

LAMPIRAN

Lampiran 1. Hasil determinasi daun asam jawa



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN
RISET DAN TEKNOLOGI
UNIVERSITAS JENDERAL SOEDIRMAN
FAKULTAS BIOLOGI
LABORATORIUM LINGKUNGAN

Alamat: Jl. Dr. Soeparno No. 63 Purwokerto 53122 Telp. (0281) 638794 Fax. (0281) 631700
Email: biologi@unsod.ac.id Website : <http://bio.unsoed.ac.id>

Nomor penerimaan

Registration number

Kode contoh uji

Sample code

Tanggal penerimaan

Date

Tanggal pengujian

Determination date

: 024/HP.LL/II/2024

: 2402027

: 20 Februari 2024

: 28 Februari 2024

Halaman 2 dari 2

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Kode	Famili	Genus	Spesies	Varietas/Kultivar	Nama Lokal	Reference
2402027	Fabaceae	Tamarindus	<i>Tamarindus indica</i> L.	-	Asam Jawa	Sp.PL: 34 (1753)

Pengendali Teknis
Technical Manager



Prof. Dr. Pudji Widodo, M.Sc.
NIP. 196007151986011001



**KEMENTERIAN PENDIDIKAN, KEBUDAYAAN
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cF 5.10a/01/2014

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HASIL PENGUJIAN

Result of Analysis

<u>Nomor Sertifikat</u>	: B/122/UN23.6.10/TA.00.01/2024
<u>Certificate Number</u>	
<u>Diterbitkan Tanggal</u>	: 26 Februari 2024
<u>Date of Issue</u>	
<u>Nomor Penerimaan</u>	: 024/HP.LL/II/2024
<u>Received Number</u>	
<u>Tanggal Penerimaan</u>	: 20 Februari 2024
<u>Received Date</u>	
<u>Identitas Pelanggan</u>	
<u>Costumer Identity</u>	
<u>Pelanggan</u>	: Mala Aulia Hapsari
<u>Costumer</u>	
<u>Alamat</u>	: Jl.Cerme No2, Wonosari, Sidanegara, Kab Cilacap
<u>Address</u>	
<u>Identitas Contoh Uji</u>	
<u>Sample Identity</u>	
<u>Jenis Contoh Uji</u>	: Daun Asam Jawa
<u>Sample type</u>	
<u>Parameter</u>	: Determinasi Tumbuhan Makroskopis
<u>Parameter</u>	
<u>Pengambil Contoh Uji</u>	: Pelanggan
<u>Sampler</u>	
<u>Tanggal Pengambilan Contoh Uji</u>	: 20 Februari 2024
<u>Date of Sample Collection</u>	
<u>Jumlah Contoh Uji</u>	: 1 (satu)
<u>Sample Quantity</u>	
<u>Kode Contoh Uji</u>	: 2402027
<u>Code of Sample</u>	
<u>Hasil Pengujian</u>	: Terlampir
<u>Result of Analysis</u>	

Catatan:

Note:

1. Hasil Pengujian ini hanya untuk contoh uji yang diuji
This result of analysis only for the tested sample
2. Hasil Pengujian ini tidak boleh digandakan tanpa ijin
Kepala Laboratorium Lingkungan secara tertulis
*This result of analysis may not be copied without the
written permission from the Head of Environmental
Laboratory*

a.n Dekan

on behalf of the Dean

Kepala Laboratorium

Head of Laboratory



Lampiran 2. Surat Keterangan Ethical Clearance



UNAIC
UNIVERSITAS AL-IRSYAD CILACAP

KOMITE ETIK PENELITIAN KESEHATAN

LEMBAGA PENELITIAN
DAN PENGABDIAN MASYARAKAT (LPPM)

Jl. Cermee No.24 Cilacap 53223
Telp. (0282) 532975
lppm@universitasalirsyad.ac.id
www.universitasalirsyad.ac.id

KETERANGAN LAYAK ETIK DESCRIPTION OF ETHICAL EXEMPTION "ETHICAL EXEMPTION"

No. 2083/280/03.6.1

Protokol penelitian versi 1 yang diusulkan oleh :
The research protocol proposed by

