

## DAFTAR PUSTAKA

- Abbot PV, 2004. Classification, diagnosis, and clinical manifestation of apical periodontitis. Endodontic topics. Copyright Blackwell, hh. 36-54. Munksgaard
- Aydin A, Aktay G, Yesilada E., 2016. A guidance manual for the toxicity assessment of tradition herbal medicines. Natural Product Communications. Vol. 11, No. 11.
- Anyawu OO, Eze PM, Nnaoma EI, Ngwoke KG, 2018. Antimicrobial properties of *Jatropha curcas L* against dental pathogens. Global J of Med Res. Vol.18, No. 2.
- Bartold PM, Cantley MD, Haynes, DR, 2010. Haynes DR. Mechanism and control of pathologic bone loss in periodontitis. Periodontology 2000, vol. 53. hh. 55-69
- BPOM. 2014. Pedoman uji toksisitas nonklinik secara *in vivo*. Kepala Badan Pengawas Obat dan Makanan, No. 875, hh 7-9
- Chen G, Po-Ta S, 2014. Gingival and Localized Alveolar Bone Necrosis Related To The Use of Arsenic Trioxide Paste ; Two Case report. Journal of the Formosan Medical Association. Vol.113, hh. 187-190
- Chaesaria G. Hasan M. Narwanto MI, 2015. Pengaruh Kitosan Cangkang Udang Putih (*Panaeus merguensis*) terhadap Jumlah Sel Osteoblas Tulang Femur Tikus Wistar Betina Pasca Ovariectomi. E-Jurnal Pustaka Kesehatan. Vol. 3 , No. 3, hh. 375-379
- Chen J, Guan S, Sun W, Fu H, 2016. Melittin, the Major Pain-Producing Substance of Bee Venom. Neurosci. Bull., Vol. 32, No. 3, hh. 265–272
- Choi KE, Hwang CJ, Gu SM, *et al.*, 2014. Cancer cell growth inhibitory effect of bee venom via increase of death receptor 3 expression and inactivation of NF-kappa B in NSCLC cells. Toxins (Basel). Vol. 6, hh. 2210–2228.
- Christofi N. 2005. Bioassays; microbial test, Encyclopedia of analytical, science 2<sup>nd</sup> edition, , hh. 265-271

- Dalimartha, S Setiawan. 2003, Atlas Tumbuhan Obat Indonesia Jilid III. Puspa Swara, Jakarta
- Denecker G, Vercammen D, Declercq W, Vandenaabeele P., 2001. Apoptotic and necrotic cell death induced by death domain receptors. *Cellular and Molecular Life Sciences*, Vol. 58, No. 3, hh. 356–370.
- Epsley S, Tadros S, Farid A, Kargilis D, Mehta S, Rajapakse CS. 2021. The Effect of Inflammation on Bone. *Frontiers in Physiology*. Vol. 11. 511799.
- Fadillah N. 2015. Review artikel: aktivitas, mekanisme aksi, dan toksisitas sidaguri (*Sida rhombifolia* L.) Sebagai antihiperurisemia. FARMAKA. Jakarta
- Fiorellini, JP. Stathopoulou, GP. 2015. Anatomy of The Periodontium. In Carranza's Clinical Periodontology 12<sup>th</sup> edition. Elsevier, hh 9-81
- Green DR, Llambi F. 2015. Cell Death Signaling. *Cold. Spring Harb Perspect Biol*. Vol. 7, No. 12, hh. 006080.
- Gutmann, JL, Fann, Bing. 2016. Tooth Morphology, Isolation, and Access. In Cohen's Pathways of The Pulp 11<sup>th</sup> edition. Elsevier, hh 131-206
- Guo Yu Bo, Li Yu, Xue Liming, *et al.* 2014. *Salvia Miltiorrhiza* : An Ancient Chinese Herbal Medicine as a source for Anti-Osteoporotic Drugs. *Journal of Ethnopharmacology*. Vol. 155, hh 1401-1416
- Han Song-Iy, Kim Yong-Seok, Kim Tae-Hyoung., 2008. Role of apoptotic and necrotic cell death under physiologic conditions. Vol. 4 , No. 1, hh 1 – 10
- Berman, LH. Rotstein, Ilan. 2016. Diagnosis. In Cohen's Pathways of The Pulp 11<sup>th</sup> edition. Elsevier, hh 2-31
- Hargreaves K, Keiser K. 2002. Local anesthetic failure in endodontics: Mechanisms and Management. *Endodontic Topics*. Vol. 1, hh 26–39

