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Lampiran 1.Surat keterangan determinasi tanaman tomatdan kelor

BAGIAN BIOLOGI FARMASI
FAKULTAS FARMASI
UNIVERSITAS GADJAH MADA YOGYAKARTA
Alamat: Sekip Utara Jl. Kaliurang Km 4, Yogyakarta 55281
Telp. , 0274.649.2568 Fax. +274-543120

SURAT KETERANGAN
No.: BF/96 / Ident/Det/III/2014

Kepada Yth. :
Sdri/Sdr. Rista Putri Rahmawati
NIM. 16102964 A
Universitas Setia Budi
Di Surakarta

Dengan hormat,

Bersama ini kami sampaikan hasil identifikasi/determinasi sampel yang Saudara kirimkan ke Bagian Biologi Farmasi, Fakultas Farmasi UGM, adalah :

No.Pendaftaran	Jenis	Suku
96	*Moringa pterygosperma* Gaertn. Sinonim : *Moringa oleifera* Lmk.	Moringaceae
	Lycopersicon lycopersicum (L.) *Karsten* *Sinonim : Lycopersicon esculentum* Mill. *Solanum lycopersicum L.*	Solanaceae

Demikian, semoga dapat digunakan sebagaimana mestinya.

Yogyakarta, 11 Maret 2014
Ketua

Prof. Dr. Wahyono, SU., Apt.
NIP. 195007011977021001

Lampiran 2.Surat keterangan pembelian tikus

"ABIMANYU FARM"
√ Mencit putih jantan √ Tikus Wistar √ Swis Webster √ Cacing
√ Mencit Balb/C √ Kelinci New Zaeland
Ngampon RT 04 / RW 04. Mojosongo Kec. Jebres Surakarta. Phone 085 629 994 33 / Lab USB Ska

Yang bertanda tangan di bawah ini:
Nama : Sigit Pramono

Selaku pengelola Abimanyu Farm, menerangkan bahwa hewan uji yang digunakan untuk penelitian, oleh:

Nama	: Rista Putri R
Nim	: 16102964 A
Institusi	: Universitas Setia Budi Surakarta

Merupakan hewan uji dengan spesifikasi sebagai berikut:

Jenis hewan	: Tikus Wistar
Umur	: 2-3 bulan
Jenis kelamin	: Jantan
Jumlah	: 35
Keterangan	: Sehat
Asal-usul	: Unit Pengembangan Hewan Percobaan UGM Yogyakarta

Yang pengembangan dan pengelolaannya disesuaikan standar baku penelitian. Demikian surat keterangan ini dibuat untuk digunakan sebagaimana mestinya.

Surakarta, 22 Mei 2014
Hormat kami

Sigit Pramono
"ABIMANYU FARM"

Lampiran 3.Surat keterangan reagen SGOT

ASAT (GOT) FS* (IFCC mod.)

with/without pyridoxal-5-phosphate

Diagnostic reagent for quantitative in vitro determination of ASAT(GOT) in serum or plasma on photometric systems

Order Information

Cat. No.	Kit size						
1 2601 99 83 021	R1	5 x	20 mL	+	R2	1 x	25 mL
1 2601 99 83 022	R1	5 x	80 mL	+	R2	1 x	100 mL
1 2601 99 83 023	R1	1 x	800 mL	+	R2	1 x	200 mL
1 2601 99 83 704	R1	8 x	50 mL	+	R2	8 x	12.5 mL
1 2601 99 83 917	R1	8 x	80 mL	+	R2	8 x	15 mL
1 2601 99 83 314	R1	10 x	20 mL	+	R2	2 x	30 mL

For determination with pyridoxal-5-phosphate activation additionally required:

2 5010 99 10 030	6 x	3 mL

Summary [1,2]

Alanine Aminotransferase (ALAT/ALT), formerly called Glutamic Pyruvic Transaminase (GPT) and Aspartate Aminotransferase (ASAT/AST), formerly called Glutamic Oxalacetic Transaminase (GOT) are the most important representatives of a group of enzymes, the aminotransferases or transaminases, which catalyze the conversion of α-keto acids into amino acids by transfer of amino groups.

As a liver specific enzyme ALAT is only significantly elevated in hepatobiliary diseases. Increased ASAT levels, however, can occur in connection with damages of heart or skeletal muscle as well as of liver parenchyma. Parallel measurement of ALAT and ASAT is therefore applied to distinguish liver from heart or skeletal muscle damages. The ASAT/ALAT ratio is used for differential diagnosis in liver diseases. While ratios < 1 indicate mild liver damage, ratios >1 are associated with severe, often chronic liver diseases.

Method

Optimized UV-test according to IFCC (International Federation of Clinical Chemistry and Laboratory Medicine) [modified]

Principle

L-Aspartate + 2-Oxoglutarate $\xleftarrow{ASAT}$ L-Glutamate + Oxalacetate

Oxalacetate + NADH + H^+ $\xleftarrow{MDH}$ L-Malate + NAD^+

Addition of pyridoxal-5-phosphate (P-5-P) stabilizes the activity of transaminases and avoids falsely low values in samples containing insufficient endogenous P-5-P, e.g. from patients with myocardial infarction, liver disease and intensive care patients [1].

