BAB V

KESIMPULAN DAN SARAN

A. KESIMPULAN

Kesimpulan yang dapatdiperolehdaripenelitianiniadalahsebagaiberikut :

Pertama, bahwatehkombuchabelummampumemberiefekhepatoprotektifnamunberefekmenurunkankadarSGPT dan SGOT akibatinduksiparacetamolpadatikusputihjantangalurwistar.

Kedua, dariketiga volume pemberiantehkombuchayang diberikan 1,82 ml/200g BB, 2.73 ml/200gBB, 3,64ml/200gBB ternyata yang efektifdalammemberiefekhepatoprotektifterlihatpadapenurunankadar SGPT dan SGOT adalahvolume pemberian3,64 ml/200g BB padatikusputihjantan.

B. SARAN

Pertama, perludilakukanlebihlanjuttentangsenyawaapasaja yang adapadatehkombucha yang mampumemberikanefekhepatoprotektif.

Kedua, perlupengamatanlebihlanjutkuranglebih 4 mingguatau 5 minggudanmenggunakantehhijau.

Ketiga, padapenelitianselanjutnyasetelahhasilfermentasidiperolehdilakukanpemisahanetanolterlebihdahulu.

DAFTAR PUSTAKA

Aditiwa, P. dan Kusnandi. 2003. *Kultur Campuran dan Faktor Lingkungan Mikroorganisme yang Berperan dalam Fermentasi Tea-Crider*. Departemen Biologi – FMIPA Institut Teknologi Bandung. PROC. ITB Sains dan Tek 35 A, No (2), 147-162.

Andriani M. 2012. *Studi Kinetika Fermentasi Pada Teh Kombucha*. Surakarta : Fakultas Pertanian Universitas Negeri Sebelas Maret.*http:// www. biomedika.setiabudi.ac.id/images/files/STUDI%20KINETIKA%20FERMENTASI%20PADA%20TEH%20KOMBUCHA.pdf*. [20 Februari 2013].

Anonim, 1993, Penapisan Farmakologi, Departemen Kesehatan Republik Indonesia, Jakarta.

Angga Perdana Kusumah & Akhmad Ismail. 2008. *Pengaruh Pemberian Teh Kombucha Per Oral dengan dosis bertingkat Terhadap Gambaran Histologis Hepar Mencit Babl/c* [Skripsi]. Semarang. Fakultas Kedokteran Universitas Diponegoro (UNDIP).

Ansari. et al. 2012. Protektif Effect of Caesalpenia Bronduceila L. Leaf Against Acetaminopen Indused Liver Damage In Wistar Rats. Vol.4 Suppl 2. ISSN 0975-1491.

Afifah N. 2010. *Analisis Kondisi dan Potensi Lama Fermentasi Medium Kombucha (Teh, Kopi, Rosella) Dalam Menghambat Pertumbuhan Bakteri* (*Vibrio cholerae dan Bacillus cereus*) [Skripsi]. Malang: Fakultas Sains dan Teknologi, Universitas Islam Negeri (UIN).

Cotran RS, Kumar V Robbins SL. 2007. *Robbins Buku Ajar Patologi, Edisi 7. Vol. 1 Prasetyo A., Pendit BU., Prillono,, Penerjemah: Jakarta : Penerbit Buku Kedokteran (EGC). Asroruddin M., Hartanto H., Darmaniah Nurwany, Editor : Philadelphia, Terjemahan dari : Robbins Phatologic Basic of Diasease 7 th ed.*

Corwin E.J.2009.*Buku Saku Patofisiologi.* Edisi Revisi 3. Jakarta: Penerbit buku Kedokteran EGC. Hlm 653-659.

Cahyono,J.B Suharjo B Sp. PD. Kanisius 2010. Hepatitis B, Yogyakarta: Penerbit Kanisius, Hlm : 14 : 26.

DianaWati. 2010. *Efek Ekstrak Etanolik Buah Cabe Jawa Terhadap aktivitas eznim GPT dan GOT Pada Tikus Putih Jantan yang Diinduksi Karbon Tetraklorida.*[Skripsi].Surakarta. Fakultas Farmasi Universitas Setia Budi (USB).

[Departemen Kesehatan]. 1987. *Analisi Obat Tradisional.* Jakarta: Departemen Kesehatan Republik Indonesia.

[Departemen Kesehatan]. 1995. *Farmakope Indonesia. Edisi IV*. Jakarta: Departemen Kesehatan Republik Indonesia.

[Departemen Kesehatan]. 1979. *Farmakope Indonesia. Edisi IV*. Jakarta: Departemen Kesehatan Republik Indonesia.

Gan S.G. 2007. *Farmakologi dan terapi edisi 5*. Jakarta Departemen Farmakologi dan Terapeutik Fakultas Keterangan – Universitas Indonesia. Hlm 237-289.

Goodman & Gilman's. 2008. *Dasar farmakologi terapi Vol. 2. Edisi 10.* Penerjemah; Jakarta penerbit buku kedokteran EGC.

Gunawan D, 2005. *Resep Tradisional untuk Keharmonisan Suami Istri*. Jakarta : Penebar Swadaya. hlm 11-12.

Hadi, S.2000. Hepatologi. Cetakan I. bandung : Mndar Maju. 193.

Hartoyo,A. 2003. *Teh dan Khasiatnya Bagi Kesehatan*. Yogyakarta: Kanisius. hlm 9-11, 15-19, 26.

Hernani, Mono Raharj. 2005. *Tanaman Berkhasiat Antioksida.* Jakarta: Peneber Swadaya.

Komalasari,tatik. 2007. *Struktur histologis hepar tikus rattus norvegicus tua setelah kombucha tea peroral*[Skripsi].Surakarta. Fakultas Farmasi Universitas Muhammadiah Surakarta (UMS).

Leeson, CR,. Leeson TS.Paparo,A.A.1998. *Textbook ofHistology*.WB Saunders Co. Philadelphia.Pp : 383-396.

Lu FC. 1995. *Toksikologi Dasar Edisi ke-2*. Diterjemahkan oleh Edi Nugroho. Jakarta : UI press.

Lukitawati W. 2013. *Pengaruh Teh Kombucha Terhadap Glukosa Darah Rattus norvegicus*. Chemistry volume ke-2: 119-124.*http:// www .journal .unesa .ac.id/index.php/unesa-journal-of-chemistry/article/view/1322.pdf*.[16April 2013].

Manitto P. 1992. *Biosintesis Produk Alam.* Semarang : IKIP. Hlm 381-382.

Murungesh KS,Yeligar VC, Maiti BC, Maity TK. 2005. *Hepatoprotektive and antioxidant role of berberis tinctoria Lesch leaves on paracetamol induced hepatic damage in rats.* Iranian J Pharmol Therapeutics (IJPT) 4(1) : 64-69.

Nainggolan, Jusman 2009. *kajian pertumbuhan bakteri acetobakter Sp. dalam kombucha Rosela merah (hibiscus sabdariffa) pada kadar gula dan lama fermentasi yang berbeda.*[Skripsi]. Medan. Universitas Sumatra Utara.

Naland, H. 2008. *Kombucha Teh dengan Seribu Khasiat*. Jakarta: Agromedya Pustaka.

Noer HMS.*Ilmu Penyakit Dalam*, Editor Soeparman Jilid I Ed. II. Penerbit : Balai Penerbitan FKUI Jakarta 1987.541-6.

Nogrady Thomas. 1992. *Kimia medisinal*. Concordia University, Montreal. Bandung: penerbit ITB (Institut Teknologi Bandung).

Oktavia, E. 2011. *Pengaruh Konsentrasi Ragi dan Media Pembungkus Berbeda Terhadap Kualitas Tape Bekatul Dilihat dari Kadar Etanol* [Skripsi]. Surakarta: UMS.

Price Sylvia Anderson and Lorraine Mccarty Wilson. 2006. *Patofisiologi (Konsep klinik Proses-Proses penyakit Ed 6*, penerjemah; Jakarta: penerbit buku kedokteran EGC.

Rahayu, T. 2009. *Penuntun Praktikum Biokimia. Surakarta* : UMS

Robbins SL, Kumar V. 1999. *Buku Ajar Patologi I,* diterjemahkan oleh Oswarin J., Edisi IV, EGC, Jakarta.

Suprapti, M L. 2003. *Teh Jamsi dan Manisan Nata*. Yogyakarta: Kanisius. hlm 13, 21

Siregar, BA. 2003. *Studi Tentang Pengaruh Jenis dan Wadah Fermentasi pada Proes Pembuatan Teh Kombucha (Combucha Tea)*. Medan: THP FP – USU Library.

