BAB V
KESIMPULAN DAN SARAN

A. KESIMPULAN

1. Ekstrak etanol daun sirsak dengan dosis 100, 200,dan 400 mg/KgBB dapat memperbaiki memori spasial dan menurunkan kadar malondialdehid, pada mencit model demensia yang diinduksi plumbum asetat
2. Pemberian ekstrak etanol daun sirsak pada dosis 400 mg/KgBB memberikan aktivitas yang lebih baik dari seluruh aspek pengujian.
3. Pemberian ekstrak etanol daun sirsak dapat menurunkan jumlah sel piramidal pada area CA1 dan CA2-CA3 yang mengalami kerusakan pada mencit model demensia yang diinduksi dengan plumbum asetat.

B. SARAN

1. Perlu dilakukan pengukuran aktivitas Glutation Peroksidase (GPx) otak mencit.
2. Perlu dilakukan pengujian *moris water maze* dengan perhitungan panjang lintasan mencit.
3. Perlu dilakukan penelitian tentang efek ekstrak etanol daun sirsak terhadap total status antioksidan otak mencit *demensia* yang diinduksi plumbum asetat.
4. Perlu *Morris water maze* dengan n yang lebih besar (n = 10)
5. Perlu uji *behavior* lain

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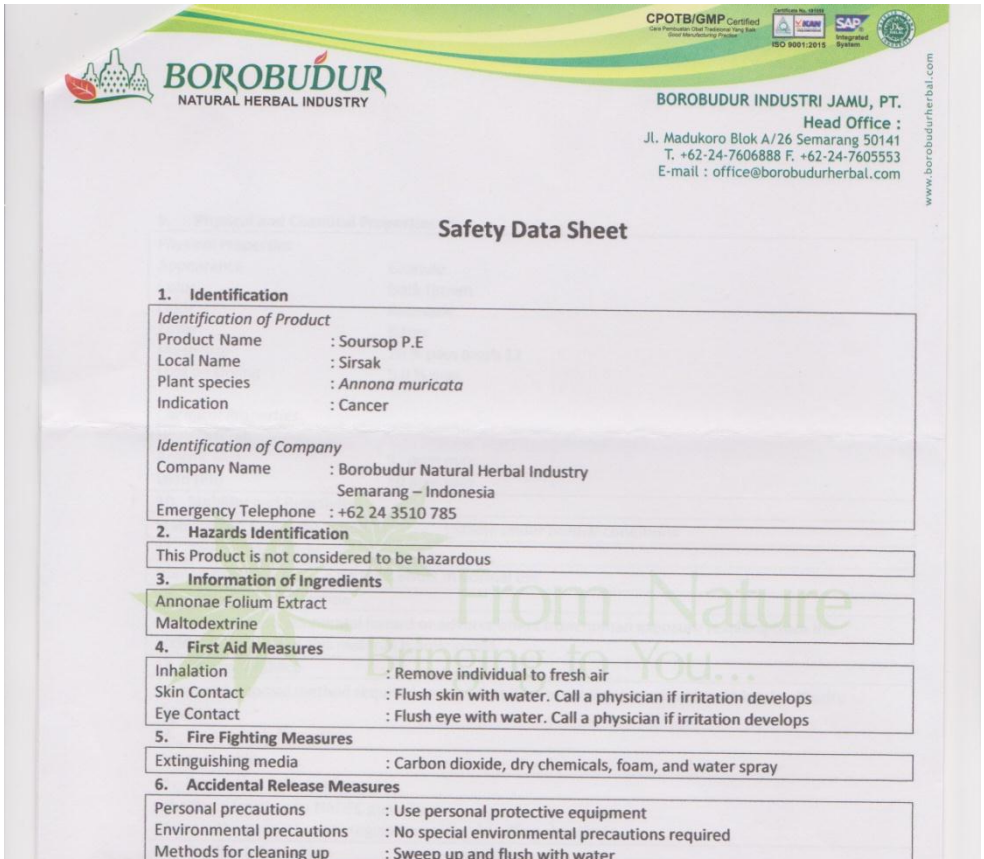
LAMPIRAN

Lampiran 1. Surat Keterangan Ekstrak Daun Sirsak



CPOTB/GMP Certified

BOROBUDUR
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Safety Data Sheet

1. Identification

Identification of Product

Product Name	: Soursop P.E
Local Name	: Sirsak
Plant species	: *Annona muricata*
Indication	: Cancer

Identification of Company

Company Name	: Borobudur Natural Herbal Industry Semarang – Indonesia
Emergency Telephone	: +62 24 3510 785

2. Hazards Identification

This Product is not considered to be hazardous

3. Information of Ingredients

Annonae Folium Extract
Maltodextrine

4. First Aid Measures

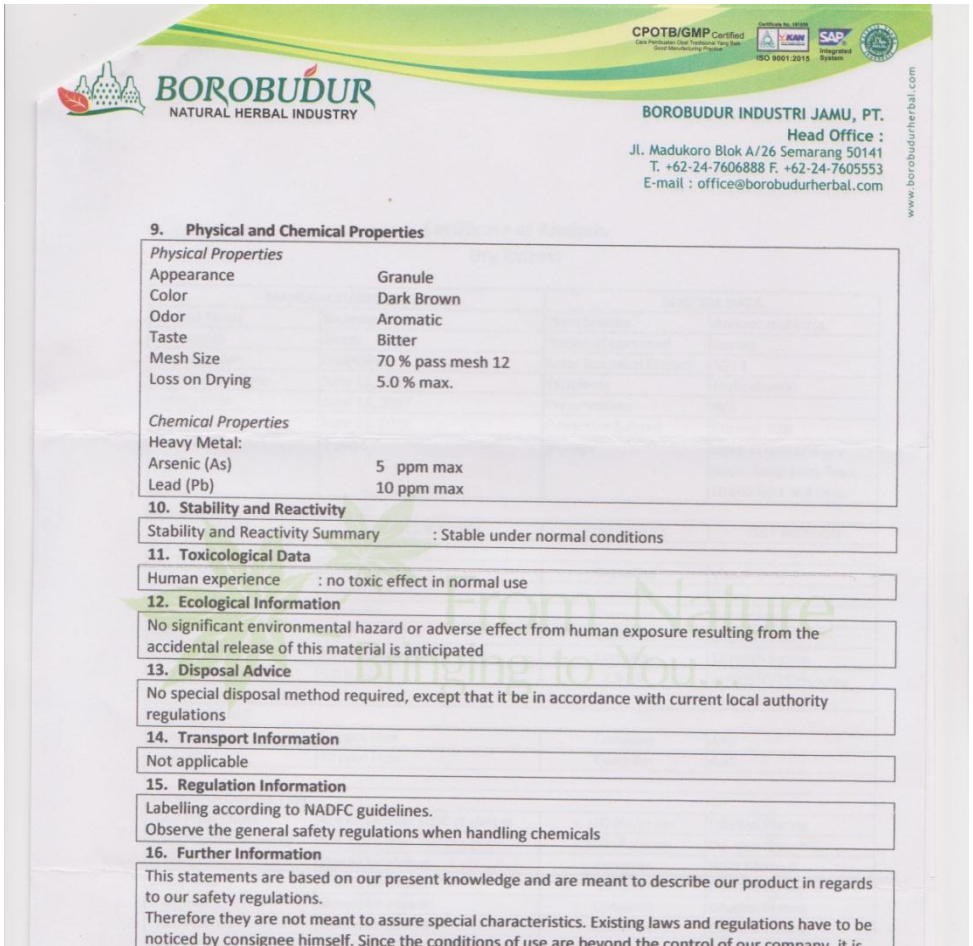
Inhalation	: Remove individual to fresh air
Skin Contact	: Flush skin with water. Call a physician if irritation develops
Eye Contact	: Flush eye with water. Call a physician if irritation develops

