BAB V
KESIMPULAN DAN SARAN

A. Kesimpulan

Berdasarkan hasil penelitian dan pembahasan dapat disimpulkan sebagai berikut:

Pertama, pemberian ekstrak etanol daun kelor selama 28 hari tidak memberikan efek toksik pada tikus putih galur Wistar.

Kedua, pemberian ekstrak etanol daun kelor tidak mempengaruhi kadar ALT, AST, maupun ALP pada tikus putih galur Wistar yang dihitung dengan analisa statistik $p>0,05$.

Ketiga, pemberian ekstrak etanol daun kelor selama 28 hari tidak mempengaruhi nilai indeks organ hati, namun dapat mempengaruhi gambaran makroskopik dan perubahan histopatologi organ hati tikus putih baik pada hewan uji jantan maupun betina pada dosis 225 mg/kgBB, 450 mg/kgBB dan kelompok satelit.

B. Saran

Perlu dilakukan penelitian lebih lanjut tentang waktu pemberian ekstrak etanol dau kelor (*Moringa oleifera* L.) pada kisaran dosis terapi dan perlakuan waktu yang lebih lama (90 hari), untuk melihat kisaran dosis yang aman dan memberikan efek terapi maximal berdasarkan nilai ALT, AST dan ALP serta gambaran histopatologi dan makropatologi untuk mengetahui adanya kerusakan sel yang tidak terlampau parah.

DAFTAR PUSTAKA

Acuram LK, Hernandez CLC. 2019. Anti-hypertensive effect of *Moringa oleifera* Lam. Institute of Chemistry. University of the Philipines. Philipines. *Cogent Biology*. 5:1596252

Abdelouahab, B., Amar, Z., Noureddine, G., Mesbah, L & Salah, R., 2011. Essential Oil Composition of Alegrian Ruta montana (Clus.) L. and its Antibacterial Effects on Microorganisms Responsible for Respiratory Infection. Na*tural and Applies Science*. 5 (3). 264-268

Adji P. 2003. Daya antioksidasi saponin akar kuning (*Archangelisia flava* (L) Merr.) sebagai mekanisme hepatoprotektor pada tikus yang diberi parasetamol [skripsi]. Bogor: Fakultas Matematika dan Ilmu Pengetahuan Alam, Institut Pertanian Bogor

Agoes, G. 2009. *Teknologi Bahan Alam (Serial Farmasi Industri-2) ed*. Revisi. ITB. Bandung.

Akinpelu *et al*. 2012. Biochemical and histopatological profile of toxicity induced by saponin fraction of Erythrophleum suaveolens (Guil. & Perri) bark exract Phytopharmacology 3:38-53

Anonim. 1979. *Farmakope Indonesia Edisi III*. Jakarta: Departemen Kesehatan Republik Indonesia.

Anonim. 1980. *Materia Medika Indonesia*. Jilid IV. Jakarta: Departemen Kesehatan Indonesia.

Anonim. 1985. *Cara Pemberian Simplisia*. Jakarta: Departemen Kesehatan Indonesia.

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

Arifin B, Ibrahim S. 2018. Struktur, Bioaktivitas dan Antioksidan Flavonoid. FMIPA. Universitas Andalas. Padang. *Jurnal Zarah*. Vol.6. No.1. Hal 21-29.

Asomugha AL, *et al.* 2015. Evaluation of Toxicity Effect of Graded Dose of *Moringa oleifera* Leaf Extract on Blood Indices using 20 Adult Wistar Rats. Nnamdi Azikiwo University. Awka. Anambra State. Nigeria. *J International of Biomedical and Advance Research*. 6(02):98-102.

[BPOMRI] Badan Pengawas Obat dan Makanan Republik Indonesia. 2014[a]. *Peraturan Kepala Badan Pengawas Obat dan Makanan Republik Indonesia Nomor 7 Tahun 2014 tentang Pedoman Uji Toksisitas Nonklinik Secara In Vivo*. Jakarta: BPOMRI.

[BPOMRI] Badan Pengawas Obat dan Makanan Republik Indonesia. 2014[b]. *Peraturan Kepala Badan Pengawas Obat dan Makanan Republik Indonesia Nomor 12 Tahun 2014 tentang Persyaratan Mutu Obat Tradisional*. Jakarta: BPOMRI.

Baron D.N. 1992. *Kapita Selekta Patologi Klinik*. Ed ke-4. Andrianto P dan Gunawan J; penerjemah. Terjemahan dari: *A Short Textbook of Chemical Pathology*, EGC, pp 113-231. Jakarta.

Bastiansyah, Eko. 2008. Panduan Lengkap : *Membaca Hasil Tes Kesehatan. Penebaran Plus*. Jakarta

Bavelander G, Ramaley JA. 1998. *Dasar-Dasar Histologi*. Jakarta: Erlangga.

Brzoska MM, Jakoniuk JM, Marcinkiewicz BP, Sawicki B. 2003. *Liver and kidney Function and Histology in Rats Exposed to Cadmium and Ethanol*. Alcohol 38 (1): 2-10.

Carter, M.A., 1992. *Fraktur dan Dislokasi. Dalam Patofisiologi Konsep Klinis Proses -proses Penyakit. S.A. Price dan L.M. Wilson*. EGC. Penerbit Buku Kedokteran. Jakarta. Pp. 1175 - 1188.

Corwin EJ. 2009. *Buku Saku Patofisiologi*. Jakarta: Buku Kedokteran EGC. Hal 655-661.

Cotra RS, Kumar V, Collins T. 1999. *Robbins Pathologic Basis of Disease*. 8th ed. Philadelphia. W.B. Saunders Co Pp. Hal 846-85.

Crissman H, Darzynkiewicz Z, Jacobberger JW. 2004. Cytometry of the cell cycle: Cycling through history. *Cytometry A* 58: 21-32.

Damjanov. 2000. *Buku Teks dan Atlas Berwarna Histopatologi.* Pendit UB. Penerjemah: Himawan M. Editor. Jakarta : Widya Medika.

Depkes. 1986. *Sediaan Galenika*. Jakarta : Departemen Kesehatan Indonesia.

Donatus IA. 2001. *Toksikologi Dasar, Laboratorium Farmakologi dan Toksikologi.* Yogyakarta: Fakultas Farmasi UGM

Gregory S, Kelly ND. 2011. Quercetin. *Alternative Medicine Review*. 16: 172-194.

Gunawan D, Mulyani S. 2004. *Ilmu Obat Alam (Farmakognosi)*. Jilid I. Jakarta: Penebar Swadaya.

Handa SS, Khanuja SPS, Longo G, Rakesh DD. 2008. *Extraction Technologies for Medicinal and Aromatic Plants.* Trieste: International Center for Science and Hight Technology.

Harborne J.B. 1987. *Metode Fitokimia*. Terjemahan: Padmawinata, K dan Soediro, I. Institut Teknologi Bandung, Bandung.

Hardiyanthi F. 2015. Pemanfaatan Aktivitas Antioksidan Ekstrak Daun Kelor (*Moringa oleifera*) Dalam Sediaan Hand And Body Cream. [*Skripsi*]. Program Studi Kimia, Fakultas Sains Dan Teknologi, Universitas Islam Negeri Syarif Hidayatullah, Jakarta.

Harmita S, Radji M. 2005. *Analisis Hayati*. Jakarta: FMIPA Universitas Indonesia.

Irfan HM, et al. 2016. Effect of Ethanolic oleifera Lam Leaves on Body Weight and Hyperglikemia onf Diabetic Rats. School of Pharmaceutical Science. Universiti Sains Malaysia. Malaysia. *Pakistan Journal of Nutrition*. 15(2):112-117

ITIS (Integrated taxonomic information system). 2017. Taxonomic Hierarchy: *Moringa oleifera* Lamk.

Jayanegara, A., N. Togtokhbayar, H. P. S. Makkar and K. Becker. 2009. Tannins determined by various methods as predictors of methane production reduction potential of plants by an in vitro rumen fermentation system. Anim. *Feed Sci*. Technol. 150:230-237

Kemenkes RI. 2013. *Farmakope Herbal Indonesia*. Edisi 1 Suplemen III. Jakarta: Kementerian Kesehatan Republik Indonesia.

Kendran AAS, Arjana AAG, Pradnyantari AASI. 2017. Aktivitas Enzim Alanine-Aminotransferase dan Aspartate Aminotransferase pada Tikus Putih Jantan yang Diberi Ekstrak Buah Pinang. *Buletin Veteriner Udayana*. Vol. 9. No. 2: 132-138.

Kurniasih.2013. *Khasiat Dan Manfaat Daun Kelor Untuk Penyembuhan Berbagai Penyakit*. Yogyakarta : Pustaka baru Press.

Krisnadi, A.D. 2015. *Kelor Super Nutrisi*. Blora : Kelorina.com.

Kumar, V., Cotran, R.S., dan Robbins S.L. 2007. *Buku Ajar Patologi*. Edisi 7; alih Bahasa, Brahm U, Pendt ; editor Bahasa Indonesia, Huriawati Hartanto, Nurwany Darmaniah, Nanda Wulandari.-ed.7-Jakarta: EGC.

Lesson *et al*. 1995. *Buku Ajar Histologi*. Edisi V. Terjemahan dari Text Book Of Loomis SL. 1978. Toksikologi Dasar, Terjemahan oleh Donatus I.A. Edisi III, Semarang: IKIP Semarang Press. Hal 8-9.

Lu, C Frank. 1995. *Toksikologi Dasar*. Edisi III. Jakarta : Universitas Indonesia Press. Hal 206-223.

Makkar HPS, Becker K. 1998. Do tannins in Leaves Of Trees And Shrubs From African And Himalayan Regions Differ In Level And Activity. *Argoforestry Systems* 40(1):59-68.

Marliana, S.D., Saleh, C. 2011. Uji Fitokimia dan Aktivitas Antibakteri Ekstrak Kasar Etanol, Fraksi nHeksana, Etil asetat, dan Metanol dari Buah Labu Air (Lagenari Siceraria (Morliana). *J. Kimia Mulawarman*. 8(2): 39-63

Mitruka M. 1987. *Clinical Biochemical and Hemathological Reference Values In Normal Experimental Animal and Normal Humans*. Secon Edition. Masson Publissin. USA. Hal 41-57.

Moodley I. 2018. Evaluation of Subchronic Toxicity of *Moringa oleifera* Leaf Powder in Mice. University of KwaZulu-Natal. Duban. South Africa. *Journal of Toxicological and Pharmacology*. 2:019.