Sugiyanto. 1995. *Petunjuk Praktikum Farmakologi*. Edisi IV. Fakultas Farmasi. Laboratorium Farmakologi dan Toksikologi. Yogyakarta: Universitas Gadjah Mada.

Suhartatik, N & Kurniawati, L. 2008. *Aktivitas Antiksidan Kombucha dari Teh Celup dan Teh Racik selama fermentasi*. *Eksplorasi* XX (1): 116-119.

Susanti *et all.* 2008. *Efek pemberian ekstrogen sintetis (Diethylstiillbestrol) terhadap struktur hepar dan kadar SGPT dan SGOT pada mencit (Mus Musculus) Betina Strain Balb'C*.

Tantri. 2013. *Aktivitas fraksi etanolik ekstrak daun kepel (Stelechocarpus Burahol (BI.) Hook f. & Th.) Terhadap nekrosis hati tikus jantangalur wistar yang diinduksi paracetamol*[Skripsi].Surakarta. Fakultas Farmasi Universitas Setia Budi (USB).

Underwood, J.C.E 1999, *General and systemic Pathology*. United Atates of Amerika: Churchill Livingstone. Inc.

Valentine, T. 2005. *Kombucha Minuman Hasil Fermentasi*. *http://www.kombu.de /endones4.htm*. [20 Desember 2011].

Yuanita D A & Akhmad Ismail. 2008. *Pengaruh Pemberian Teh Kombucha Dosis Bertingkat Per Oral terhadap Gambaran Histologi Ginjal Mencit Balb/c* [Skripsi]. Semarang. Fakultas Kedokteran Universitas Diponegoro (UNDIP).

Woodley M and Alison WMP. 1992. *Pedoman Pengobatan*, Yogyakarta: Adi offset 473-491.

Zimmerman, H.J. 1978, Hepatotoxicity*: The adverse effects of drug and other chemical on the liver,* New York: Appleton century Crofts.

Lampiran 1. Bukti pembelian hewan percobaan

"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	: Nopita Endah Kristiyaningrum
Nim	: 16102946 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	: 30
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, 19 Mei 2014
Hormat kami

Sigit Pramono
"ABIMANYU FARM"

Lampiran 2. Prosedurpengujian 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

1. Thomas L. Alanine aminotransferase (ALT), Aspartate aminotransferase (AST). In: Thomas L, editor. Clinical Laboratory Diagnostics. 1st ed. Frankfurt: TH-Books Verlagsgesellschaft; 1998. p. 55-65.
2. Moss DW, Henderson AR. Clinical enzymology. In: Burtis CA, Ashwood ER, editors. Tietz Textbook of Clinical Chemistry. 3rd ed. Philadelphia: W.B Saunders Company; 1999. p. 617-721.
3. Schumann G, Bonora R, Ceriotti F, Férard G et al. IFCC primary reference procedure for the measurement of catalytic activity concentrations of enzymes at 37 °C. Part 5: Reference procedure for the measurement of catalytic concentration of alanine aminotransferase. Clin Chem Lab Med 2002;40:718-24.
4. Guder WG, Zawta B et al. The Quality of Diagnostic Samples. 1st ed. Darmstadt: GIT Verlag; 2001; 14-5.
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 3. Prosedurpengujian SGOT

ASAT (GOT) FS* (IFCC mod.)

mit/ohne Pyridoxal-5-phosphat

Reagenz für die quantitative In-vitro–Bestimmung von ASAT (GOT) in Serum oder Plasma an photometrischen Systemen

Bestellinformation

Bestell-Nr.	Packungsgröße						
1 2601 99 10 021	R1	5 x	20 mL	+ R2	1 x	25 mL
1 2601 99 10 026	R1	5 x	80 mL	+ R2	1 x	100 mL
1 2601 99 10 023	R1	1 x	800 mL	+ R2	1 x	200 mL
1 2601 99 10 704	R1	8 x	50 mL	+ R2	8 x	12,5 mL
1 2601 99 10 917	R1	8 x	60 mL	+ R2	8 x	15 mL
1 2601 99 90 314	R1	10 x	20 mL	+ R2	2 x	30 mL

Zur Bestimmung mit Pyridoxal-5-phosphat-Aktivierung zusätzlich benötigt:

2 5010 99 10 030	6 x	3 mL

Zusammenfassung [1,2]

Alaninaminotransferase (ALAT/ALT), früher Glutamat-Pyruvat-Transaminase (GPT) genannt, und Aspartataminotransferase (ASAT/AST), früher Glutamat-Oxalacetat-Transaminase (GOT) genannt, sind die wichtigsten Vertreter einer Gruppe von Enzymen, die Aminotransferasen oder Transaminasen, die die Umwandlung von α-Ketosäuren zu Aminosäuren durch die Übertragung einer Aminosäure katalysieren. Als spezifisches Leberenzym ist ALAT nur bei hepatobiliären Erkrankungen signifikant erhöht. Erhöhte ASAT-Werte aber können sowohl mit Erkrankungen der Herz- und Skelettmuskulatur als auch des Leberparenchyms zusammenhängen. Parallele Bestimmungen von ALAT und ASAT werden deshalb zur Unterscheidung zwischen Leber- und Herz-/ Muskelschäden durchgeführt. Der ASAT/ALAT-Quotient wird zur Differentialdiagnose bei Lebererkrankungen herangezogen. Während ein Quotient < 1 auf einen leichten Leberschaden hinweist, treten Quotienten > 1 bei schweren, oft chronischen Lebererkrankungen auf.

Methode

Optimierter UV-Test nach IFCC (International Federation of Clinical Chemistry and Laboratory Medicine) [modifiziert]

Prinzip

L-Aspartat + 2-Oxoglutarat <—GOT—> L-Glutamat + Oxalacetat

Oxalacetat + NADH + H^+ <—MDH—> L-Malat + NAD^+

Der Zusatz von Pyridoxal-5-Phosphat (P-5-P) stabilisiert die Aktivität der Transaminasen und vermeidet falsch niedrige Werte in Proben die zu wenig endogenes P-5-P enthalten, wie z.B. bei Patienten mit Myokardinfarkt, Lebererkrankungen und Intensivpatienten [1].

Reagenzien

Bestandteile und Konzentrationen

R1:	TRIS	pH 7,65	110 mmol/L
	L-Aspartat		320 mmol/L
	MDH (Malatdehydrogenase)		≥ 800 U/L
	LDH (Lactatdehydrogenase)		≥ 1200 U/L
R2:	2-Oxoglutarat		65 mmol/L
	NADH		1 mmol/L
Pyridoxal-5-phosphat FS			
	Good's Puffer	pH 9,6	100 mmol/L
	Pyridoxal-5-phosphate		13 mmol/L

Lagerung und Haltbarkeit der Reagenzien

Die Reagenzien sind bei 2-8 °C bis zum Ende des auf der Packung angegebenen Verfallsmonats verwendbar, wenn nach dem Öffnen der Flaschen Kontaminationen vermieden werden. Vor Lichteinstrahlung schützen! Reagenzien nicht einfrieren!

Warnungen und Vorsichtsmaßnahmen

1. Die Reagenzien enthalten Natriumazid (0,95 g/L) als Konservierungsmittel. Nicht verschlucken! Berührung mit Haut und Schleimhäuten vermeiden.
2. In sehr seltenen Fällen kann es bei Proben von Patienten mit Gammopathien zu verfälschten Ergebnissen kommen.
3. Beachten Sie bitte die Sicherheitsdatenblätter und die notwendigen Vorsichtsmaßnahmen für den Gebrauch von Laborreagenzien. Für diagnostische Zwecke sind die Ergebnisse stets im Zusammenhang mit der Patientenvorgeschichte, der klinischen Untersuchung und anderen Untersuchungsergebnissen zu werten.

Entsorgung

Bitte beachten Sie die jeweiligen gesetzlichen Vorschriften.