- Junqueira LC, Carneiro J. 2007, Histologi Dasar : Teks & Atlas, Tambayong J (penterjemah)  
Edisi 10. Jakarta: EGC,. hh. 134-6.
- Karim, Punggawa Gauk. 2021. Uji toksisitas akut *Pulp-Out*: Kajian histologi terhadap usus dan limpa tikus wistar. Tesis. Universitas Hasanuddin, Makassar.
- Kim Syngcuk, Heyeraas KJ, Haug SR. 2008. Structure and Function of The Dentin-Pulp Complex, in Ingle's endodontics 6<sup>th</sup> Edition. BC Decker Inc. Hamilton, hh 118-151
- Kitamura C, Kimura K, Nakayama T, Toyoshima K, & Terashita M. 2001. Primary and Secondary Induction of Apoptosis in Odontoblasts after Cavity Preparation of Rat Molars. Journal of Dental Research, Vol. 80, No. 6, hh 1530–1534.
- Ketut Virtika Ayu, 2018, Efek induksi LPS terhadap jumlah osteoblast pada resorpsi tulang alveolar tikus putih jantan galur Sprague Dawley, Interdental jurnal kedokteran gigi. Vol. 14, No. 1, hh 13-17
- Lee G, Bae H. 2016. Anti-Inflammatory Applications of Melittin, a Major Component of Bee Venom: Detailed Mechanism of Action and Adverse Effects. Molecules. Vol. 21, hh 616
- Liu L, Wang L, Wu Y. Peng B. 2014. The Expression of MCP-1 and CCR2 in Induced Rats Periapical Lesions. Achieves Oral Biology. Vol. 59, hh 492-499
- Li Y, Ling J, Jiang q. 2021. Inflammasomes in Alveolar Bone Loss. Frontiers in Immunology. Vol. 12. 691013.
- Lu Pei-chen, Wu Ju-Hui, Chen Chun-Ming, Du Je-kang. 2015. Arsenic Trioxide-Induced Mandibular Osteomyelitis, Journal of Oral and Maxillofacial Surgery. Vol. 73. No. 9, hh 1761-1765
- Lim Dong Wook, Kim Yun Tai. 2014. Anti-Osteoporotic Effects of Angelica sinensis (Oliv.) Diels Extracton Ovariectomized Rats and Its Oral Toxicity in Rats, Nutrients, Vol. 6, hh 4362-4372

- Maftuchah, Zainudin A, Mulyanto T. 2016. Keragaman morfologi dan daya hasil beberapa nomor hasil persilangan *Jatropha curcas*. L dan tetuanya. Seminar Nasional dan Gelar Produk.
- Mattulada I.K. 2008, Pengamatan histopatologis pulpa gigi *M. nemestrina* yang terpapar getah *J. curcas*. *Dentofasial*, Vol. 7, N0 1, hh 19-25
- Muhiddin, Nur Fadillah A. hamzah, 2021, Uji toksisitas akut organ ginjal pada tikus wistar setelah aplikasi *Pulp-Out*: Kajian terhadap ureum, kreatini dan histologi. Tesis. Makassar. Universitas Hasanuddin.
- Natsir N, Tanumihardja M, Mattulada IK, Sanusi VH. 2014. Pemanfaatan akar sidaguri (*Sida rhombifolia*) sebagai bahan analgetik. *Jurnal PDGI*. : Vol. 63. No. 2, hh 66-69
- Newman MG. 2015. The normal periodonsium. In Carranza's *Clinical Periodontology* 12<sup>th</sup> Edition. St. Louis. Saunder Elsevier; . hh. 57-70
- Nisa, Alfiah khoerun. Choesrina R, lestari F. 2020. Studi Literatur Uji Toksisitas Akut Pada Beberapa Ekstrak Tumbuhan. *Jurnal farmasi*. Vol. 6, N0. 2.
- Odzemir Y, Kutukculer N, Topaluglu-Ak A, Kose T, Eronat C. 2015. Comparative evaluation of pro-inflammatory cytokine levels in pulpotomized primary molars. *Journal of Oral Science*, Vol. 57, No. 2, hh 145-150.
- Preshaw PM. 2015. Periodontal Pathogen. In Carranza's *Clinical Periodontology* 12<sup>th</sup> edition, Elsevier, hh 77-100
- Proskuryakov SY, Konoplyannikov AG, & Gabai VL. 2003. Necrosis: a specific form of programmed cell death? *Experimental Cell Research*. Vol. 283, No. 1, hh 1–16.
- Rady I, Siddiqui IA, Rady M, Mukhtar H. 2017. Melittin, a major peptide component of bee venom, and its conjugates in cancer therapy. *Journal Cancer Letter*. Vol. 40, No. 2, hh 16-31
- Rahayu M, Solihat MF. 2018. Toksikologi klinik. Jakarta; Kemenkes RI. 2018. hh. 2-5, 45, 47-