Peneliti utama : Mala Aulia Hapsari
Principal In Investigator

Nama Institusi : Universitas Al-Irsyad Cilacap
Name of the Institution

Dengan judul:
Title

"EFEK IMUNOMODULATOR EKSTRAK DAUN ASAM JAWA (*Tamarindus indica* L). TERHADAP JUMLAH DAN JENIS SEL LEUKOSIT PADA MENCIT BALB/C YANG DIINFEKSI BAKTERI *Salmonella Typhi*"

"IMMUNOMODULATORY EFFECTS OF JAVA TAMARIN LEAF EXTRACT (*Tamarindus indica* L). ON LEUKOCYTE CELLS COUNT AND DIF IN BALB/C MICE WHICH ARE INFECTED WITH *Salmonella Typhi* BACTERIA"

Pernyataan Laik Etik ini berlaku selama kurun waktu tanggal 12 Juli 2024 sampai dengan tanggal 12 Juli 2025.

This declaration of ethics applies during the period July 12, 2024 until July 12, 2025.

Head of the research and community service

Susanti, S.ST., M.Keb.

July 12, 2024
Chairperson,

Widyoningsthi, M.Kep., Ns.Sp.Kep.Kom.

Lampiran 3. Perhitungan Dosis

A. Dosis daun asam jawa (*Tamarindus indica* L)

1. Dosis rendah (50 mg/KgBB)

$$\frac{\text{BB mencit}}{1000 \text{ g}} \times 50$$

$$= \frac{21,42}{1000 \text{ g}} \times 50$$

$$= 1,07$$

2. Dosis sedang (75 mg/KgBB)

$$\frac{\text{BB mencit}}{1000 \text{ g}} \times 75$$

$$= \frac{20,54}{1000 \text{ g}} \times 75$$

$$= 1,05$$

3. Dosis tinggi (100 mg/KgBB)

$$\frac{\text{BB mencit}}{1000 \text{ g}} \times 100$$

$$= \frac{23,00}{1000 \text{ g}} \times 100$$

$$= 3,2 \text{ mg}$$

B. Dosis kontrol positif imboost force 0,975/kgBB

1. $\frac{\text{BB m enc i t}}{1000 \text{ g}} \times 100$

$$= \frac{21,42}{1000 \text{ g}} \times 0,975$$

$$= 0,05 \text{ mg}$$

Lampiran 4. Gambar Bahan dan Kegiatan Penelitian



1. Daun Asam jawa



2. Pengeringan daun asam jawa



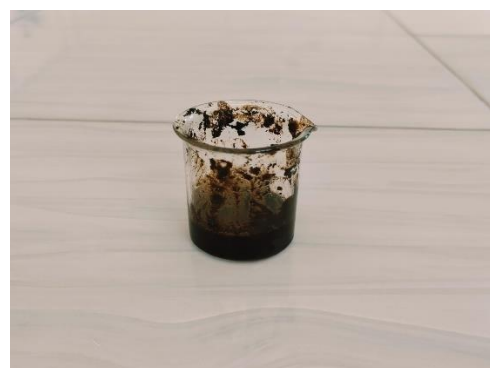
3. Penghalusan



4. Penimbangan simplisia



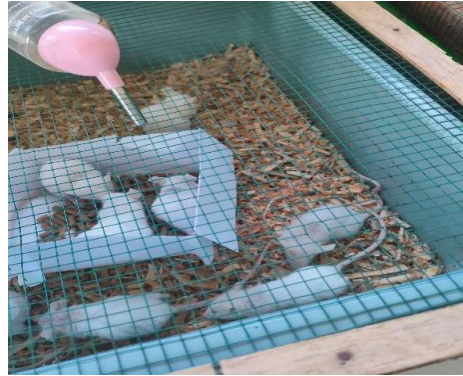
5. Peguapan



6. Ekstrak kental



7. Sediaan dosis



8. mencit Jantan galur balb/c



9. NaCMC



10. Pembuatan suspensi NaCMC



11. Pembutan standar mc farland 0,5



12. Suspensi bakteri *Salmonella typhi*



13. Pengambilan darah mencit



14. Hasil hematologic analyzer k-



15. Hasil hematologic analyzer kontrol



16. Hasil hematologic analyzer dosis 1



17. Hasil hematologic analyzer dosis 2



18. Hasil hematologic dosis 3

Lampiran 5. Hasil statistika

1. Uji Normalitas (Saphiro-Wilk)

Tujuan : Untuk melihat apakah data sel leukosit pada sel WBC (*White Blood Cell*) terdistribusi normal atau tidak