Vorbereitung der Reagenzien

Substratstart

Die Reagenzien sind gebrauchsfertig.
Für die Bestimmung mit Pyridoxal-5-phosphat (P-5-P):
1 Teil P-5-P mit 100 Teilen Reagenz 1 mischen,
z.B. 100 µL P-5-P + 10 mL R1

Haltbarkeit nach dem Mischen:

6 Tage	bei	2 - 8 °C
24 Stunden	bei	15 - 25 °C

Probenstart

ohne Pyridoxal-5-phosphat
4 Teile R1 + 1 Teil R2 mischen
(z.B. 20 mL R1 + 5 mL R2) = Gebrauchsreagenz
Haltbarkeit: 4 Wochen bei 2 – 8 °C
5 Tage bei 15 – 25 °C
Das Gebrauchsreagenz vor Lichteinstrahlung schützen!

Zusätzlich benötigte Materialien

DiaSys Pyridoxal-5-Phosphat FS bei Bestimmung mit P-5-P-Aktivierung (Bestell-Nr. 2 5010 99 10 030)
NaCl-Lösung 9 g/L
Übliche Laborausrüstung

Probenmaterial

Serum, Heparin-Plasma oder EDTA-Plasma
Stabilität [3]:

4 Tage	bei	20 - 25 °C
7 Tage	bei	4 - 8 °C
3 Monate	bei	-20 °C

Nur einmal einfrieren!
Kontaminierte Proben verwerfen!

Testschema

Applikationen für automatisierte Systeme sind auf Anfrage erhältlich.

Wellenlänge	340 nm, Hg 365 nm, Hg 334 nm
Schichtdicke	1 cm
Temperatur	37 °C
Messung	Gegen Luft

Substratstart

Probe/Kalibrator	100 µL
Reagenz 1	1000 µL

Mischen, 5 Min. inkubieren, dann zufügen:

Reagenz 2	250 µL

Mischen, Extinktion nach 1 Min. ablesen und Stopp-Uhr starten. Extinktion danach nach 1,2 und 3 Min. wieder ablesen.

* flüssig stabil

Probenstart
Probenstart nicht mit Pyridoxal-5-phosphat anwenden!

Probe/Kalibrator	100 µL
Gebrauchsreagenz	1000 µL

Mischen, Extinktion nach 1 Min. ablesen und Stopp-Uhr starten. Extinktion danach nach 1,2 und 3 Min. wieder ablesen.

Berechnung

Mit Faktor

Aus den abgelesenen Extinktionen wird ΔE/min berechnet und mit dem entsprechenden Faktor aus der folgenden Tabelle multipliziert:

ΔE/min x Faktor = ASAT-Aktivität [U/L]

Substratstart

340 nm	2143
334 nm	2184
365 nm	3971

Probenstart

340 nm	1745
334 nm	1780
365 nm	3235

Mit Kalibrator

$$\text{ASAT [U/L]} = \frac{\Delta E/\text{min Probe}}{\Delta E/\text{min Kalibrator}} \times \text{Konz. Kalibrator [U/L]}$$

Umrechnungsfaktor

ASAT [U/L] x 0,0167 = ASAT [µkat/L]

Kalibratoren und Kontrollen

Für die Kalibrierung von automatisierten photometrischen Systemen wird der DiaSys TruCal U Kalibrator empfohlen. Diese Methode wurde gegen die Originalformulierung der IFCC standardisiert. Für die interne Qualitätskontrolle sollten DiaSys TruLab N und P Kontrollen gemessen werden. Jedes Labor sollte Korrekturmaßnahmen für den Fall einer Abweichung bei der Kontrollwiederfindung festlegen.

	Bestell-Nr.	Packungsgröße
TruCal U	5 9100 99 10 063	20 x 3 mL
	5 9100 99 10 064	6 x 3 mL
TruLab N	5 9000 99 10 062	20 x 5 mL
	5 9000 99 10 061	6 x 5 mL
TruLab P	5 9050 99 10 062	20 x 5 mL
	5 9050 99 10 061	6 x 5 mL

Leistungsmerkmale

Messbereich

An automatisierten Systemen ist der Test zur Bestimmung von ASAT-Aktivitäten bis 700 U/L geeignet.
Bei manueller Bestimmung ist der Test für ASAT-Aktivitäten geeignet, die maximal einem ΔE/min von 0,16 bei 340 nm und 334 nm und 0,08 bei 365 nm entsprechen. Werden diese Grenzen überschritten, sollen die Proben 1+9 mit NaCl-Lösung (9 g/L) verdünnt und die Ergebnisse mit 10 multipliziert werden.

Spezifität/Interferenzen

Es treten keine Interferenzen mit Ascorbinsäure bis 30 mg/dL, Bilirubin bis 40 mg/dL und Lipämie bis 2000 mg/dL Triglyceride auf. Die Anwesenheit von Hämoglobin in Serum weist auf eine Zerstörung von Erythrozyten hin, die zur Freisetzung von ASAT und dadurch zu beträchtlichen Interferenzen führt. Weitere Informationen zu Interferenzen finden Sie bei Young DS [5].

Testempfindlichkeit/Nachweisgrenze

Die untere Nachweisgrenze ist 2 U/L.

Präzision *Ohne P-5-P*

In der Serie n = 20	Mittelwert [U/L]	Standard-abweichung [U/L]	VK [%]
Probe 1	25,1	0,82	3,25
Probe 2	51,3	1,57	3,06
Probe 3	116	0,90	0,77

Von Tag zu Tag n = 20	Mittelwert [U/L]	Standard-abweichung [U/L]	VK [%]
Probe 1	25,7	1,13	4,40
Probe 2	48,6	0,67	1,38
Probe 3	115	0,80	0,69

Mit P-5-P

In der Serie n = 20	Mittelwert [U/L]	Standard-abweichung [U/L]	VK [%]
Probe 1	43,6	1,10	2,51
Probe 2	74,5	1,79	2,41
Probe 3	174	3,18	1,83

Von Tag zu Tag n = 20	Mittelwert [U/L]	Standard-abweichung [U/L]	VK [%]
Probe 1	44,0	1,59	3,61
Probe 2	77,0	3,05	3,97
Probe 3	187	3,37	1,80

Methodenvergleich

Mit P-5-P

Bei einem Vergleich von DiaSys ASAT (GOT) FS mit P-5-P (y) mit dem IFCC-Referenzreagenz (x) wurden mit 51 Proben folgende Ergebnisse erhalten:
y = 1,000 x −0,200 U/L; r = 1,000.

Bei einem Vergleich von DiaSys ASAT (GOT) FS mit P-5-P (y) mit einem kommerziell erhältlichen Test (x) wurden mit 51 Proben folgende Ergebnisse erhalten:
y = 0,970 x + 0,350 U/L; r = 0,999.

Ohne P-5-P

Bei einem Vergleich von DiaSys ASAT (GOT) FS ohne P-5-P (y) mit einem kommerziell erhältlichen Test (x) wurden mit 51 Proben folgende Ergebnisse erhalten:
y = 0,997 x + 0,621 U/L; r = 1,000.

Referenzbereiche

Mit Pyridoxal-5-phosphat-Aktivierung

Frauen [4]		< 31 U/L	< 0,52 µkat/L
Männer [4]		< 35 U/L	< 0,58 µkat/L
Kinder [1]	1 – 3 Jahre	< 50 U/L	< 0,83 µkat/L
	4 – 6 Jahre	< 45 U/L	< 0,75 µkat/L
	7 – 9 Jahre	< 40 U/L	< 0,67 µkat/L
	10 – 12 Jahre	< 40 U/L	< 0,67 µkat/L
	13 – 15 Jahre	< 35 U/L	< 0,58 µkat/L
	16 – 18 Jahre	< 35 U/L	< 0,58 µkat/L

Ohne Pyridoxal-5-phosphat-Aktivierung

Frauen	< 31 U/L	< 0,52 µkat/L
Männer	< 35 U/L	< 0,58 µkat/L

Jedes Labor sollte die Übertragbarkeit der Referenzbereiche für die eigenen Patientengruppen überprüfen und gegebenenfalls eigene Referenzbereiche ermitteln.

