

DAFTAR PUSTAKA

- Alfarisy M. 2014. Effect of body length and sex on albumin contents of snakehead fish (*Channa striata*) Surabaya: Departement of Biology Faculty of Mathematics and natural sciences Sepuluh November Institute of Technology Surabaya.p. 1-15
- Agustin R, Dewi N, Rahardja SD. 2016. Efektivitas ekstrak ikan haruan (*Channa striata*) dan ibuprofen terhadap jumlah sel neutrofil pada proses penyembuhan luka studi *in vivo* pada mukosa bukal tikus (*Rattus norvegicus*) wistar. Dentino J Kedokt Gigi. 2016;1(1):69-70.
- Asikin AN, Kusumaningrum I. 2017. Edible portion dan kandungan kimia ikan gabus (*Channa striata*) hasil budidaya kolam di kabupaten Kutai Kertanegara, Kalimantan Timur. Ziraa'ah. 42:3:158-163.
- Bain JB. 2006. Blood cell morphology in health and diseases. Dacie and Lewis Practical and Haematology. 10th ed. 5:79-113.
- Dinarello CA, 2011. Interleukin-1 in the pathogenesis and treatment of inflammatory diseases. American Society of Hematology. 117;14: 3720-3723.
- England H *et al*. 2014. Release of Interleukin-1 α or Interleukin-1 β depends on mechanism cell death. The Journal of Biological Chemistry. 289:23: 15942-1595
- Garge 2010. *Text book of endodontics*. Jaypee Brothers Medical 2nd Ed. Newdelhi, Hal 7-8
- Ghoddussi J, Forghani M, Parisay I. 2014. New Approaches in vital pulp therapy in permanent teeth. Iranian Endodontic Journal. 9:1:15-22.
- Goldberg M, Kulkarni A, Young M, Boskey A.2012. Dentin : Structure, Composition and mineralization : The role of dentin ECM in dentin formation and mineralization..NIH Public Access. Vol.3:718
- Goldberg M, Njeh A, Uzunoglu E.2015. Is pulp inflammation a prerequisite for pulp healing and regeneration? Med Inflamm. 2015;doi:10.1155/2015/347649.
- Marlanda C, Dinarello CA, Mantovani A. 2013. The interleukin-1 family: Back to the future. J.Immuny. 39:6: 1003-1008.



- Gulabivala K, Ling Y. 2014. *Endodontics*. Mosby Elsevier. 4th Ed.
- Grossman. 1995. Ilmu endodontik dalam praktek. Penerbit Buku Kedokteran. Ed 11. Jakarta
- Goldberg. 2008. *Inflammatory and immunological aspect of dental pulp repair*. Pharmacological Research. 58, 137-147
- Goldberg M. 2017. *The dental Pulp: Composition, properties and function*. JSM Dent 5:1: 1079
- Gozzelino R, Arosio P. 2016. Iron homeostasis in health and disease. International Journal of Molecular Sciences. 2016;17(1):130.
- Ganz T, Nemeth E^[1]. 2006. Regulation of iron acquisition and iron distribution in mammals. Biochimica et Biophysica Acta 1763; 690–699.
- Gong L, Wang H, and DengL. 2014. Molecular characterization, phylogeny and expression of a hepcidin gene in the blotched snakehead Channa maculata. Developmental & Comparative Immunology 44(1):1–11.
- Hartini et al. 2015. Ekstrak ikan haruan (*Channa striata*) menurunkan jumlah makrofag pada fase inflamasi proses penyembuhan luka. Dentofacial, Vol.14, No.1 : 6-10
- Hargreaves, K.m. Goodis H.E (2002), Seltzer and Bender's : *Dental pulp*. Quintessence Books Pub Co, Inc China
- Hahn CL, Liewhr FR. 2007. Inate immune responses of the dental pulp caries. Journal of Endodontic. 33:643-650
- Hargreaves K, Berman L. 2011. *Cohen's Pathways of the pulp*. Elsevier Inc. Edisi 8. St. Louis Missouri.
- Lee JY et al. 2010. Palmitic acid inhibits inflammatory responses in lipopolysaccharide stimulated mouse peritoneal macrophages. Oriental Pharmacy and Experimental Medicine. 10:1:37-43.
- Istyanto N, Adryanto S. 2009. Ikan gabus (*Channa striata*) manfaat pengembangan dan alternatif teknik budidayanya. Media Akuakultur. 4:1: 18-24.