Hipotesis :

H0 : Data sel leukosit terdistribusi normal

H1 : Data sel leukosit tidak terdistribusi normal

Pengambilan keputusan :

Jika nilai signifikan $> 0,05$ maka H0 diterima

Jika nilai signifikan $< 0,05$ H0 ditolak

Tests of Normality							
Kelompok mencit		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
WBC	Kontrol negatif	.200	5	.200*	.961	5	.814
	Kontrol positif	.291	5	.192	.879	5	.305
	— Dosis 1	.271	5	.200*	.831	5	.142
	Dosis 2	.238	5	.200*	.909	5	.461
	Dosis 3	.300	5	.161	.846	5	.181

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Descriptives

WBC								
					95% Confidence Interval for Mean			
	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimu m	Maximu m
Kontrol negatif	5	3.3360	.84902	.37969	2.2818	4.3902	2.33	4.62
Kontrol positif	5	4.2760	2.03156	.90854	1.7535	6.7985	2.26	7.65
Dosis 1	5	3.5620	1.38613	.61990	1.8409	5.2831	2.37	5.90
Dosis 2	5	5.1780	2.00596	.89709	2.6873	7.6687	3.20	7.88
Dosis 5	5	3.4400	.29563	.13221	3.0729	3.8071	2.94	3.70
Total	25	3.9584	1.52111	.30422	3.3305	4.5863	2.26	7.88

2. Uji Homogenitas (uji Levene Statistic)

Tujuan : Untuk ada atau tidaknya perbedaan bermakna pada data sel leukosit pada sel WBC (*White Blood Cell*) dari semua kelompok perlakuan.

Hipotesis :

H0 : Data sel leukosit terdistribusi normal

H1 : Data sel leukosit tidak terdistribusi normal

Pengambilan keputusan :

Jika nilai signifikan $> 0,05$ maka H0 diterima

Jika nilai signifikan $< 0,05$ H0 ditolak

Test of Homogeneity of Variances

WBC				
Levene Statistic	df1	df2	Sig.	
2.556	4	20	.071	

3. Uji *One way* ANOVA

Tujuan : Untuk melihat perbandingan perbedaan kelompok leukosit pada sel wbc (*white blood cell*) dari semua kelompok perlakuan.

Hipotesis :

H0 : Data sel leukosit terdistribusi normal

H1 : Data sel leukosit tidak terdistribusi normal

Pengambilan keputusan :

Jika nilai signifikan $>0,05$ maka H0 diterima

Jika nilai signifikan $< 0,05$ H0 ditolak

ANOVA

WBC						
	Sum of Squares	df	Mean Square	F	Sig.	
Between Groups	12.008	4	3.002	1.379	.277	
Within Groups	43.523	20	2.176			
Total	55.531	24				

4. Uji *Tukey*

Tujuan : Untuk melihat membandingkan seluruh pasangan rata-rata kelompok perlakuan.

Hipotesis :

H0 : Data sel leukosit terdistribusi normal

H1 : Data sel leukosit tidak terdistribusi normal

Pengambilan keputusan :