Lampiran 4. Bahanuji

Gambar 1a. Tehracikdangula

Gambar 1b. Kombucha

Gambar 1c. Fermentasitehkombucha Gambar 1d.teh kombucha

Gambar 1e. paracetamoldan curcuma Gambar 1f. curcuma

Lampiran 5. Alatpembuatanfermantasitehkombucha

Gambar 2a. saringan, gelasukur, dantoples

Gambar 2b. kompordanpanci

Gambar 2c. TimbanganAnalitik

Lampiran 6. Alatpengukuran SGPT dan SGOT

Gambar 3a. Mikropipet

Gambar 3b. Alatsentrifuse

Gambar 3c. Fotometer stardust

Gambar 3d. Mixure

Gambar 3e. ReagenASAT dan ALAT

Gambar 3f. aquadest

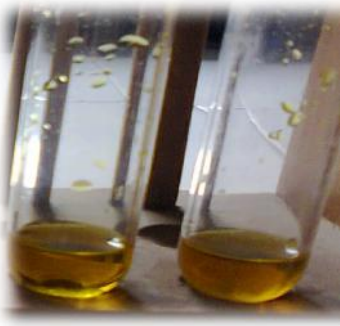
Lampiran 7. Hasilidentifikasikandungankimia

Gambar 4a. Ujisaponin

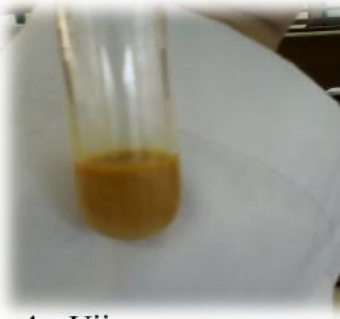
Gambar 4b. UjiTanin

Gambar 4c. Uji flavonoid

Gambar 4g. Uji vitamin C



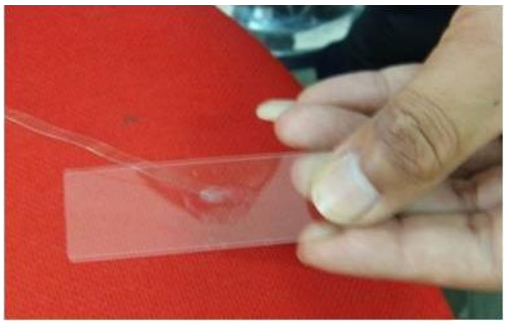
Gambar 4d. Uji vitamin B1



Gambar 4e. Uji vitamin B3

Gambar 4f. Uji vitamin B6

Lampiran 8. Hasilidentifikasi*AcetobacterSp*. dalamtehkombucha



Gambar 5a. Ujikatalase

Gambar 5b. Pewarnaan gram

Lampiran 9. Penetapanbahanpembuatantehkombucha

Pernetapanbahantehuntukfermentasi

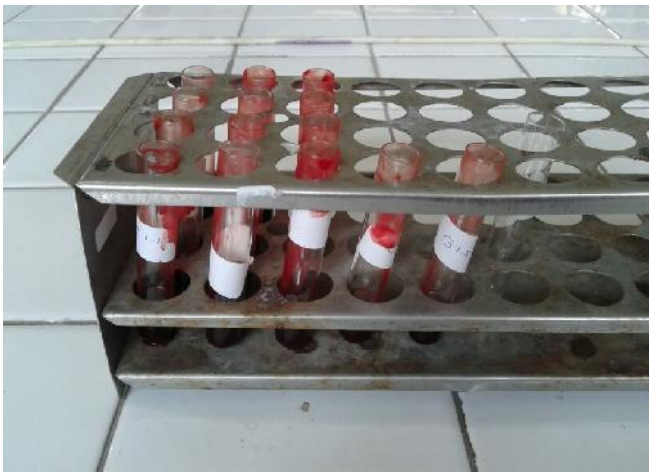
Bahan	**Penimbangan**
Tehhitam	30 gram
Gula	120 gram
Air	1000 ml

Penetapan media tehkombucha

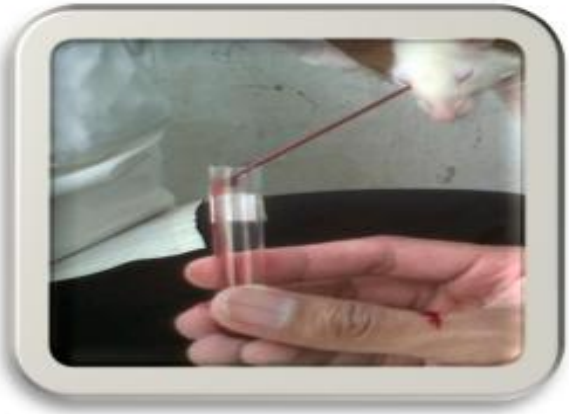
Kulturkombucha	**Pengukuran**
Diameter	9cm
Tebal	1cm
Berat	60 gram

Lampiran 10. Hewanujidandarah

Gambar 5a. Hewanuji



Gambar5b. Darahhewanuji



Gambar 5c. pengambilandarah

Lampiran 11. Fotohatikontrolpositifdanperlakuan

Gambar 6a. Fotohatihewanujiperlakuan curcuma

Gambar 6b. fotohatihewanujiperlakuantehkombuchadosis 3,64 ml

Lampiran 12.Perhitungandosisdan volume pemberian Curcuma tablet, paracetamol, dantehkombucha

	Curcuma	Paracetamol	Tehkombucha	Tehkombucha	Tehkombucha	Tehmanis
Dosis	7,2 mg/ 200 g BB	2,5 g/200 g BB	1,82 ml	2,73 ml	3,64 ml	3,64 ml

a. Perhitungandosisparacetamol

Berdasarkanpenelitian yang dilakukanolehRiandini T (2013) sebesar 2,5 gram /kg BB adalah :