Murray RK, Mayes PA, Granner DK, Rodwell VW. 2003. *Biokimia Harper*. Jakarta: Buku Kedokteran EGC. Terjemahan dari: *Book Review Harper's Biochemistry 25th edition.*

Nadila F. 2014. Antihypertensive Potential Of Chayote Fruit Extract For Hypertension Treatment. *J Majority* 3(7): 34-38.

Noer S. 1996. *Buku Ajar Penyakit Dalam*. Jakarta: Gaya Baru.

Nuridayanti, E.F.T. 2011. *Uji toksisitas akut ekstrak air rambut jagung (Zea mays L.) ditinjau dari nilai LD50 dan pengaruhnya terhadap fungsi hati dan ginjal pada mencit* [Skripsi]. Depok: Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Indonesia.

Osman HM, *et al.* 2015. Assesment of acute toxicity and LD_{50} of *Moringa oleifera* ethanolic leave extract in albino rats and rabbit. Khartonum. Sudan. *Journal of Medical and Biological Science Research*. 1(4):38-43.

Oyagbemi *et al.* 2013. Toxicological evaluation of methanolic extract of *Moringa oleifera* leaves in liver and kidney of male wistar rats. University Bobat Library Technical Service. New York. *J Basic Clin Physiol Pharmacol.* 24(4): 307-312.

Pandey A, Pandey RD, Tripathi P, Gupta PP, Haider J, Bhatt S, Singh AV. 2012. Moringaoleifera Lam. (Sahijan) – a plant with a plethora of diverse therapeutic benefits: an update retrospection. *Medicinal and Aromatic Plants* 1(1) :2-8.

Panjaitan, R.G.D *et al.* 2007. Pengaruh Pemberian Karbon Tetraklorida Terhadap Fungsi Hati dan Ginjal Tikus. Makkara. *Kesehatan*. 11(1): 11-16.

Pearce CE. 2009. *Anatomi dan Fisiologi Untuk Paramedis*. Jakarta: PT. Gramedia Pustaka.

Permatasari N. 2012. *Instruksi Kerja Pengambilan Darah, Perlakuan, dan Injeksi pada Hewan Coba.* Malang: Universitas Brawijaya.

Porras-Reyee BH, Lewis WH, Roman J, Simchowitz L, Mustoe TA. 1993. Enhancement of wound healing by the alkaloid taspine defining mechanism of action. *Proc. Soc. Exp. Biol. Med* 203(1):18-25.

Price S.A., Wilson LM. 1986. *Patofisiologi konsep klinik proses-proses penyakit*. Edisi II. Buku Kedokteran. Jakarta.

Pudjarwoto T, Simanjuntak CH, Nur Indah P. 1992. Daya Antimikroba Obat Tradisional Diare Terhadap Beberapa Jenis Bakteri Enteropatogen. *Cermin Dunia Kedokteran* 76(1): 45-47.

Putra I *et al.* 2016. Identifikasi Senyawa Kimia Ekstrak Etanol Daun Kelor (*Moringa oleifera* L) di Bali. Fakultas Kedokteran Hewan. Universitas Udayana. *Indonesian Medicus Veternus*. 5(5) : 464-473.

Putri MS. 2014. White tumeric (*Curcuma Zedoaria*): its chemical substance and pharmacological benefit. *J Majority*. 3 (7)

Radiansah R. 2013. Ekstrak Daun Kelor sebagai Alternatif Untuk Menurunkan Kadar Gula Darah pada Mencit. FKIP. Universitas Taluko. Palu. *Jurnal Kimia*. 2(2):54-61.

Reina M *et al*. 2010. Absolute configuration of tropane alkaloids from Schizanthus species by vibrational circular dichroism. *Phytochemistry.* 71: 810-815.

Robbins SL, Kumar V. 1995. *Buku Ajar Patologi I*. Edisi VI . Oswari J, penerjemah; Jakarta: Buku Kedokteran EGC. Terjemahan dari: *Pathologic Basis of Disease*.

Robinson T. 1995. *Kandungan Organik Tumbuhan Tinggi*. Penerjemah: Kosasih Padmawinata. Bandung: ITB.

Rofiqoh AD. 2015. Uji Toksisitas Subkronik Ekstrak Air Daun Katuk (*Sauropus androgynous*) Terhadap Kadar Bilirubin Serum dan Histopatologi Hepar Tikus (*Rattus norvegicus*) Betina [Skripsi]. Malang: Fakultas Sains dan Teknologi, Universitas Isalam Negeri (UIN) Maulana Malik Ibrahim.

Sherwood, Lauralee. 2011. *Fisiologi Manusia: dari sel ke Sistem* Ed. 6. EGC. Jakarta. Hal 669-674.

Sugiyanto. 1995. *Penuntun Praktikum Farmakologi Edisi IV*. Yogyakarta: Universitas Gadjah Mada. Hal 11-20.

Susanti, Fibriana. 2016. *Teknologi Enzim*. Penerbit PT Andi Publisher: Yogyakarta

Tejas H, Genatra *et al.* 2012. A Panoramic View On Pharmacognostic, Pharmacological, Nutritional, Therapeutic and Prophylactic Value of Moringa oleifera Lam. India: *International Research Journal of Pharmacy Vol 3. No.6, pp 1-7.*

Tende Ja, *et al.* 2011. Effect of Ethanolic Leaves Extract of *Moringa oleifera* on Blood Glucose Levels of Stepzocin-Induced Diabetics and Normoglycomic Wistar Rats. Departemen of Human Physiology. Kampala International University. Uganda. British *Journal of Pharmacology and Toxicology*. 3(1):1-4.

Tilong AD. 2012. *Ternyata, Kelor Penakluk Diabetes*. Jogjakarta: DIVA Press.

Toripah SS, Abidjulu J, Wehantouw F. 2014. Aktivitas Antioksidan Dan Kandungan Total Fenolik Ekstrak Daun Kelor (Moringa oleifera Lam). *Pharmacon* 3(4): 37-43.

Underwood JCE. 1999. *Patologi*. Edisi 2. Jakarta: Buku Kedokteran EGC. Hal 119.

Voigt R. 1994. *Buku Pelajaran Teknologi Farmasi*. Edisi ke 5. Noerono S, penerjemah; Yogyakarta: Gadjah Mada University Press.

Wibowo AW, Masclachch L, Bijanti. 2007. Pengaruh Pemberian Perasaan Buah Mengkudu (*Morinda citrifolia*) Terhadap Kadar SGOT dan SGPT Tikus Putih (*Rattusnorvegicus*) dengan Diet Tinggi Lemak. *J Veterineria Medika* 1:1-5

Widowati I, Efiyati S, Wahyuningtyas S. 2014. *Uji Akativitas Antibakteri Ekstrak Daun Kelor (Moringa oleifera) Terhadap Bakteri Pembusuk Ikan Segar (Pseudomonas aeruginosa)*. PELITA. Universitas Negeri Yogyakarta. No. 1 Vol. 9 April 2014.

LAMPIRAN

Lampiran 1. Surat determinasi

KEMENTERIAN RISET, TEKNOLOGI DAN PENDIDIKAN TINGGI
UNIVERSITAS SEBELAS MARET
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
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http://www.biology.mipa.uns.ac.id, E-mail biologi @ mipa.uns.ac.id

Nomor : 184/UN27.9.6.4/Lab/2019
H a l : Hasil Determinasi Tumbuhan
Lampiran : -

Nama Pemesan : Syielly Neelam Purnama Putri
NIM : 22164813A
Alamat : Program Studi S1 Farmasi Fakultas Farmasi Universitas Setia Budi Surakarta

HASIL DETERMINASI TUMBUHAN

Nama Sampel : ***Moringa oleifera* Lam.**
Familia : **Moringaceae**

Hasil Determinasi menurut C.A. Backer & R.C. Bakhuizen van den Brink, Jr. (1963) :
1b-2b-3b-4b-12b-13b-14b-17b-18b-19b-20b-21b-22b-23b-24b-25b-26b-27b-799b-800b-801b-802a-803b-804b-805c-806b-807a-808c-809b-810b-811a-812b-815b-816b-818b-820b-821b-822b-824b-825b-826b-829b-830b-831b-832b-833b-834a-835a-836a-837a-838b-839b-840a-841b-842a-843b-844a_____ **31. Moringaceae**
1_____ **1. *Moringa***
1_____ ***Moringa oleifera* Lam.**

Deskripsi Tumbuhan :
Habitus : pohon, tidak bergetah, menahun, tumbuh tegak, tinggi 3-10 m. Akar : tunggang, bercabang, putih kotor atau putih kekuningan atau coklat muda. Batang : bulat, berkayu, percabangan simpodial, arah cabang tegak atau miring, cabang cenderung tumbuh lurus dan memanjang, kulit tipis, permukaan kasar, berwarna putih kotor, banyak terdapat lentisel. Daun : majemuk menyirip beranak daun gasal (imparipinnatus) rangkap 2-4 tidak sempurna, tersusun berseling, dengan 8-10 pasang, panjang 20-60 cm, bertangkai panjang; anak daun berbentuk bulat telur memanjang atau oval, panjang 1–3 cm, tersusun berhadapan, pangkal runcing, ujung tumpul hingga runcing, tepi rata, pertulangan menyirip, permukaan gundul, warna hijau pucat pada kedua permukaan; daun penumpu tidak ada atau sangat kecil. Bunga : majemuk tipe malai, terletak di ketiak daun, panjang 10-30 cm, biseksual; kelopak bunga pendek, berlekatan berbentuk piala dengan 5 taju, berwarna hijau, taju kelopak bunga berwarna putih, panjang 1 cm; daun mahkota bunga berjumlah 5, berlepasan, berwarna putih atau kuning, panjang 1.5 cm; benangsari 5, berlepasan, berhadapan dengan daun mahkota bunga, melengkung; staminodia 5, berseling dengan benangsari, melengkung; bakal buah menumpang, bertangkai, beruang 1, bakal biji banyak. Buah : tipe buah kapsul/kotak, berbentuk panjang bersegi tiga, panjang 20 - 60 cm, membuka dengan 3 katup, katup buah tebal, di tengah ada bekas cetakan yang dalam berisi 1 baris biji, buah muda berwarna hijau dan setelah tua menjadi cokelat. Biji : biji bulat, bersayap 3, berwarna coklat kehitaman.