- Ricucci D, Loghin S, Siquera JF. 2015. Correlation between Clinical and Histologic Pulp Diagnoses. *J Of Endod.* Vol. 40, No. 12, hh 1932-1939
- Sagunuwan S. 2017. Toxicity Studies of Drugs and Chemicals in Animals: an overview. *Bulgarian Journal of Veterinary Medicine.* Vol 20, No.4, hh 291–31
- Supriyadi. 2007. Apoptosis sel fibroblast akibat paparan radiasi ionisasi. *Indon J Dent.* Vol. 14, No. 1, hh 48-52
- Siquera, JF, 2011, *Treatment of Endodontic Infection*, Quintessence Publishing Co Inc. hh 58-86
- Susanto H, Harijadi. 2004, Uji Sitotoksik dan Apoptosis ekstrak Saponin Getah Kamboja (*Plumeria acuminata* Ait) pada kultur sel Fibroblast Pulpa. UGM, Yogyakarta
- Syed G, Mulay S. 2015. Pulpitis: A review. *Journal of Dental and Medical Sciences.* Vol.14, No. 8, hh 92-97
- Sasaki, Hajime. Stashenko, Philip. 2012. Interrelationship of the Pulp and Apical periodontitis, In *Seltzer and Bender's Dental Pulp* 2<sup>nd</sup> edition, Quintessence Publishing Co. Inc, Moresby, hh 219-255
- Santoso B. 2010. Deskripsi Botani Jarak Pagar (*Jatropha curcas* L.). Penerbit Arga Puji Press, Mataram, Lombok
- Stashenko P, Teles R, D'Souza R., 1998. Periapical Inflammatory Responses and Their Modulation. *Grit Rev Oral Biol Med*, Vol. 9, No. 4, hh 498-521.
- Soenarto. 2015. *Inflamasi. Ilmu Penyakit Dalam*. Jakarta: Interna Publishing, hh 93-108.
- Tanumihardja M, Darmayana, Natsir N, Mattulada IK. 2013. Aktivitas antibakteri ekstrak terstandar akar sidaguri (*S.rhombifolia*) terhadap *E. faecalis* dan *Actinomyces* spp. *Dentofasial*, Vol.12, No.2, hh :90-94

- Tanumihadja M, Mattulada IK, Natsir N, Muslimin L. 2019. Potensi kombinasi ekstrak akar sidaguri (*sida rhombifolia* l.) Dan getah jarak (*jatropha curcas* l.) Sebagai bahan devitalisasi. *ODONTO Dental Journal*. Vol. 6, No.1, hh 14-20
- Tanumihardja M, Hamid AS, Trilaksana AC, *et al.* 2021. Effect of *Pulp-Out* on Caspase 3 and Interleukin- 1 $\beta$  Expression in Pulp Teeth: A Paste Contained *Jatropha*, *Sidaguri* and *Melittin*. *Journal of dentomaxillofacial science*. Vol.16, No.2, hh 119-122
- Temmanengnga, Andi Fatimah,. Uji toksisitas akut organ hepar pada tikus wistar setelah aplikasi pulpout: Kajian histologi, SGOT dan SGPT, 2021. Tesis. Makassar. Universitas Hasanuddin.
- Vandermeulen E. 2000. Pain Perception, Mechanisms of Action of Local Anesthetics and Possible Causes of Failure. *Revue Belge Medecine Dentaire* Vol. 55, hh 29–40
- Wahid S, Miskad, UA, 2016. *Imunologi Lebih Mudah di Pahami*, Brillian Internasional Surabaya, hh 9-29
- Walimbe H. 2015. Knowledge, Attitude and Practice of Devitalizing Agents: A Survey of General Dental Practitioners. *Journal of International Oral Health*, Vol. 7, No. 3, hh 12-14
- Yu C, Abbott PV., 2007, A Clinical Classification of The Status of The Pulp and The Root Canal System. *Austr Dent J Supplem*, Vol. 52, No. 1, hh 17-31
- Zhang Rui. Huang S, Wang Li, Peng B. 2014. Histochemical Localization of Dickopf-1 in Induced Rat Periapical Lesions. *J of Endod*. Vol. 40, Number 9.hh 1394-1399.
- Zhu Z Y. 2013. Analysis of Clinical Application of Arsenic-free Deactivating Agent-Depulpin. *Life Science Journal*,Vol. 10, No. 1, hh. 2858-2860.