5. Fire Fighting Measures

Extinguishing media	: Carbon dioxide, dry chemicals, foam, and water spray

6. Accidental Release Measures

Personal precautions	: Use personal protective equipment
Environmental precautions	: No special environmental precautions required
Methods for cleaning up	: Sweep up and flush with water



CPOTB/GMP Certified
ISO 9001:2015

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9. Physical and Chemical Properties

Physical Properties	
Appearance	Granule
Color	Dark Brown
Odor	Aromatic
Taste	Bitter
Mesh Size	70 % pass mesh 12
Loss on Drying	5.0 % max.
Chemical Properties	
Heavy Metal:	
Arsenic (As)	5 ppm max
Lead (Pb)	10 ppm max

10. Stability and Reactivity

Stability and Reactivity Summary : Stable under normal conditions

11. Toxicological Data

Human experience : no toxic effect in normal use

12. Ecological Information

No significant environmental hazard or adverse effect from human exposure resulting from the accidental release of this material is anticipated

13. Disposal Advice

No special disposal method required, except that it be in accordance with current local authority regulations

14. Transport Information

Not applicable

15. Regulation Information

Labelling according to NADFC guidelines.
Observe the general safety regulations when handling chemicals

16. Further Information

This statements are based on our present knowledge and are meant to describe our product in regards to our safety regulations.
Therefore they are not meant to assure special characteristics. Existing laws and regulations have to be noticed by consignee himself. Since the conditions of use are beyond the control of our company, it is

CPOTB/GMP Certified
Cara Pembuatan Obat Tradisional Yang Baik
Good Manufacturing Practice
ISO 9001:2015

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Certificate of Analysis
Dry Extract

MANUFACTURING DATA		GENERAL DATA	
Product Name	**Soursop P.E**	Plant Species	*Annona muricata*
Local Name	**Sirsak**	Botanical part used	Leaves
Batch Number	**030PQ01.5**	Ratio Botanical Extract	10 : 1
Manufacture Date	June 12, 2017	Excipients	Maltodextrin
Testing Date	June 13, 2017	Preservatives	N/A
Expire Date	June 12, 2021	Extraction Solvent	Ethanol 70%
Shelf Life	4 years	Storage	store in cool and dry place, keep away from strong light and heat

ITEM	SPECIFICATION	TEST RESULT	TEST METHOD
IDENTIFICATION TEST			
Appearance	Granule	Complies	Visual
Color	Dark Brown	Complies	Visual
Odor	Aromatic	Complies	Organoleptic
Taste	Bitter	Complies	Organoleptic
Mesh Size	70 % pass mesh 12	Complies	12 mesh screen
Loss On Drying	5.0 % max	3.92 %	2g/105^{0}C/15 minutes
HEAVY METALS			
Arsenic (As)	5 ppm max	Complies	AAS
Lead (Pb)	10 ppm max	Complies	AAS
MICROBIOLOGICAL TEST			
Total Plate Count	Not more than 1000 cfu/gram	< 100 cfu/gram	Dilution Plating
Fungi/Yeast and molds	Not more than 100 cfu/gram	< 100 cfu/gram	Dilution Plating
E. coli	Should be absent	Complies	MPN Method
Salmonella	Should be absent	Complies	Dilution Plating
S. aureus	Should be absent	Complies	Dilution Plating
P. aeruginosa	Should be absent	Complies	Dilution Plating

Lampiran 2. Surat Keterangan *Ethical Clearance*

KOMISI ETIK PENELITIAN KESEHATAN
HEALTH RESEARCH ETHICS COMMITTEE
SEKOLAH TINGGI ILMU KESEHATAN SURYA MITRA HUSADA
INSTITUTE OF HEALTH SCIENCE SURYA MITRA HUSADA

KETERANGAN LOLOS UJI ETIK

DESCRIPTION OF ETHICAL APPROVAL

"ETHICAL APPROVAL"

NOMOR : 930/KEPK/XI/2018

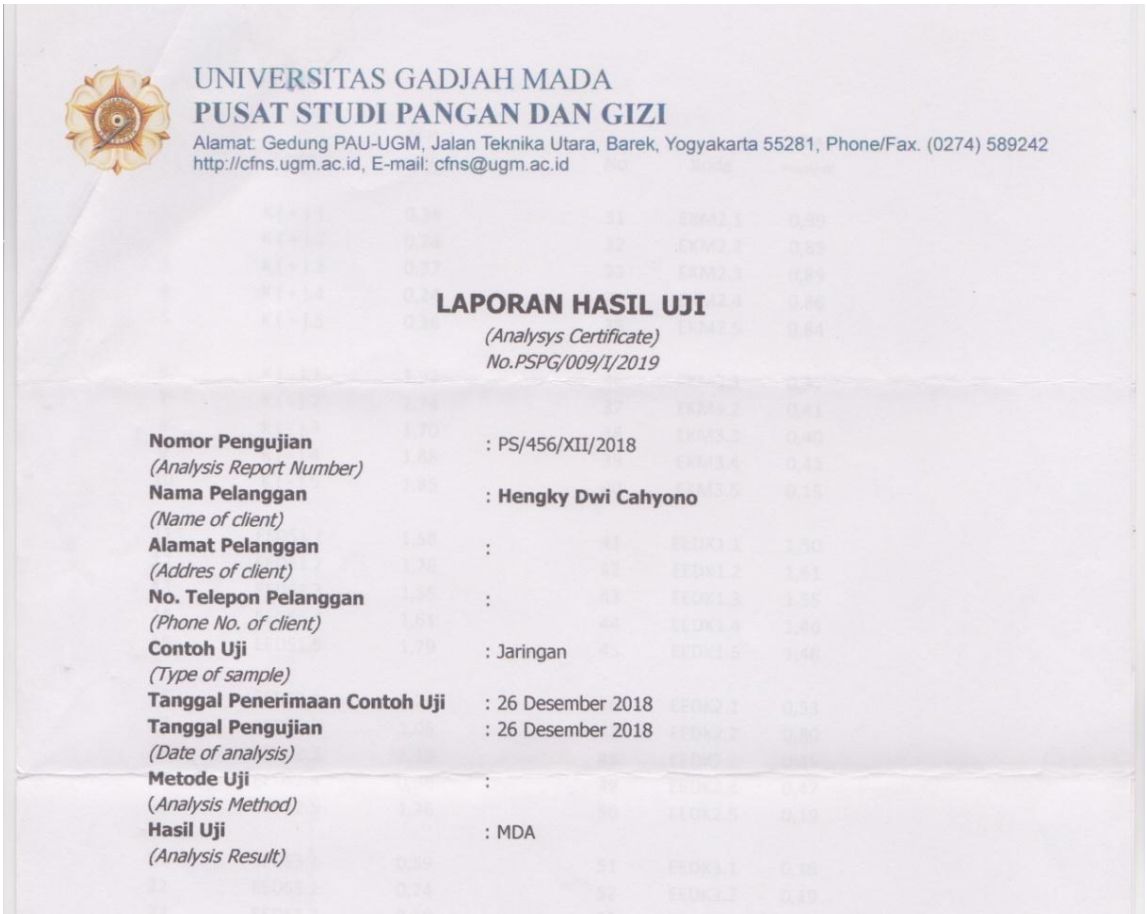
Komite Etik Penelitian Kesehatan STIKes Surya Mitra Husada dalam upaya melindungi hak asasi dan kesejahteraan subyek penelitian kesehatan, telah mengkaji dengan teliti protokol berjudul :