Surakarta, 18 November 2019

Penanggungjawab
Determinasi Tumbuhan

Suratman, S.Si., M.Si.
NIP. 19800705 200212 1

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Dr. Nita Etikawati, M.Si.
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Mengetahui
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NIP. 19660714 199903 2 001

Lampiran 2. Perhitungan rendemen berat basah terhadap berat kering

- Berat basah : 12000 gram
- Berat kering : 2200 gram

Perhitungan

$$\% \text{ Rendemen} : \frac{\text{Berat kering}}{\text{Berat basah}} \times 100\ \%$$

$$\% \text{ Rendemen} : \frac{2200 \text{ gram}}{12000 \text{ gram}} \times 100\ \% = 18{,}33\ \%$$

Lampiran 3. Pengambilan sampel, pembuatan serbuk

A. Pengambilan sampel

Daun kelor

Daun Kering

B. Penyerbukan

Pengayak no 40 Mesh

Serbuk daun kelor

Lampiran 4. Perhitungan rendemen berat serbuk terhadap berat ekstrak

- Berat serbuk : 1200 gram
- Berat ekstrak : 310 gram

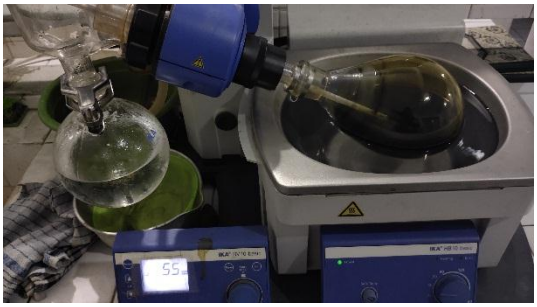
Perhitungan % rendemen

$$\% \text{ rendemen} : \frac{\text{Berat ekstrak}}{\text{Berat serbuk}} \times 100\ \%$$

$$\% \text{ rendemen} : \frac{310 \text{ gram}}{1200 \text{ gram}} \times 100\ \%$$

% rendemen : 25%

Lampiran 5. Proses pembuatan ekstrak



Rotary evaporator

Ekstrak kental

Lampiran 6. Perhitungan penetapan kadar air

Replikasi	Berat awal	Volume air	Kadar %
1	20 g	1,8	9
2	20 g	1,9	9,5
3	20 g	2	10
Rata-rata ± SD			9,5 ± 0,5

Rumus : $\frac{\text{volume air}}{\text{berat awal}}$ x 100 %

Replikasi 1 : $\frac{1{,}8 \text{ ml}}{20 \text{ gram}}$ x 100 % = 9 %

Replikasi 2 : $\frac{1{,}9 \text{ ml}}{20 \text{ gram}}$ x 100 % = 9,5 %

Replikasi 3 : $\frac{2 \text{ ml}}{20 \text{ gram}}$ x 100 % = 10 %

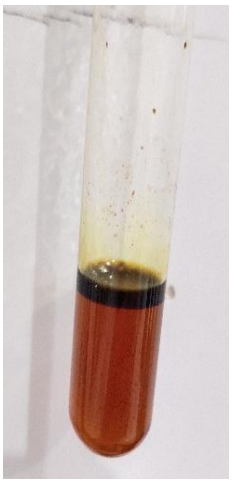
Rata-rata kadar air ekstrak daun kelor = $\frac{9\%+9{,}5\%+10\%}{3}$ = 9,5%

Ketentuan : <10 %

Lampiran 7. Hasil identifikasi kandungan senyawa kimia ekstrak etanol daun kelor

Alkaloid (+) Endapan coklat kehitaman

Alkaloid (+) Endapan kuning



Flavonoid (+) Cincin merah

Saponin (+) Buih

Tanin (+) Biru kehitaman

Steroid (+) Cincin biru

Lampiran 8. Surat keterangan hewan uji

"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	: Syielly Neelam Purnama Putri
Nim	: 22164813 A
Institusi	: Universitas Setia Budi Surakarta

Merupakan hewan uji dengan spesifikasi sebagai berikut:

Jenis hewan	: Tikus Wistar
Umur	: 2-3 bulan
Jumlah	: 50 ekor
Jenis kelamin	: 25 Jantan, 25 betina
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, 11 Maret 2020
Hormat kami

Sigit Pramono
"ABIMANYU FARM"

Lampiran 9. Surat izin etik hewan

HEALTH RESEARCH ETHICS COMITTE
KOMISI ETIK PENELITIAN KESEHATAN

Dr. Moewardi General Hospital
RSUD Dr. Moewardi

ETHICAL CLEARANCE
KELAIKAN ETIK

Nomor : 132 / I / HREC / 2020

The Health Research Ethics Committee Dr. Moewardi
Komisi Etik Penelitian Kesehatan RSUD Dr. Moewardi

after reviewing the proposal design, herewith to certify
setelah menilai rancangan penelitian yang diusulkan, dengan ini menyatakan

That the research proposal with topic :
Bahwa usulan penelitian dengan judul

UJI TOKSISITAS SUBKRONIK EKSTRAK ETANOL DAUN KELOR (Moringa oleifera L.) TERHADAP PARAMETER BIOKIMIA DAN HISTOPATOLOGI HEPAR PADA TIKUS PUTIH GALUR WISTAR

Principal investigator : SYIELLY NEELAM PURNAMA PUTRI
Peneliti Utama 22164813A

Location of research : Laboratorium Universitas Setia Budi
Lokasi Tempat Penelitian

Is ethically approved
Dinyatakan layak etik

Issued on : 31 Januari 2020
Chairman
Ketua

KOMISI ETIK PENELITIAN RSUD. Dr. MOEWARDI KEPK

Dr. Wahyu Dwi Astuti, Sp.F
19770224 201001 1 004

Lampiran 10. Perlakuan terhadap hewan uji

Penimbangan hewan uji

Pemberian sediaan uji secara oral

Hewan uji yang digunakan tikus putih galur wistar

Lampiran 11. Perhitungan penyesuaian dosis dan volume pemberian sediaan uji

1. **Kontrol negatif.** Pembuatan larutan CMC 1 % adalah dengan 1000 mg CMC ditambahkan aquades sampai batas 100 ml. Volume yang diberikan adalah 1 ml karena kurang dari volume pemberian yaitu 2 ml/100 gram berat badan tikus atau kurang lebih 4 ml/200 gram berat badan tikus.
2. **Dosis rendah 225 mg/kgBB.** Dosis rendah untuk tikus sebesar 225 mg/kgBB tikus atau 0,225 mg/gr BB tikus.

   Dosis = 0,225 mg/gr x 200 gr BB tikus = 45 mg/200 grBB tikus

   Larutan stok 2 %

   Larutan stok = $\frac{2000}{100}$ = 20 mg/ml

   Larutan yang dioralkan = $\frac{45\ mg}{20\ mg}$ x 1 ml = 2,25 ml
3. **Dosis sedang 450 mg/kgBB.** Dosis rendah untuk tikus sebesar 450 mg/kgBB tikus atau 0,45 mg/grBB tikus.

   Dosis = 0,45 mg/gr x 200 gr BB tikus = 90 mg/200 grBB tikus

   Larutan stok 4 %

   Larutan stok = $\frac{4000}{100}$ = 40 mg/ml

   Larutan yang dioralkan = $\frac{90\ mg}{40\ mg}$ x 1 ml = 2,25 ml
4. **Dosis tinggi 900 mg/kgBB.** Dosis rendah untuk tikus sebesar 900 mg/kgBB tikus atau 0,90 mg/grBB tikus.

   Dosis = 0,90 mg/gr x 200 gr BB tikus = 180 mg/200 grBB tikus

   Larutan stok 6 %

   Larutan stok = $\frac{6000}{100}$ = 60 mg/ml

   Larutan yang dioralkan = $\frac{180\ mg}{60\ mg}$ x 1 ml = 3 ml

5. **Dosis tinggi 900 mg/kgBB.** Dosis rendah untuk tikus sebesar 900 mg/kgBB tikus atau 0,90 mg/grBB tikus.

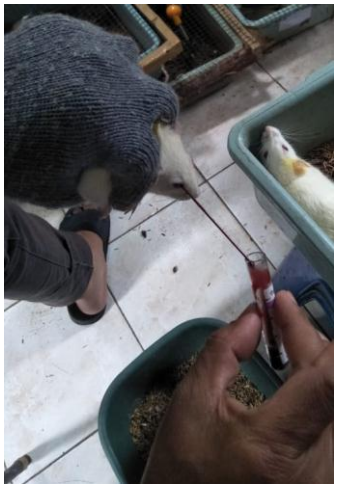
   Dosis = 0,90 mg/gr x 200 gr BB tikus = 180 mg/200 grBB tikus

   Larutan stok 6 %

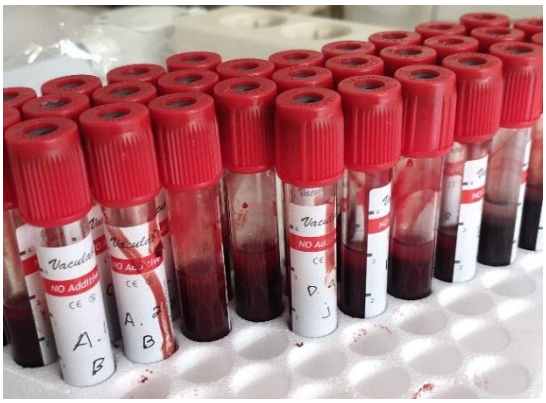
   Larutan stok = $\frac{6000}{100}$ = 60 mg/ml

