

## Lampiran 1 Kaji Etik



KOMISI ETIK RISET  
FAKULTAS KEDOKTERAN  
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### PERSETUJUAN ETIK *Ethical Clearance* Nomor: 135/KER/FK/XII/2018

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 KRANBERI (*Vaccinium macrocarpon Aiton*) TERHADAP STRES OKSIDATIF PADA ORGAN TIKUS *Sprague Dawley* (PARU, JANTUNG, HATI, GINJAL DAN OTAK) YANG DIINDUKSI HIPOKSIA"**


Peneliti Utama : Kelvin

Lembaga/Tempat penelitian : FK Universitas Tarumanagara

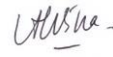
Dinyatakan memenuhi persyaratan etik untuk dilaksanakan.

Jakarta, 18 Desember 2018

Ketua

  
Prof. DR dr. Adi Hidayat, MS

Sekretaris

  
dr. Alvina SpPK

## Lampiran 2 Identifikasi Tumbuhan LIPI



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  
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Website : [www.biologi.lipi.go.id](http://www.biologi.lipi.go.id)



Cibinong, 7 Agustus 2018

Nomor : 1292/IPH.1.01/If.07/VIII/2018  
Lampiran : -  
Perihal : Hasil identifikasi/determinasi Tumbuhan

Kepada Yth.  
Bpk./Ibu/Sdr(j). **Chindy Tjandra**  
Mhs. 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	Cranberry	<i>Vaccinium macrocarpon</i> Aiton	Ericaceae

Demikian, semoga berguna bagi Saudara.

Kepala Bidang Botani  
Pusat Penelitian Biologi-LIPI,

*Dr. Joeni Setijo Rahajoe*  
NIP. 196706241993032004

### Lampiran 3 Hasil Uji In Vitro

Tabel 1 Regresi Linear DPPH

Regresi Linear	
Best-fit values $\pm$ SE	
Slope	0.8152 $\pm$ 0.1416
Y-intercept	9.436 $\pm$ 8.135
X-intercept	-11.58
1/slope	1.227
95% Confidence Intervals	
Slope	0.3645 to 1.266
Y-intercept	-16.45 to 35.32
X-intercept	-91.17 to 13.82
Goodness of Fit	
R square	0.917
Sy.x	8.956
Is slope significantly non-zero?	
F	33.14
DFn, DFd	1, 3
P value	0.0104
Deviation from zero?	Significant
Equation	$Y = 0.8152 * X + 9.436$
Data	
Number of X values	5
Maximum number of Y replicates	1
Total number of values	5
Number of missing values	0

Tabel 2 Regresi Linear Vitamin C

Regresi Linear	
Best-fit values $\pm$ SE	
Slope	6.382 $\pm$ 0.1258
Y-intercept	19.49 $\pm$ 0.8347
X-intercept	-3.054
1/slope	0.1567
95% Confidence Intervals	
Slope	5.982 to 6.782
Y-intercept	16.83 to 22.15
X-intercept	-3.687 to -2.492
Goodness of Fit	
R square	0.9988
Sy.x	0.7958
Is slope significantly non-zero?	
F	2572
DFn, DFd	1, 3
Universitas Tarumanagara	65

P value	<0.0001
Deviation from zero?	Significant
Equation	$Y = 6.382 * X + 19.49$
Data	
Number of X values	5
Maximum number of Y replicates	1
Total number of values	5
Number of missing values	0

Tabel 3 Regresi Linear Fenolik

Regresi Linear	
Best-fit values $\pm$ SE	
Slope	$0.00073 \pm 7.332e-005$
Y-intercept	$0.1188 \pm 0.0381$
X-intercept	-162.7
1/slope	1370
95% Confidence Intervals	
Slope	0.0004967 to 0.0009633
Y-intercept	-0.002447 to 0.24
X-intercept	-478.9 to 2.564
Goodness of Fit	
R square	0.9706
Sy.x	0.02319
Is slope significantly non-zero?	
F	99.13
DFn, DFd	1, 3
P value	0.0022
Deviation from zero?	Significant
Equation	$Y = 0.00073 * X + 0.1188$
Data	
Number of X values	5
Maximum number of Y replicates	1
Total number of values	5
Number of missing values	0

Tabel 4 Regresi Linear Alkaloid

Regresi Linear	
Best-fit values $\pm$ SE	
Slope	$0.001715 \pm 0.0002174$
Y-intercept	$0.0481 \pm 0.01442$
X-intercept	-28.05
1/slope	583.1
95% Confidence Intervals	
Slope	0.001023 to 0.002407
Y-intercept	0.002209 to 0.09399

X-intercept	-89.38 to -0.9434
Goodness of Fit	
R square	0.954
Sy.x	0.01375
Is slope significantly non-zero?	
F	62.24
DFn, DFd	1, 3
P value	0.0042
Deviation from zero?	Significant
Equation	$Y = 0.001715 * X + 0.0481$
Data	
Number of X values	5
Maximum number of Y replicates	1
Total number of values	5
Number of missing values	0

Tabel 5 Regresi Linear Toksisitas BSLT

Regresi Linear	
Best-fit values $\pm$ SE	
Slope	$43.37 \pm 9.891$
Y-intercept	$-44.76 \pm 22.82$
X-intercept	1.032
1/slope	0.02306
95% Confidence Intervals	
Slope	0.8133 to 85.93
Y-intercept	-142.9 to 53.41
X-intercept	-59.02 to 1.851
Goodness of Fit	
R square	0.9058
Sy.x	15.22
Is slope significantly non-zero?	
F	19.23
DFn, DFd	1, 2
P value	0.0483
Deviation from zero?	Significant
Equation	$Y = 43.37 * X - 44.76$
Data	
Number of X values	4
Maximum number of Y replicates	1
Total number of values	4
Number of missing values	0

#### Lampiran 4 Hasil Absorbansi SOD (In Vivo)

Tabel 1 Nilai Absorbansi SOD Jantung Kelompok Tidak Cekok Hipoksia 1 Hari

HIPOKSIA HARI 1	Absorbansi Pertama (A1)	Absorbansi Kedua (A2)	% INHIBISI
TIKUS 1	0.018	0.031	60.606
TIKUS 2	0.029	0.041	63.636
TIKUS 3	0.019	0.034	54.545
TIKUS 4	0.017	0.029	63.636