Reagents

Components and Concentrations

R1:	TRIS	pH 7.65	110 mmol/L
	L-Aspartate		320 mmol/L
	MDH (malate dehydrogenase)		≥ 800 U/L
	LDH (lactate dehydrogenase)		≥ 1200 U/L
R2:	2-Oxoglutarate		65 mmol/L
	NADH		1 mmol/L
Pyridoxal-5-Phosphate FS			
	Good's buffer	pH 9.6	100 mmol/L
	Pyridoxal-5-phosphate		13 mmol/L

Storage Instructions and Reagent Stability

The reagents are stable up to the end of the indicated month of expiry, if stored at 2 – 8 °C, protected from light and contamination is avoided. Do not freeze the reagents!

Warnings and Precautions

1. The reagents contain sodium azide (0.95 g/L) as preservative. Do not swallow! Avoid contact with skin and mucous membranes.
2. In very rare cases, samples of patients with gammopathy might give falsified results.
3. Please refer to the safety data sheets and take the necessary precautions for the use of laboratory reagents. For diagnostic purposes, the results should always be assessed with the patient's medical history, clinical examinations and other findings.

Waste Management

Please refer to local legal requirements.

Reagent Preparation

Substrate Start

The reagents are ready to use.

For the determination with pyridoxal-5-phosphate mix 1 part of P-5-P with 100 parts of reagent 1,

e.g. 100 µL P-5-P + 10 mL R1

Stability after mixing: 6 days at 2 - 8 °C
24 hours at 15 - 25 °C

Sample Start

without pyridoxal-5-phosphate

Mix 4 parts of R1 + 1 part of R2

(e.g. 20 mL R1 + 5 mL R2) = monoreagent

Stability: 4 weeks at 2 – 8 °C
5 days at 15 – 25 °C

The monoreagent must be protected from light!

Materials required but not provided

Pyridoxal-5-Phosphate FS in case of determination with P-5-P activation (Cat.-no. 2 5010 99 10 030)

NaCl solution 9 g/L

General laboratory equipment

Specimen

Serum, heparin plasma or EDTA plasma

Stability [3]:

4 days at 20 – 25 °C
7 days at 4 – 8 °C
3 months at -20 °C

Discard contaminated specimens. Only freeze once!

Assay Procedure

Application sheets for automated systems are available on request.

Wavelength	340 nm, Hg 365 nm, Hg 334 nm
Optical path	1 cm
Temperature	37 °C
Measurement	Against air

Substrate Start

Sample/Calibrator	100 µL
Reagent 1	1000 µL
Mix, incubate for 5 min., then add:	
Reagent 2	250 µL
Mix, read absorbance after 1 min. and start stopwatch.	
Read absorbance again 1, 2 and 3 min thereafter.	

Sample Start

Don't use sample start with pyridoxal-5-phosphate !

Sample/Calibrator	100 µL
Monoreagent	1000 µL
Mix, read absorbance after 1 min. and start stopwatch. Read absorbance again 1, 2 and 3 min thereafter.	

* fluid stable

Calculation

With factor

From absorbance readings calculate ΔA/min and multiply by the corresponding factor from table below:

ΔA/min x factor = ASAT activity [U/L]

Substrate Start	
340 nm	2143
334 nm	2184
365 nm	3971
Sample Start	
340 nm	1745
334 nm	1780
365 nm	3235

With calibrator

$$\text{ASAT [U/L]} = \frac{\Delta A/\text{min Sample}}{\Delta A/\text{min Calibrator}} \times \text{Conc. Calibrator [U/L]}$$

Conversion factor

ASAT [U/L] x 0.0167 = ASAT [µkat/L]

Calibrators and Controls

For the calibration of automated photometric systems the TruCal U calibrator is recommended. This method has been standardized against the original IFCC formulation. For internal quality control TruLab N and P controls should be assayed. Each laboratory should establish corrective action in case of deviations in control recovery.

	Cat. No.	Kit size
TruCal U	5 9100 99 83 063	20 x 3 mL
	5 9100 99 83 064	6 x 3 mL
TruLab N	5 9000 99 83 062	20 x 5 mL
	5 9000 99 83 061	6 x 5 mL
TruLab P	5 9050 99 83 062	20 x 5 mL
	5 9050 99 83 061	6 x 5 mL

Performance Characteristics

Measuring range

On automated systems the test is suitable for the determination of ASAT activities up to 700 U/L.

In case of a manual procedure, the test is suitable for ASAT activities which correspond to a maximum of ΔA/min of 0.16 at 340 and 334 nm or 0.08 at 365 nm.

If such values are exceeded the samples should be diluted 1 + 9 with NaCl solution (9 g/L) and results multiplied by 10.

Specificity/Interferences

No interference was observed by ascorbic acid up to 30 mg/dL, bilirubin up to 40 mg/dL and lipemia up to 2,000 mg/dL triglycerides. The presence of hemoglobin in serum indicates destruction of erythrocytes with release of ASAT, thus producing high interference. For further information on interfering substances refer to Young DS [5].

Sensitivity/Limit of Detection

The lower limit of detection is 2 U/L.