Health Research Ethics Committee STIKes Surya Mitra Husada in the effort to protect the rights and welfare of research subjects of health, has reviewed carefully the protocol entitled:

EFEK EKSTRAK ETANOL DAUN SIRSAK (Annona muricata L.) TERHADAP MEMORI SPASIAL, KADAR MALONDIALDEHID, DAN JUMLAH SEL PYRAMIDAL HIPOKAMPUS AREA CA1 DAN CA2-CA3 PADA MENCIT MODEL DEMENSIA

Peneliti Utama : Hengky Dwi Cahyono / SBF121710147
Principal Investigator

Lampiran 3. Surat Keterangan Uji MDA

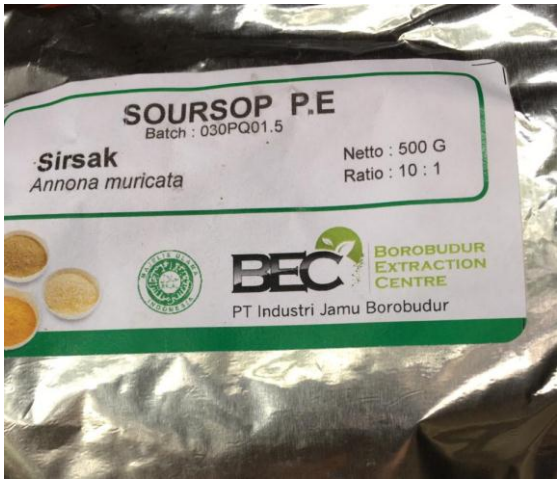


UNIVERSITAS GADJAH MADA
PUSAT STUDI PANGAN DAN GIZI
Alamat: Gedung PAU-UGM, Jalan Teknika Utara, Barek, Yogyakarta 55281, Phone/Fax. (0274) 589242
http://cfns.ugm.ac.id, E-mail: cfns@ugm.ac.id

LAPORAN HASIL UJI
(Analysys Certificate)
No.PSPG/009/I/2019

Nomor Pengujian *(Analysis Report Number)*	: PS/456/XII/2018
Nama Pelanggan *(Name of client)*	: **Hengky Dwi Cahyono**
Alamat Pelanggan *(Addres of client)*	:
No. Telepon Pelanggan *(Phone No. of client)*	:
Contoh Uji *(Type of sample)*	: Jaringan
Tanggal Penerimaan Contoh Uji	: 26 Desember 2018
Tanggal Pengujian *(Date of analysis)*	: 26 Desember 2018
Metode Uji *(Analysis Method)*	:
Hasil Uji *(Analysis Result)*	: MDA

Lampiran 4. Gambar Ekstrak Daun Sirsak



Lampiran 5. Gambar Alat Uji Memori *Morris Water Maze*

Lampiran 6. Penentuan Dosis Ekstrak Etanol Daun Sirsak

Ekstrak daun sirsak kandungan flavonoid, terpenoid, alkaloid, minyak atsiri, polifenol, saponin, dan tanin yang berperan sebagai antitumor, antimikroba, antiparasit, dan antivirus (Amelia *et al*. 2012).

a.EEDS 100 mg/KgBB

Dikonversikan kemencit

Dosis untuk mencit 20 g $= 0{,}14 \times 100 mg / KgBB$

$= 14 mg / KgBBmencit$

$= 14 mg / 1000 gBBmencit$

$= 0{,}28 mg / 20 gBBmencit$

volume pemberian untuk masing-masing mencit 20 g adalah 0,5 ml

$$\text{Larutanstok} = \frac{volumelaru\,\text{tan}\,stok}{volumepemberian} \times dosis$$

$$= \frac{100ml}{0,5ml} \times 0,28mg$$

$$= 56mg$$

Jadi sebanyak 56 mg EEDS dilarutkan dalam 100 ml CMC-Na 0,5%

Berat badan mencit (g)	Volume penyuntikkan (ml)
28	$\frac{28mg}{20mg} \times 0,5ml = 0,7$
30	$\frac{30mg}{20mg} \times 0,5ml = 0,75$
26	$\frac{26mg}{20mg} \times 0,5ml = 0,65$
32	$\frac{32mg}{20mg} \times 0,5ml = 0,8$
25	$\frac{25mg}{20mg} \times 0,5ml = 0,625$

b. EEDS 200 mg/KgBB

Dikonversikan ke mencit

Dosis untuk mencit 20 g $= 0,14 \times 200mg / KgBB$

$= 28mg / KgBBmencit$

$= 28mg / 1000gBBmencit$

$= 0,56mg / 20gBBmencit$

volume pemberian untuk masing-masing mencit 20 g adalah 0,5 ml

Larutan stok $= \frac{volumelaru\,tan\,stok}{volumepemberian} \times dosis$

$$= \frac{100ml}{0,5ml} \times 0,56mg$$

$$= 112mg$$

Jadi sebanyak 112 mg EEDS dilarutkan dalam 100 ml CMC-Na 0,5%

Berat badan mencit (g)	Volume penyuntikkan (ml)

28	$\frac{28mg}{20mg} \times 0,5ml = 0,7$
30	$\frac{30mg}{20mg} \times 0,5ml = 0,75$
26	$\frac{26mg}{20mg} \times 0,5ml = 0,65$
32	$\frac{32mg}{20mg} \times 0,5ml = 0,8$
25	$\frac{25mg}{20mg} \times 0,5ml = 0,625$

c. EEDS 400 mg/KgBB

Dikonversikan ke mencit

Dosis untuk mencit 20 g $= 0,14 \times 400mg / KgBB$

$= 56mg / KgBBmencit$

$= 56mg / 1000gBBmencit$

$= 1,12mg / 20gBBmencit$

volume pemberian untuk masing-masing mencit 20 g adalah 0,5 ml

Larutan stok $= \frac{volumelaru\,\tan stok}{volumepemberian} \times dosis$

$= \frac{100ml}{0,5ml} \times 1,12mg$

$= 224mg$

Jadi sebanyak 224 mg EEDS dilarutkan dalam 100 ml CMC-Na 0,5%

Berat badan mencit (g)	Volume penyuntikkan (ml)
28	$\frac{28mg}{20mg} \times 0,5ml = 0,7$
30	$\frac{30mg}{20mg} \times 0,5ml = 0,75$
26	$\frac{26mg}{20mg} \times 0,5ml = 0,65$
32	$\frac{32mg}{20mg} \times 0,5ml = 0,8$

25	$\frac{25mg}{20mg} \times 0,5ml = 0,625$

Lampiran 7. Pemberian Sediaan Uji Ekstrak Etanol Daun Sirsak

Lampiran 8. Pembuatan Larutan Kuersetin dan Plumbum Acetat

1. Larutan CMC-Na 0,5%

   Larutan CMC Na 0,5% $= 0{,}5g/100ml$

   $= 500mg/100ml$

   Jadi sebanyak 500 mg CMC-Na dilarutkan dalam 100 ml air panas sedikit demi sedikit lalu aduk sampai larut dan homogen