   Larutan yang dioralkan = $\frac{180 \text{ mg}}{60 \text{ mg}}$ x 1 ml = 3 ml

Lampiran 12. Perlakuan terhadap pengujian biokimia

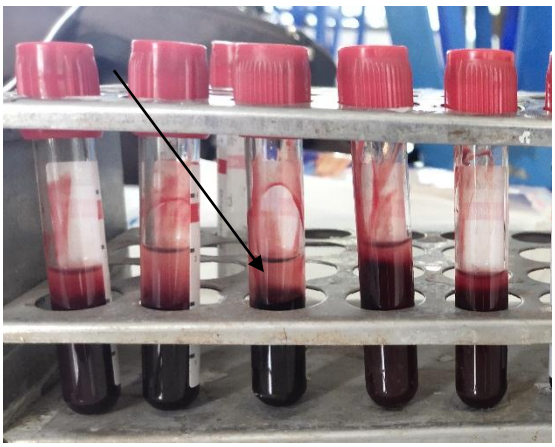


Pengambilan Darah



Disimpan dalam vaculab

Sentrifuse



Pengambilan serum

Lampiran 13. Berat badan

Jenis hewan	Kelompok Perlakuan	Rata-rata Berat Badan (gram) ± SD														
		Hari ke-														
		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28
Jantan	Kontrol Negatif	187 ±6,70	187 ±6,70	187 ±6,70	186 ±4,18	188 ±4,47	188 ±4,47	188 ±4,47	188 ±4,47	189 ±2,23	189 ±2,23	188 ±2,73	187 ±2,73	186 ±2,23	186 ±2,23	186 ±2,23
	Dosis 225 mg/kgBB	177 ±4,47	177 ±4,47	177 ±7,58	176 ±7,41	175 ±10,60	175 ±10,60	174 ±10,83	177,5 ±11,90	177,5 ±10,40	176,25 ±8,53	176,25 ±8,53	176,25 ±7,5	180 ±8,66	180 ±8,66	181,66667 ±10,40
	Dosis 450 mg/kgBB	189 ±4,18	189 ±4,18	186 ±4,18	185 ±3,53	183 ±5,70	182,5 ±2,88	181,25 ±4,78	180 ±4,08	180 ±4,08	178,75 ±8,53	178,75 ±8,53	180 ±5	180 ±5	180 ±5	178,33333 ±7,63
	Dosis 900 mg/kgBB	181 ±8,21	181 ±8,21	182 ±8,36	180 ±7,90	177 ±9,74	174 ±8,94	173 ±6,70	171 ±8,21	172 ±9,74	173,75 ±10,30	175 ±10,80	180 ±5	181,67 ±7,63	181,67 ±7,63	181,67 ±7,63
	Dosis Satelit	185 ±6,12	185 ±6,12	185 ±6,12	180 ±11,72	180 ±11,72	177 ±9,74	175 ±7,07	171 ±8,94	170 ±10	169 ±11,40	169 ±11,40	178,33 ±2,88	176,67 ±2,88	176,67 ±2,88	176,67 ±2,88
Betina	Kontrol Negatif	190 ±5	190 ±5	190 ±5	189 ±6,51	189 ±6,51	187 ±4,47	188 ±2,73	189 ±2,23	191 ±2,23	191 ±2,23	191 ±4,18	191 ±4,18	191 ±4,18	191 ±4,18	191 ±4,18
	Dosis 225 mg/kgBB	182 ±5,70	182 ±5,70	182 ±5,70	181 ±4,18	181 ±4,18	180 ±3,16	178 ±5,70	178 ±5,70	178 ±7,58	178 ±7,58	179 ±7,41	179 ±7,41	179 ±7,41	145 ±6,29	145 ±6,29
	Dosis 450 mg/kgBB	171 ±8,21	171 ±8,21	171 ±8,21	172 ±8,36	172 ±8,36	175 ±10	176 ±8,21	176 ±7,41	176 ±7,41	175 ±7,9	175 ±7,90	175 ±12,24	176 ±11,40	180 ±8,16	180 ±8,16
	Dosis 900 mg/kgBB	181 ±6,51	181 ±6,51	176 ±11,93	176 ±10,83	174 ±12,94	177,5 ±11,90	176,25 ±11,08	185 ±5	185 ±5	186,67 ±5,77	183,33 ±11,54	183,33 ±11,54	186,67 ±10,40	186,67 ±10,40	186,67 ±10,40
	Dosis Satelit	183 ±7,58	183 ±7,58	181 ±9,61	181 ±8,94	182 ±9,08	180 ±10,60	181,25 ±8,53	181,25 ±8,53	182,5 ±9,57	182,5 ±11,90	182,5 ±11,90	181,25 ±11,08	181,25 ±11,08	181,25 ±11,08	181,25 ±11,08

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Jenis hewan	Kelompok Perlakuan	Rata-rata Berat Badan (gram) ± SD						
		Hari ke-						
		30	32	34	36	38	40	42
Jantan	Kontrol Negatif							
	Dosis 225 mg/kgBB							
	Dosis 450 mg/kgBB							
	Dosis 900 mg/kgBB							
	Dosis Satelit	176,67 ±2,88	175 ±5	173,3 ±5,77	173 ±5,77	173 ±3,53	173 ±3,53	173 ±3,53
Betina	Kontrol Negatif							
	Dosis 225 mg/kgBB							
	Dosis 450 mg/kgBB							
	Dosis 900 mg/kgBB							
	Dosis Satelit	180 ±13,54	183 ±2,88	181,7 ±5,77	182 ±5,77	183 ±7,63	182 ±7,63	182 ±7,63

Lampiran 14. Kadar ALT

Perlakuan	Jantan	ALT		Perlakuan	Betina	ALT	
		T0	T28			T0	T28
Kontrol -	1	55,5	64,7	Kontrol -	1	38,70	87,1
	2	68	67,5		2	40,00	68,1
	3	55,7	52,3		3	34,90	57,4
	4	64,2	57,3		4	38,50	46,1
	5	48,5	53,2		5	32,80	68,9
225 mg/kgBB	1	51,8	0	225 mg/kgBB	1	51,10	70
	2	61,8	67		2	41,90	67,4
	3	63	0		3	39,80	83,1
	4	59,7	95,1		4	48,80	85,9
	5	57,6	67,9		5	47,90	0
450 mg/kgBB	1	41,4	0	450 mg/kgBB	1	34,90	60,2
	2	58,8	0		2	60,80	0
	3	54,1	63,3		3	40,30	55,1
	4	31,8	46,2		4	39,60	45
	5	27	75,7		5	49,00	46,1
900 mg/kgBB	1	59,3	84,8	900 mg/kgBB	1	32,80	0
	2	59,7	0		2	39,60	68,9
	3	50,8	56,7		3	48,20	88,1
	4	51,1	0		4	43,50	64,9
	5	65,5	70,3		5	34,00	0

Perlakuan	Jantan	ALT			Perlakuan	Betina	ALT		
		T0	T28	T42			T0	T28	T42
Satelit	1	61,8	54,3	45	Satelit	1	31,8	55,7	63,9
	2	42,2	98,8	53,6		2	40	88,8	0
	3	66,7	67,8	0		3	43,5	0	0
	4	36,8	46,1	53,4		4	56,9	65	58,5
	5	64,4	0	0		5	60,8	84,3	49,2

Lampiran 15. Kadar AST

Perlakuan	Jantan	AST		Perlakuan	Betina	AST	
		T0	T28			T0	T28
Kontrol -	1	68,4	104	Kontrol -	1	103,5	110,50
	2	80,7	82		2	117,5	115,20
	3	117,4	113,3		3	113,3	140,60
	4	101,2	111,2		4	98,5	100,90
	5	100,5	77,3		5	81	132,40
225 mg/kgBB	1	82,3	0	225 mg/kgBB	1	103,8	161,60
	2	88,5	156,5		2	115,1	170,10
	3	134,5	0		3	116,6	242,60
	4	112,2	168,6		4	92,8	271,30
	5	123,6	135,9		5	108,9	0
450 mg/kgBB	1	123,2	0	450 mg/kgBB	1	98,8	124,20
	2	111,5	0		2	76,8	0
	3	98,9	113,4		3	107	144,70
	4	138,7	175,2		4	104	157,20
	5	106,1	140,8		5	99,1	132,40
900 mg/kgBB	1	140,2	205,4	900 mg/kgBB	1	138,9	0
	2	132,6	0		2	115,3	150,90
	3	126	137,3		3	121,9	183,60
	4	110,8	0		4	99,1	143,60
	5	137,5	182,5		5	83,4	0

Perlakuan	Jantan	AST			Perlakuan	Betina	AST		
		T0	T28	T42			T0	T28	T42
Satelit	1	118	107,50	107,3	Satelit	1	82,7	107,5	101,9
	2	137,8	116,40	141,5		2	129,5	116,4	0
	3	113,3	0	0		3	126,8	0	0
	4	141,5	114,20	108,2		4	91,7	114,2	86,4
	5	103,2	125,10	0		5	101	125,1	98,6

Lampiran 16. Kadar ALP

Perlakuan	Jantan	ALP		Perlakuan	Betina	ALP	
		T0	T28			T0	T28
Kontrol -	1	399,77	575,94	Kontrol -	1	283,97	777,2
	2	449,67	587,24		2	312,05	492,95
	3	503,98	244,55		3	158,83	427,33
	4	379,09	352,07		4	243,17	424,3
	5	328,63	269,91		5	187,75	416,03
225 mg/kgBB	1	388,74	0	225 mg/kgBB	1	207,33	484,96
	2	339,94	652,86		2	240,88	558,29
	3	339,94	0		3	158,80	506,18
	4	384,05	610,95		4	171,49	909,53
	5	706,23	457,11		5	202,64	0
450 mg/kgBB	1	290,86	0	450 mg/kgBB	1	218,08	767,27
	2	719	0		2	330,56	0
	3	682,36	416,03		3	223,32	501,81
	4	354	707,45		4	300,51	424,3
	5	593,42	713,79		5	212,01	461,52
900 mg/kgBB	1	547,26	905,95	900 mg/kgBB	1	207,33	0
	2	440,57	0		2	253,64	534,31
	3	714,89	678,5		3	281,21	784,92
	4	529,07	0		4	390,40	311,54
	5	701,38	678,5		5	266,60	0

Perlakuan	Jantan	ALP			Perlakuan	Betina	ALP		
		T0	T28	T42			T0	T28	T42
Satelit	1	612,60	398,11	495,71	Satelit	1	200,08	683,46	426,23
	2	341,04	895,2	350,97		2	263,85	642,66	0
	3	549,47	457,08	0		3	390,39	0	0
	4	685,67	302,72	474,57		4	184,99	423,14	444,15
	5	197,95	0	0		5	369,32	717,1	359,51

Lampiran 17. Hasil makropatologi

Kelompok	Makropatologi					
	Warna	Permukaan	Perlemakan hati	Warna	Permukaan	Perlemakan hati
	Jantan			Betina		
Kontrol negatif	Merah Kecoklatan	Licin	Tidak ada	Merah Kecoklatan	Licin	Tidak ada
Dosis 225mg/kgBB	Merah Kecoklatan	Licin	Tidak ada	Merah Kecoklatan	Licin	Ada
Dosis 450mg/kgBB	Merah Kecoklatan	Licin	Tidak ada	Merah Kecoklatan	Licin	Tidak ada
Dosis 900mg/kgBB	Merah Kecoklatan	Licin	Ada	Merah Kecoklatan	Licin	Tidak ada
Dosis Satelit	Merah Kecoklatan	Licin	Tidak ada	Merah Kecoklatan	Licin	Ada