## LAMPIRAN

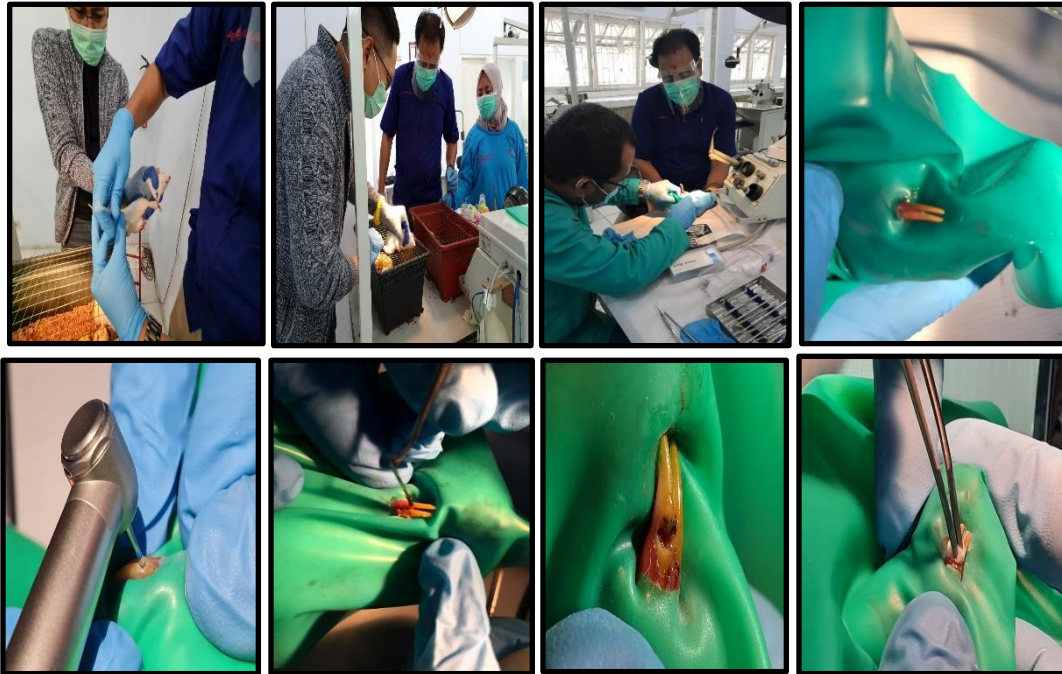
### 1. Dokumentasi Penelitian



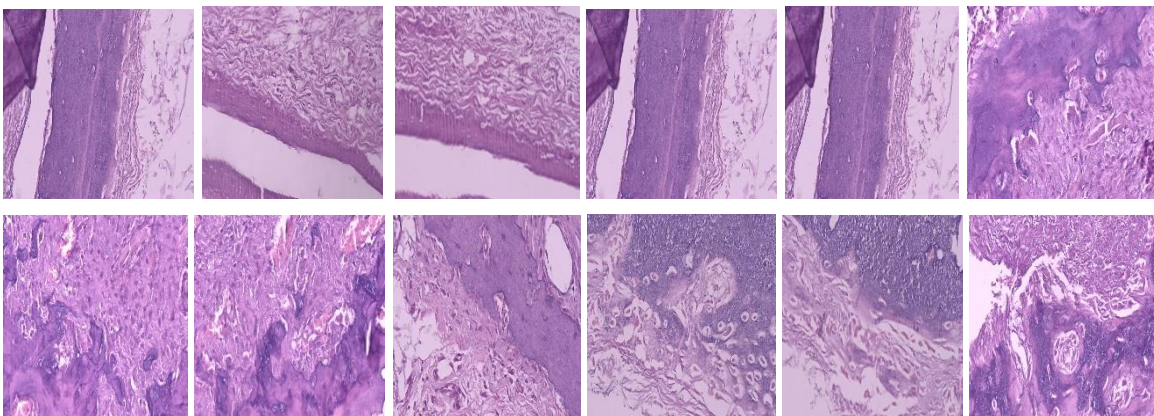
proses pembuatan larutan ekstrak *pulp-out* dan sediaan



Penyiapan tikus wistar sebanyak 12 ekor yang berusia 3 bulan dengan berat badan 200 gram



Aplikasi *Pulp-out* pada hewan coba



Hasil Pemeriksaan Histologis



NPAR TESTS  
 /M-W= E F G BY D(1 2)  
 /MISSING ANALYSIS.