Tabel 2 Nilai Absorbansi SOD Jantung Kelompok Tidak Cekok Hipoksia 7 Hari

HIPOKSIA HARI 7	Absorbansi Pertama (A1)	Absorbansi Kedua (A2)	% INHIBISI
TIKUS 1	0.025	0.039	57.576
TIKUS 2	0.025	0.037	63.636
TIKUS 3	0.035	0.049	57.576
TIKUS 4	0.038	0.051	60.606

Tabel 3 Nilai Absorbansi SOD Jantung Kelompok Tidak Cekok Hipoksia 14 Hari

HIPOKSIA HARI 14	Absorbansi Pertama (A1)	Absorbansi Kedua (A2)	% INHIBISI
TIKUS 1	0.032	0.045	60.606
TIKUS 2	0.036	0.05	57.576
TIKUS 3	0.018	0.03	63.636
TIKUS 4	0.039	0.055	51.515

Tabel 4 Nilai Absorbansi SOD Jantung Kelompok Tidak Cekok Normoksia

NORMOKSIA	Absorbansi Pertama (A1)	Absorbansi Kedua (A2)	% INHIBISI
TIKUS 1	0.024	0.034	69.697
TIKUS 2	0.028	0.04	63.636
TIKUS 3	0.015	0.026	66.667
TIKUS 4	0.042	0.053	66.667

Tabel 5 Nilai Absorbansi SOD Jantung pada Kelompok Cekok Hipoksia 1 Hari

HIPOKSIA HARI 1	Absorbansi Pertama (A1)	Absorbansi Kedua (A2)	% INHIBISI
TIKUS 1	0.041	0.05	72.727
TIKUS 2	0.033	0.044	66.667
TIKUS 3	0.055	0.063	75.757
TIKUS 4	0.04	0.051	66.667

Tabel 6 Nilai Absorbansi SOD Jantung pada Kelompok Cekok Hipoksia 7 Hari

HIPOKSIA HARI 7	Absorbansi Pertama (A1)	Absorbansi Kedua (A2)	% INHIBISI
TIKUS 1	0.015	0.025	69.697
TIKUS 2	0.071	0.083	63.636
TIKUS 3	0.013	0.024	66.667
TIKUS 4	0.017	0.028	66.667

Tabel 7 Nilai Absorbansi SOD Jantung pada Kelompok Cekok Hipoksia 14 Hari

HIPOKSIA HARI 14	Absorbansi Pertama (A1)	Absorbansi Kedua (A2)	% INHIBISI
TIKUS 1	0.019	0.029	69.697
TIKUS 2	0.02	0.031	66.667
TIKUS 3	0.03	0.043	60.606
TIKUS 4	0.024	0.035	66.667

Tabel 8 Nilai Absorbansi SOD Jantung pada Kelompok Cekok Normoksia

NORMOKSIA	Absorbansi Pertama (A1)	Absorbansi Kedua (A2)	% INHIBISI
TIKUS 1	0.024	0.032	75.757
TIKUS 2	0.053	0.063	69.697
TIKUS 3	0.055	0.064	72.727
TIKUS 4	0.057	0.066	72.727

Tabel 9 Nilai Absorbansi SOD Plasma Kelompok Tidak Cekok Hipoksia 1 Hari

HIPOKSIA HARI 1	Absorbansi Pertama (A1)	Absorbansi Kedua (A2)	% INHIBISI
TIKUS 1	0.013	0.025	63.636
TIKUS 2	0.02	0.033	60.606
TIKUS 3	0.023	0.036	60.606
TIKUS 4	0.018	0.028	69.697

Tabel 10 Nilai Absorbansi SOD Plasma Kelompok Tidak Cekok Hipoksia 7 Hari

HIPOKSIA HARI 7	Absorbansi Pertama (A1)	Absorbansi Kedua (A2)	% INHIBISI
TIKUS 1	0.041	0.055	57.576
TIKUS 2	0.033	0.046	60.606
TIKUS 3	0.043	0.055	63.636
TIKUS 4	0.037	0.048	66.667

Tabel 11 Nilai Absorbansi SOD Plasma Kelompok Tidak Cekok Hipoksia 14 Hari

HIPOKSIA HARI 14	Absorbansi Pertama (A1)	Absorbansi Kedua (A2)	% INHIBISI
TIKUS 1	0.061	0.076	54.545
TIKUS 2	0.072	0.085	60.606
TIKUS 3	0.063	0.074	66.667
TIKUS 4	0.059	0.071	63.636

Tabel 12 Nilai Absorbansi SOD Plasma Kelompok Tidak Cekok Normoksia

NORMOKSIA	Absorbansi Pertama (A1)	Absorbansi Kedua (A2)	% INHIBISI
TIKUS 1	0.023	0.033	69.697
TIKUS 2	0.015	0.023	75.757
TIKUS 3	0.013	0.024	66.667
TIKUS 4	0.015	0.024	72.727

Tabel 13 Nilai Absorbansi SOD Plasma pada Kelompok Cekok Hipoksia 1 Hari

HIPOKSIA HARI 1	Absorbansi Pertama (A1)	Absorbansi Kedua (A2)	% INHIBISI
TIKUS 1	0.033	0.04	78.788
TIKUS 2	0.021	0.031	69.697
TIKUS 3	0.039	0.047	75.757
TIKUS 4	0.051	0.06	72.727

Tabel 14 Nilai Absorbansi SOD Plasma pada Kelompok Cekok Hipoksia 7 Hari

HIPOKSIA HARI 7	Absorbansi Pertama (A1)	Absorbansi Kedua (A2)	% INHIBISI
TIKUS 1	0.044	0.054	69.697
TIKUS 2	0.04	0.049	72.727
TIKUS 3	0.044	0.052	75.757
TIKUS 4	0.045	0.055	69.697

Tabel 15 Nilai Absorbansi SOD Plasma pada Kelompok Cekok Hipoksia 14 Hari

HIPOKSIA HARI 14	Absorbansi Pertama (A1)	Absorbansi Kedua (A2)	% INHIBISI
TIKUS 1	0.05	0.059	72.727
TIKUS 2	0.052	0.062	69.697
TIKUS 3	0.056	0.064	75.757
TIKUS 4	0.059	0.07	66.667