Lampiran 18. Hasil indeks organ

Perlakuan	BB Tikus (gram)	Berat Hati (gram)	% Indeks Organ	BB Tikus (gram)	Berat Hati (gram)	% Indeks Organ
	Jantan			Betina		
Kontrol negatif	195	6,48	3,22	175	5,85	3,34
Dosis 225 mg/kgBB	180	7	3,88	175	5,81	3,32
Dosis 450 mg/kgBB	180	3,68	2,04	180	5,55	3,08
Dosis 900 mg/kgBB	185	8,9	4,81	185	5,1	2,75
Dosis Satelit	180	5,01	2,78	180	6,8	3,77

Lampiran 19. Data kematian tikus

A. Jantan

No.	Tanggal Kematian	Dosis	No Tikus	Keterangan
1	23/01/2020	Dosis 450 mg/kgBB	2	tidak dibedah
2	27/01/2020	Dosis 225 mg/kgBB	1	tidak dibedah
3	31/01/2020	Dosis 900 mg/kgBB	4	tidak dibedah
4	03/02/2020	Dosis 900 mg/kgBB	2	tidak dibedah
5	03/02/2020	Dosis satelit	5	tidak dibedah
6	04/02/2020	Dosis 450 mg/kgBB	1	dibedah
7	06/02/2020	Dosis 225 mg/kgBB	3	tidak dibedah
8	19/02/2020	Dosis satelit	3	dibedah

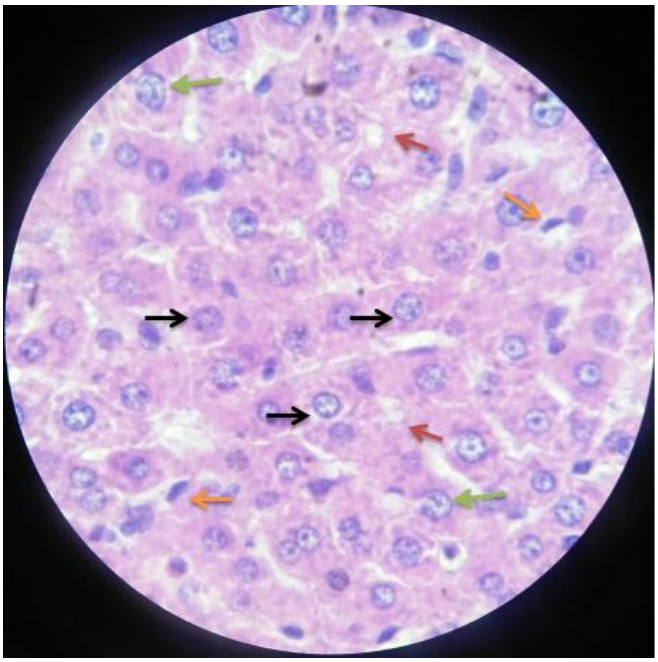
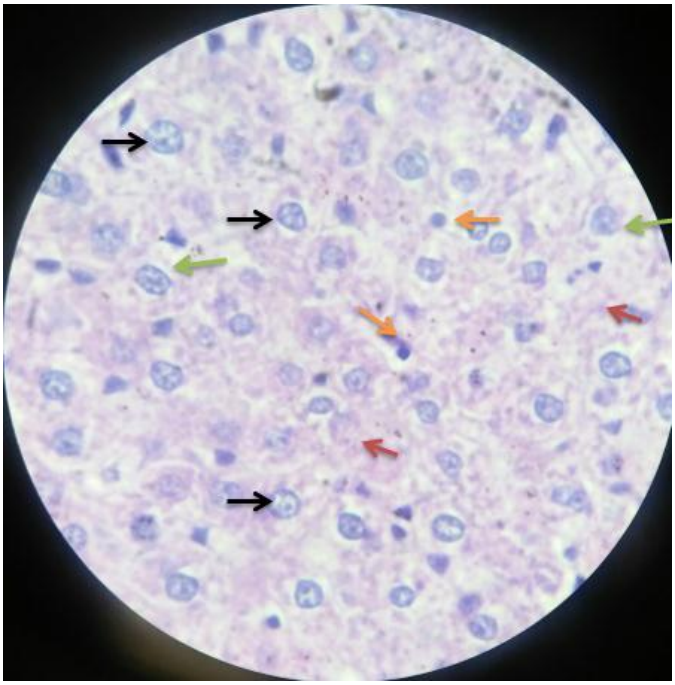
B. Betina

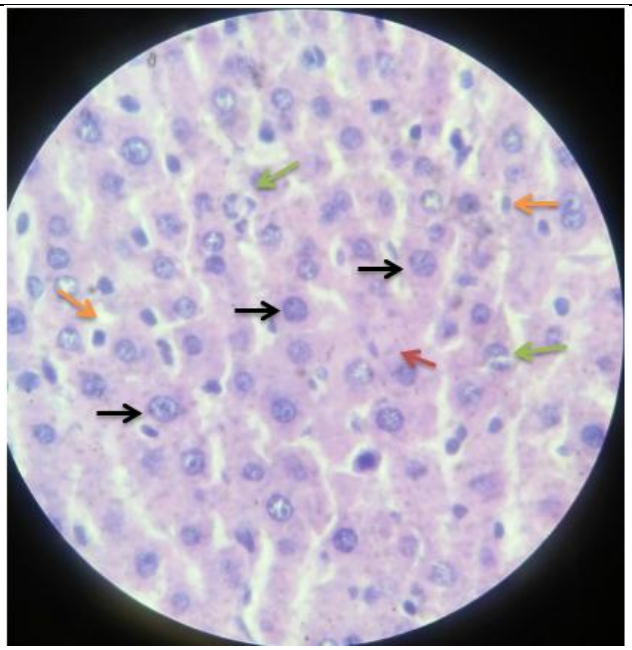
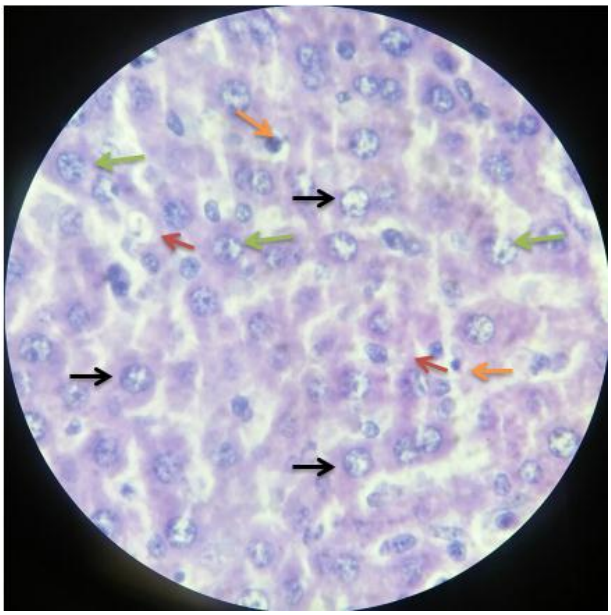
No.	Tanggal Kematian	Dosis	No Tikus	Keterangan
1	22/01/2020	Dosis 900 mg/kgBB	5	tidak dibedah
2	25/01/2020	Dosis satelit	3	tidak dibedah
3	27/01/2020	Dosis 900 mg/kgBB	1	Dibedah
4	07/02/2020	Dosis 225 mg/kgBB	5	Dibedah
5	08/02/2020	Dosis 450 mg/kgBB	2	tidak dibedah
6	13/02/2020	Dosis satelit	2	tidak dibedah

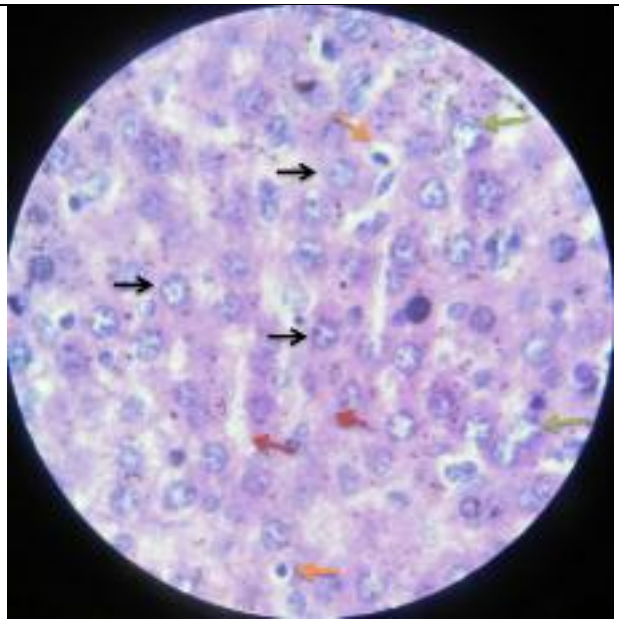
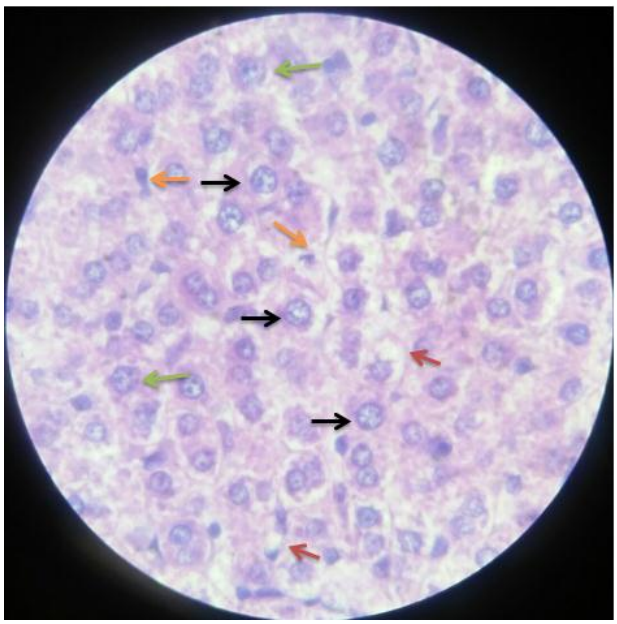
Lampiran 20. Hasil histopatologi