Jika nilai signifikan $>0,05$ maka H0 diterima

Jika nilai signifikan $< 0,05$ H0 ditolak

Multiple Comparisons

WBC

Tukey HSD

(I) Kelompok mencit	(J) Kelompok mencit	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower	Upper
Kontrol negatif	Kontrol positif	-.94000	.93298	.849	-3.7318	1.8518
	Dosis 1	-.22600	.93298	.999	-3.0178	2.5658
	Dosis 2	-1.84200	.93298	.313	-4.6338	.9498
	Dosis 3	-.10400	.93298	1.000	-2.8958	2.6878
Kontrol positif	Kontrol negatif	.94000	.93298	.849	-1.8518	3.7318
	Dosis 1	.71400	.93298	.938	-2.0778	3.5058
	Dosis 2	-.90200	.93298	.867	-3.6938	1.8898
	Dosis 3	.83600	.93298	.895	-1.9558	3.6278
Dosis 1	Kontrol negatif	.22600	.93298	.999	-2.5658	3.0178
	Kontrol positif	-.71400	.93298	.938	-3.5058	2.0778
	Dosis 2	-1.61600	.93298	.438	-4.4078	1.1758
	Dosis 3	.12200	.93298	1.000	-2.6698	2.9138
Dosis 2	Kontrol negatif	1.84200	.93298	.313	-.9498	4.6338
	Kontrol positif	.90200	.93298	.867	-1.8898	3.6938
	Dosis 1	1.61600	.93298	.438	-1.1758	4.4078
	Dosis 3	1.73800	.93298	.368	-1.0538	4.5298
Dosis 3	Kontrol negatif	.10400	.93298	1.000	-2.6878	2.8958
	Kontrol positif	-.83600	.93298	.895	-3.6278	1.9558

Tests of Normality

kelompok menci		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
LYM	Kneg	.256	5	.200*	.931	5	.602
	Kpos	.215	5	.200*	.899	5	.402
	dimension1	.184	5	.200*	.963	5	.831
	D2	.249	5	.200*	.892	5	.369
	D3	.265	5	.200*	.901	5	.418

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Descriptives

LYM

		95% Confidence Interval for Mean						
	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Kneg	5	59.5400	9.84012	4.40064	47.3219	71.7581	49.40	73.90
Kpos	5	48.2800	7.93391	3.54815	38.4287	58.1313	36.60	56.00
D1	5	51.3800	14.68799	6.56867	33.1425	69.6175	33.10	69.00
D2	5	37.8600	9.30231	4.16012	26.3097	49.4103	28.70	53.00
D3	5	51.0000	15.93298	7.12545	31.2166	70.7834	35.40	77.00
Total	25	49.6120	13.04020	2.60804	44.2293	54.9947	28.70	77.00

Test of Homogeneity of Variances

LYM

Levene Statistic	df1	df2	Sig.
.747	4	20	.571

ANOVA

LYM

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	217.506	4	54.377	2.126	.115
Within Groups	863.620	20	43.181		
Total	1081.126	24			

Multiple Comparisons

LYM

Tukey HSD

(I) kelompok mencit	(J) kelompok mencit	Mean Difference			95% Confidence Interval		
		(I-J)	Std. Error	Sig.	Lower Bound	Upper Bound	
dimension2	Kneg	Kpos	11.26000	7.56785	.582	-11.3859	33.9059
	dimension3	D1	8.16000	7.56785	.815	-14.4859	30.8059
		D2	21.68000	7.56785	.065	-.9659	44.3259
		D3	8.54000	7.56785	.790	-14.1059	31.1859
	Kpos	Kneg	-11.26000	7.56785	.582	-33.9059	11.3859
	dimension3	D1	-3.10000	7.56785	.994	-25.7459	19.5459
		D2	10.42000	7.56785	.649	-12.2259	33.0659
		D3	-2.72000	7.56785	.996	-25.3659	19.9259
	D1	Kneg	-8.16000	7.56785	.815	-30.8059	14.4859
	dimension3	Kpos	3.10000	7.56785	.994	-19.5459	25.7459
		D2	13.52000	7.56785	.408	-9.1259	36.1659
		D3	3.80000	7.56785	1.000	-22.2659	23.0259
	D2	Kneg	-21.68000	7.56785	.065	-44.3259	9.9659
	dimension3	Kpos	-10.42000	7.56785	.649	-33.0659	12.2259
		D1	-13.52000	7.56785	.408	-36.1659	9.1259
		D3	-13.14000	7.56785	.436	-35.7859	9.5059
	D3	Kneg	-8.54000	7.56785	.790	-31.1859	14.1059
	dimension3	Kpos	2.72000	7.56785	.996	-19.9259	25.3659
		D1	-.38000	7.56785	1.000	-23.0259	22.2659
		D2	13.14000	7.56785	.436	-9.5059	35.7859