Tabel 16 Nilai Absorbansi SOD Plasma pada Kelompok Cekok Normoksia

NORMOKSIA	Absorbansi Pertama (A1)	Absorbansi Kedua (A2)	% INHIBISI
TIKUS 1	0.03	0.037	78.788
TIKUS 2	0.02	0.028	75.757
TIKUS 3	0.011	0.017	81.818
TIKUS 4	0.02	0.027	78.788

## Lampiran 5 Hasil Aktivitas SOD (In Vivo)

Tabel 1 Aktivitas SOD Jantung Kelompok Tidak Cekok Hipoksia 1 Hari

HIPOKSIA HARI 1	Aktivitas (Dalam Log)	Aktivitas (U/mL)	Kadar (Pengenceran 50x)
TIKUS 1	0.143634379	1.391984435	69.599
TIKUS 2	0.202010473	1.592247124	79.612
TIKUS 3	0.026882191	1.063854392	53.192
TIKUS 4	0.202010473	1.592247124	79.612

Tabel 2 Aktivitas SOD Jantung Kelompok Tidak Cekok Hipoksia 7 Hari

HIPOKSIA HARI 7	Aktivitas (Dalam Log)	Aktivitas (U/mL)	Aktivitas (Pengenceran 50x)
TIKUS 1	0.085258285	1.21690951	60.845
TIKUS 2	0.202010473	1.592247124	79.612
TIKUS 3	0.085258285	1.21690951	60.845
TIKUS 4	0.143634379	1.391984435	69.599

Tabel 3 Aktivitas SOD Jantung Kelompok Tidak Cekok Hipoksia 14 Hari

HIPOKSIA HARI 14	Aktivitas (Dalam Log)	Aktivitas (U/mL)	Aktivitas (Pengenceran 50x)
TIKUS 1	0.143634379	1.391984435	69.599
TIKUS 2	0.085258285	1.21690951	60.845
TIKUS 3	0.202010473	1.592247124	79.612
TIKUS 4	-0.031493903	0.930049571	46.502

Tabel 4 Aktivitas SOD Jantung Kelompok Tidak Cekok Normoksia

NORMOKSIA	Aktivitas (Dalam Log)	Aktivitas (U/mL)	Aktivitas (Pengenceran 50x)
TIKUS 1	0.31876266	2.083352029	104.168
TIKUS 2	0.202010473	1.592247124	79.612
TIKUS 3	0.260386566	1.821321297	91.066
TIKUS 4	0.260386566	1.821321297	91.066

Tabel 5 Aktivitas SOD Jantung pada Kelompok Cekok Hipoksia 1 Hari

HIPOKSIA HARI 1	Aktivitas (Dalam Log)	Aktivitas (U/mL)	Aktivitas (Pengenceran 50x)
TIKUS 1	0.377138754	2.383080725	119.154
TIKUS 2	0.260386566	1.821321297	91.066
TIKUS 3	0.435514848	2.725930934	136.297
TIKUS 4	0.260386566	1.821321297	91.066

Tabel 6 Aktivitas SOD Jantung pada Kelompok Cekok Hipoksia 7 Hari

HIPOKSIA HARI 7	Aktivitas (Dalam Log)	Aktivitas (U/mL)	Aktivitas (Pengenceran 50x)
TIKUS 1	0.31876266	2.083352029	104.168
TIKUS 2	0.202010473	1.592247124	79.612
TIKUS 3	0.260386566	1.821321297	91.066
TIKUS 4	0.260386566	1.821321297	91.066

Tabel 7 Aktivitas SOD Jantung pada Kelompok Cekok Hipoksia 14 Hari

HIPOKSIA HARI 14	Aktivitas (Dalam Log)	Aktivitas (U/mL)	Aktivitas (Pengenceran 50x)
TIKUS 1	0.31876266	2.083352029	104.168
TIKUS 2	0.260386566	1.821321297	91.066
TIKUS 3	0.143634379	1.391984435	69.599
TIKUS 4	0.260386566	1.821321297	91.066

Tabel 8 Aktivitas SOD Jantung pada Kelompok Cekok Normoksia

NORMOKSIA	Aktivitas (Dalam Log)	Aktivitas (U/mL)	Aktivitas (Pengenceran 50x)
TIKUS 1	0.435514848	2.725930934	136.297
TIKUS 2	0.31876266	2.083352029	104.168
TIKUS 3	0.377138754	2.383080725	119.154
TIKUS 4	0.377138754	2.383080725	119.154

Tabel 9 Aktivitas SOD Plasma Kelompok Tidak Cekok Hipoksia 1 Hari

HIPOKSIA HARI 1	Aktivitas (Dalam Log)	Aktivitas (U/mL)
TIKUS 1	0.202010473	1.592
TIKUS 2	0.143634379	1.391
TIKUS 3	0.143634379	1.391
TIKUS 4	0.31876266	2.083

Tabel 10 Aktivitas SOD Plasma Kelompok Tidak Cekok Hipoksia 7 Hari

HIPOKSIA HARI 7	Aktivitas (Dalam Log)	Aktivitas (U/mL)
TIKUS 1	0.085258285	1.217
TIKUS 2	0.143634379	1.392
TIKUS 3	0.202010473	1.592
TIKUS 4	0.260386566	1.821

Tabel 11 Aktivitas SOD Plasma Kelompok Tidak Cekok Hipoksia 14 Hari

HIPOKSIA HARI 14	Kadar (Dalam Log)	Aktivitas (U/mL)
TIKUS 1	0.026882191	1.064
TIKUS 2	0.143634379	1.392
TIKUS 3	0.260386566	1.821
TIKUS 4	0.202010473	1.592

Tabel 12 Aktivitas SOD Plasma Kelompok Tidak Cekok Normoksia

NORMOKSIA	Aktivitas (Dalam Log)	Aktivitas (U/mL)
TIKUS 1	0.31876266	2.083
TIKUS 2	0.435514848	2.726
TIKUS 3	0.260386566	1.821
TIKUS 4	0.377138754	2.383

Tabel 13 Aktivitas SOD Plasma pada Kelompok Cekok Hipoksia 1 Hari

HIPOKSIA HARI 1	Aktivitas (Dalam Log)	Aktivitas (U/mL)
TIKUS 1	0.493890942	3.118
TIKUS 2	0.31876266	2.083
TIKUS 3	0.435514848	2.726
TIKUS 4	0.377138754	2.383