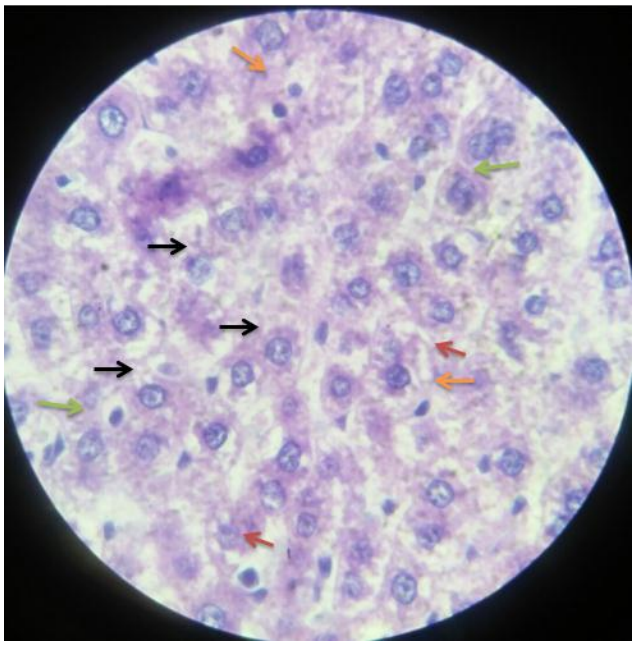
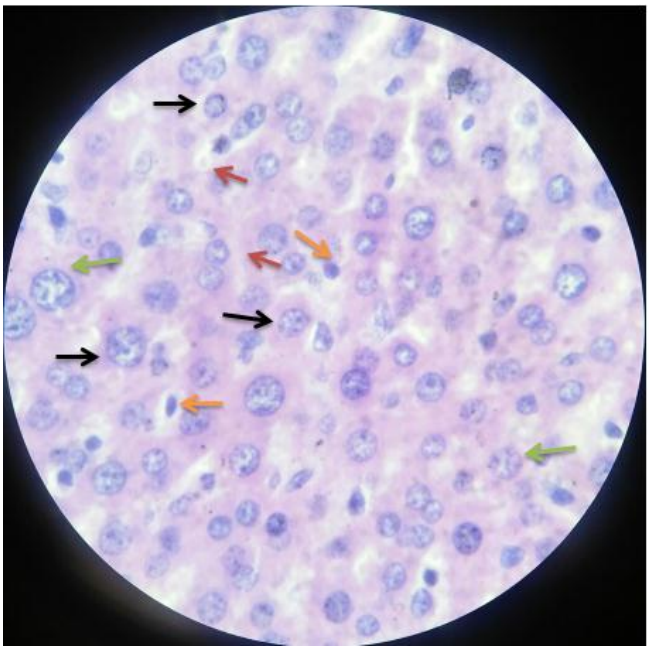
Kelompok Perlakuan	Jumlah Sel Normal	Jumlah Sel			SKH
		Karioreksis	Piknotik	Kariolisis	
Jantan					
Kontrol negatif	78	9	10	3	22
Dosis 225 mg/kgBB	74	9	13	4	26
Dosis 450 mg/kgBB	72	10	16	2	28
Dosis 900 mg/kgBB	66	19	8	7	34
Kelompok Satelit	73	13	10	4	27
Betina					
Kontrol negatif	76	9	11	4	24
Dosis 225 mg/kgBB	78	10	10	2	22
Dosis 450 mg/kgBB	73	9	15	3	27
Dosis 900 mg/kgBB	65	14	15	6	35
Kelompok Satelit	72	9	15	4	28

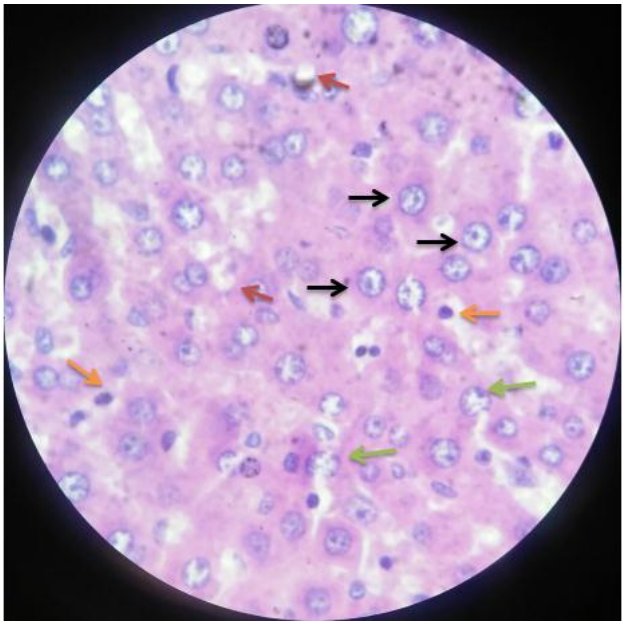
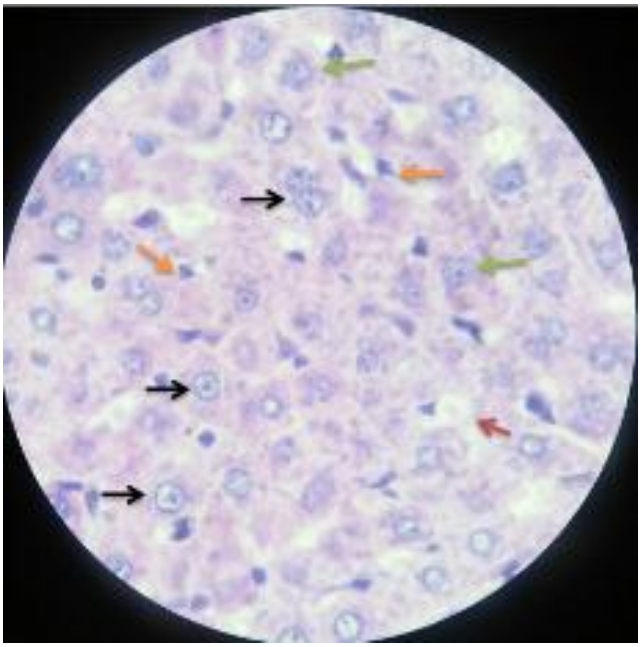
Lampiran 21. Histopatologi hati

Jantan	Keterangan
	→ Sel Normal → Piknosis → Karioreksis → Kariolisis
	→ Sel Normal → Piknosis → Karioreksis → Kariolisis

	→ Sel Normal → Piknosis → Karioreksis → Kariolisis
	→ Sel Normal → Piknosis → Karioreksis → Kariolisis

	→ Sel Normal → Piknosis → Karioreksis → Kariolisis
Betina	Keterangan
	

	→ Sel Normal → Piknosis → Karioreksis → Kariolisis
	→ Sel Normal → Piknosis → Karioreksis → Kariolisis

	→ Sel Normal → Piknosis → Karioreksis → Kariolisis
	→ Sel Normal → Piknosis → Karioreksis → Kariolisis

Lampiran 22. Analisa statistik

ALT JANTAN

ALT T0

One-Sample Kolmogorov-Smirnov Test

		ALT T0
N		25
Normal Parameters[a,b]	Mean	54,2880
	Std. Deviation	11,00376
Most Extreme Differences	Absolute	,144
	Positive	,106
	Negative	-,144
Kolmogorov-Smirnov Z		,719
Asymp. Sig. (2-tailed)		,679

a. Test distribution is Normal.

b. Calculated from data.

Test of Homogeneity of Variances

ALT T0

Levene Statistic	df1	df2	Sig.
1,470	4	20	,248

ANOVA

ALT T0

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	313,594	4	78,399	,605	,664
Within Groups	2592,392	20	129,620		
Total	2905,986	24			

ALT T28

One-Sample Kolmogorov-Smirnov Test

		ALT T28
N		18
Normal Parameters[a,b]	Mean	66,0556
	Std. Deviation	15,04179
Most Extreme Differences	Absolute	,173
	Positive	,173
	Negative	-,092
Kolmogorov-Smirnov Z		,736
Asymp. Sig. (2-tailed)		,651

a. Test distribution is Normal.

b. Calculated from data.

Test of Homogeneity of Variances

ALT T28

Levene Statistic	df1	df2	Sig.
1,546	4	13	,247

ANOVA

ALT T28

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	664,849	4	166,212	,679	,619
Within Groups	3181,496	13	244,730		
Total	3846,344	17			

ALT T0-T28

One-Sample Kolmogorov-Smirnov Test

		ALT T0	ALT T28
N		25	18
Normal Parameters[a,b]	Mean	54,2880	66,0556
	Std. Deviation	11,00376	15,04179
Most Extreme Differences	Absolute	,144	,173
	Positive	,106	,173
	Negative	-,144	-,092
Kolmogorov-Smirnov Z		,719	,736
Asymp. Sig. (2-tailed)		,679	,651

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ALT T0	53,7222	18	12,10243	2,85257
	ALT T28	66,0556	18	15,04179	3,54538

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	ALT T0 & ALT T28	18	,130	,608

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	ALT T0 - ALT T28	-12,33333	18,04201	4,25254	-21,30541	-3,36125	-2,900	17	,010

ALT T28-T42

One-Sample Kolmogorov-Smirnov Test

		ALT T28	ALT T42
N		4	3
Normal Parameters[a,b]	Mean	66,7500	50,6667
	Std. Deviation	23,16412	4,90850
Most Extreme Differences	Absolute	,232	,378
	Positive	,232	,275
	Negative	-,186	-,378
Kolmogorov-Smirnov Z		,464	,654
Asymp. Sig. (2-tailed)		,983	,785

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ALT T28	66,4000	3	28,35719	16,37203
	ALT T42	50,6667	3	4,90850	2,83392

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	ALT T28 & ALT T42	3	,388	,746

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	ALT T28 - ALT T42	15,73333	26,83474	15,49305	-50,92786	82,39453	1,016	2	,417

ALT T0-T42

One-Sample Kolmogorov-Smirnov Test

		ALT T0	ALT T42
N		5	3
Normal Parameters[a,b]	Mean	54,3800	50,6667
	Std. Deviation	13,82613	4,90850
Most Extreme Differences	Absolute	,304	,378
	Positive	,211	,275
	Negative	-,304	-,378
Kolmogorov-Smirnov Z		,680	,654
Asymp. Sig. (2-tailed)		,744	,785

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ALT T0	46,9333	3	13,15497	7,59503
	ALT T42	50,6667	3	4,90850	2,83392

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	ALT T0 & ALT T42	3	-,974	,145

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	ALT T0 - ALT T42	-3,73333	17,97146	10,37583	-48,37691	40,91025	-,360	2	,753

ALT BETINA

ALT T0

One-Sample Kolmogorov-Smirnov Test

		ALT T0
N		25
Normal Parameters[a,b]	Mean	42,8040
	Std. Deviation	8,30931
Most Extreme Differences	Absolute	,178
	Positive	,178
	Negative	-,093
Kolmogorov-Smirnov Z		,892
Asymp. Sig. (2-tailed)		,404

a. Test distribution is Normal.

b. Calculated from data.