2,5 gram / kg BB = 2500 mg / 1000 gram BB

= 500 mg / 200 gram BB tikus

Dibuatlarutanstok 25 % = 12,5 gram / 50 ml

= 12500 gram / 50 ml = 250 mg/ ml = 500 ml/2ml

Volume pemberian = 500/500 x 2ml = 2 ml

DATA BERAT BADAN TIKUS SETELAH 7 HARI SETELAH ADAPTASI

I	II	III	IV	V
201	207	182	202	200
204	190	180	201	198
197	210	205	184	182
188	204	190	180	184
200	206	200	178	194

Perhitungandosisparacetamol per BB tikus

1. Untukberatbadantikus 201 gram

= 201 gram/200 gram X 500 mg = 502,5mg

Volume pemberian= 502,5 mg/ 500 mg x 2 ml

= 2,01 ml

2. Untukberatbadantikus 204 gram

= 204 gram/ 200 gram X 500 mg = 510 mg

Volume pemberian= 510 mg/ 500 mg x 2 ml

= 2,04 ml

3. Untukberatbadantikus 197 gram

= 197 gram/ 200 gram X 500 mg = 492,5 mg

Volume pemberian = 492,5 mg/ 500 mg x 2 ml

= 1,97 ml

4. Untukberatbadantikus 188 gram

= 188 gram/ 200 gram X 500 mg = 470 mg

Volume pemberian = 470 mg/ 500 mg x 2 ml = 1,88 ml

5. Untukberatbadantikus 200 gram

= 200 gram/ 200 gram X 500 mg = 500 mg

Volume pemberian = 500 mg/ 500 mg x 2 ml = 2 ml

6. Untukberatbadantikus 207 gram

= 207 gram/ 200 gram X 500 mg = 517,5 mg

Volume pemberian = 517,5 mg/ 500 mg x 2 ml = 2,07 ml

7. Untukberatbadantikus 190 gram

= 190 gram/ 200 gram x 500 mg = 475 mg

Volume pemberian = 475 mg/ 500 mg x 2 ml = 1,9 ml

8. Untukberatbadantikus210 gram

= 210 gram/ 200 gram x 500 mg = 525 mg

Volume pemberian = 525 mg/ 500 mg x 2 ml = 2,1 ml

9. Untukberatbadantikus 204 gram

= 204 gram/ 200 gram x 500 mg = 510 mg

Volume pemberian = 510 mg/ 500 mg x 2 ml = 2,04 ml

10. Untukberatbadantikus 206 gram

= 206 gram/ 200 gram x 500 mg = 515 mg

Volume pemberian = 515 mg/ 500 mg x 2 ml = 2,06 ml

11. Untukberatbadantikus 182 gram

= 182 gram / 200 gram x 500 mg = 455 mg

Volume pemberian = 455 mg/ 500 mg x 2 ml = 1,82 ml

12. Untukberatbadantikus 180 gram

= 180 gram/ 200 gram x 500 mg = 450 mg

Volume pemberian = 450 mg/ 500 mg x 2 ml = 1,8 ml

13. Untukberatbadantikus 205 gram

= 205 gram/ 200 gram X 500 mg = 512,5 mg

Volume pemberian = 512,5 mg/ 500 mg x 2 ml = 2,05 ml

14. Untukberatbadantikus 190 gram

= 190 gram/ 200 gram X 500 mg = 475 mg

Volume pemberian = 475 mg/ 500 mg x 2 ml = 1,9 ml

15. Untukberatbadantikus 200 gram

= 200 gram/ 200 gram X 500 mg = 500 mg

Volume pemberian = 500 mg/ 500 mg x 2 ml = 2 ml

16. Untukberatbadantikus 202 gram

= 202 gram/ 200 gram X 500 mg = 505 mg

Volume pemberian = 505 mg/ 500 mg x 2 ml = 2,02 ml

17. Untukberatbadantikus 201 gram

= 201 gram/ 200 gram X 500 mg = 502,5 mg

Volume pemberian = 502,5 mg/ 500 mg x 2 ml = 2,01 ml

18. Untukberatbadantikus 184 gram

= 184 gram/ 200 gram X 500 mg = 460 mg

Volume pemberian = 460 mg/ 500 mg x 2 ml = 1,84 ml

19. Untukberatbadantikus 180 gram

= 180 gram/ 200 gram X 500 mg = 450 mg

Volume pemberian = 450 mg/ 500 mg x 2 ml = 1,8 ml

20. Untukberatbadantikus 178 gram

= 178 gram/ 200 gram X 500 mg = 445 mg

Volume pemberian = 445 mg/ 500 mg x 2 ml = 1,78 ml

21. Untukberatbadantikus 200 gram

= 200 gram/ 200 gram x 500 mg = 500 mg

Volume pemberian = 500 mg/ 500 mg x 2 ml = 2 ml

22. Untukberatbadantikus 198 gram

= 198 gram/ 200 gram x 500 mg = 495 mg

Volume pemberian = 495 mg/ 500 mg x 2 ml = 1,98 ml

23. Untukberatbadantikus 182 gram

= 182 gram/ 200 gram x 500 mg = 455 mg

Volume pemberian = 455 mg/ 500 mg x 2 ml = 1,82 ml

24. Untukberatbadantikus 184 gram

= 184 gram/ 200 gram x 500 mg = 460 mg

Volume pemberian = 460 mg/ 500 mg x 2 ml = 1,84 ml

25. Untukberatbadantikus 194 gram

= 194 gram/ 200 gram x 500 mg = 485 mg

Volume pemberian = 485 mg/ 500 mg x 2 ml = 1,94 ml

b. PerhitunganDosis curcuma tablet

Dosis curcuma yang digunakanpadamanusiaadalah 1 tablet 200 mg/70 kg BB manusiauntuk 1 kali minumdenganpemberian 1-3 kali sehari. Faktorkonversidarimanusia (70kg) ketikus (200 g) adalah 0,018.

Dosis curcuma tablet = 2 Tab (1 hari) X 200 mg/70 kg BB manusia

= 400 mg

Dosisuntuktikus = 0,018 x 400 mg/70 kg BB manusia

= 7,2 mg/200 g BB tikus

Perhitungandosispemberian Curcuma tablet untuk 200 g tikus

larutanstok curcuma 0,8 % = 400 mg/50 ml

= 8 mg/ml

Dosispemberian 2X pakai curcuma adalah 7,2 mg/200 g BB tikus

Volume pemberian = 7,2 mg / 8 mg X 1 ml = 0,9 ml

c. Perhitungandosistehkombucha

MenurutpenelitianKusumah (2008) menggunakan volume pemberiantehkombucha 0,26 ml, 0,39 ml, 0,52 ml padahewanujitikus. Disinipenelitimengkonversikandosistersebutpadahewanujitikusdengankonversidosissebagaiberikut :

Dosis 1

0,26 ml/ 20g BB mencitdikonversikanpadatikus

0,26 x 7,0 = 1,82 ml / 200 gram BB tikus

Dosis 2

0. 39 ml/20 gram BB mencitdikonversikanpadatikus

0,39 x 7,0 = 2,73 ml/ 200 gram BB tikus

Dosis 3

0, 52 ml/ 20 gram BB mencitdikonversikanpadatikus

0,52 x 7,0 = 3,64 ml/200 gram BB tikus

DATA BERAT BADAN TIKUS SETELAH 7 HARI INDUKSI

I	II	III	IV	V
202	205	182	202	200
200	190	180	200	197
196	210	206	182	180
186	202	189	178	183
198	205	198	178	192

Perhitungan volume pemberiantehmanis, curcuma, danvariasi volume pemberiantehkombucha

a. Tehmanis

1. Untukberatbadantikus 202 gram

   Volume pemberian = 202 gram/ 200 gram x 3,64 ml = 3,67 ml

2. Untukberatbadantikus 200 gram

   Volume pemberian = 200 gram/ 200 gram x 3,64 ml = 3,64 ml

3. Untukberatbadantikus 196 gram

   Volume pemberian = 196 gram/ 200 gram x 3,64 ml = 3,56 ml

4. Untukberatbadantikus 186 gram

   Volume pemberian = 186 gram/ 200 gram x 3,64 ml = 3,38 ml

5. Untukberatbadantikus 198 gram

   Volume pemberian = 198 gram/ 200 gram x 3,64 ml = 3,60 ml

b. Curcuma

1.Untukberatbadantikus 205 gram

   = 205 gram/ 200 gram x 7,2 mg = 7,38 mg

   Volume pemberian = 7,38 mg/ 8 mg x 1 ml = 0,92 ml

2.Untukberatbadantikus 190 gram

   = 190 gram/ 200 gram x 7,2 mg = 6,84 mg

   Volume pemberian = 6,84 mg/ 8 mg x 1 ml = 0,8 ml

3.Untukberatbadantikus 210 gram

   = 210 gram/ 200 gram x 7,2 mg = 7,56 mg

   Volume pemberian = 7,56 mg/ 8 mg x 1 ml = 0,9 ml

4.Untukberatbadantikus 202 gram

= 202 gram/ 200 gram x 7,2 mg = 7,27 mg

Volume pemberian = 7,27 mg/ 8 mg x 1 ml = 0,90 ml

5.Untukberatbadantikus 205 gram

= 205 gram/ 200 gram x 7,2 mg = 7,38 mg

Volume pemberian = 7,38 mg/ 8 mg x 1 ml = 0,92 ml

c. Volume pemberiantehkombuchakelompok I, II, dan III

- Kelompok I volume pemberian 1,82 ml

  1. Untukberatbadantikus 182 gram

     Volume pemberian = 182 gram/ 200 gram x 1,82 ml = 1,66 ml

  2. Untukberatbadantikus 180 gram

     Volume pemberian = 180 gram/ 200 gram x 1,82 ml = 1,63 ml

  3. Untukberatbadantikus 206 gram

     Volume pemberian = 206 gram/ 200 gram x 1,82 ml = 1,87 ml

  4. Untukberatbadantikus 189 gram

     Volume pemberian = 189 gram/ 200 gram x 1,82 ml = 1,71 ml

  5. Untukberatbadantikus 198 gram

     Volume pemberian = 198 gram/ 200 gram x 1,82 ml = 1,80 ml

- Kelompok II volume pemberian 2,73 ml

  1. Untukberatbadantikus 202 gram

     Volume pemberian = 202 gram/ 200 gram x 2,73 ml = 2,75 ml

  2. Untukberatbadantikus 200 gram

     Volume pemberian = 200 gram/ 200 gram x 2,73 ml = 2,73 ml

  3. Untukberatbadantikus 182 gram

Volume pemberian = 182 gram/ 200 gram x 2,73 ml = 2,48 ml

4. Untukberatbadantikus 178 gram

Volume pemberian = 178 gram/ 200 gram x 2,73 ml = 2,42 ml

5. Untukberatbadantikus 178 gram

Volume pemberian = 178 gram/ 200 gram x 2,73 ml = 2,42 ml

- Kelompok III volume pemberian 3,64 ml

1. Untukberatbadantikus 200 gram

Volume pemberian = 200 gram/ 200 gram x 3,64 ml = 3,64 ml

2. Untukberatbadantikus 197 gram

Volume pemberian = 197 gram/ 200 gram x 3,64 ml = 3,58 ml

3. Untukberatbadantikus 180 gram

Volume pemberian = 180 gram/ 200 gram x 3,64 ml = 3,27 ml

4. Untukberatbadantikus 183 gram

Volume pemberian = 183 gram/ 200 gram x 3,64 ml = 3,33 ml

5. Untukberatbadantikus 192 gram

Volume pemberian = 192 gram/ 200 gram x 3,64 ml = 3,49 ml

DATA BERAT BADAN TIKUS SETELAH 7 HARI PERLAKUAN

I	II	III	IV	V
203	207	183	202	200
200	191	180	201	197
197	210	205	182	180
187	204	190	178	184
200	206	200	180	192

Perhitungan volume pemberiantehmanis, curcuma, danvariasi volume pemberiantehkombucha