Mustafa A, Widodo MA, Kristianto Y. 2012. Albumin and zinc content Of snakehead fish (*Channa striata*) extract and its role in health. IEESE Int J Sci Technol.1 (2):1–7.

Ma Z et al. 2011.Role of Polymorphonuclear Neutrophils in the Clearance of Enterococcus faecalis Derived from Saliva and Infected Root Canals. J Endod. 37:346-352.

Njeh A, Uzunoglu E, Simon S, Berdal A, Kellermann O, Goldberg M. 2016. Reactionary and reparative dentin formation after pulp capping : Hydrogel vs . Dycal. Evid Based Endod. Vol 1:2–9.

Okiji T. 2012. Pulp as a connective tissue. In: Hargreaves KM, Goodis HE, Tay FR. Dental pulp. 2nd edition. Chicago, Berlin: Quintessence Publishing; 2012.p.70-1,78-9,85.

Ricucci, D. Siqueira J. 2013. Endodontontology An integrated biological and clinical view. Berlin: Quintessence Publishing; p1-2,78.

Roerink et al. 2017. Interleukin-1 as mediator of fatigue in disease: a narrative review. Journal of Neuroinflammation. 14:16:1

Sequiera JR, 2016. Treatment of Endodontic Infection. Germany. Quintessence Publishing

Siswanto A, Dewi N, Hayatie L. 2016. Effect of haruan (*Chanaa striata*) extract on fibroblast cells count in wound healing : Journal of dentomaxillofacial science. p234-239.

Sangwan P, Sangwan A, Duhan J, Rohilla A. 2012. Tertiary dentinogenesis with calcium hydroxide: A review of proposed mechanism. International Endodontic Journal. 46: 3-19.

Smith AJ. 2012. Formation and repair of dentin in the adult. In: Hargreaves KM, Goodis HE, Tay FR. Dental pulp. 2nd edition. Chicago, Berlin: Quintessence Publishing. p283-286.

Smith AJ. 2003. Vitality of the dentin-pulp complex in health and disease: growth factors as key mediators. J Dent Educ. 67:6:678-680

ong M et al. 2017. Clinical and molecular perspectives of reparative dentin formation lessons learned from pulp-capping materials and the emerging roles of calcium. Dent Clin. 61:93–94.