Berat badan mencit (g)	Volume penyuntikkan (ml)
28	$\frac{28mg}{20mg} \times 0{,}5ml = 0{,}70$
30	$\frac{30mg}{20mg} \times 0{,}5ml = 0{,}75$
26	$\frac{26mg}{20mg} \times 0{,}5ml = 0{,}65$

32	$\frac{32mg}{20mg} \times 0{,}5ml = 0{,}80$
25	$\frac{25mg}{20mg} \times 0{,}5ml = 0{,}625$

2. Dosis kuersetin

Menurut penelitian (Kale et al, 2018) dosis kuersertin 50 mg/KgBB dapat melindungi saraf terhadap cedera otak setelah pengion radiasi

Dosis untuk mencit 20 g $= 50mg / KgBB$

$= 50mg / 1000KgBBmencit$

$= 42mg / 1000gBBmencit$

$= 1mg / 20gBBmencit$

volume pemberian untuk masing-masing mencit 20 g adalah 0,5 ml

Larutan stok $= \frac{volumelaru\,\tan stok}{volumepemberian} \times dosis$

$= \frac{100ml}{0{,}5ml} \times 0{,}84mg$

$= 168mg$

Jadi sebanyak 168 mg kuersetin dilarutkan dalam100 ml CMC-Na 0,5%

Berat badan mencit (g)	Volume penyuntikkan (ml)
28	$\frac{28mg}{20mg} \times 0{,}5ml = 0{,}7$
30	$\frac{30mg}{20mg} \times 0{,}5ml = 0{,}75$
26	$\frac{26mg}{20mg} \times 0{,}5ml = 0{,}65$
32	$\frac{32mg}{20mg} \times 0{,}5ml = 0{,}8$
25	$\frac{25mg}{20mg} \times 0{,}5ml = 0{,}625$

3. Larutan Pb asetat

Larutan timbal asetat diberikan secara intra peritoneal dengan dosis 50 mg/kgBB kepad atikus (Owolabi*et al*, 2014).

Dikonversikan ke mencit

Dosis untuk mencit 20 g $= 0{,}14 \times 50 mg / KgBB$

$= 7 mg / KgBBmencit$

$= 7 mg / 1000 gBBmencit$

$= 0{,}14 mg / 20 gBBmencit$

volume pemberian untuk masing-masing mencit 20 g adalah 0,2 ml

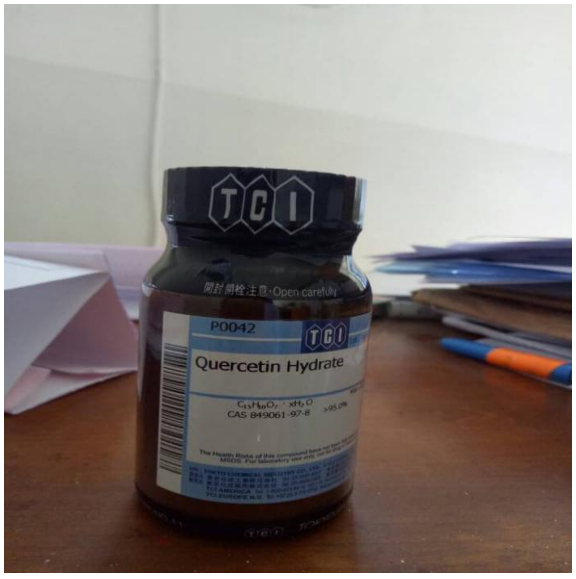
$\text{Larutan stok} = \frac{volumelaru\,\text{tan}\,stok}{volumepemberian} \times dosis$

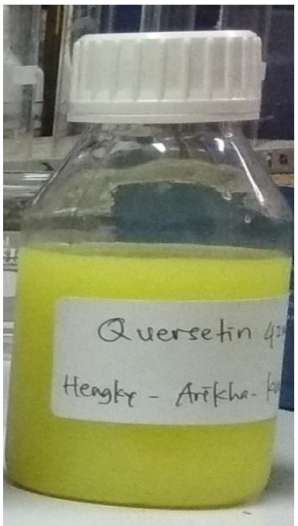
$= \frac{10ml}{0{,}2ml} \times 0{,}14mg$

$= 7mg$

Jadi sebanyak 7 mg Pb asetat dilarutkan dalam aquabidestilata 10 ml

Berat badan mencit (g)	Volume penyuntikkan (ml)
28	$\frac{28mg}{20mg} \times 0{,}2ml = 0{,}28$
30	$\frac{30mg}{20mg} \times 0{,}2ml = 0{,}30$
26	$\frac{26mg}{20mg} \times 0{,}2ml = 0{,}26$
32	$\frac{32mg}{20mg} \times 0{,}2ml = 0{,}32$
25	$\frac{25mg}{20mg} \times 0{,}2ml = 0{,}25$





Lampiran 9. Gambar Pengambilan Otak Pada Mencit

Lampiran 10. Data Hasil Pengujian

1. DATA AQCUISITION TRIAL

KELOMPOK	MENCIT	LATIHAN		T0	T1	T2	T1-T2	%
NORMAL	1	26.79	27.83	27.31	26.88	25.59	1.29	4.80
	2	27.35	27.71	27.53	27.07	25.33	1.74	4.38
	3	26.81	26.89	26.85	26.22	25.33	0.89	4.27
	4	27.84	26.39	27.12	26.09	25.08	1.01	4.21
	5	28.04	26.03	27.04	26.08	25.13	0.95	4.53
	RERATA	**27.37**	**26.97**	**27.17**	**26.47**	**25.29**	**1.18**	**4.44**
	SD						**0.14**	**0.17**
KONTROL POSITIF	1	26.94	24.32	25.63	23.18	22.62	0.56	2.42
	2	26.17	24.94	25.56	22.86	23.47	-0.61	-2.67
	3	25.63	24.25	24.94	22.93	22.62	0.31	1.35

	4	26.76	24.92	25.84	23.17	22.64	0.53	2.29
	5	26.65	24.87	25.74	22.79	22.17	0.21	1.04
	RERATA	**26.43**	**24.66**	**25.54**	**22.90**	**22.70**	**0.20**	**0.89**
	SD						**0.07**	**0.42**
KONTROL NEGATIF	1	26.78	24.71	25.75	25.38	29.14	-3.76	37.92
	2	27.18	26.07	26.63	25.13	28.75	-3.62	-34.66
	3	27.25	26.43	26.84	24.74	28.83	-4.09	27.83
	4	26.61	25.63	26.12	24.27	28.73	-4.46	27.40
	5	27.12	26.11	26.62	23.93	29.16	-5.23	28.08
	RERATA	**26.99**	**25.79**	**26.39**	**24.69**	**28.92**	**-4.23**	**-17.31**
	SD						**0.31**	**2.30**
EEDS 100	1	30.02	27.64	29.21	26.14	25.63	0.51	1.95
	2	29.18	28.06	29.25	25.95	24.95	1.00	3.85
	3	28.94	28.04	28.57	25.18	25.52	-0.34	-1.35
	4	29.19	27.93	28.05	25.09	24.98	0.11	2.94
	5	29.07	27.93	27.91	25.82	24.43	1.42	1.52
	RERATA	**29.28**	**27.92**	**28.60**	**25.64**	**25.10**	**0.54**	**2.10**
	SD						**0.39**	**1.52**
EEDS 200	1	28.52	27.96	28.34	25.67	25.21	0.29	1.45
	2	28.54	27.61	27.61	25.74	25.06	0.63	2.43
	3	28.31	26.37	27.98	25.85	25.41	0.39	1.51
	4	28.38	26.72	27.46	25.72	25.16	0.56	2.14
	5	28.32	26.75	27.35	25.86	25.17	0.51	1.83
	RERATA	**28.41**	**27.08**	**27.75**	**25.77**	**25.29**	**0.48**	**1.87**
	SD						**0.43**	**1.69**
EEDS 400	1	27.67	25.16	27.05	25.65	25.83	-0.18	-0.68
	2	28.14	25.32	26.55	24.39	25.96	-1.57	-6.44
	3	28.04	25.61	26.32	24.85	24.13	0.72	2.90
	4	27.12	25.17	26.48	25.13	24.27	0.84	3.08
	5	27.07	25.08	25.78	25.04	24.39	0.65	3.03
	RERATA	**27.61**	**25.27**	**26.44**	**25.01**	**24.92**	**0.09**	**0.38**
	SD						**0.07**	**0.30**