a. Tehmanis

1. Untukberatbadantikus 203 gram

   Volume pemberian = 203 gram/ 200 gram x 3,64 ml = 3,69 ml

2. Untukberatbadantikus 200 gram

   Volume pemberian = 200 gram/ 200 gram x 3,64 ml = 3,64 ml

3. Untukberatbadantikus 197 gram

   Volume pemberian = 197 gram/ 200 gram x 3,64 ml = 3,58 ml

4. Untukberatbadantikus 187 gram

   Volume pemberian = 187 gram/ 200 gram x 3,64 ml = 3,40 ml

5. Untukberatbadantikus 200 gram

   Volume pemberian = 200 gram/ 200 gram x 3,64 ml = 3,46 ml

b. Curcuma

1.Untukberatbadantikus 205 gram

   = 207 gram/ 200 gram x 7,2 mg = 7,45 mg

   Volume pemberian = 7,45 mg/ 8 mg x 1 ml = 0,93 ml

2.Untukberatbadantikus 191 gram

   = 191 gram/ 200 gram x 7,2 mg = 6,87 mg

   Volume pemberian = 6,87 mg/ 8 mg x 1 ml = 0,85 ml

3.Untukberatbadantikus 210 gram

   = 210 gram/ 200 gram x 7,2 mg = 7,56 mg

   Volume pemberian = 7,56 mg/ 8 mg x 1 ml = 0,9 ml

4.Untukberatbadantikus 204 gram

= 204 gram/ 200 gram x 7,2 mg = 7,37 mg

Volume pemberian = 7,37 mg/ 8 mg x 1 ml = 0,91 ml

5.Untukberatbadantikus 206 gram

= 206 gram/ 200 gram x 7,2 mg = 7,41 mg

Volume pemberian = 7,41 mg/ 8 mg x 1 ml = 0,92 ml

c. Volume pemberiantehkombuchakelompok I, II, dan III

- Kelompok I volume pemberian 1,82 ml

  1. Untukberatbadantikus 183 gram

     Volume pemberian = 183 gram/ 200 gram x 1,82 ml = 1,66 ml

  2. Untukberatbadantikus 180 gram

     Volume pemberian = 180 gram/ 200 gram x 1,82 ml = 1,63 ml

  3. Untukberatbadantikus 205 gram

     Volume pemberian = 205 gram/ 200 gram x 1,82 ml = 1,86 ml

  4. Untukberatbadantikus 190 gram

     Volume pemberian = 190 gram/ 200 gram x 1,82 ml = 1,72 ml

  5. Untukberatbadantikus 200 gram

     Volume pemberian = 200 gram/ 200 gram x 1,82 ml = 1,82 ml

- Kelompok II volume pemberian 2,73 ml

  1. Untukberatbadantikus 202 gram

     Volume pemberian = 202 gram/ 200 gram x 2,73 ml = 2,75 ml

  2. Untukberatbadantikus 201 gram

     Volume pemberian = 201 gram/ 200 gram x 2,73 ml = 2,74 ml

3. Untukberatbadantikus 182 gram

Volume pemberian = 182 gram/ 200 gram x 2,73 ml = 2,48 ml

4. Untukberatbadantikus 178 gram

Volume pemberian = 178 gram/ 200 gram x 2,73 ml = 2,42 ml

5. Untukberatbadantikus 180 gram

Volume pemberian = 180 gram/ 200 gram x 2,73 ml = 2,45 ml

- Kelompok III volume pemberian 3,64 ml

1. Untukberatbadantikus 200 gram

Volume pemberian = 200 gram/ 200 gram x 3,64 ml = 3,64 ml

2. Untukberatbadantikus 197 gram

Volume pemberian = 197 gram/ 200 gram x 3,64 ml = 3,58 ml

3. Untukberatbadantikus 180 gram

Volume pemberian = 180 gram/ 200 gram x 3,64 ml = 3,27 ml

4. Untukberatbadantikus 184 gram

Volume pemberian = 184 gram/ 200 gram x 3,64 ml = 3,34 ml

5. Untukberatbadantikus 192 gram

Volume pemberian = 192 gram/ 200 gram x 3,64 ml = 3,49 ml

Lampiran 13. Tabelhasilpengukurankadar SGPT

Kelompok	Kadar SGPT awal (U/dL) T_0	Kadar SGPT setelahdiinduksiparacetamol (U/dL) T_1	Kadar SGPT setelahmingguke 1 (U/dL) T_2	$\Delta T = T_1 - T_2$	Kadar SGPT setelahminguke 2 (U/dL) T_3	$\Delta T = T_1 - T_3$
I	8	48	52	-4	56	-8
	9	36	42	-6	48	-12
	12	48	56	-8	58	-10
	17	85	88	-3	90	-5
	18	88	90	-2	93	-5
	12,8 ± 4,54	61±23,8	65,6±21,9	-4,6±2,40	69±20,9	-8±3,08
II	6	36	30	6	23	13
	8	40	36	4	24	16
	9	45	36	9	26	19
	10	50	45	5	32	18
	14	70	64	6	44	26
	9,4±2,96	48,2±	42,2±13,2	6±1,87	29,4±8,67	18,4±4,82
III	7	42	38	4	34	4
	8	40	37	3	32	5
	17	68	66	2	61	5
	12	72	68	4	60	8
	16	64	59	5	55	4
	12±4,52	57,2±15,0	53,6±15,0	3,6±1,14	48,4±14,2	5,2±1,64
IV	10	60	55	5	45	15
	12	70	65	5	54	4
	9	72	63	9	56	16
	7	48	44	4	36	12
	5	50	46	4	38	12
	8,6±2,70	60±11,0	54,6±9,55	5,4±2,07	45.8±9,06	11,8±4,71
V	10	50	45	5	40	10
	14	48	43	5	36	12
	12	54	49	5	40	14
	17	35	30	5	26	9
	9	30	26	4	20	10
	12,4±3,20	43,4±10,3	38,6±10,0	4,8±0,44	32,4±8,98	11±2

Keterangan :
Kelompok I : kontrolnegatif (tehmanis)
Kelompok II : kontrolpositif (curcuma)
Kelompok III : tehkombucha volume pemberian 1,82 ml
Kelompok IV : tehkombuchavolume pemberian 2,73 ml
Kelompok V : tehkombuchavolume pemberian 3,64 ml

Lampiran 14. Tabelhasilpengukurankadar SGOT

Kelom-pok	Kadar SGPT awal (mg/dL) T_0	Kadar SGPT setelahdiinduksiparacetamol (mg/dL) T_1	Kadar SGPT setelahminggu ke 1 (mg/dL) T_2	$\Delta T = T_1 - T_2$	Kadar SGPT setelahminggu ke 2 (mg/dL) T_3	$\Delta T = T_1 - T_3$
I	30	187	187	0	190	-3
	34	171	175	-4	180	-9
	31	168	171	-3	176	-8
	27	162	170	-8	176	-14
	25	173	179	-6	180	-7
$\bar{X}_I \pm SD_I$	29,4±3,50	172,2±9,25	176,4±6,91	-4,2±3,03	180,4±5,72	-8,2±3,96
II	30	177	160	17	140	37
	29	164	140	24	90	74
	27	156	120	36	80	76
	21	152	121	31	86	66
	32	141	100	41	83	58
$\bar{X}_{II} \pm SD_{II}$	27,8±4,20	158±13,4	128,2± 22,7	29,8±9,52	95,8± 25	62,2±15,7
III	33	160	152	8	147	13
	27	169	161	8	150	19
	25	168	156	12	150	18
	21	167	159	8	157	10
	24	170	168	2	146	24
$\bar{X}_{III} \pm SD_{III}$	26± 4,47	166,8± 7,50	159,2± 5,97	7,6± 3,57	150 ± 4,30	16,8±5.44
IV	23	164	156	8	148	16
	20	165	158	7	157	8
	22	172	164	8	156	16
	24	181	177	4	148	33
	33	180	175	5	126	56
$\bar{X}_{IV} \pm SD_{IV}$	24,4±5,02	172,4± 8,01	166± 9,61	6,4± 1,81	147± 12,4	25,8±19,1
V	34	171	165	6	140	31
	32	181	175	6	147	34
	31	167	157	10	149	18
	28	178	167	11	140	38
	25	156	145	11	130	26
$\bar{X}_V \pm SD_V$	30± 3,53	170,6 ± 9,86	161,8	8,8± 2,58	141,2±7,46	29,4±7,73

Keterangan:
Kelompok I : kontrolnegatif (tehmanis)
Kelompok II : kontrolpositif (curcuma)
Kelompok III : tehkombuchavolume pemberian 1,82 ml
Kelompok IV : tehkombuchavolume pemberian 2,73 ml
Kelompok V : tehkombuchavolume pemberian 3,64 ml

Lampiran 15. Hasilstatistikkadar SGPT selisihsetelahinduksidanperlakuanpadaharike 7

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
SGPT7hari	25	3.04	4.286	-8	9

One-Sample Kolmogorov-Smirnov Test

		SGPT7hari
N		25
Normal Parameters[a,,b]	Mean	3.04
	Std. Deviation	4.286
Most Extreme Differences	Absolute	.309
	Positive	.165
	Negative	-.309
Kolmogorov-Smirnov Z		1.543
Asymp. Sig. (2-tailed)		.170

a. Test distribution is Normal.

b. Calculated from data.