## NPar Tests

### Mann-Whitney Test

		Ranks		
	Sampel	N	Mean Rank	Sum of Ranks
Odontoblast	Sehat	9	11.67	105.00
	Pulp Out	18	15.17	273.00
	Total	27		
Osteoblast	Sehat	9	11.56	104.00
	Pulp Out	18	15.22	274.00
	Total	27		
Osteoclast	Sehat	9	12.50	112.50
	Pulp Out	18	14.75	265.50
	Total	27		


Test Statistics <sup>a</sup>			
	Odontoblast	Osteoblast	Osteoclast
Mann-Whitney U	60.000	59.000	67.500
Wilcoxon W	105.000	104.000	112.500
Z	-1.083	-1.134	-.722
Asymp. Sig. (2-tailed)	.279	.257	.470
Exact Sig. [2*(1-tailed Sig.)]	.298 <sup>b</sup>	.275 <sup>b</sup>	.495 <sup>b</sup>

a. Grouping Variable: Sampel


b. Not corrected for ties.

Hasil Olah data

## 2. Surat Rekomendasi Persetujuan Etik



**KEMENTERIAN RISET, TEKNOLOGI DAN PENDIDIKAN TINGGI**  
**UNIVERSITAS HASANUDDIN**  
**FAKULTAS KEDOKTERAN GIGI**  
**RUMAH SAKIT GIGI DAN MULUT**  
**KOMITE ETIK PENELITIAN KESEHATAN**  
 Sekretariat : Lantai 2, Gedung Lama RSGM Unhas  
 Jl.Kandea No. 5 Makassar  
 Contact Person: drg. Muhammad Ikbal, Sp.Pros/Nur Aedah AR TELP. 081342971011/08114919191

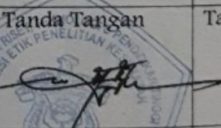
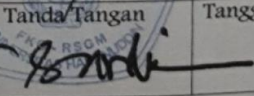


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**REKOMENDASI PERSETUJUAN ETIK**  
 Nomor: 0091/PL.09/KEPK FKG-RSGM UNHAS/2022

Tanggal: 04 Juli 2022

Dengan ini menyatakan bahwa protokol dan dokumen yang berhubungan dengan protokol berikut ini telah mendapatkan persetujuan etik:

No. Protokol	UH 17120675	No Protokol Sponsor	
Peneliti Utama	Drg. Esfandiary	Sponsor	Pribadi
Judul Peneliti	Gambaran Mikriskopik Jaringan Periapikal Gigi Tikus Wistar setelah Aplikasi Pulp Out sebagai Alternatif Bahan Devitalisasi Pulpa		
No. Versi Protokol	1	Tanggal Versi	29 Juni 2022
No. Versi Protokol		Tanggal Versi	
Tempat Penelitian	1. Laboratorium Terpadu FKG UNHAS, 2. Laboratorium Anatomi Patologi RSP UNHAS		
Dokumen Lain			
Jenis Review	<input type="checkbox"/> Exempted <input checked="" type="checkbox"/> Expedited <input type="checkbox"/> Fullboard	Masa Berlaku 04 Juli 2022- 04 Juli 2023	Frekuensi Review Lanjutan
Ketua Komisi Etik Penelitian	Nama: Dr. drg. Marhamah, M.Kes	Tanda Tangan 	Tanggal
Sekretaris Komisi Etik Penelitian	Nama: drg. Muhammad Ikbal, Sp.Pros	Tanda Tangan 	Tanggal

Kewajiban peneliti utama:

- Menyerahkan Amendemen Protokol untuk persetujuan sebelum diimplementasikan
- Menyerahkan laporan SAE ke Komisi Etik dalam 24 Jam dan dilengkapi dalam 7 hari dan lapor SUSAR dalam 72 jam setelah peneliti utama menerima laporan.
- Menyerahkan laporan kemajuan (*progress report*) setiap 6 bulan untuk penelitian resiko tinggi dan setiap setahun untuk penelitian resiko rendah.
- Menyerahkan laporan akhir setelah penelitian berakhir.
- Melaporkan penyimpangan dari protokol yang disetujui (*protocol deviation/violation*)
- Mematuhi semua aturan yang berlaku.