Tabel 14 Aktivitas SOD Plasma pada Kelompok Cekok Hipoksia 7 Hari

HIPOKSIA HARI 7	Aktivitas (Dalam Log)	Aktivitas (U/mL)
TIKUS 1	0.31876266	2.083
TIKUS 2	0.377138754	2.383
TIKUS 3	0.435514848	2.726
TIKUS 4	0.31876266	2.083

Tabel 15 Aktivitas SOD Plasma pada Kelompok Cekok Hipoksia 14 Hari

HIPOKSIA HARI 14	Aktivitas (Dalam Log)	Aktivitas (U/mL)
TIKUS 1	0.377138754	2.383
TIKUS 2	0.31876266	2.083
TIKUS 3	0.435514848	2.725
TIKUS 4	0.260386566	1.821

Tabel 16 Aktivitas SOD Plasma pada Kelompok Cekok Normoksia

NORMOKSIA	Aktivitas (Dalam Log)	Aktivitas (U/mL)
TIKUS 1	0.493890942	3.118
TIKUS 2	0.435514848	2.725
TIKUS 3	0.552267036	3.566
TIKUS 4	0.493890942	3.118

## Lampiran 6 Hasil *Collumn Statistic*

Tabel 1 *Collumn Statistic* Aktivitas SOD Jantung Tidak Cekok

<i>Collumn Statistic</i>	Normoksia	Hipoksia 1 Hari	Hipoksia 7 Hari	Hipoksia 14 Hari
Number of values	4	4	4	4
Minimum	79.61	53.19	60.85	46.5
25% Percentile	82.48	57.29	60.85	50.09
Median	91.07	74.61	65.22	65.22
75% Percentile	100.9	79.61	77.11	77.11
Maximum	104.2	79.61	79.61	79.61
Mean	91.48	70.5	67.73	64.14
Std. Deviation	10.04	12.47	8.935	14.04
Std. Error of Mean	5.018	6.234	4.467	7.019
Lower 95% CI of mean	75.51	50.66	53.51	41.8
Upper 95% CI of mean	107.4	90.35	81.94	86.48
Sum	365.9	282	270.9	256.6
D'Agostino & Pearson normality test				
K2	N too small	N too small	N too small	N too small
P value				
Passed normality test (alpha=0.05)?				
P value summary				
Shapiro-Wilk normality test				
W	0.9425	0.8425	0.8603	0.9916
P value	0.6699	0.2027	0.2615	0.9657
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	Yes
P value summary	ns	ns	ns	ns

Tabel 2 *Collumn Statistic* Aktivitas SOD Jantung Cekok

<i>Collumn Statistic</i>	Normoksia	Hipoksia 1 Hari	Hipoksia 7 Hari	Hipoksia 14 Hari
Number of values	4	4	4	4
Minimum	104.2	91.07	79.61	69.6
25% Percentile	107.9	91.07	82.48	74.97
Median	119.2	105.1	91.07	91.07
75% Percentile	132	132	100.9	100.9
Maximum	136.3	136.3	104.2	104.2
Mean	119.7	109.4	91.48	88.97
Std. Deviation	13.13	22.29	10.04	14.32
Std. Error of Mean	6.566	11.15	5.018	7.159
Lower 95% CI of mean	98.8	73.92	75.51	66.19
Upper 95% CI of mean	140.6	144.9	107.4	111.8

Sum	478.8	437.6	365.9	355.9
D'Agostino & Pearson normality test				
K2	N too small	N too small	N too small	N too small
P value				
Passed normality test (alpha=0.05)?				
P value summary				
Shapiro-Wilk normality test				
W	0.9425	0.8576	0.9425	0.9178
P value	0.6699	0.2519	0.6699	0.5246
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	Yes
P value summary	ns	ns	ns	ns

Tabel 3 *Collumn Statistic* Aktivitas SOD Plasma Tidak Cekok

<i>Collumn Statistic</i>	Normoksia	Hipoksia 1	Hipoksia 7	Hipoksia 14
		Hari	Hari	Hari
Number of values	4	4	4	4
Minimum	1.821	1.392	1.217	1.064
25% Percentile	1.887	1.392	1.261	1.146
Median	2.233	1.492	1.492	1.492
75% Percentile	2.64	1.961	1.764	1.764
Maximum	2.726	2.083	1.821	1.821
Mean	2.253	1.615	1.506	1.467
Std. Deviation	0.3897	0.3263	0.2604	0.3211
Std. Error of Mean	0.1949	0.1631	0.1302	0.1606
Lower 95% CI of mean	1.633	1.096	1.091	0.9564
Upper 95% CI of mean	2.874	2.134	1.92	1.978
Sum	9.014	6.46	6.022	5.869
D'Agostino & Pearson normality test				
K2	N too small	N too small	N too small	N too small
P value				
Passed normality test (alpha=0.05)?				
P value summary				
Shapiro-Wilk normality test				
W	0.9897	0.8096	0.9897	0.9916
P value	0.9557	0.1205	0.9557	0.9657
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	Yes
P value summary	ns	ns	ns	ns

Tabel 4 *Collumn Statistic* Aktivitas SOD Plasma Cekok

<i>Collumn Statistic</i>	Normoksia	Hipoksia 1 Hari	Hipoksia 7 Hari	Hipoksia 14 Hari
Number of values	4	4	4	4
Minimum	2.726	2.083	2.083	1.821
25% Percentile	2.824	2.158	2.083	1.887
Median	3.118	2.555	2.233	2.233
75% Percentile	3.455	3.02	2.64	2.64
Maximum	3.567	3.118	2.726	2.726
Mean	3.132	2.578	2.319	2.253
Std. Deviation	0.3436	0.4458	0.3059	0.3897
Std. Error of Mean	0.1718	0.2229	0.153	0.1949
Lower 95% CI of mean	2.585	1.868	1.832	1.633
Upper 95% CI of mean	3.679	3.287	2.806	2.874
Sum	12.53	10.31	9.276	9.014
D'Agostino & Pearson normality test				
K2	N too small	N too small	N too small	N too small
P value				
Passed normality test (alpha=0.05)?				
P value summary				
Shapiro-Wilk normality test				
W	0.9425	0.9897	0.8603	0.9897
P value	0.6699	0.9557	0.2615	0.9557
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	Yes
P value summary	ns	ns	ns	ns