Oneway

Descriptives

SGPT7hari

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
tehmanis	5	-4.60	2.408	1.077	-7.59	-1.61	-8	-2
Curcuma	5	6.00	1.871	.837	3.68	8.32	4	9
VP 1,82 ml	5	3.60	1.140	.510	2.18	5.02	2	5
VP 2,73 ml	5	4.80	.447	.200	4.24	5.36	4	5
V.P 3,64 ml	5	5.40	2.074	.927	2.83	7.97	4	9
Total	25	3.04	4.286	.857	1.27	4.81	-8	9

Test of Homogeneity of Variances

SGPT7hari

Levene Statistic	df1	df2	Sig.
1.800	4	20	.168

ANOVA

SGPT7hari

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	380.560	4	95.140	31.503	.000
Within Groups	60.400	20	3.020		
Total	440.960	24			

Post Hoc Tests

Multiple Comparisons

SGPT7hari

Tukey HSD

(I) kelompok	(J) kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
tehmanis	curcuma	-10.600*	1.099	.000	-13.89	-7.31
	V.P 1,82 ml	-8.200*	1.099	.000	-11.49	-4.91
	V.P 2,73 ml	-9.400*	1.099	.000	-12.69	-6.11
	V.P 3,64 ml	-10.000*	1.099	.000	-13.29	-6.71
curcuma	tehmanis	10.600*	1.099	.000	7.31	13.89
	V.P 1,82 ml	2.400	1.099	.226	-.89	5.69
	V.P 2,73 ml	1.200	1.099	.809	-2.09	4.49
	V.P 3,64 ml	.600	1.099	.981	-2.69	3.89
V.P 1,82 ml	tehmanis	8.200*	1.099	.000	4.91	11.49
	curcuma	-2.400	1.099	.2-26	-5.69	.89
	V.P 2,73 ml	-1.200	1.099	.809	-4.49	2.09
	V.P 3,64 ml	-1.800	1.099	.492	-5.09	1.49
V.P 2,73 ml	tehmanis	9.400*	1.099	.000	6.11	12.69
	curcuma	-1.200	1.099	.809	-4.49	2.09
	V.P 1,82 ml	1.200	1.099	.809	-2.09	4.49
	V.P 3,64 ml	-.600	1.099	.981	-3.89	2.69
V.P 3,64 ml	tehmanis	10.000*	1.099	.000	6.71	13.29
	curcuma	-.600	1.099	.981	-3.89	2.69
	V.P 1,82 ml	1.800	1.099	.492	-1.49	5.09
	V.P 2,73 ml	.600	1.099	.981	-2.69	3.89

*. The mean difference is significant at the 0.05 level.

Homogeneous Subsets

SGPT7hari

TukeyHSD[a]

Kelompok	N	Subset for alpha = 0.05	
		1	2
tehmanis	5	-4.60	
V.P 1,82 ml	5		3.60
V.P 2,73 ml	5		4.80
V.P 3,64 ml	5		5.40
Curcuma	5		6.00
Sig.		1.000	.226

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

Lampiran 16. Hasilstatistikkadar SGPT selisihsetelahinduksidanperlakuanpadaharike 14

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
SGPT14hari	25	7.68	9.621	-12	26

One-Sample Kolmogorov-Smirnov Test

		SGPT14hari
N		25
Normal Parameters[a,,b]	Mean	7.68
	Std. Deviation	9.621
Most Extreme Differences	Absolute	.151
	Positive	.106
	Negative	-.151
Kolmogorov-Smirnov Z		.755
Asymp. Sig. (2-tailed)		.618

a. Test distribution is Normal.

b. Calculated from data.

Oneway

Descriptives

SGPT14hari

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
tehmanis	5	-8.00	3.082	1.378	-11.83	-4.17	-12	-5
Curcuma	5	18.40	4.827	2.159	12.41	24.39	13	26
V.P 1,82 ml	5	5.20	1.643	.735	3.16	7.24	4	8
V.P 2,73 ml	5	11.00	2.000	.894	8.52	13.48	9	14
V.P 3,64 ml	5	11.80	4.712	2.107	5.95	17.65	4	16
Total	25	7.68	9.621	1.924	3.71	11.65	-12	26

Test of Homogeneity of Variances

SGPT14hari

Levene Statistic	df1	df2	Sig.
.914	4	20	.175

ANOVA

SGPT14hari

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1974.640	4	493.660	40.005	.000
Within Groups	246.800	20	12.340		
Total	2221.440	24			

Post Hoc Tests

Multiple Comparisons

SGPT14hari

Tukey HSD

(I) kelompok	(J) kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
tehmanis	Curcuma	-26.400*	2.222	.000	-33.05	-19.75
	V.P 1,82 ml	-13.200*	2.222	.000	-19.85	-6.55
	V.P 2,73 ml	-19.000*	2.222	.000	-25.65	-12.35
	V.P 3,64 ml	-19.800*	2.222	.000	-26.45	-13.15
curcuma	tehmanis	26.400*	2.222	.000	19.75	33.05
	V.P 1,82 ml	13.200*	2.222	.000	6.55	19.85
	V.P 2,73 ml	7.400*	2.222	.025	.75	14.05
	V.P 3,64 ml	6.600	2.222	.052	-.05	13.25
V.P 1,82 ml	tehmanis	13.200*	2.222	.000	6.55	19.85
	Curcuma	-13.200*	2.222	.000	-19.85	-6.55
	V.P 2,73 ml	-5.800	2.222	.106	-12.45	.85
	V.P 3,64 ml	-6.600	2.222	.052	-13.25	.05
V.P 2,73 ml	tehmanis	19.000*	2.222	.000	12.35	25.65
	Curcuma	-7.400*	2.222	.025	-14.05	-.75
	V.P 1,82 ml	5.800	2.222	.106	-.85	12.45
	V.P 3,64 ml	-.800	2.222	.996	-7.45	5.85
V.P 3,64 ml	tehmanis	19.800*	2.222	.000	13.15	26.45
	Curcuma	-6.600	2.222	.052	-13.25	.05
	V.P 1,82 ml	6.600	2.222	.052	-.05	13.25
	V.P 2,73 ml	.800	2.222	.996	-5.85	7.45

*. The mean difference is significant at the 0.05 level.

Homogeneous Subsets

SGPT14hari

TukeyHSD[a]

Kelompok	N	Subset for alpha = 0.05		
		1	2	3
tehmanis	5	-8.00		
V.P 1,82 ml	5		5.20	
V.P 2,73 ml	5		11.00	
V.P 3,64 ml	5		11.80	11.80
Curcuma	5			18.40
Sig.		1.000	.052	.052

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

Lampiran 17. Hasilstatistikkadar SGOT selisihsetelahinduksidanperlakuanpadaharike 7

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
kadarSGOT_hari7	25	9.68	12.175	-8	41

One-Sample Kolmogorov-Smirnov Test

		kadarSGPT_hari 7
N		25
Normal Parameters[a,,b]	Mean	9.68
	Std. Deviation	12.175
Most Extreme Differences	Absolute	.224
	Positive	.224
	Negative	-.080
Kolmogorov-Smirnov Z		1.122
Asymp. Sig. (2-tailed)		.161

a. Test distribution is Normal.

b. Calculated from data.