Precision

Without P-5-P

Intra-assay precision n = 20	Mean [U/L]	SD [U/L]	CV [%]
Sample 1	25.1	0.82	3.25
Sample 2	51.3	1.57	3.06
Sample 3	116	0.90	0.77

Inter-assay precision n = 20	Mean [U/L]	SD [U/L]	CV [%]
Sample 1	25.7	1.13	4.40
Sample 2	48.6	0.67	1.38
Sample 3	115	0.80	0.69

With P-5-P

Intra-assay precision n = 20	Mean [U/L]	SD [U/L]	CV [%]
Sample 1	43.6	1.10	2.51
Sample 2	74.5	1.79	2.41
Sample 3	174	3.18	1.83

Inter-assay precision n = 20	Mean [U/L]	SD [U/L]	CV [%]
Sample 1	44.0	1.59	3.61
Sample 2	77.0	3.05	3.97
Sample 3	187	3.37	1.80

Method Comparison

With P-5-P

A comparison of ASAT (GOT) FS with P-5-P (y) with the IFCC reference reagent (x) using 51 samples gave following results: y = 1.000 x – 0.800 U/L; r = 0.999.

A comparison of ASAT (GOT) FS (y) with P-5-P and a commercially available test (x) using 51 samples gave following results:
y = 0.970 x + 0.350 U/L; r= 0.999.

Without P-5-P

A comparison of ASAT (GOT) FS without P-5-P (y) and a commercially available test (x) using 51 samples gave following results:
y = 0.997 x + 0.621 U/L; r= 1.000.

Reference Range

With pyridoxal-5-phosphate activation

Women [4]		< 31 U/L	< 0.52 µkat/L
Men [4]		< 35 U/L	< 0.58 µkat/L
Children [1]	1 – 3 Years	< 50 U/L	< 0.83 µkat/L
	4 – 6 Years	< 45 U/L	< 0.75 µkat/L
	7 – 9 Years	< 40 U/L	< 0.67 µkat/L
	10 – 12 Years	< 40 U/L	< 0.67 µkat/L
	13 – 15 Years	< 35 U/L	< 0.58 µkat/L
	16 – 18 Years	< 35 U/L	< 0.58 µkat/L

Without pyridoxal-5-phosphate activation

Women	< 31 U/L	< 0.52 µkat/L
Men	< 35 U/L	< 0,58 µkat/L

Each laboratory should check if the reference ranges are transferable to its own patient population and determine own reference ranges if necessary.

Literature

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5. Young DS. Effects of Drugs on Clinical Laboratory Tests. 5th ed. Volume 1 and 2. Washington, DC: The American Association for Clinical Chemistry Press 2000.

Manufacturer

IVD CE

DiaSys Diagnostic Systems GmbH
Alte Strasse 9 65558 Holzheim Germany
Distributed by Diagnostika Sistem Indonesia

Lampiran 4.Surat keterangan reagen SGPT

ALAT (GPT) FS* (IFCC mod.)

with/without pyridoxal-5-phosphate

Diagnostic reagent for quantitative in vitro determination of ALAT (GPT) in serum or plasma on photometric systems

Order Information

Cat. No.	Kit size					
1 2701 99 83 021	R1	5 x	20 mL	+ R2	1 x	25 mL
1 2701 99 83 022	R1	5 x	80 mL	+ R2	1 x	100 mL
1 2701 99 83 023	R1	1 x	800 mL	+ R2	1 x	200 mL
1 2701 99 83 704	R1	8 x	50 mL	+ R2	8 x	12.5 mL
1 2701 99 83 917	R1	8 x	60 mL	+ R2	8 x	15 mL
1 2701 99 83 314	R1	10 x	20 mL	+ R2	2 x	30 mL

For determination with pyridoxal-5-phosphate activation additionally required:

2 5010 99 83 030	6 x	3 mL

Summary [1,2]

Alanine Aminotransferase (ALAT/ALT), formerly called Glutamic Pyruvic Transaminase (GPT) and Aspartate Aminotransferase (ASAT/AST), formerly called Glutamic Oxalacetic Transaminase (GOT) are the most important representatives of a group of enzymes, the aminotransferases or transaminases, which catalyze the conversion of α-keto acids into amino acids by transfer of amino groups.

As a liver specific enzyme, ALAT is only significantly elevated in hepatobiliary diseases. Increased ASAT levels, however, can occur in connection with damages of heart or skeletal muscle as well as of liver parenchyma. Parallel measurement of ALAT and ASAT is, therefore, applied to distinguish liver from heart or skeletal muscle damages. The ASAT/ALAT ratio is used for differential diagnosis in liver diseases. While ratios < 1 indicate mild liver damage, ratios >1 are associated with severe, often chronic liver diseases.

Method

Optimized UV-test according to IFCC (International Federation of Clinical Chemistry and Laboratory Medicine)[modified]

Principle

$$\text{L-Alanine} + \text{2-Oxoglutarate} \xleftarrow{\text{ALAT}} \text{L-Glutamate} + \text{Pyruvate}$$

$$\text{Pyruvate} + \text{NADH} + \text{H}^+ \xleftarrow{\text{LDH}} \text{D-Lactate} + \text{NAD}^+$$

Addition of pyridoxal-5-phosphate (P-5-P) stabilizes the activity of transaminases and avoids falsely low values in samples containing insufficient endogenous P-5-P, e.g. from patients with myocardial infarction, liver disease and intensive care patients [1].

Reagents

Components and Concentrations

R1:	TRIS	pH 7.15	140 mmol/L
	L-Alanine		700 mmol/L
	LDH (lactate dehydrogenase)		≥ 2300 U/L
R2:	2-Oxoglutarate		85 mmol/L
	NADH		1 mmol/L
Pyridoxal-5-Phosphate FS			
	Good's buffer	pH 9.6	100 mmol/L
	Pyridoxal-5-phosphate		13 mmol/L

Storage Instructions and Reagent Stability

The reagents are stable up to the end of the indicated month of expiry, if stored at 2 – 8 °C, protected from light and contamination is avoided. Do not freeze the reagents!