## Lampiran 7 Regresi Linear Perbandingan Aktivitas SOD

Tabel 1 Perbandingan Aktivitas SOD Jantung Normoksia Tidak Cekok dengan Normoksia Tidak Cekok Hipoksia 1 Hari

T-Test	
Table Analyzed	Tidak cekok
Column B	Hipoksia 1 hari
vs.	vs.
Column A	Normoksia
Unpaired t test	
P value	0.0395
P value summary	*
Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=2.621 df=6
How big is the difference?	
Mean ± SEM of column A	91.48 ± 5.018, n=4
Mean ± SEM of column B	70.5 ± 6.234, n=4
Difference between means	-20.97 ± 8.003
95% confidence interval	-40.56 to -1.391
R squared (eta squared)	0.5337
F test to compare variances	
F, DFn, Dfd	1.544, 3, 3
P value	0.7300
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 2 Perbandingan Aktivitas SOD Jantung Normoksia Tidak Cekok dengan Normoksia Tidak Cekok Hipoksia 7 Hari

T-Test	
Table Analyzed	Tidak cekok
Column C	Hipoksia 7 hari
vs.	vs.
Column A	Normoksia
Unpaired t test	
P value	0.0123
P value summary	*
Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=3.535 df=6
How big is the difference?	
Mean ± SEM of column A	91.48 ± 5.018, n=4
Mean ± SEM of column C	67.73 ± 4.467, n=4
Difference between means	-23.75 ± 6.718
95% confidence interval	-40.19 to -7.313



R squared (eta squared)	0.6757
F test to compare variances	
F, DFn, Dfd	1.262, 3, 3
P value	0.8530
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 3 Perbandingan Aktivitas SOD Jantung Normoksia Tidak Cekok dengan Normoksia Tidak Cekok Hipoksia 14 Hari

<b>T-Test</b>	
Table Analyzed	Tidak cekok
Column D	Hipoksia 14 hari
vs.	vs.
Column A	Normoksia
Unpaired t test	
P value	0.0194
P value summary	*
Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=3.169 df=6
How big is the difference?	
Mean ± SEM of column A	91.48 ± 5.018, n=4
Mean ± SEM of column D	64.14 ± 7.019, n=4
Difference between means	-27.34 ± 8.628
95% confidence interval	-48.45 to -6.226
R squared (eta squared)	0.6259
F test to compare variances	
F, DFn, Dfd	1.956, 3, 3
P value	0.5954
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 4 Perbandingan Aktivitas SOD Jantung Normoksia Cekok dengan Normoksia Cekok Hipoksia 1 Hari

<b>T-Test</b>	
Table Analyzed	Cekok
Column B	Hipoksia 1 hari
vs.	vs.
Column A	Normoksia
Unpaired t test	
P value	0.4564
P value summary	ns
Significantly different (P < 0.05)?	No
One- or two-tailed P value?	Two-tailed
t, df	t=0.796 df=6

How big is the difference?	
Mean $\pm$ SEM of column A	119.7 $\pm$ 6.566, n=4
Mean $\pm$ SEM of column B	109.4 $\pm$ 11.15, n=4
Difference between means	-10.3 $\pm$ 12.94
95% confidence interval	-41.95 to 21.36
R squared (eta squared)	0.09552
F test to compare variances	
F, DF <sub>n</sub> , Dfd	2.882, 3, 3
P value	0.4078
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 5 Perbandingan Aktivitas SOD Jantung Normoksia Cekok dengan Normoksia Cekok Hipoksia 7 Hari

T-Test	
Table Analyzed	Cekok
Column C	Hipoksia 7 hari
vs.	vs.
Column A	Normoksia
Unpaired t test	
P value	0.0142
P value summary	*
Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=3.414 df=6
How big is the difference?	
Mean $\pm$ SEM of column A	119.7 $\pm$ 6.566, n=4
Mean $\pm$ SEM of column C	91.48 $\pm$ 5.018, n=4
Difference between means	-28.22 $\pm$ 8.264
95% confidence interval	-48.44 to -7.995
R squared (eta squared)	0.6602
F test to compare variances	
F, DF <sub>n</sub> , Dfd	1.712, 3, 3
P value	0.6696
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 6 Perbandingan Aktivitas SOD Jantung Normoksia Cekok dengan Normoksia Cekok Hipoksia 14 Hari

T-Test	
Table Analyzed	Cekok
Column D	Hipoksia 14 hari
vs.	vs.
Column A	Normoksia
Unpaired t test	

P value	0.0195
P value summary	*
Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=3.162 df=6
How big is the difference?	
Mean ± SEM of column A	119.7 ± 6.566, n=4
Mean ± SEM of column D	88.97 ± 7.159, n=4
Difference between means	-30.72 ± 9.714
95% confidence interval	-54.49 to -6.95
R squared (eta squared)	0.625
F test to compare variances	
F, DFn, Dfd	1.189, 3, 3
P value	0.8903
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 7 Perbandingan Aktivitas SOD Plasma Normoksia Tidak Cekok dengan Normoksia Tidak Cekok Hipoksia 1 Hari

T-Test	
Table Analyzed	Plasma Tidak Cekok
Column B	Aktivitas HI
vs.	vs.
Column A	Normoksia
Unpaired t test	
P value	0.0457
P value summary	*
Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=2.512 df=6
How big is the difference?	
Mean ± SEM of column A	2.253 ± 0.1949, n=4
Mean ± SEM of column B	1.615 ± 0.1631, n=4
Difference between means	-0.6385 ± 0.2541
95% confidence interval	-1.26 to -0.01667
R squared (eta squared)	0.5127
F test to compare variances	
F, DFn, Dfd	1.427, 3, 3
P value	0.7771
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 8 Perbandingan Aktivitas SOD Plasma Normoksia Tidak Cekok dengan Normoksia Tidak Cekok Hipoksia 7 Hari

T-Test	
Table Analyzed	Plasma Tidak Cekok
Column C	Aktivitas H7
vs.	vs.
Column A	Normoksia
Unpaired t test	
P value	0.0188
P value summary	*
Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=3.191 df=6
How big is the difference?	
Mean ± SEM of column A	2.253 ± 0.1949, n=4
Mean ± SEM of column C	1.506 ± 0.1302, n=4
Difference between means	-0.7478 ± 0.2344
95% confidence interval	-1.321 to -0.1743
R squared (eta squared)	0.6292
F test to compare variances	
F, DFn, Dfd	2.24, 3, 3
P value	0.5249
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 9 Perbandingan Aktivitas SOD Plasma Normoksia Tidak Cekok dengan Normoksia Tidak Cekok Hipoksia 14 Hari

