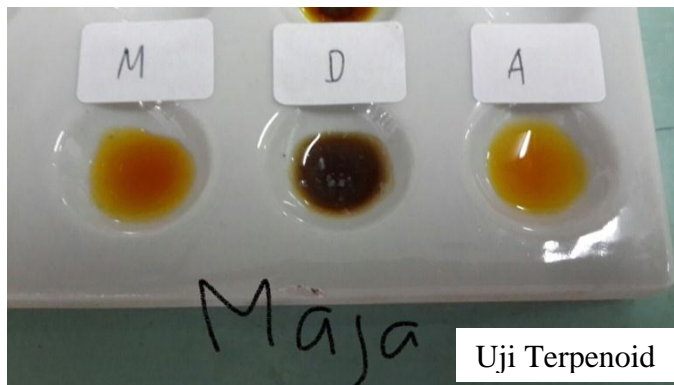
Lampiran 6 : Pemeriksaan Fitokimia dan Perlakuan pada tikus *Sprague Dawley*

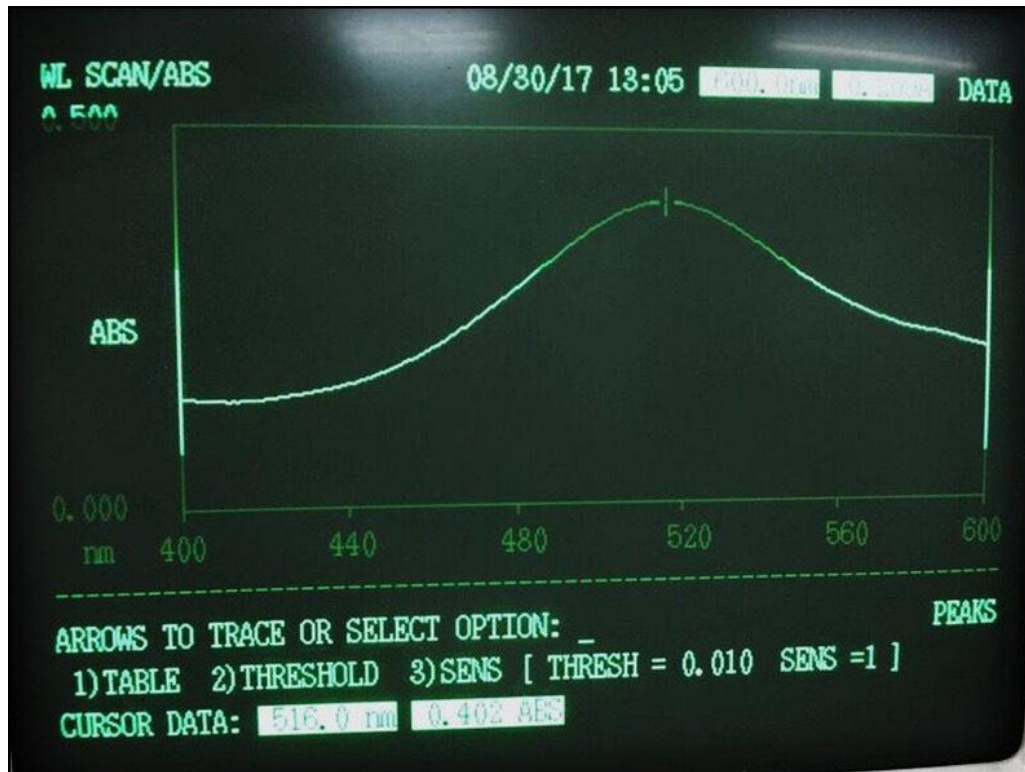


Uji Flavonoid



Uji Alkaloid



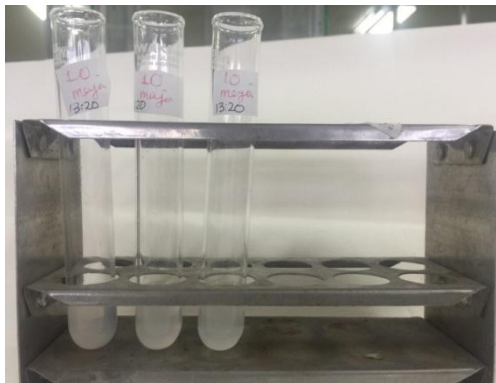
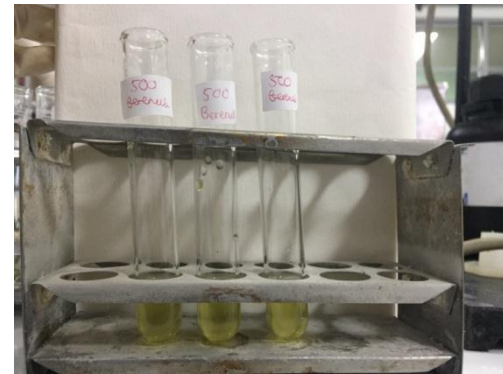
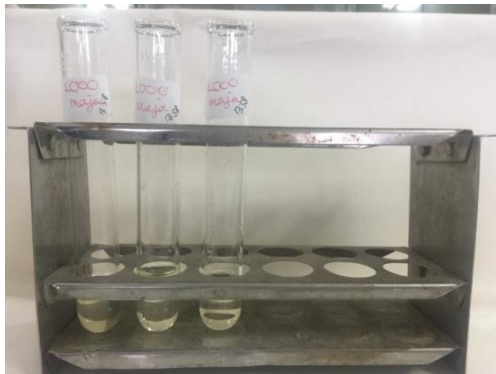


Panjang Gelombang Maksimum





Lampiran 7 : Uji Toksisitas



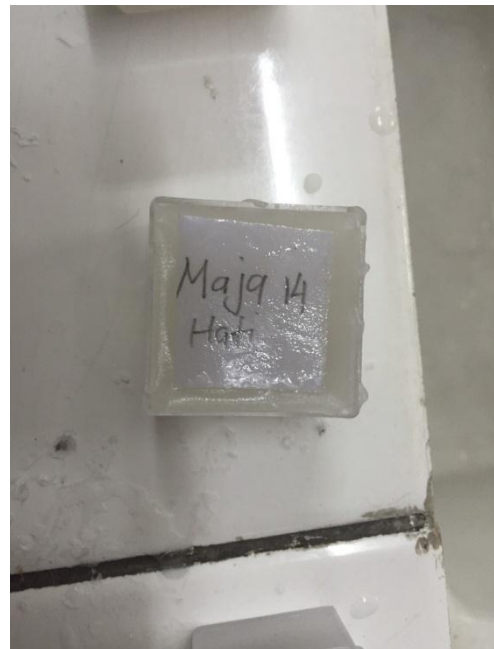


Micropipet



Telur Udang Supreme Plus – Golden West Artemia

Lampiran 8 : Pembuatan Patologi Anatomi Hati





Tissue Grinder (Homogenizer)
Wheaton Science, Millville, NJ-
USA



Spektrofotometer UV



Alat sentrigugasi seri PLC, K
Centrifuge.

Universitas Tarumanagara



Alat sentrifugasi berkecepatan tinggi,
model 20PR-5, Hitachi – Jepang

DAFTAR RIWAYAT HIDUP

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Riwayat Pendidikan

- SD Santa Theresia 1 Pangkalpinang Tahun 2006 – 2011
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