2. DATA PROBE TRIAL

KELOMPOK	MENCIT	LATIHAN		T0	T1	T2	T2-T1	%
NORMAL	1	6.46	6.37	6.42	6.18	7.17	0.99	13.25
	2	6.12	5.82	5.97	7.01	7.12	0.11	1.54
	3	5.3	5.47	5.39	6.46	7.74	1.28	15.84
	4	6.19	5.43	5.81	6.18	6.85	0.71	10.63
	5	5.72	5.74	5.73	6.14	6.95	0.81	11.65
	RERATA	**5.96**	**5.77**	**5.86**	**6.39**	**7.17**	**0.78**	**10.58**
	SD						**0.77**	**9.29**
KONTROL POSITIF	1	2.82	2.61	2.72	4.61	6.64	2.03	30.57
	2	2.43	3.45	2.94	4.91	5.68	0.77	13.56
	3	3.45	2.71	3.08	3.28	5.52	2.24	40.58
	4	2.86	2.95	2.91	3.96	5.17	1.21	23.40
	5	2.94	2.56	2.75	4.12	5.14	1.02	21.72
	RERATA	**2.90**	**2.86**	**2.88**	**4.18**	**5.63**	**1.45**	**25.97**
	SD						**0.64**	**10.87**
KONTROL NEGATIF	1	5.63	4.31	4.97	6.71	3.87	-2.84	-73.39
	2	5.65	4.29	4.97	6.72	4.12	-2.60	-63.11
	3	6.45	4.36	5.41	7.45	4.15	-3.30	-79.52
	4	5.73	4.56	5.18	6.83	4.16	-2.67	-64.18
	5	5.29	4.07	4.68	7.09	4.03	-3.06	-75.58
	RERATA	**5.75**	**4.32**	**5.04**	**6.96**	**4.07**	**-2.89**	**-71.15**
	SD						**0.32**	**7.19**
EEDS 100	1	4.12	4.29	4.21	3.52	5.12	1.60	31.25
	2	4.27	4.17	4.22	3.71	5.82	2.11	36.25
	3	4.12	3.28	3.70	5.51	7.58	2.07	27.31
	4	4.28	4.14	4.21	4.31	6.29	1.98	31.48
	5	4.06	3.69	3.88	4.21	6.02	1.81	31.72
	RERATA	**4.17**	**3.91**	**4.04**	**4.25**	**6.17**	**1.93**	**31.60**
	SD						**0.28**	**4.48**
EEDS 200	1	4.28	4.23	4.26	5.77	7.83	2.06	26.31

	2	4.44	3.12	3.78	4.84	6.28	1.44	22.93
	3	4.68	3.14	3.91	5.48	7.72	2.24	29.02
	4	4.32	3.52	3.92	5.62	7.42	1.80	24.26
	5	4.62	3.49	4.06	5.11	7.15	2.04	27.88
	RERATA	**4.47**	**3.50**	**3.98**	**5.36**	**7.28**	**1.91**	**26.08**
	SD						**0.42**	**3.05**
EEDS 400	1	4.18	4.23	4.21	5.82	6.76	0.94	13.91
	2	4.67	4.13	4.40	4.49	6.83	2.34	34.26
	3	4.72	3.09	3.91	4.46	6.97	2.51	36.01
	4	4.82	4.12	4.47	5.12	6.81	1.69	24.82
	5	4.19	3.52	3.86	4.78	6.87	2.09	31.32
	RERATA	**4.52**	**3.82**	**4.17**	**4.92**	**6.85**	**1.93**	**28.06**
	SD						**0.86**	**12.29**

3. DATA UJI SENSORIS

KELOMPOK	**MENCIT**	**LATIHAN**		**T0**	**T1**	**T2**	**T1-T2**	**%**
NORMAL	1	18.03	17.92	17.98	17.62	17.21	0.41	2.33
	2	17.3	16.04	16.67	16.33	15.89	0.44	2.69
	3	17.78	16.99	17.39	17.09	16.64	0.45	2.63
	4	17.86	17.14	17.50	16.83	16.73	0.10	0.59
	5	17.54	16.82	17.18	17.17	16.42	0.75	4.48
	RERATA	**17.70**	**16.98**	**17.34**	**17.01**	**16.58**	**0.43**	**2.55**
	SD						**0.02**	**0.20**
KONTROL POSITIF	1	17.83	17.18	17.51	17.10	16.92	0.18	1.05
	2	17.24	16.78	17.01	16.65	16.13	0.52	3.12
	3	18.56	18.74	18.65	18.32	18.11	0.21	1.15
	4	17.78	17.63	17.71	17.62	16.98	0.64	3.63
	5	17.98	17.52	17.75	17.12	17.09	0.03	0.18

	RERATA	**17.88**	**17.57**	**17.72**	**17.36**	**17.05**	**0.30**	**1.77**
	SD						**0.19**	**1.17**
KONTROL NEGATIF	1	18.43	18.95	18.69	17.75	21.37	-3.62	-20.39
	2	19.62	18.87	19.25	16.97	21.67	-4.70	-27.70
	3	19.92	19.62	19.77	17.89	21.69	-3.80	-21.24
	4	19.54	19.25	19.40	17.73	21.78	-4.05	-22.84
	5	19.08	19.06	19.08	17.36	21.39	-4.03	-23.21
	RERATA	**19.32**	**19.15**	**19.24**	**17.54**	**21.58**	**-4.04**	**-23.11**
	SD						**0.58**	**3.99**
EEDS 100	1	18.26	18.38	18.32	17.78	16.52	1.26	7.09
	2	19.11	18.95	19.03	18.01	16.33	1.68	9.33
	3	17.98	17.36	17.7	17.29	16.35	0.94	5.44
	4	18.53	18.32	18.4	17.82	16.73	1.09	6.12
	5	18.35	18.14	18.2	17.56	16.07	1.49	8.49
	RERATA	**18.45**	**18.23**	**18.34**	**17.69**	**16.40**	**1.29**	**7.28**
	SD						**0.37**	**1.95**
EEDS 200	1	18.86	17.96	18.41	18.09	17.74	0.35	1.93
	2	19.63	18.64	19.135	17.82	16.64	1.18	6.62
	3	18.74	17.59	18.165	17.09	16.24	0.85	4.97
	4	19.32	18.21	18.765	17.92	16.72	1.2	6.70
	5	18.84	17.91	18.375	17.43	17.02	0.41	2.35
	RERATA	**19.08**	**18.06**	**18.57**	**17.67**	**16.87**	**0.79**	**4.51**
	SD						**0.42**	**2.38**
EEDS 400	1	16.72	17.58	17.15	17.54	17.38	0.16	0.91
	2	19.82	17.88	18.85	17.91	17.25	0.66	3.69
	3	19.17	18.6	18.885	16.95	16.52	0.43	2.54
	4	18.83	17.98	18.405	17.62	16.89	0.73	3.89
	5	18.29	18.05	18.17	17.35	17.19	0.16	0.92
	RERATA	**18.57**	**18.02**	**18.30**	**17.47**	**17.05**	**0.42**	**2.38**
	SD						**0.25**	**1.39**