T-Test	
Table Analyzed	Plasma Tidak Cekok
Column D	Aktivitas H14
vs.	vs.
Column A	Normoksia
Unpaired t test	
P value	0.0208
P value summary	*
Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=3.113 df=6
How big is the difference?	
Mean ± SEM of column A	2.253 ± 0.1949, n=4
Mean ± SEM of column D	1.467 ± 0.1606, n=4
Difference between means	-0.7861 ± 0.2525
95% confidence interval	-1.404 to -0.1682
R squared (eta squared)	0.6176
F test to compare variances	

F, DFn, Dfd	1.473, 3, 3
P value	0.7580
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 10 Perbandingan Aktivitas SOD Plasma Normoksia Cekok dengan Normoksia Cekok Hipoksia 1 Hari

<b>T-Test</b>	
Table Analyzed	Plasma Cekok
Column B	Aktivitas H1
vs.	vs.
Column A	Normoksia
Unpaired t test	
P value	0.0963
P value summary	ns
Significantly different (P < 0.05)?	No
One- or two-tailed P value?	Two-tailed
t, df	t=1.971 df=6
How big is the difference?	
Mean ± SEM of column A	3.132 ± 0.1718, n=4
Mean ± SEM of column B	2.578 ± 0.2229, n=4
Difference between means	-0.5546 ± 0.2814
95% confidence interval	-1.243 to 0.1341
R squared (eta squared)	0.3929
F test to compare variances	
F, DFn, Dfd	1.683, 3, 3
P value	0.6793
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 11 Perbandingan Aktivitas SOD Plasma Normoksia Cekok dengan Normoksia Cekok Hipoksia 7 Hari

<b>T-Test</b>	
Table Analyzed	Plasma Cekok
Column C	Aktivitas H7
vs.	vs.
Column A	Normoksia
Unpaired t test	
P value	0.0123
P value summary	*
Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=3.535 df=6
How big is the difference?	
Mean ± SEM of column A	3.132 ± 0.1718, n=4

Mean ± SEM of column C	2.319 ± 0.153, n=4
Difference between means	-0.8133 ± 0.23
95% confidence interval	-1.376 to -0.2504
R squared (eta squared)	0.6757
F test to compare variances	
F, DFn, Dfd	1.262, 3, 3
P value	0.8530
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 12 Perbandingan Aktivitas SOD Plasma Normoksia Cekok dengan Normoksia Cekok Hipoksia 14 Hari

T-Test	
Table Analyzed	Plasma Cekok
Column D	Aktivitas H14
vs.	vs.
Column A	Normoksia
Unpaired t test	
P value	0.0148
P value summary	*
Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=3.383 df=6
How big is the difference?	
Mean ± SEM of column A	3.132 ± 0.1718, n=4
Mean ± SEM of column D	2.253 ± 0.1949, n=4
Difference between means	-0.8788 ± 0.2598
95% confidence interval	-1.514 to -0.2431
R squared (eta squared)	0.656
F test to compare variances	
F, DFn, Dfd	1.286, 3, 3
P value	0.8409
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 13 Hubungan Aktivitas SOD Jantung Normoksia Tidak Cekok dengan Normoksia Cekok

T-Test	
Table Analyzed	Organ
Column E	Tdk Cekok Normoksia
vs.	vs.
Column A	Cekok Normoksia
Unpaired t test	
P value	0.0142
P value summary	*

Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=3.414 df=6
How big is the difference?	
Mean ± SEM of column A	119.7 ± 6.566, n=4
Mean ± SEM of column E	91.48 ± 5.018, n=4
Difference between means	-28.22 ± 8.264
95% confidence interval	-48.44 to -7.995
R squared (eta squared)	0.6602
F test to compare variances	
F, DFn, Dfd	1.712, 3, 3
P value	0.6696
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 14 Hubungan Aktivitas SOD Jantung Tidak Cekok Hipoksia 1 Hari dengan Cekok Hipoksia 1 Hari

T-Test	
Table Analyzed	Organ
Column F	Tdk Cekok Hipoksia 1 hari
vs.	vs.
Column B	Cekok Hipoksia 1 hari
Unpaired t test	
P value	0.0226
P value summary	*
Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=3.045 df=6
How big is the difference?	
Mean ± SEM of column B	109.4 ± 11.15, n=4
Mean ± SEM of column F	70.5 ± 6.234, n=4
Difference between means	-38.89 ± 12.77
95% confidence interval	-70.14 to -7.641
R squared (eta squared)	0.6072
F test to compare variances	
F, DFn, Dfd	3.196, 3, 3
P value	0.3654
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 15 Hubungan Aktivitas SOD Jantung Tidak Cekok Hipoksia 7 Hari dengan Cekok Hipoksia 7 Hari

T-Test	
Table Analyzed	Organ
Column G	Tdk Cekok Hipoksia 7 hari

vs.	vs.
Column C	Cekok Hipoksia 7 hari
Unpaired t test	
P value	0.0123
P value summary	*
Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=3.535 df=6
How big is the difference?	
Mean ± SEM of column C	91.48 ± 5.018, n=4
Mean ± SEM of column G	67.73 ± 4.467, n=4
Difference between means	-23.75 ± 6.718
95% confidence interval	-40.19 to -7.313
R squared (eta squared)	0.6757
F test to compare variances	
F, DFn, Dfd	1.262, 3, 3
P value	0.8530
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 16 Hubungan Aktivitas SOD Jantung Tidak Cekok Hipoksia 14 Hari dengan Cekok Hipoksia 14 Hari

T-Test	
Table Analyzed	Organ
Column H	Tdk Cekok Hipoksia 14 hari
vs.	vs.
Column D	Cekok Hipoksia 14 hari
Unpaired t test	
P value	0.0480
P value summary	*
Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=2.477 df=6
How big is the difference?	
Mean ± SEM of column D	88.97 ± 7.159, n=4
Mean ± SEM of column H	64.14 ± 7.019, n=4
Difference between means	-24.83 ± 10.03
95% confidence interval	-49.37 to -0.3035
R squared (eta squared)	0.5056
F test to compare variances	
F, DFn, Dfd	1.04, 3, 3
P value	0.9748
P value summary	ns
Significantly different (P < 0.05)?	No