Output GRAN

Tests of Normality

kelompok mencit		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
GRAN	Kneg	.272	5	.200	.887	5	.344
	Kpos	.196	5	.200*	.947	5	.716
	dimension1	.231	5	.200*	.912	5	.480
	D2	.343	5	.055	.776	5	.051
	D3	.267	5	.200*	.785	5	.061

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Descriptives

GRAN								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Kneg	5	30.8200	8.71820	3.89890	19.9949	41.6451	19.00	39.10
Kpos	5	38.6400	6.93058	3.09945	30.0345	47.2455	30.30	47.00
D1	5	34.4200	12.69082	5.67551	18.6623	50.1777	18.10	47.20
D2	5	49.1200	9.06377	4.05344	37.8658	60.3742	33.40	55.90
D3	5	35.3800	11.69902	5.23196	20.8538	49.9062	15.50	43.50
Total	25	37.6760	11.16230	2.23246	33.0684	42.2836	15.50	55.90

Test of Homogeneity of Variances

GRAN			
Levene Statistic	df1	df2	Sig.
.545	4	20	.705

ANOVA

GRAN					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	973.862	4	243.465	2.415	.083
Within Groups	2016.464	20	100.823		
Total	2990.326	24			

Multiple Comparisons

GRAN

Tukey HSD							
(I) kelompok mencit		(J) kelompok mencit	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
dimension2	Kneg	Kpos	-7.82000	6.35053	.734	-26.8232	11.1832
		dimension3 D1	-3.60000	6.35053	.978	-22.6032	15.4032
		D2	-18.30000	6.35053	.063	-37.3032	.7032
		D3	-4.56000	6.35053	.950	-23.5632	14.4432
	Kpos	Kneg	7.82000	6.35053	.734	-11.1832	26.8232
		D1	4.22000	6.35053	.962	-14.7832	23.2232
		dimension3 D2	-10.48000	6.35053	.485	-29.4832	8.5232
		D3	3.26000	6.35053	.985	-15.7432	22.2632
dimension3	D1	Kneg	3.60000	6.35053	.978	-15.4032	22.6032
	dimension3	Kpos	-4.22000	6.35053	.962	-23.2232	14.7832

				-14.70000	6.35053	.181	-33.7032	4.3032
				-.96000	6.35053	1.000	-19.9632	18.0432
	D2			18.30000	6.35053	.063	-.7032	37.3032
	dimension3	Kpos		10.48000	6.35053	.485	-8.5232	29.4832
		D1		14.70000	6.35053	.181	-4.3032	33.7032
		D3		13.74000	6.35053	.234	-5.2632	32.7432
	Kneg			4.56000	6.35053	.950	-14.4432	23.5632
	dimension3	Kpos		-3.26000	6.35053	.985	-22.2632	15.7432
		D1		.96000	6.35053	1.000	-18.0432	19.9632
		D2		-13.74000	6.35053	.234	-32.7432	5.2632

Output MID

Tests of Normality

kelompok menci		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
MID	Kneg	.196	5	.200*	.962	5	.819
	dimension Kpos	.188	5	.200*	.960	5	.806
1	D1	.222	5	.200*	.896	5	.390
	D2	.218	5	.200*	.972	5	.887
	D3	.181	5	.200*	.981	5	.938

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Descriptives

MID

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Kneg	5	9.6400	1.67571	.74940	7.5593	11.7207	7.10	11.50
Kpos	5	13.0800	2.17991	.97488	10.3733	15.7867	10.70	16.40
D1	5	14.2000	4.16653	1.86333	9.0266	19.3734	10.50	20.30
D2	5	13.0200	1.93959	.86741	10.6117	15.4283	10.30	15.40
D3	5	13.6600	5.08508	2.27412	7.3460	19.9740	7.50	21.20
Total	25	12.7200	3.42819	.68564	11.3049	14.1351	7.10	21.20

Test of Homogeneity of Variances

MID

Levene Statistic	df1	df2	Sig.
2.031	4	20	.129

ANOVA

MID

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	63.900	4	15.975	1.465	.250
Within Groups	218.160	20	10.908		
Total	282.060	24			