Test of Homogeneity of Variances

ALT T0

Levene Statistic	df1	df2	Sig.
,971	4	20	,445

ANOVA

ALT T0

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	203,882	4	50,970	,701	,600
Within Groups	1453,188	20	72,659		
Total	1657,070	24			

ALT T28

One-Sample Kolmogorov-Smirnov Test

		ALT T28
N		20
Normal Parameters[a,b]	Mean	67,8050
	Std. Deviation	14,54309
Most Extreme Differences	Absolute	,154
	Positive	,140
	Negative	-,154
Kolmogorov-Smirnov Z		,687
Asymp. Sig. (2-tailed)		,733

a. Test distribution is Normal.

b. Calculated from data.

Test of Homogeneity of Variances

ALT T28

Levene Statistic	df1	df2	Sig.
,590	4	15	,675

ANOVA

ALT T28

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	372,557	4	93,139	,383	,817
Within Groups	3645,972	15	243,065		
Total	4018,529	19			

ALT T0-T28

One-Sample Kolmogorov-Smirnov Test

		ALT T0	ALT T28
N		25	20
Normal Parameters[a,b]	Mean	42,8040	67,8050
	Std. Deviation	8,30931	14,54309
Most Extreme Differences	Absolute	,178	,154
	Positive	,178	,140
	Negative	-,093	-,154
Kolmogorov-Smirnov Z		,892	,687
Asymp. Sig. (2-tailed)		,404	,733

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ALT T0	42,5550	20	7,70485	1,72286
	ALT T28	67,8050	20	14,54309	3,25193

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	ALT T0 & ALT T28	20	,297	,204

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	ALT T0 - ALT T28	-25,25000	14,29496	3,19645	-31,94025	-18,55975	-7,899	19	,000

ALT T28-T0

One-Sample Kolmogorov-Smirnov Test

		ALT T28	ALT T42
N		4	3
Normal Parameters[a,b]	Mean	73,4500	57,2000
	Std. Deviation	15,70361	7,43572
Most Extreme Differences	Absolute	,255	,236
	Positive	,205	,192
	Negative	-,255	-,236
Kolmogorov-Smirnov Z		,510	,409
Asymp. Sig. (2-tailed)		,957	,996

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ALT T28	68,3333	3	14,58847	8,42265
	ALT T42	57,2000	3	7,43572	4,29302

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	ALT T28 & ALT T42	3	-,999	,030

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	ALT T28 - ALT T42	11,13333	22,01870	12,71250	-43,56416	65,83083	,876	2	,474

ALT T0-T42

One-Sample Kolmogorov-Smirnov Test

		ALT T0	ALT T42
N		5	3
Normal Parameters[a,b]	Mean	46,6000	57,2000
	Std. Deviation	12,04097	7,43572
Most Extreme Differences	Absolute	,204	,236
	Positive	,202	,192
	Negative	-,204	-,236
Kolmogorov-Smirnov Z		,456	,409
Asymp. Sig. (2-tailed)		,986	,996

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ALT T0	49,8333	3	15,73859	9,08668
	ALT T42	57,2000	3	7,43572	4,29302

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	ALT T0 & ALT T42	3	-,852	,351

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	ALT T0 - ALT T42	-7,36667	22,41346	12,94042	-63,04480	48,31146	-,569	2	,627

AST JANTAN

AST T0

One-Sample Kolmogorov-Smirnov Test

		AST T0
N		25
Normal Parameters[a,b]	Mean	113,9440
	Std. Deviation	20,31289
Most Extreme Differences	Absolute	,101
	Positive	,087
	Negative	-,101
Kolmogorov-Smirnov Z		,504
Asymp. Sig. (2-tailed)		,961

a. Test distribution is Normal.

b. Calculated from data.

Test of Homogeneity of Variances

AST T0

Levene Statistic	df1	df2	Sig.
2,362	4	20	,088

ANOVA

AST T0

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	676,282	4	169,070	,366	,830
Within Groups	9226,440	20	461,322		
Total	9902,722	24			

AST T28

One-Sample Kolmogorov-Smirnov Test

		AST T28
N		19
Normal Parameters[a,b]	Mean	124,5579
	Std. Deviation	45,24546
Most Extreme Differences	Absolute	,167
	Positive	,098
	Negative	-,167
Kolmogorov-Smirnov Z		,727
Asymp. Sig. (2-tailed)		,665

a. Test distribution is Normal.

b. Calculated from data.

Test of Homogeneity of Variances

AST T28

Levene Statistic	df1	df2	Sig.
,841	4	14	,522

ANOVA

AST T28

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3362,764	4	840,691	,351	,839
Within Groups	33485,962	14	2391,854		
Total	36848,726	18			

AST T0-T28

One-Sample Kolmogorov-Smirnov Test

		AST T0	AST T28
N		25	19
Normal Parameters[a,b]	Mean	113,9440	124,5579
	Std. Deviation	20,31289	45,24546
Most Extreme Differences	Absolute	,101	,167
	Positive	,087	,098
	Negative	-,101	-,167
Kolmogorov-Smirnov Z		,504	,727
Asymp. Sig. (2-tailed)		,961	,665

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	AST T0	111,7211	19	22,28140	5,11170
	AST T28	124,5579	19	45,24546	10,38002

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	AST T0 & AST T28	19	,587	,008

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	AST T0 - AST T28	-12,83684	36,86775	8,45804	-30,60653	4,93285	-1,518	18	,146

AST T28-T42

One-Sample Kolmogorov-Smirnov Test

		AST T28	AST T42
N		4	3
Normal Parameters[a,b]	Mean	115,8000	119,0000
	Std. Deviation	7,26407	19,49077
Most Extreme Differences	Absolute	,217	,377
	Positive	,217	,377
	Negative	-,163	-,274
Kolmogorov-Smirnov Z		,434	,653
Asymp. Sig. (2-tailed)		,992	,788

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	AST T28	112,7000	3	4,63573	2,67644
	AST T42	119,0000	3	19,49077	11,25300

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	AST T28 & AST T42	3	,708	,499

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	AST T28 - AST T42	-6,30000	16,53753	9,54795	-47,38151	34,78151	-,660	2	,577

AST T0-T42

One-Sample Kolmogorov-Smirnov Test

		AST T0	AST T42
N		5	3
Normal Parameters[a,b]	Mean	122,7600	119,0000
	Std. Deviation	16,37171	19,49077
Most Extreme Differences	Absolute	,221	,377
	Positive	,214	,377
	Negative	-,221	-,274
Kolmogorov-Smirnov Z		,494	,653
Asymp. Sig. (2-tailed)		,968	,788

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	AST T0	132,4333	3	12,63580	7,29528
	AST T42	119,0000	3	19,49077	11,25300

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	AST T0 & AST T42	3	,389	,746

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	AST T0 - AST T42	13,43333	18,65083	10,76806	-32,89789	59,76456	1,248	2	,338

AST BETINA

AST T0

One-Sample Kolmogorov-Smirnov Test

		AST T0
N		25
Normal Parameters[a,b]	Mean	105,0800
	Std. Deviation	15,71753
Most Extreme Differences	Absolute	,098
	Positive	,087
	Negative	-,098
Kolmogorov-Smirnov Z		,489
Asymp. Sig. (2-tailed)		,971

a. Test distribution is Normal.

b. Calculated from data.

Test of Homogeneity of Variances

AST T0

Levene Statistic	df1	df2	Sig.
1,171	4	20	,353

ANOVA

AST T0

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1741,452	4	435,363	2,079	,122
Within Groups	4187,528	20	209,376		
Total	5928,980	24			

AST T28

One-Sample Kolmogorov-Smirnov Test

		AST T28
N		20
Normal Parameters[a,b]	Mean	147,2500
	Std. Deviation	43,72095
Most Extreme Differences	Absolute	,173
	Positive	,173
	Negative	-,145
Kolmogorov-Smirnov Z		,775
Asymp. Sig. (2-tailed)		,586

a. Test distribution is Normal.

b. Calculated from data.

Test of Homogeneity of Variances

AST T28

Levene Statistic	df1	df2	Sig.
1,485	4	15	,256

ANOVA

AST T28

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7312,884	4	1828,221	,945	,465
Within Groups	29006,026	15	1933,735		
Total	36318,910	19			

AST T0-T28

One-Sample Kolmogorov-Smirnov Test

		AST T0	AST T28
N		25	20
Normal Parameters[a,b]	Mean	105,0800	147,2500
	Std. Deviation	15,71753	43,72095
Most Extreme Differences	Absolute	,098	,173
	Positive	,087	,173
	Negative	-,098	-,145
Kolmogorov-Smirnov Z		,489	,775
Asymp. Sig. (2-tailed)		,971	,586

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	AST T0	104,6100	20	12,61711	2,82127
	AST T28	147,2500	20	43,72095	9,77630

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	AST T0 & AST T28	20	,154	,518

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	AST T0 - AST T28	-42,64000	43,60214	9,74974	-63,04643	-22,23357	-4,373	19	,000

AST T28-T42

One-Sample Kolmogorov-Smirnov Test

		AST T28	AST T42
N		4	3
Normal Parameters[a,b]	Mean	115,8000	95,6333
	Std. Deviation	7,26407	8,16476
Most Extreme Differences	Absolute	,217	,308
	Positive	,217	,221
	Negative	-,163	-,308
Kolmogorov-Smirnov Z		,434	,534
Asymp. Sig. (2-tailed)		,992	,938

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	AST T28	115,6000	3	8,88313	5,12868
	AST T42	95,6333	3	8,16476	4,71393

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	AST T28 & AST T42	3	-,067	,958

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	AST T28 - AST T42	19,96667	12,45887	7,19313	-10,98287	50,91620	2,776	2	,109

AST T0-T42

One-Sample Kolmogorov-Smirnov Test

		AST T0	AST T42
N		5	3
Normal Parameters[a,b]	Mean	106,3400	95,6333
	Std. Deviation	20,95645	8,16476
Most Extreme Differences	Absolute	,236	,308
	Positive	,201	,221
	Negative	-,236	-,308
Kolmogorov-Smirnov Z		,527	,534
Asymp. Sig. (2-tailed)		,944	,938

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	AST T0	91,8000	3	9,15041	5,28299
	AST T42	95,6333	3	8,16476	4,71393

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	AST T0 & AST T42	3	-,193	,876

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	AST T0 - AST T42	-3,83333	13,38668	7,72881	-37,08770	29,42104	-,496	2	,669

ALP JANTAN

ALP T0

One-Sample Kolmogorov-Smirnov Test

		ALP T0
N		25
Normal Parameters[a,b]	Mean	487,1832
	Std. Deviation	156,32639
Most Extreme Differences	Absolute	,152
	Positive	,152
	Negative	-,134
Kolmogorov-Smirnov Z		,760
Asymp. Sig. (2-tailed)		,611

a. Test distribution is Normal.

b. Calculated from data.