4. DATA CA

KELOMPOK	CA1	CA2	CA3
NORMAL	2	2	2
	2	1	1
	1	4	4
	2	2	2
	4	3	3
KONTROL POSITIF	2	3	3
	3	3	3
	2	2	2
	1	2	2
	2	1	1
KONTROL NEGATIF	23	17	17
	19	16	16
	16	14	14
	20	15	15
	22	15	15
EEDS_100	14	12	14
	14	12	12

	18	17	18
	11	10	15
	12	15	10
EEDS_200	7	5	35
	9	10	11
	9	8	8
	7	7	6
	8	9	7
EEDS_400	3	5	1
	4	1	3
	2	4	6
	1	2	5
	3	3	1

5. DATA MDA

	KELOMPOK	MDA (mmol/ml)	RATA-RATA
1	KONTROL SEHAT	0.76	
2		0.68	
3		0.52	
4		0.66	
5		0.79	0.682
1	KONTROL POSITIF (QUERSETIN)	0.34	
2		0.28	
3		0.37	
4		0.24	
5		0.36	0.318
1	KONTROL SAKIT/NEGATIF	1.92	
2		1.74	
3		1.70	
4		1.88	
5		1.85	1.818
1	EEDS 100MG	0.97	
2		0.82	

3		0.83	
4		1.12	
5		0.74	0.896
1	EEDS 200MG	0.73	
2		0.98	
3		0.65	
4		0.87	
5		0.56	0.758
1	EEDS 400MG	0.49	
2		0.24	
3		0.20	
4		0.31	
5		0.42	0.332

Lampiran 11. Hasil Signifikasi Data Uji Memori Spasial dan Gambaran Hispatologik Hipokampus

Uji	Normalitas	Homogenitas	ANOVA
Aqcuisitation trial	0,125	0,064	0,000
Probe trial	0,175	0,325	0,000
Sensoris memoris	0,162	0,086	0,000
MDA	0,282	0,203	0,000
CA1	0,114	0,138	0,000
CA2	0,207	0,064	0,000

Lampiran 12. Hasil Uji LSD – TUKEY

1. ACQUISITION TRIAL

ANOVA

SELISIH_AQ

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	37.058	5	7.412	97.250	.000
Within Groups	.915	24	.076		
Total	37.972	29			

Post Hoc Tests

Multiple Comparisons

Dependent Variable:SELISIH_AQ

	(I) PERLAKUAN	(J) PERLAKUAN	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	KONTROL NORMAL	KONTROL POSITIF	.98000*	.22540	.009	.2229	1.7371
		KONTROL NEGATIF	-3.05667*	.22540	.000	-3.8138	-2.2995
		EEDS_100	.64000	.22540	.117	-.1171	1.3971
		EEDS_200	.69667	.22540	.078	-.0605	1.4538
		EEDS_400	1.08333*	.22540	.004	.3262	1.8405
	KONTROL POSITIF	KONTROL NORMAL	-.98000*	.22540	.009	-1.7371	-.2229

		KONTROL NEGATIF	-4.03667*	.22540	.000	-4.7938	-3.2795
		EEDS_100	-.34000	.22540	.666	-1.0971	.4171
		EEDS_200	-.28333	.22540	.802	-1.0405	.4738
		EEDS_400	.10333	.22540	.997	-.6538	.8605
	KONTROL NEGATIF	KONTROL NORMAL	3.05667*	.22540	.000	2.2995	3.8138
		KONTROL POSITIF	4.03667*	.22540	.000	3.2795	4.7938
		EEDS_100	3.69667*	.22540	.000	2.9395	4.4538
		EEDS_200	3.75333*	.22540	.000	2.9962	4.5105
		EEDS_400	4.14000*	.22540	.000	3.3829	4.8971
	EEDS_100	KONTROL NORMAL	-.64000	.22540	.117	-1.3971	.1171
		KONTROL POSITIF	.34000	.22540	.666	-.4171	1.0971
		KONTROL NEGATIF	-3.69667*	.22540	.000	-4.4538	-2.9395
		EEDS_200	.05667	.22540	1.000	-.7005	.8138
		EEDS_400	.44333	.22540	.412	-.3138	1.2005
	EEDS_200	KONTROL NORMAL	-.69667	.22540	.078	-1.4538	.0605
		KONTROL POSITIF	.28333	.22540	.802	-.4738	1.0405
		KONTROL NEGATIF	-3.75333*	.22540	.000	-4.5105	-2.9962
		EEDS_100	-.05667	.22540	1.000	-.8138	.7005
		EEDS_400	.38667	.22540	.547	-.3705	1.1438
	EEDS_400	KONTROL NORMAL	-1.08333*	.22540	.004	-1.8405	-.3262
		KONTROL POSITIF	-.10333	.22540	.997	-.8605	.6538
		KONTROL NEGATIF	-4.14000*	.22540	.000	-4.8971	-3.3829
		EEDS_100	-.44333	.22540	.412	-1.2005	.3138
		EEDS_200	-.38667	.22540	.547	-1.1438	.3705

Homogeneous Subsets

SELISIH_AQ

			Subset for alpha = 0.05		
	PERLAKUAN	N	1	2	3
Tukey HSD[a]	EEDS_400	5	.0933		
	KONTROL POSITIF	5	.1967		
	EEDS_200	5	.4800	.4800	
	EEDS_100	5	.5367	.5367	

	KONTROL NORMAL	5		1.1767	
	KONTROL NEGATIF	5			4.2333
	Sig.		.412	.078	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

2. PROBE TES

ANOVA

PROBE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	53.488	5	10.698	30.666	.000
Within Groups	4.186	24	.349		
Total	57.674	29			

Post Hoc Tests

Multiple Comparisons

Dependent Variable:PROBE

	(I) PERLAKUAN	(J) PERLAKUAN	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	KONTROL NORMAL	KONTROL POSITIF	-.66333	.48225	.740	-2.2832	.9565
		KONTROL NEGATIF	3.67667*	.48225	.000	2.0568	5.2965
		EEDS_100	-1.14333	.48225	.240	-2.7632	.4765
		EEDS_200	-1.13000	.48225	.250	-2.7498	.4898
		EEDS_400	-1.14667	.48225	.238	-2.7665	.4732
	KONTROL POSITIF	KONTROL NORMAL	.66333	.48225	.740	-.9565	2.2832
		KONTROL NEGATIF	4.34000*	.48225	.000	2.7202	5.9598
		EEDS_100	-.48000	.48225	.911	-2.0998	1.1398
		EEDS_200	-.46667	.48225	.920	-2.0865	1.1532
		EEDS_400	-.48333	.48225	.909	-2.1032	1.1365
	KONTROL NEGATIF	KONTROL NORMAL	-3.67667*	.48225	.000	-5.2965	-2.0568