Warnings and Precautions

1. The reagents contain sodium azide (0.95 g/L) as preservative. Do not swallow! Avoid contact with skin and mucous membranes.
2. In very rare cases, samples of patients with gammopathy might give falsified results.
3. Please refer to the safety data sheets and take the necessary precautions for the use of laboratory reagents. For diagnostic purposes, the results should always be assessed with the patient's medical history, clinical examinations and other findings.

Waste Management

Please refer to local legal requirements.

Reagent Preparation

Substrate Start

The reagents are ready to use.

For the determination with pyridoxal-5-phosphate (P-5-P) mix 1 part of P-5-P with 100 parts of reagent 1,
e.g. 100 µL P-5-P + 10 mL R1

Stability after mixing:			
	6 days	at	2 - 8 °C
	24 hours	at	15 - 25 °C

Sample Start

without pyridoxal-5-phosphate

Mix 4 parts of R1 + 1 part of R2
(e.g. 20 mL R1 + 5 mL R2) = mono-reagent

Stability:			
	4 weeks	at	2 - 8° C
	5 days	at	15 - 25° C

The mono-reagent must be protected from light!

Materials required but not provided

Pyridoxal-5-Phosphate FS in case of determination with P-5-P activation (Cat. No. 2 5010 99 10 030)
NaCl solution 9 g/L; General laboratory equipment

Specimen

Serum, heparin plasma or EDTA plasma
Stability [4]:

3 days	at	20 - 25 °C
7 days	at	4 - 8 °C
7 days	at	-20 °C

Only freeze once! Discard contaminated specimens!

Assay Procedure

Application sheets for automated systems are available on request.

Wavelength	340 nm, Hg 365 nm, Hg 334 nm
Optical path	1 cm
Temperature	37 °C
Measurement	Against air

Substrate Start

Sample or calibrator	100 µL
Reagent 1	1000 µL
Mix, incubate for 5 min., then add:	
Reagent 2	250 µL
Mix, read absorbance after 1 min. and start stopwatch.	
Read absorbance again 1, 2 and 3 min thereafter.	

Sample Start

Do not use sample start with pyridoxal-5-phosphate!

Sample or calibrator	100 µL
Mono-reagent	1000 µL
Mix, read absorbance after 1 min. and start stopwatch.	
Read absorbance again 1, 2 and 3 min thereafter.	

Calculation

With factor

From absorbance readings calculate ΔA/min and multiply by the corresponding factor from table below:

ΔA/min x factor = ALAT activity [U/L]

	Substrate Start	Sample Start
340 nm	2143	1745
334 nm	2184	1780
365 nm	3971	3235

With calibrator

$$\text{ALAT [U/L]} = \frac{\Delta A/\text{min Sample}}{\Delta A/\text{min Calibrator}} \times \text{Conc. Calibrator [U/L]}$$

* fluid stable

Conversion factor
ALAT [U/L] x 0.0167 = ALAT [µkat/L]

Calibrators and Controls

For the calibration of automated photometric systems the TruCal U calibrator is recommended. This method has been standardized against the original IFCC formulation (molar extinction coefficient 340 nm). For internal quality control TruLab N and P controls should be assayed. Each laboratory should establish corrective action in case of deviations in control recovery.

	Cat. No.	Kit size
TruCal U	5 9100 99 83 063	20 x 3 mL
	5 9100 99 83 064	6 x 3 mL
TruLab N	5 9000 99 83 062	20 x 5 mL
	5 9000 99 83 061	6 x 5 mL
TruLab P	5 9050 99 83 062	20 x 5 mL
	5 9050 99 83 061	6 x 5 mL

Performance Characteristics

Measuring range
On automated systems the test is suitable for the determination of ALAT activities up to 600 U/L.
In case of a manual procedure, the test is suitable for ALAT activities which correspond to a maximum of ΔA/min of 0.16 at 340 and 334 nm or 0.08 at 365 nm. If such values are exceeded the samples should be diluted 1 + 9 with NaCl solution (9 g/L) and results multiplied by 10.

Specificity/Interferences
No interference was observed by ascorbic acid up to 30 mg/dL, bilirubin up to 40 mg/dL, hemoglobin up to 400 mg/dL and lipemia up to 2,000 mg/dL triglycerides. For further information on interfering substances refer to Young DS [5].

Sensitivity/Limit of Detection
The lower limit of detection is 4 U/L.

Precision

Without P-5-P

Intra-assay precision n = 20	Mean [U/L]	SD [U/L]	CV [%]
Sample 1	22.2	1.38	6.22
Sample 2	44.8	1.17	2.62
Sample 3	101	1.02	1.00

Inter-assay precision n = 20	Mean [U/L]	SD [U/L]	CV [%]
Sample 1	22.8	0.70	3.08
Sample 2	42.6	0.68	1.60
Sample 3	99.3	0.92	0.92

With P-5-P

Intra-assay precision n = 20	Mean [U/L]	SD [U/L]	CV [%]
Sample 1	33.8	1.25	3.71
Sample 2	72.0	2.04	2.83
Sample 3	128	2.77	2.16

Inter-assay precision n = 20	Mean [U/L]	SD [U/L]	CV [%]
Sample 1	33.3	0.99	2.96
Sample 2	72.1	1.36	1.88
Sample 3	133	1.76	1.32

Method Comparison

With P-5-P
A comparison of ALAT (GPT) FS with P-5-P (y) and the IFCC reference reagent (x) using 51 samples gave following results:
y = 1.000 x – 0.200 U/L; r = 0.999.