Test of Homogeneity of Variances

ALP T0

Levene Statistic	df1	df2	Sig.
1,209	4	20	,338

ANOVA

ALP T0

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	40994,620	4	10248,655	,376	,823
Within Groups	545515,931	20	27275,797		
Total	586510,552	24			

ALP T28

One-Sample Kolmogorov-Smirnov Test

		ALP T28
N		18
Normal Parameters[a,b]	Mean	550,2200
	Std. Deviation	199,58995
Most Extreme Differences	Absolute	,124
	Positive	,124
	Negative	-,107
Kolmogorov-Smirnov Z		,526
Asymp. Sig. (2-tailed)		,945

a. Test distribution is Normal.

b. Calculated from data.

Test of Homogeneity of Variances

ALP T28

Levene Statistic	df1	df2	Sig.
,396	4	13	,808

ANOVA

ALP T28

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	151397,925	4	37849,481	,936	,474
Within Groups	525816,602	13	40447,431		
Total	677214,527	17			

ALP T0-T28

One-Sample Kolmogorov-Smirnov Test

		ALP T0	ALP T28
N		25	18
Normal Parameters[a,b]	Mean	487,1832	550,2200
	Std. Deviation	156,32639	199,58995
Most Extreme Differences	Absolute	,152	,124
	Positive	,152	,124
	Negative	-,134	-,107
Kolmogorov-Smirnov Z		,760	,526
Asymp. Sig. (2-tailed)		,611	,945

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ALP T0	515,1917	18	145,75431	34,35462
	ALP T28	550,2200	18	199,58995	47,04380

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	ALP T0 & ALP T28	18	-,123	,627

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	ALP T0 - ALP T28	-35,02833	261,21443	61,56883	-164,92721	94,87055	-,569	17	,577

ALP T28-T42

One-Sample Kolmogorov-Smirnov Test

		ALP T28	ALP T42
N		4	3
Normal Parameters[a,b]	Mean	513,2775	440,4167
	Std. Deviation	262,43791	78,18091
Most Extreme Differences	Absolute	,335	,336
	Positive	,335	,240
	Negative	-,211	-,336
Kolmogorov-Smirnov Z		,670	,581
Asymp. Sig. (2-tailed)		,761	,888

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ALP T28	532,0100	3	318,12740	183,67094
	ALP T42	440,4167	3	78,18091	45,13777

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	ALP T28 & ALP T42	3	-,959	,182

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	ALP T28 - ALP T42	91,59333	393,74894	227,33106	-886,53326	1069,71993	,403	2	,726

ALP T0-T42

One-Sample Kolmogorov-Smirnov Test

		ALP T0	ALP T42
N		5	3
Normal Parameters[a,b]	Mean	477,3460	440,4167
	Std. Deviation	202,19783	78,18091
Most Extreme Differences	Absolute	,239	,336
	Positive	,151	,240
	Negative	-,239	-,336
Kolmogorov-Smirnov Z		,535	,581
Asymp. Sig. (2-tailed)		,937	,888

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ALP T0	546,4367	3	181,59199	104,84218
	ALP T42	440,4167	3	78,18091	45,13777

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	ALP T0 & ALP T42	3	,943	,215

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	ALP T0 - ALP T42	106,02000	110,91521	64,03692	-169,50865	381,54865	1,656	2	,240

ALP BETINA

ALP T0

One-Sample Kolmogorov-Smirnov Test

		ALP T0
N		25
Normal Parameters[a,b]	Mean	250,3680
	Std. Deviation	68,23068
Most Extreme Differences	Absolute	,134
	Positive	,134
	Negative	-,090
Kolmogorov-Smirnov Z		,671
Asymp. Sig. (2-tailed)		,760

a. Test distribution is Normal.

b. Calculated from data.

Test of Homogeneity of Variances

ALP T0

Levene Statistic	df1	df2	Sig.
1,867	4	20	,156

ANOVA

ALP T0

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8741,395	4	2185,349	,424	,789
Within Groups	102988,825	20	5149,441		
Total	111730,220	24			

ALP T28

One-Sample Kolmogorov-Smirnov Test

		ALP T28
N		20
Normal Parameters[a,b]	Mean	562,4400
	Std. Deviation	160,90608
Most Extreme Differences	Absolute	,187
	Positive	,187
	Negative	-,131
Kolmogorov-Smirnov Z		,835
Asymp. Sig. (2-tailed)		,488

a. Test distribution is Normal.

b. Calculated from data.

Test of Homogeneity of Variances

ALP T28

Levene Statistic	df1	df2	Sig.
,935	4	15	,470

ANOVA

ALP T28

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	77220,878	4	19305,220	,698	,605
Within Groups	414703,711	15	27646,914		
Total	491924,590	19			

ALP T0-T28

One-Sample Kolmogorov-Smirnov Test

		ALP T0	ALP T28
N		25	20
Normal Parameters[a,b]	Mean	250,3680	562,4400
	Std. Deviation	68,23068	160,90608
Most Extreme Differences	Absolute	,134	,187
	Positive	,134	,187
	Negative	-,090	-,131
Kolmogorov-Smirnov Z		,671	,835
Asymp. Sig. (2-tailed)		,760	,488

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ALP T0	243,0840	20	64,98520	14,53113
	ALP T28	562,4400	20	160,90608	35,97969

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	ALP T0 & ALP T28	20	-,037	,878

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	ALP T0 - ALP T28	-319,35600	175,72923	39,29425	-401,59981	-237,11219	-8,127	19	,000

ALP T28-T42

One-Sample Kolmogorov-Smirnov Test

		ALP T28	ALP T42
N		4	3
Normal Parameters[a,b]	Mean	616,5900	409,9633
	Std. Deviation	132,50963	44,60309
Most Extreme Differences	Absolute	,328	,309
	Positive	,224	,222
	Negative	-,328	-,309
Kolmogorov-Smirnov Z		,656	,535
Asymp. Sig. (2-tailed)		,783	,937

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ALP T28	607,9000	3	160,88849	92,88901
	ALP T42	409,9633	3	44,60309	25,75161

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	ALP T28 & ALP T42	3	-,738	,471

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	ALP T28 - ALP T42	197,93667	196,14093	113,24202	-289,30442	685,17775	1,748	2	,223

ALP T0-T42

One-Sample Kolmogorov-Smirnov Test

		ALP T0	ALP T42
N		5	3
Normal Parameters[a,b]	Mean	281,7260	409,9633
	Std. Deviation	94,63621	44,60309
Most Extreme Differences	Absolute	,223	,309
	Positive	,206	,222
	Negative	-,223	-,309
Kolmogorov-Smirnov Z		,498	,535
Asymp. Sig. (2-tailed)		,965	,937

a. Test distribution is Normal.

b. Calculated from data.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ALP T0	251,4633	3	102,34536	59,08912
	ALP T42	409,9633	3	44,60309	25,75161

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	ALP T0 & ALP T42	3	-,992	,082

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	ALP T0 - ALP T42	-158,50000	146,69222	84,69279	-522,90367	205,90367	-1,871	2	,202

BERAT BADAN

JANTAN

One-Sample Kolmogorov-Smirnov Test

		Minggu 0	Minggu 1	Minggu 2
N		25	25	23
Normal Parameters[a,b]	Mean	183,8000	180,5264	177,0461
	Std. Deviation	7,11220	7,71801	9,84363
Most Extreme Differences	Absolute	,183	,179	,158
	Positive	,183	,083	,136
	Negative	-,168	-,179	-,158
Kolmogorov-Smirnov Z		,917	,894	,760
Asymp. Sig. (2-tailed)		,369	,401	,611

a. Test distribution is Normal.

b. Calculated from data.

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Minggu 0	2,523	4	20	,073
Minggu 1	2,238	4	20	,101
Minggu 2	6,578	4	18	,002

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Minggu 0	Between Groups	64,000	4	16,000	,278	,889
	Within Groups	1150,000	20	57,500		
	Total	1214,000	24			
Minggu 1	Between Groups	125,292	4	31,323	,480	,750
	Within Groups	1304,332	20	65,217		
	Total	1429,624	24			
Minggu 2	Between Groups	316,724	4	79,181	,785	,550
	Within Groups	1815,010	18	100,834		
	Total	2131,734	22			

Ranks

	Jantan	N	Mean Rank
Minggu 0	1	5	5,60
	2	5	5,40
	Total	10	
Minggu 1	1	5	5,50
	2	5	5,50
	Total	10	
Minggu 2	1	4	4,88
	2	4	4,13
	Total	8	

Test Statistics[a,b]

	Minggu 0	Minggu 1	Minggu 2
Chi-Square	,011	,000	,192
df	1	1	1
Asymp. Sig.	,915	1,000	,661

a. Kruskal Wallis Test

b. Grouping Variable: Jantan

BETINA

One-Sample Kolmogorov-Smirnov Test

		Minggu 0	Minggu 1	Minggu 2
N		25	25	22
Normal Parameters[a,b]	Mean	181,0000	179,9824	182,3636
	Std. Deviation	8,53913	8,54837	9,19413
Most Extreme Differences	Absolute	,161	,130	,188
	Positive	,119	,065	,092
	Negative	-,161	-,130	-,188
Kolmogorov-Smirnov Z		,806	,649	,880
Asymp. Sig. (2-tailed)		,535	,793	,420

a. Test distribution is Normal.

b. Calculated from data.

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Minggu 0	,274	4	20	,891
Minggu 1	3,181	4	20	,036
Minggu 2	2,226	4	17	,109

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Minggu 0	Between Groups	290,000	4	72,500	,993	,434
	Within Groups	1460,000	20	73,000		
	Total	1750,000	24			
Minggu 1	Between Groups	74,817	4	18,704	,223	,922
	Within Groups	1678,975	20	83,949		
	Total	1753,792	24			
Minggu 2	Between Groups	616,758	4	154,190	2,263	,105
	Within Groups	1158,414	17	68,142		
	Total	1775,173	21			

Ranks

	Betina	N	Mean Rank
Minggu 0	1	5	5,00
	2	5	6,00
	Total	10	
Minggu 1	1	5	5,20
	2	5	5,80
	Total	10	
Minggu 2	1	4	6,50
	2	5	3,80
	Total	9	

Test Statistics[a,b]

	Minggu 0	Minggu 1	Minggu 2
Chi-Square	,287	,099	2,178
df	1	1	1
Asymp. Sig.	,592	,753	,140

a. Kruskal Wallis Test

b. Grouping Variable: Betina