		KONTROL POSITIF	-4.34000*	.48225	.000	-5.9598	-2.7202
		EEDS_100	-4.82000*	.48225	.000	-6.4398	-3.2002
		EEDS_200	-4.80667*	.48225	.000	-6.4265	-3.1868
		EEDS_400	-4.82333*	.48225	.000	-6.4432	-3.2035
	EEDS_100	KONTROL NORMAL	1.14333	.48225	.240	-.4765	2.7632
		KONTROL POSITIF	.48000	.48225	.911	-1.1398	2.0998
		KONTROL NEGATIF	4.82000*	.48225	.000	3.2002	6.4398
		EEDS_200	.01333	.48225	1.000	-1.6065	1.6332
		EEDS_400	-.00333	.48225	1.000	-1.6232	1.6165
	EEDS_200	KONTROL NORMAL	1.13000	.48225	.250	-.4898	2.7498
		KONTROL POSITIF	.46667	.48225	.920	-1.1532	2.0865
		KONTROL NEGATIF	4.80667*	.48225	.000	3.1868	6.4265
		EEDS_100	-.01333	.48225	1.000	-1.6332	1.6065
		EEDS_400	-.01667	.48225	1.000	-1.6365	1.6032
	EEDS_400	KONTROL NORMAL	1.14667	.48225	.238	-.4732	2.7665
		KONTROL POSITIF	.48333	.48225	.909	-1.1365	2.1032
		KONTROL NEGATIF	4.82333*	.48225	.000	3.2035	6.4432
		EEDS_100	.00333	.48225	1.000	-1.6165	1.6232
		EEDS_200	.01667	.48225	1.000	-1.6032	1.6365

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

Homogeneous Subsets

PROBE

			Subset for alpha = 0.05	
	PERLAKUAN	N	1	2
Tukey HSD[a]	KONTROL NEGATIF	5	-2.8933	
	KONTROL NORMAL	5		.7833
	KONTROL POSITIF	5		1.4467
	EEDS_200	5		1.9133
	EEDS_100	5		1.9267
	EEDS_400	5		1.9300
	Sig.		1.000	.238

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 3.000.

3. UJI SENSORIS MOTORIS

ANOVA

SENSORIS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	30.732	5	6.146	49.457	.000
Within Groups	1.491	24	.124		
Total	32.223	29			

Post Hoc Tests

Multiple Comparisons

Dependent Variable:SENSORIS

	(I) PERLAKUAN	(J) PERLAKUAN	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	NORMAL	POSITIF	.13000	.28784	.997	-.8368	1.0968
		NEGATIF	-3.60667*	.28784	.000	-4.5735	-2.6398
		EEDS100	-.86000	.28784	.092	-1.8268	.1068
		EEDS200	-.36000	.28784	.805	-1.3268	.6068
		EEDS400	.01667	.28784	1.000	-.9502	.9835
	POSITIF	NORMAL	-.13000	.28784	.997	-1.0968	.8368
		NEGATIF	-3.73667*	.28784	.000	-4.7035	-2.7698
		EEDS100	-.99000*	.28784	.044	-1.9568	-.0232
		EEDS200	-.49000	.28784	.555	-1.4568	.4768
		EEDS400	-.11333	.28784	.998	-1.0802	.8535
	NEGATIF	NORMAL	3.60667*	.28784	.000	2.6398	4.5735
		POSITIF	3.73667*	.28784	.000	2.7698	4.7035
		EEDS100	2.74667*	.28784	.000	1.7798	3.7135
		EEDS200	3.24667*	.28784	.000	2.2798	4.2135
		EEDS400	3.62333*	.28784	.000	2.6565	4.5902
	EEDS100	NORMAL	.86000	.28784	.092	-.1068	1.8268

		POSITIF	.99000*	.28784	.044	.0232	1.9568
		NEGATIF	-2.74667*	.28784	.000	-3.7135	-1.7798
		EEDS200	.50000	.28784	.535	-.4668	1.4668
		EEDS400	.87667	.28784	.084	-.0902	1.8435
	EEDS200	NORMAL	.36000	.28784	.805	-.6068	1.3268
		POSITIF	.49000	.28784	.555	-.4768	1.4568
		NEGATIF	-3.24667*	.28784	.000	-4.2135	-2.2798
		EEDS100	-.50000	.28784	.535	-1.4668	.4668
		EEDS400	.37667	.28784	.775	-.5902	1.3435
	EEDS400	NORMAL	-.01667	.28784	1.000	-.9835	.9502
		POSITIF	.11333	.28784	.998	-.8535	1.0802
		NEGATIF	-3.62333*	.28784	.000	-4.5902	-2.6565
		EEDS100	-.87667	.28784	.084	-1.8435	.0902
		EEDS200	-.37667	.28784	.775	-1.3435	.5902

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

Homogeneous Subsets

SENSORIS

	PERLAKUAN	N	Subset for alpha = 0.05		
			1	2	3
Tukey HSD[a]	POSITIF	5	.3033		
	EEDS400	5	.4167	.4167	
	NORMAL	5	.4333	.4333	
	EEDS200	5	.7933	.7933	
	EEDS100	5		1.2933	
	NEGATIF	5			4.0400
	Sig.		.555	.084	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

4. KADAR MDA

ANOVA

KADAR_MDA

	Sum of Squares	df	Mean Square	F	Sig.

Between Groups	7.563	5	1.513	102.282	.000
Within Groups	.355	24	.015		
Total	7.918	29			

Post Hoc Tests

Multiple Comparisons

Dependent Variable:KADAR_MDA

	(I) PERLAKUAN	(J) PERLAKUAN	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	KONTROL NORMAL	KONTROL POSITIF	.36400*	.07691	.001	.1262	.6018
		KONTROL NEGATIF	-1.13600*	.07691	.000	-1.3738	-.8982
		EEDS 100	-.21400	.07691	.095	-.4518	.0238
		EEDS 200	-.07600	.07691	.917	-.3138	.1618
		EEDS 400	.35000*	.07691	.002	.1122	.5878
	KONTROL POSITIF	KONTROL NORMAL	-.36400*	.07691	.001	-.6018	-.1262
		KONTROL NEGATIF	-1.50000*	.07691	.000	-1.7378	-1.2622
		EEDS 100	-.57800*	.07691	.000	-.8158	-.3402
		EEDS 200	-.44000*	.07691	.000	-.6778	-.2022
		EEDS 400	-.01400	.07691	1.000	-.2518	.2238
	KONTROL NEGATIF	KONTROL NORMAL	1.13600*	.07691	.000	.8982	1.3738
		KONTROL POSITIF	1.50000*	.07691	.000	1.2622	1.7378
		EEDS 100	.92200*	.07691	.000	.6842	1.1598
		EEDS 200	1.06000*	.07691	.000	.8222	1.2978
		EEDS 400	1.48600*	.07691	.000	1.2482	1.7238
	EEDS 100	KONTROL NORMAL	.21400	.07691	.095	-.0238	.4518
		KONTROL POSITIF	.57800*	.07691	.000	.3402	.8158
		KONTROL NEGATIF	-.92200*	.07691	.000	-1.1598	-.6842
		EEDS 200	.13800	.07691	.488	-.0998	.3758
		EEDS 400	.56400*	.07691	.000	.3262	.8018
	EEDS 200	KONTROL NORMAL	.07600	.07691	.917	-.1618	.3138
		KONTROL POSITIF	.44000*	.07691	.000	.2022	.6778

		KONTROL NEGATIF	-1.06000*	.07691	.000	-1.2978	-.8222
		EEDS 100	-.13800	.07691	.488	-.3758	.0998
		EEDS 400	.42600*	.07691	.000	.1882	.6638
	EEDS 400	KONTROL NORMAL	-.35000*	.07691	.002	-.5878	-.1122
		KONTROL POSITIF	.01400	.07691	1.000	-.2238	.2518
		KONTROL NEGATIF	-1.48600*	.07691	.000	-1.7238	-1.2482
		EEDS 100	-.56400*	.07691	.000	-.8018	-.3262
		EEDS 200	-.42600*	.07691	.000	-.6638	-.1882

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

Homogeneous Subsets

KADAR_MDA

			Subset for alpha = 0.05		
	PERLAKUAN	N	1	2	3
Tukey HSD[a]	KONTROL POSITIF	5	.3180		
	EEDS 400	5	.3320		
	KONTROL NORMAL	5		.6820	
	EEDS 200	5		.7580	
	EEDS 100	5		.8960	
	KONTROL NEGATIF	5			1.8180
	Sig.		1.000	.095	1.000

5. KADAR CA1

ANOVA

KADAR_CA1

	Sum of Squares	df	Mean Square	F	Sig.