A comparison of ALAT (GPT) FS with P-5-P (y) and a commercially available test (x) using 51 samples gave following results:
y = 0,970 x + 0.531 U/L; r = 1.000.

Without P-5-P
A comparison of ALAT (GPT) FS without P-5-P (y) with a commercially available test (x) using 51 samples gave following results:
y =0.971 x + 0.047 U/L; r =1.000.

Reference Range

With pyridoxal-5-phosphate activation

Women [3]		< 34 U/L	< 0.57 µkat/L
Men [3]		< 45 U/L	< 0.75 µkat/L
Children [1]	1 – 30 day(s)	< 25 U/L	< 0.42 µkat/L
	2 – 12 months	< 35 U/L	< 0.58 µkat/L
	1 – 3 year(s)	< 30 U/L	< 0.50 µkat/L
	4 – 6 years	< 25 U/L	< 0.42 µkat/L
	7 – 9 years	< 25 U/L	< 0.42 µkat/L
	10 – 18 years	< 30 U/L	< 0.50 µkat/L

Without pyridoxal-5-phosphate activation

Women	< 31 U/L	< 0.52 µkat/L
Men	< 41 U/L	< 0.68 µkat/L

Each laboratory should check if the reference ranges are transferable to its own patient population and determine own reference ranges if necessary.

Literature

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Manufacturer

IVD CE

DiaSys Diagnostic Systems GmbH
Alte Strasse 9 65558 Holzheim Germany
Distributed by Diagnostika Sistem Indonesia

Lampiran 5. Foto daun kelor

Lampiran 6. Foto buah tomat

Lampiran 7. Foto hewan uji tikus putih galur wistar

Lampiran 8. Foto alat penelitian

Spektrofotometri

Sentrifuge

Lampiran 9.Foto perlakuan tikus

Pemberian ekstrak secara peroral

Pengambilan darah lewat mata

Lampiran 10.Dosis Sediaan Uji

1. Dosis tomat

Dosis Efektif = 55 g/kg BB tikus

= 55 : 5 g / 1000 :5 g BB tikus

= 11 g/200 g BB tikus

100% = 11 g/200 g BB tikus

75% = $\frac{75}{100}$ x 11 g/ 200 g BB tikus

= 0.75 x 11 g/ 200g BB tikus

= 8.25 g/ 200 g BB tikus

50% = $\frac{50}{100}$ x 11 g/ 200 g BB tikus

= 0.5 x 11 g/ 200 g BB tikus

= 5.5 g/ 200g BB tikus

25% = $\frac{25}{100}$ x 11 g/ 200 g BB tikus

= 0.25 x 11 g/ 200 g BB tikus

= 2.75 g/ 200 g BB tikus

2. Dosis daun kelor

Pada percobaan ini menggunakan dosis orientasi 0,036 g/ 200 g BB tikus dengan penambahan aquadest 3ml/ 200 g BB tikus

.

Dosis Efektif = 0.036 mg/200BB tikus

100% = 0.036 g/200 g BB tikus

75% = $\frac{75}{100}$ x 0,036 g/ 200 g BB tikus

= 0.75 x 0,036 g/ 200g BB tikus

= 0,027g/ 200 g BB tikus

50% = $\frac{50}{100}$ x 0,036g/ 200 g BB tikus

= 0.5 x 0.036 g/ 200 g BB tikus

= 0,018g/ 200g BB tikus

25% = $\frac{25}{100}$ x 0,036 g/ 200 g BB tikus

= 0.25 x 0,036 g/ 200 g BB tikus

= 0,009 g/ 200 g BB tikus

Lampiran 11.Dosis parasetamol

dosis parasetamol yang digunakan pada penelitian ini adalah dosis orientasi 10,8 mg/ 200 g BB tikus.

Lampiran 12.Foto kandungan senyawa kimia secara kualitatif.