Oneway

Descriptives

kadarSGOT_hari7

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
tehmanis	5	-4.20	3.033	1.356	-7.97	-.43	-8	0
Curcuma	5	29.80	9.524	4.259	17.97	41.63	17	41
V.P 1,82 ml	5	7.60	3.578	1.600	3.16	12.04	2	12
V.P 2,73 ml	5	6.40	1.817	.812	4.14	8.66	4	8
V.P 3,64 ml	5	8.80	2.588	1.158	5.59	12.01	6	11
Total	25	9.68	12.175	2.435	4.65	14.71	-8	41

Test of Homogeneity of Variances

kadarSGOT_hari7

Levene Statistic	df1	df2	Sig.
4.627	4	20	.118

ANOVA

kadarSGOT_hari7

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3066.640	4	766.660	31.241	.000
Within Groups	490.800	20	24.540		
Total	3557.440	24			

Post Hoc Tests

Multiple Comparisons

KadarSGOT_hari7

Tukey HSD

(I) kelompok	(J) kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
tehmanis	curcuma	-34.000*	3.133	.000	-43.38	-24.62
	V.P 1,82 ml	-11.800*	3.133	.009	-21.18	-2.42
	V.P 2,73 ml	-10.600*	3.133	.022	-19.98	-1.22
	V.P3,64 ml	-13.000*	3.133	.004	-22.38	-3.62
Curcuma	tehmanis	34.000*	3.133	.000	24.62	43.38
	V.P 1,82 ml	22.200*	3.133	.000	12.82	31.58
	V.P 2,73 ml	23.400*	3.133	.000	14.02	32.78
	3,64 ml	21.000*	3.133	.000	11.62	30.38
V.P 1,82 ml	tehmanis	11.800*	3.133	.009	2.42	21.18

	curcuma	-22.200*	3.133	.000	-31.58	-12.82
	V.P 2,73 ml	1.200	3.133	.995	-8.18	10.58
	V.P 3,64 ml	-1.200	3.133	.995	-10.58	8.18
V.P 2,73 ml	tehmanis	10.600*	3.133	.022	1.22	19.98
	curcuma	-23.400*	3.133	.000	-32.78	-14.02
	V.P 1,82 ml	-1.200	3.133	.995	-10.58	8.18
	V.P3,64 ml	-2.400	3.133	.937	-11.78	6.98
V.P3,64 ml	tehmanis	13.000*	3.133	.004	3.62	22.38
	curcuma	-21.000*	3.133	.000	-30.38	-11.62
	V.P 1,82 ml	1.200	3.133	.995	-8.18	10.58
	V.P 2,73 ml	2.400	3.133	.937	-6.98	11.78

*. The mean difference is significant at the 0.05 level.

Homogeneous Subsets

kadarSGOT_hari7

TukeyHSD[a]

		Subset for alpha = 0.05		
Kelompok	N	1	2	3
tehmanis	5	-4.20		
V.P 2,73 ml	5		6.40	
V.P 1,82 ml	5		7.60	
V.P 3,64 ml	5		8.80	
Curcuma	5			29.80
Sig.		1.000	.937	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

Lampiran 18. Hasilstatistikkadar SGOT selisihsetelahinduksidanperlakuanpadaharike 14

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
KadarSGOT_hari14	25	25.20	25.622	-14	76

One-Sample Kolmogorov-Smirnov Test

		kadarSGPT_hari 14
N		25
Normal Parameters[a,,b]	Mean	25.20
	Std. Deviation	25.622
Most Extreme Differences	Absolute	.116
	Positive	.116
	Negative	-.085
Kolmogorov-Smirnov Z		.578

Asymp. Sig. (2-tailed)	.892

a. Test distribution is Normal.

b. Calculated from data.

Oneway

Descriptives

kadarSGOT_hari14

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
tehmanis	5	-8.20	3.962	1.772	-13.12	-3.28	-14	-3
Curcuma	5	62.20	15.786	7.060	42.60	81.80	37	76
V.P 1,82 ml	5	16.80	5.450	2.437	10.03	23.57	10	24
V.P 2,73 ml	5	25.80	19.189	8.581	1.97	49.63	8	56
V.P3,64 ml	5	29.40	7.733	3.458	19.80	39.00	18	38
Total	25	25.20	25.622	5.124	14.62	35.78	-14	76

Test of Homogeneity of Variances

kadarSGOT_hari14

Levene Statistic	df1	df2	Sig.
3.517	4	20	.125

ANOVA

kadarSGOT_hari14

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12865.600	4	3216.400	22.256	.000
Within Groups	2890.400	20	144.520		
Total	15756.000	24			

Post Hoc Tests

Multiple Comparisons

kadarSGOT_hari14

Tukey HSD

(I) kelompok	(J) kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
tehmanis	Curcuma	-70.400*	7.603	.000	-93.15	-47.65
	V.P 1,82 ml	-25.000*	7.603	.027	-47.75	-2.25
	V.P 2,73 ml	-34.000*	7.603	.002	-56.75	-11.25
	V.P3,64 ml	-37.600*	7.603	.001	-60.35	-14.85
Curcuma	tehmanis	70.400*	7.603	.000	47.65	93.15
	V.P 1,82 ml	45.400*	7.603	.000	22.65	68.15
	V.P 2,73 ml	36.400*	7.603	.001	13.65	59.15
	V.P 3,64 ml	32.800*	7.603	.003	10.05	55.55
V.P 1,82 ml	tehmanis	25.000*	7.603	.027	2.25	47.75

	Curcuma	-45.400*	7.603	.000	-68.15	-22.65
	V.P 2,73 ml	-9.000	7.603	.760	-31.75	13.75
	V.P 3,64 ml	-12.600	7.603	.481	-35.35	10.15
V.P 2,73 ml	tehmanis	34.000*	7.603	.002	11.25	56.75
	Curcuma	-36.400*	7.603	.001	-59.15	-13.65
	V.P 1,82 ml	9.000	7.603	.760	-13.75	31.75
	V.P 3,64 ml	-3.600	7.603	.989	-26.35	19.15
V.P3,64 ml	tehmanis	37.600*	7.603	.001	14.85	60.35
	Curcuma	-32.800*	7.603	.003	-55.55	-10.05
	V.P 1,82 ml	12.600	7.603	.481	-10.15	35.35
	V.P 2,73 ml	3.600	7.603	.989	-19.15	26.35

*. The mean difference is significant at the 0.05 level.

Homogeneous Subsets

kadarSGOT_hari14

TukeyHSD[a]

		Subset for alpha = 0.05		
Kelompok	N	1	2	3
tehmanis	5	-8.20		
V.P 1,82 ml	5		16.80	
V.P 2,73 ml	5		25.80	
V.P 3,64 ml	5		29.40	
Curcuma	5			62.20
Sig.		1.000	.481	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

Lampiran 19. Homogenitas To pada SGPT

Descriptives

sgptT0

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
tehmanis	5	12.80	4.550	2.035	7.15	18.45	8	18
curcuma	5	9.40	2.966	1.327	5.72	13.08	6	14
V.P 1,82 ml	5	12.00	4.528	2.025	6.38	17.62	7	17
V.P 2,73	5	8.60	2.702	1.208	5.25	11.95	5	12
V.P 3,64 ml	5	12.40	3.209	1.435	8.42	16.38	9	17
Total	25	11.04	3.780	.756	9.48	12.60	5	18

Test of Homogeneity of Variances

sgptT0

Levene Statistic	df1	df2	Sig.
1.109	4	20	.380

ANOVA

sgptT0

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	72.560	4	18.140	1.342	.289
Within Groups	270.400	20	13.520		
Total	342.960	24			

Lampiran 20. Homogenitas To pada SGOT

Descriptives

sgotT0

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
tehmanis	5	29.40	3.507	1.568	25.05	33.75	25	34
curcuma	5	27.80	4.207	1.881	22.58	33.02	21	32
V.P 1,82 ml	5	26.00	4.472	2.000	20.45	31.55	21	33
V.P 2,73	5	24.40	5.030	2.249	18.15	30.65	20	33
V.P 3,64 ml	5	30.00	3.536	1.581	25.61	34.39	25	34
Total	25	27.52	4.379	.876	25.71	29.33	20	34

Test of Homogeneity of Variances

sgotT0

Levene Statistic	df1	df2	Sig.
.073	4	20	.690

ANOVA

sgotT0

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	109.040	4	27.260	1.552	.226
Within Groups	351.200	20	17.560		
Total	460.240	24			