Tabel 17 Hubungan Aktivitas SOD Plasma Normoksia Tidak Cekok dengan Normoksia Cekok

T-Test	
Table Analyzed	Plasma
Column E	Tdk Cekok Normoksia
vs.	vs.
Column A	Cekok Normoksia
Unpaired t test	
P value	0.0148
P value summary	*
Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=3.383 df=6
How big is the difference?	
Mean ± SEM of column A	3.132 ± 0.1718, n=4
Mean ± SEM of column E	2.253 ± 0.1949, n=4
Difference between means	-0.8788 ± 0.2598
95% confidence interval	-1.514 to -0.2431
R squared (eta squared)	0.656
F test to compare variances	
F, DFn, Dfd	1.286, 3, 3
P value	0.8409
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 18 Hubungan Aktivitas SOD Plasma Tidak Cekok Hipoksia 1 Hari dengan Cekok Hipoksia 1 Hari

T-Test	
Table Analyzed	Plasma
Column F	Tdk Cekok Hipoksia 1 hari
vs.	vs.
Column B	Cekok Hipoksia 1 hari
Unpaired t test	
P value	0.0131
P value summary	*
Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=3.485 df=6
How big is the difference?	
Mean ± SEM of column B	2.578 ± 0.2229, n=4
Mean ± SEM of column F	1.615 ± 0.1631, n=4
Difference between means	-0.9627 ± 0.2762
95% confidence interval	-1.639 to -0.2868
R squared (eta squared)	0.6694
F test to compare variances	

F, DFn, Dfd	1.867, 3, 3
P value	0.6209
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 19 Hubungan Aktivitas SOD Plasma Tidak Cekok Hipoksia 7 Hari dengan Cekok Hipoksia 7 Hari

T-Test	
Table Analyzed	Plasma
Column G	Tdk Cekok Hipoksia 7 hari
vs.	vs.
Column C	Cekok Hipoksia 7 hari
Unpaired t test	
P value	0.0067
P value summary	**
Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=4.049 df=6
How big is the difference?	
Mean ± SEM of column C	2.319 ± 0.153, n=4
Mean ± SEM of column G	1.506 ± 0.1302, n=4
Difference between means	-0.8133 ± 0.2009
95% confidence interval	-1.305 to -0.3218
R squared (eta squared)	0.7321
F test to compare variances	
F, DFn, Dfd	1.38, 3, 3
P value	0.7975
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 20 Hubungan Aktivitas SOD Plasma Tidak Cekok Hipoksia 14 Hari dengan Cekok Hipoksia 14 Hari

T-Test	
Table Analyzed	Plasma
Column H	Tdk Cekok Hipoksia 14 hari
vs.	vs.
Column D	Cekok Hipoksia 14 hari
Unpaired t test	
P value	0.0208
P value summary	*
Significantly different (P < 0.05)?	Yes
One- or two-tailed P value?	Two-tailed
t, df	t=3.113 df=6
How big is the difference?	
Mean ± SEM of column D	2.253 ± 0.1949, n=4

Mean $\pm$ SEM of column H	1.467 $\pm$ 0.1606, n=4
Difference between means	-0.7861 $\pm$ 0.2525
95% confidence interval	-1.404 to -0.1682
R squared (eta squared)	0.6176
F test to compare variances	
F, DFn, Dfd	1.473, 3, 3
P value	0.7580
P value summary	ns
Significantly different (P < 0.05)?	No

Tabel 21 Hubungan Aktivitas SOD Jantung Tidak Cekok dengan Plasma Tidak Cekok

Pearson R	
r	0.997
95% confidence interval	0.8608 to 0.9999
R squared	0.9941
P value	
P (two-tailed)	0.0030
P value summary	**
Significant? (alpha = 0.05)	Yes
Number of XY Pairs	4

Tabel 22 Hubungan Aktivitas SOD Jantung Cekok dengan Plasma Cekok

Pearson R	
r	0.9519
95% confidence interval	-0.1075 to 0.999
R squared	0.9062
P value	
P (two-tailed)	0.0481
P value summary	*
Significant? (alpha = 0.05)	Yes
Number of XY Pairs	4