Between Groups	1381.900	5	276.380	88.678	.000
Within Groups	74.800	24	3.117		
Total	1456.700	29			

Post Hoc Tests

Multiple Comparisons

Dependent Variable:KADAR_CA1

	(I) PERLAKUAN	(J) PERLAKUAN	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	NORMAL	POSITIF	.20000	1.11654	1.000	-3.2523	3.6523
		NEGATIF	-17.80000*	1.11654	.000	-21.2523	-14.3477
		EEDS_100	-11.60000*	1.11654	.000	-15.0523	-8.1477
		EES_200	-5.80000*	1.11654	.000	-9.2523	-2.3477
		EEDS_400	-.40000	1.11654	.999	-3.8523	3.0523
	POSITIF	NORMAL	-.20000	1.11654	1.000	-3.6523	3.2523
		NEGATIF	-18.00000*	1.11654	.000	-21.4523	-14.5477
		EEDS_100	-11.80000*	1.11654	.000	-15.2523	-8.3477
		EES_200	-6.00000*	1.11654	.000	-9.4523	-2.5477
		EEDS_400	-.60000	1.11654	.994	-4.0523	2.8523
	NEGATIF	NORMAL	17.80000*	1.11654	.000	14.3477	21.2523
		POSITIF	18.00000*	1.11654	.000	14.5477	21.4523
		EEDS_100	6.20000*	1.11654	.000	2.7477	9.6523
		EES_200	12.00000*	1.11654	.000	8.5477	15.4523
		EEDS_400	17.40000*	1.11654	.000	13.9477	20.8523
	EEDS_100	NORMAL	11.60000*	1.11654	.000	8.1477	15.0523
		POSITIF	11.80000*	1.11654	.000	8.3477	15.2523
		NEGATIF	-6.20000*	1.11654	.000	-9.6523	-2.7477
		EES_200	5.80000*	1.11654	.000	2.3477	9.2523
		EEDS_400	11.20000*	1.11654	.000	7.7477	14.6523
	EES_200	NORMAL	5.80000*	1.11654	.000	2.3477	9.2523
		POSITIF	6.00000*	1.11654	.000	2.5477	9.4523
		NEGATIF	-12.00000*	1.11654	.000	-15.4523	-8.5477
		EEDS_100	-5.80000*	1.11654	.000	-9.2523	-2.3477
		EEDS_400	5.40000*	1.11654	.001	1.9477	8.8523
	EEDS_400	NORMAL	.40000	1.11654	.999	-3.0523	3.8523
		POSITIF	.60000	1.11654	.994	-2.8523	4.0523
		NEGATIF	-17.40000*	1.11654	.000	-20.8523	-13.9477

	EEDS_100	-11.20000*	1.11654	.000	-14.6523	-7.7477
	EES_200	-5.40000*	1.11654	.001	-8.8523	-1.9477

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

Homogeneous Subsets

KADAR_CA1

			Subset for alpha = 0.05			
	PERLAKUAN	N	1	2	3	4
Tukey HSD[a]	POSITIF	5	2.0000			
	NORMAL	5	2.2000			
	EEDS_400	5	2.6000			
	EES_200	5		8.0000		
	EEDS_100	5			13.8000	
	NEGATIF	5				20.0000
	Sig.		.994	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

6. KADAR CA2-CA3

ANOVA

KADAR_CA2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	845.867	5	169.173	59.014	.000
Within Groups	68.800	24	2.867		
Total	914.667	29			

Post Hoc Tests

Multiple Comparisons

Dependent Variable:KADAR_CA2

					95% Confidence Interval	
(I) PERLAKUAN	(J) PERLAKUAN	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Tukey HSD NORMAL	POSITIF	.20000	1.07083	1.000	-3.1109	3.5109
	NEGATIF	-13.00000*	1.07083	.000	-16.3109	-9.6891
	EEDS_100	-10.80000*	1.07083	.000	-14.1109	-7.4891

	EES_200	-5.40000*	1.07083	.000	-8.7109	-2.0891
	EEDS_400	-.60000	1.07083	.993	-3.9109	2.7109
POSITIF	NORMAL	-.20000	1.07083	1.000	-3.5109	3.1109
	NEGATIF	-13.20000*	1.07083	.000	-16.5109	-9.8891
	EEDS_100	-11.00000*	1.07083	.000	-14.3109	-7.6891
	EES_200	-5.60000*	1.07083	.000	-8.9109	-2.2891
	EEDS_400	-.80000	1.07083	.974	-4.1109	2.5109
NEGATIF	NORMAL	13.00000*	1.07083	.000	9.6891	16.3109
	POSITIF	13.20000*	1.07083	.000	9.8891	16.5109
	EEDS_100	2.20000	1.07083	.343	-1.1109	5.5109
	EES_200	7.60000*	1.07083	.000	4.2891	10.9109
	EEDS_400	12.40000*	1.07083	.000	9.0891	15.7109
EEDS_100	NORMAL	10.80000*	1.07083	.000	7.4891	14.1109
	POSITIF	11.00000*	1.07083	.000	7.6891	14.3109
	NEGATIF	-2.20000	1.07083	.343	-5.5109	1.1109
	EES_200	5.40000*	1.07083	.000	2.0891	8.7109
	EEDS_400	10.20000*	1.07083	.000	6.8891	13.5109
EES_200	NORMAL	5.40000*	1.07083	.000	2.0891	8.7109
	POSITIF	5.60000*	1.07083	.000	2.2891	8.9109
	NEGATIF	-7.60000*	1.07083	.000	-10.9109	-4.2891
	EEDS_100	-5.40000*	1.07083	.000	-8.7109	-2.0891
	EEDS_400	4.80000*	1.07083	.002	1.4891	8.1109
EEDS_400	NORMAL	.60000	1.07083	.993	-2.7109	3.9109
	POSITIF	.80000	1.07083	.974	-2.5109	4.1109
	NEGATIF	-12.40000*	1.07083	.000	-15.7109	-9.0891
	EEDS_100	-10.20000*	1.07083	.000	-13.5109	-6.8891
	EES_200	-4.80000*	1.07083	.002	-8.1109	-1.4891

Homogeneous Subsets

KADAR_CA2

			Subset for alpha = 0.05		
	PERLAKUAN	N	1	2	3
Tukey HSD[a]	POSITIF	5	2.2000		
	NORMAL	5	2.4000		
	EEDS_400	5	3.0000		
	EES_200	5		7.8000	
	EEDS_100	5			13.2000
	NEGATIF	5			15.4000
	Sig.		.974	1.000	.343

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.