Uji saponin daun kelor

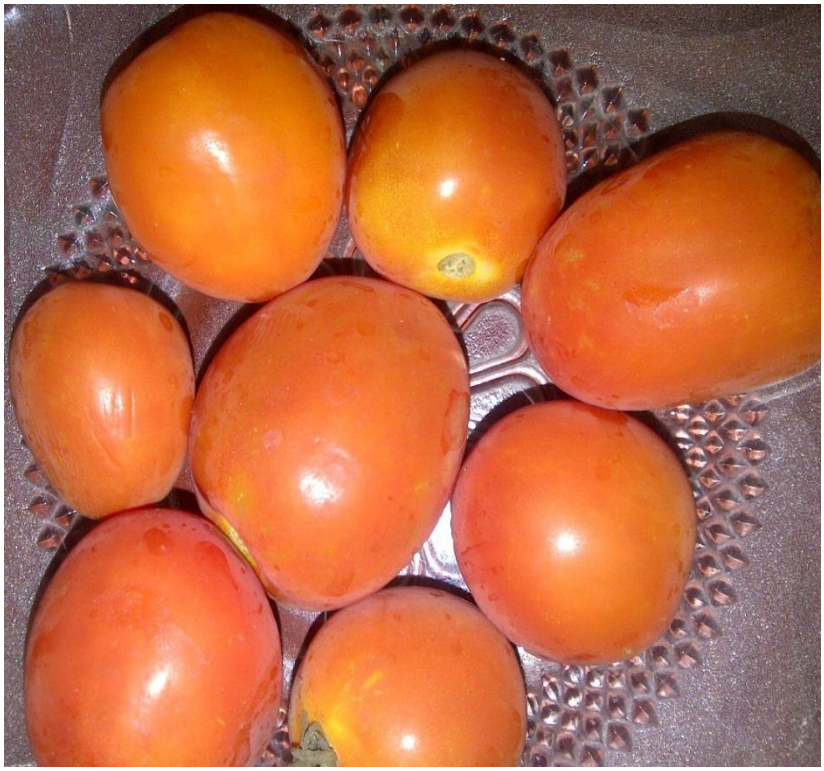
Uji tanin daun kelor

Uji fenol daun kelor

Uji flavonoid buah tomat

Lampiran 13. Gambar daun kelor dan buah tomat segar

Daun kelor segar



Buah tomat segar

Lampiran 14. Gambar ekstrak segar daun kelor dan buah tomat

Gambar ekstrak segar daun kelor

Gambar ekstrak segar buah tomat

Lampiran 15. Tabel data pengamatan aktivitas SGPT (U/L) pada tikus putih

Kelompok	Kadar SGPT awal	Kadar SGPT setelah di berikan ekstrak	Kadar SGPT setelah di induksi
	T0	T7	T8
I kelompok sehat	8 8 8 12 19	8 11 10 9 12	12 13 11 14 14
□□∑	55	50	64
$\overline{X}$	11	10	12,8
2 kelompok sakit	8 10 12 11 9	8 9 9 10 11	40 40 41 49 41
∑	50	47	211
$\overline{X}$	10	9,4	42,2
3 T75 : K25	13 12 7 10 9	7 6 6 9 8	9 11 8 37 13
∑	51	36	78
$\overline{X}$	10,2	7,2	15,6
4 T50 : K 50	11 15 14 14 11	13 17 9 12 11	13 24 11 13 16
∑	65	62	77
$\overline{X}$	13	12,4	15,4
5 T25 : K75	11 10 10 10 11	10 10 11 11 9	10 15 18 22 16
∑	52	51	81
$\overline{X}$	10.4	10,2	16,2
6 T 100	7 8	13 7	13 10

	9 9 10	12 10 8	14 13 14
$\sum$	43	50	64
$\overline{X}$	8,6	10	12,8
7 K 100	10 14 10 7 12	17 12 10 11 11	16 8 9 10 13
$\sum$	53	61	56
$\overline{X}$	10,6	12,2	11,2

Lampiran 16. Tabel data pengamatan aktivitas SGOT (U/L) pada tikus putih

Kelompok	Kadar SGOT awal	Kadar SGOT setelah di berikan ekstrak	Kadar SGOT setelah di induksi
	T0	T7	T8
I kelompok sehat	20 22 20 24 14	20 20 29 25 13	27 28 29 28 27
$\sum$	12	107	139
$\overline{X}$	20	21.4	27.8
2 kelompok sakit	50 10 10 30 27	22 28 10 14 26	78 88 90 77 92
$\sum$	127	100	425
$\overline{X}$	25.4	20	85
3 T75 : K25	27 24 25 60 33	34 55 26 30 17	33 31 29 27 32
$\sum$	169	162	152
$\overline{X}$	33.8	32.4	30.4
4 T50 : K 50	10 25 10 15 17	21 23 23 16 8	24 38 37 27 32
$\sum$	77	91	158
$\overline{X}$	15.4	18.2	31.6
5 T25 : K75	34 13 22 26 24	32 29 24 22 18	40 29 29 24 48
$\sum$	119	125	170
$\overline{X}$	23.8	25	34
6 T 100	21 28 18	25 22 25	23 38 43

	24 34	19 27	17 26
∑	125	118	147
$\overline{X}$	25	23.6	29.4
7 K 100	28 29 32 40 16	42 27 25 22 17	26 24 26 25 28
∑	145	133	129
$\overline{X}$	29	26.6	25.8

Lampiran 17.Analisa statistik aktivitas SGPT (U/L) pada tikus putih

NPar Tests

One-Sample Kolmogorov-Smirnov Test

		SGPT
N		105
Normal Parameters[a.,b]	Mean	12.924
	Std. Deviation	7.7220
Most Extreme Differences	Absolute	.283
	Positive	.283
	Negative	-.202
Kolmogorov-Smirnov Z		2.897
Asymp. Sig. (2-tailed)		.000

a. Test distribution is Normal.

b. Calculated from data.