**Lampiran 8 Dokumentasi**



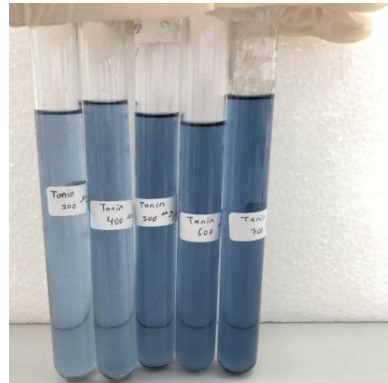
**Buah *Cranberry***



**Maserasi Buah *Cranberry***



**Maserasi Buah *Cranberry***



**Larutan Standar Tannin Fenolik**



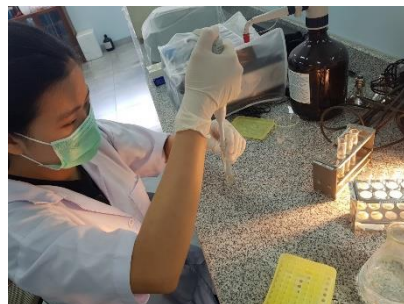
**Larutan DPPH**



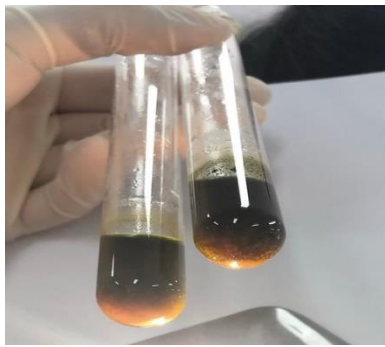
**Larutan Pembanding Vitamin C**



**Terbentuknya Lapisan Alkaloid**



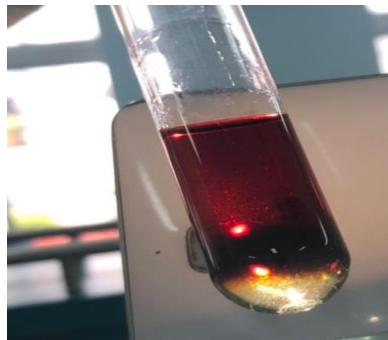
**Pengambilan Telur Udang BSLT**



Hasil Uji *Anthocyanins* dan  
*Bethacyanins*



Hasil Uji Alkaloid



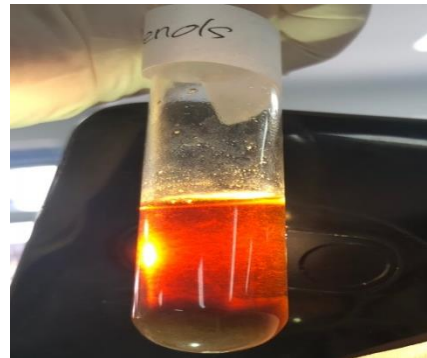
Hasil Uji *Cardio Glycosides*



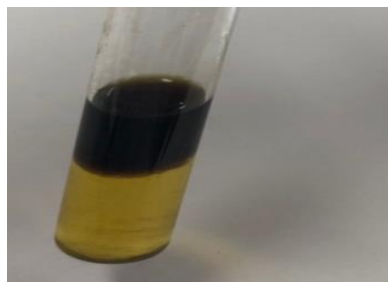
Hasil Uji *Coumarins*



Hasil Uji *Flavonoids*



Hasil Uji *Phenols*



Hasil Uji *Glycosides*



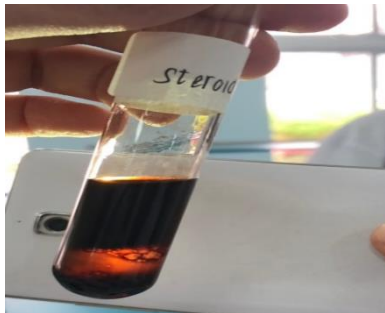
Hasil Uji *Quinones*



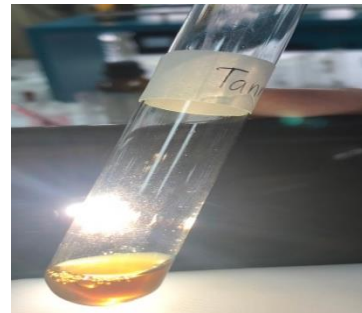
Hasil Uji *Saponins*



Hasil Uji *Terpenoids*



Hasil Uji *Steroids*



Hasil Uji *Tannin*



Hipoksia *Chamber*



Pencekohan Hewan Coba



Pembedahan Hewan Coba



Pambuatan Plasma Darah

## DAFTAR RIWAYAT HIDUP

### DATA PRIBADI

1. Nama : Sheryn Pujiono
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### DATA PENDIDIKAN

1. 2003 – 2004 : TK Maria Purworejo
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3. 2010 – 2013 : SMP N 2 Purworejo
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5. 2016 – sekarang : Universitas Tarumanagara

### PENGALAMAN

1. Anggota *Asian Medical Student Association* (AMSA) Universitas Tarumanagara 2016/2017
2. Panitia Logistik “*Antibiotic Awareness Day*” AMSA Universitas Tarumanagara 2016
3. Peserta Pelatihan Harian Dasar “*Learn, Practice, Save Lives*” UMRC Universitas Tarumanagara
4. Peserta Pendidikan Dasar XV “*Booster : Building Our Knowledge to Help Others*” UMRC Universitas Tarumanagara 2016
5. Anggota *Membership and Development* AMSA Universitas Tarumanagara 2017/2018
6. Peserta LPPT “*Public Awareness Regarding TBC : Small Things Worth Knowing*” AMSA Universitas Tarumanagara 2017



7. Panitia Dana Bakti Kesehatan “*Faith 1.0*” AMSA Universitas Tarumanagara 2017
8. Panitia Dana LOSER VII AMSA Universitas Tarumanagara 2017
9. Ketua Pelaksana *General Assembly “Movies: Mission Impossible”* AMSA Universitas Tarumanagara 2017
10. Peserta Bakti Kesehatan “*Helping And Nurturing Directly to Society*” UMRC Universitas Tarumanagara 2017
11. Peserta Pendidikan Lanjutan “*Upgrade Your Skill, Be The Next Expert Tomorrow*” UMRC Universitas Tarumanagara 2017
12. Peserta Survival “*Rescue: Ready For Emergency Situations And Be Cautious For Unexpected Events*” UMRC Universitas Tarumanagara 2017
13. Panitia Acara Pendidikan Dasar XVI “*FAST: Fierce And Speed Training*” UMRC Universitas Tarumanagara 2017
14. Sekretaris Donor Darah “*Share a Little, Care a Little, Donate Blood*” UMRC Universitas Tarumanagara 2017
15. Peserta Seminar “*Tropical Infection – We Know, We Treat, We Prevent*” Fakultas Kedokteran Universitas Tarumanagara 2017
16. Tutor Tutorial Ganjil 2017 Universitas Tarumanagara 2017
17. Sekretaris dan Bendahara Unit Medis Reaksi Cepat (UMRC) Universitas Tarumanagara 2018/2019
18. Sekretaris Bakti Kesehatan “*Enhancing Life. Excelling in Care*” UMRC 2018
19. Panitia Acara Survival XVI “*Survive to Revive*” UMRC Universitas Tarumanagara 2018
20. Sekretaris Pendidikan Lanjutan XVI “*3R : Responsive, Responsible, Reliable*” UMRC 2018
21. Panitia Medis Bakti Kesehatan “*Faith 2.0*” AMSA Universitas Tarumanagara 2018
22. Sekretaris Seminar “*Maternal and Neonatal Health : The Role Of Immunization And Nutrition For Good Health*” AMSA Universitas Tarumanagara 2018



23. Peserta Seminar "*Maternal and Neonatal Health : The Role Of Immunization And Nutrition For Good Health*" AMSA Universitas Tarumanagara 2018
24. Tutor Tutorial Genap Universitas Tarumanagara 2018
25. Peserta Seminar "*Non-Communicable Diseases (NCDs) : Prevention And Management In Pediatrics*" Universitas Tarumanagara 2018
26. Peserta Seminar Regional Medical Olympiad 2018
27. Peserta Regional Medical Olympiad 2018
28. Pengawas Bakti Kesehatan "*End Game: Every Noble Decision To Give You a Mindful Memory*" UMRC Universitas Tarumanagara 2019