NPar Tests

Kruskal-Wallis Test

Ranks

	Hari	N	Mean Rank
SGPT	Kadar SGPT awal	35	44.31
	SGPT setelah di berikan ekstrak	35	41.17
	SGPT setelah di induksi	35	73.51
	Total	105	

Test Statistics[a,b]

	SGPT
Chi-Square	24.291
Df	2
Asymp. Sig.	.000

a. Kruskal Wallis Test

b. Grouping Variable: Hari

NPar Tests

Kruskal-Wallis Test

Ranks

	Kelompok	N	Mean Rank
SGPT	kelompok sehat	15	51.33
	kelompok sakit	15	57.97
	T75 : K25	15	35.10
	T50 : K 50	15	72.40
	T25 : K75	15	56.93
	T 100	15	44.57
	K 100	15	52.70
	Total	105	

Test Statistics[a,b]

	SGPT
Chi-Square	13.269
Df	6
Asymp. Sig.	.039

a. Kruskal Wallis Test

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGPT	kelompok sehat	5	3.00	15.00
	kelompok sakit	5	8.00	40.00
	Total	10		

Test Statistics[b]

	SGPT
Mann-Whitney U	.000
Wilcoxon W	15.000
Z	-2.635
Asymp. Sig. (2-tailed)	.008
Exact Sig. [2*(1-tailed Sig.)]	.008[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGPT	kelompok sehat	5	6.40	32.00
	T75 : K25	5	4.60	23.00
	Total	10		

Test Statistics[b]

	SGPT
Mann-Whitney U	8.000
Wilcoxon W	23.000
Z	-.949
Asymp. Sig. (2-tailed)	.343
Exact Sig. [2*(1-tailed Sig.)]	.421[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGPT	kelompok sehat	5	4.90	24.50
	T50 : K 50	5	6.10	30.50
	Total	10		

Test Statistics[b]

	SGPT
Mann-Whitney U	9.500
Wilcoxon W	24.500
Z	-.638
Asymp. Sig. (2-tailed)	.523
Exact Sig. [2*(1-tailed Sig.)]	.548[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGPT	kelompok sehat	5	4.00	20.00
	T25 : K75	5	7.00	35.00
	Total	10		

Test Statistics[b]

	SGPT
Mann-Whitney U	5.000
Wilcoxon W	20.000
Z	-1.571
Asymp. Sig. (2-tailed)	.116
Exact Sig. [2*(1-tailed Sig.)]	.151[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGPT	kelompok sehat	5	5.40	27.00
	T 100	5	5.60	28.00
	Total	10		

Test Statistics[b]

	SGPT
Mann-Whitney U	12.000
Wilcoxon W	27.000
Z	-.109
Asymp. Sig. (2-tailed)	.913
Exact Sig. [2*(1-tailed Sig.)]	1.000[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGPT	kelompok sehat	5	6.50	32.50
	K 100	5	4.50	22.50
	Total	10		

Test Statistics[b]

	SGPT
Mann-Whitney U	7.500
Wilcoxon W	22.500
Z	-1.051
Asymp. Sig. (2-tailed)	.293
Exact Sig. [2*(1-tailed Sig.)]	.310[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGPT	kelompok sakit	5	8.00	40.00
	T75 : K25	5	3.00	15.00
	Total	10		

Test Statistics[b]

	SGPT
Mann-Whitney U	.000
Wilcoxon W	15.000
Z	-2.627
Asymp. Sig. (2-tailed)	.009
Exact Sig. [2*(1-tailed Sig.)]	.008[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGPT	kelompok sakit	5	8.00	40.00
	T50 : K 50	5	3.00	15.00
	Total	10		

Test Statistics[b]

	SGPT
Mann-Whitney U	.000
Wilcoxon W	15.000
Z	-2.635
Asymp. Sig. (2-tailed)	.008
Exact Sig. [2*(1-tailed Sig.)]	.008[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGPT	kelompok sakit	5	8.00	40.00
	T25 : K75	5	3.00	15.00
	Total	10		

Test Statistics[b]

	SGPT
Mann-Whitney U	.000
Wilcoxon W	15.000
Z	-2.627
Asymp. Sig. (2-tailed)	.009
Exact Sig. [2*(1-tailed Sig.)]	.008[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGPT	kelompok sakit	5	8.00	40.00
	T 100	5	3.00	15.00
	Total	10		

Test Statistics[b]

	SGPT
Mann-Whitney U	.000
Wilcoxon W	15.000
Z	-2.643
Asymp. Sig. (2-tailed)	.008
Exact Sig. [2*(1-tailed Sig.)]	.008[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGPT	kelompok sakit	5	8.00	40.00
	K 100	5	3.00	15.00
	Total	10		

Test Statistics[b]

	SGPT
Mann-Whitney U	.000
Wilcoxon W	15.000
Z	-2.627
Asymp. Sig. (2-tailed)	.009
Exact Sig. [2*(1-tailed Sig.)]	.008[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

Lampiran 18.Analisa statistik aktivitas SGOT (U/L) pada tikus putih

NPar Tests

One-Sample Kolmogorov-Smirnov Test

		SGOT
N		105
Normal Parameters[a.,b]	Mean	28.743
	Std. Deviation	15.5687
Most Extreme Differences	Absolute	.227
	Positive	.227
	Negative	-.105
Kolmogorov-Smirnov Z		2.323
Asymp. Sig. (2-tailed)		.000

a. Test distribution is Normal.

b. Calculated from data.

NPar Tests

Kruskal-Wallis Test

Ranks

	Hari	N	Mean Rank
SGOT	Kadar SGPT awal	35	44.84
	SGPT setelah di berikan ekstrak	35	42.13
	SGPT setelah di induksi	35	72.03
	Total	105	

Test Statistics[a,b]

	SGOT
Chi-Square	20.683
df	2
Asymp. Sig.	.000

a. Kruskal Wallis Test

b. Grouping Variable: Hari

NPar Tests

Kruskal-Wallis Test

Ranks

	Kelompok	N	Mean Rank
SGOT	kelompok sehat	15	41.80
	kelompok sakit	15	61.60
	T75 : K25	15	69.97
	T50 : K 50	15	36.83
	T25 : K75	15	56.00
	T 100	15	48.90
	K 100	15	55.90
	Total	105	

Test Statistics[a,b]

	SGOT
Chi-Square	12.690
df	6
Asymp. Sig.	.048

a. Kruskal Wallis Test

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGOT	kelompok sehat	5	3.00	15.00
	kelompok sakit	5	8.00	40.00
	Total	10		

Test Statistics[b]

	SGOT
Mann-Whitney U	.000
Wilcoxon W	15.000
Z	-2.627
Asymp. Sig. (2-tailed)	.009
Exact Sig. [2*(1-tailed Sig.)]	.008[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGOT	kelompok sehat	5	3.90	19.50
	T75 : K25	5	7.10	35.50
	Total	10		

Test Statistics[b]

	SGOT
Mann-Whitney U	4.500
Wilcoxon W	19.500
Z	-1.702
Asymp. Sig. (2-tailed)	.089
Exact Sig. [2*(1-tailed Sig.)]	.095[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGOT	kelompok sehat	5	4.80	24.00
	T50 : K 50	5	6.20	31.00
	Total	10		

Test Statistics[b]

	SGOT
Mann-Whitney U	9.000
Wilcoxon W	24.000
Z	-.742
Asymp. Sig. (2-tailed)	.458
Exact Sig. [2*(1-tailed Sig.)]	.548[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGOT	kelompok sehat	5	4.20	21.00
	T25 : K75	5	6.80	34.00
	Total	10		

Test Statistics[b]

	SGOT
Mann-Whitney U	6.000
Wilcoxon W	21.000
Z	-1.383
Asymp. Sig. (2-tailed)	.167
Exact Sig. [2*(1-tailed Sig.)]	.222[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGOT	kelompok sehat	5	6.00	30.00
	T 100	5	5.00	25.00
	Total	10		

Test Statistics[b]

	SGOT
Mann-Whitney U	10.000
Wilcoxon W	25.000
Z	-.525
Asymp. Sig. (2-tailed)	.599
Exact Sig. [2*(1-tailed Sig.)]	.690[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGOT	kelompok sehat	5	7.40	37.00
	K 100	5	3.60	18.00
	Total	10		

Test Statistics[b]

	SGOT
Mann-Whitney U	3.000
Wilcoxon W	18.000
Z	-2.022
Asymp. Sig. (2-tailed)	.043
Exact Sig. [2*(1-tailed Sig.)]	.056[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGOT	kelompok sakit	5	8.00	40.00
	T75 : K25	5	3.00	15.00
	Total	10		

Test Statistics[b]

	SGOT
Mann-Whitney U	.000
Wilcoxon W	15.000
Z	-2.611
Asymp. Sig. (2-tailed)	.009
Exact Sig. [2*(1-tailed Sig.)]	.008[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGOT	kelompok sakit	5	8.00	40.00
	T50 : K 50	5	3.00	15.00
	Total	10		

Test Statistics[b]

	SGOT
Mann-Whitney U	.000
Wilcoxon W	15.000
Z	-2.611
Asymp. Sig. (2-tailed)	.009
Exact Sig. [2*(1-tailed Sig.)]	.008[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGOT	kelompok sakit	5	8.00	40.00
	T25 : K75	5	3.00	15.00
	Total	10		

Test Statistics[b]

	SGOT
Mann-Whitney U	.000
Wilcoxon W	15.000
Z	-2.619
Asymp. Sig. (2-tailed)	.009
Exact Sig. [2*(1-tailed Sig.)]	.008[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGOT	kelompok sakit	5	8.00	40.00
	T 100	5	3.00	15.00
	Total	10		

Test Statistics[b]

	SGOT
Mann-Whitney U	.000
Wilcoxon W	15.000
Z	-2.611
Asymp. Sig. (2-tailed)	.009
Exact Sig. [2*(1-tailed Sig.)]	.008[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

NPar Tests

Mann-Whitney Test

Ranks

	Kelompok	N	Mean Rank	Sum of Ranks
SGOT	kelompok sakit	5	8.00	40.00
	K 100	5	3.00	15.00
	Total	10		

Test Statistics[b]

	SGOT
Mann-Whitney U	.000
Wilcoxon W	15.000
Z	-2.619
Asymp. Sig. (2-tailed)	.009
Exact Sig. [2*(1-tailed Sig.)]	.008[a]

a. Not corrected for ties.

b. Grouping Variable: Kelompok

BAB V

KESIMPULAN DAN SARAN

A. Kesimpulan

Berdasarkan hasil penelitian ini didapatkan kesimpulan :

Pertama, pemberian ekstrak segar daun kelor (*Moringa oleifera.*Lamk)dan buah tomat (*Solanum lycopersicum* L) memiliki efek melindungi dari kerusakan yang dilihat dari rendahnya kadar SGPT dan SGOT dari tikus putih jantan galur wistar yang di induksi parasetamol.

Kedua, ekstrak segar daun kelor 100% memiliki efek yang paling baik diantara dosis tunggal dan dosis kombinasi ekstrak segar yang lain.

B. Saran

Perlu dilakukan penelitian lebih lanjut tentang senyawa pada ekstrak daun kelor dan buah tomat kenapa hasil yang lebih baik adalah jika dosis tunggal.Apakah ada senyawa yang menghambat kerja senyawa-senyawa sebagai hepatoprotektif sehingga bekerja tidak semaksimal jika tanaman yang di gunakan tunggal.