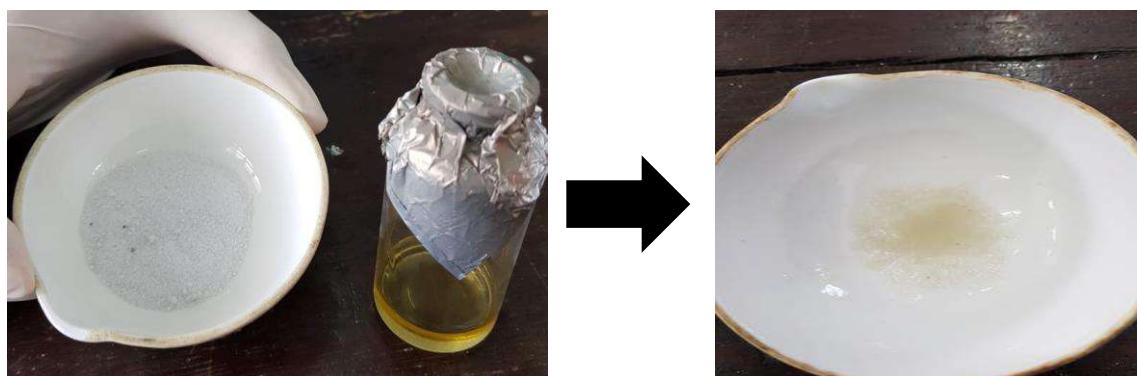


- Sabir A. 2005. Respons inflamasi pada pulpa gigi tikus setelah aplikasi ekstrak etanol propolis (EEP). Dent J. 38(2):77-83.
- Tamales D, Dewi N, Rosida L. Extract of haruan (*Channa striata*) extract increasing reepithelialization count in wound healing process on wistar rat's buccal mucosa. 2016. J Dentomaxillofac Sci;1(1);12-5
- Trowbridge OH, Emling RC. 1997. Inflammation: A review of the process. USA. 5th ed. 42-58.
- Torabinejad M, Holland,GR. 2015. The biologyof dental pulp and periradicular tissues In : Torabinejad M, Walton R. Endodontics a principles and practice. 5th ed. St.Louis, Missouri: Elsevier Saunders. p.6-8
- Um JY et al. 2011. Functional Polymorphism of IL-1 Alpha and its potential role in obesity in human and mice. J.Plosone 6:12:1-10.
- Zayyan AB, Nahzi MY, Kustiyah O. 2016. Pengaruh ekstrak kulit manggis (*Garciana mangostana*) terhadap jumlah sel limfosit pada inflamasi pulpa. Dentino (Jurnal Kedokteran Gigi). (1)2: 140-145.
- Kusumaningrum GA, Alamsjah MA, Masithah ED. 2014. Uji Kadar Albumin dan Pertumbuhan Ikan Gabus (*Channa striata*) dengan Kadar Protein Pakan Komersial yang Berbeda. Jurnal Ilmiah Perikanan dan Kelautan 6(1): 25-29.
- Prashanth L, Kattapagari KK, Chitturi RT, Baddam VRR, Prasad LK. 2015. A review on role of essential trace elements in health and disease. Journal Dr. NTR University of Health Sciences. 4(2):75-78.
- Ross AC. 2017. Impact of chronic and acute inflammation on extra- and intracellular iron homeostasis. Am J Clin Nutr;106(Suppl):1581S–7S.



DOKUMENTASI PENELITIAN

Ekstrak Ikan Haruan (*Channa striata*)



Tulang dan daging ikan haruan dalam bentuk bubuk dan gel yang telah diekstrak kemudian dicampur menjadi satu

Prosedur Pengerjaan Hewan Coba Tikus Wistar



Persiapan Alat dan Bahan Penelitian



Optimization Software:
www.balesio.com



Pengerjaan tikus Wistar sebagai hewan coba



Penembusan atap pulpa gigi M1 RA kanan pada hewan coba



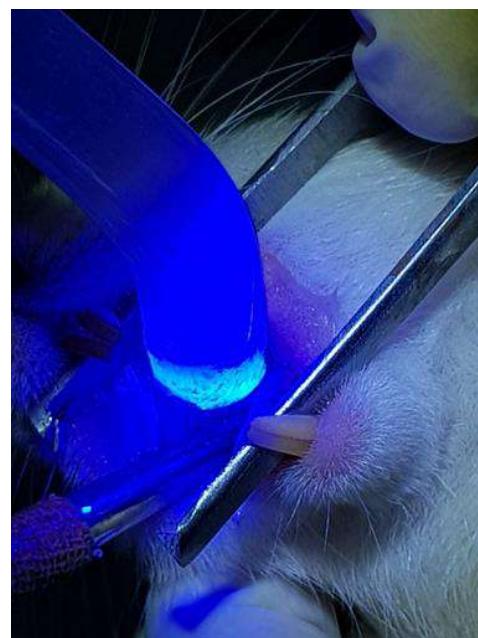
Optimization Software:
www.balesio.com



Aplikasi LPS *E.coli*



Aplikasi Bahan Uji



Kavitas ditutup dengan tumpatan permanen RMGIC
kemudian di *light cured*

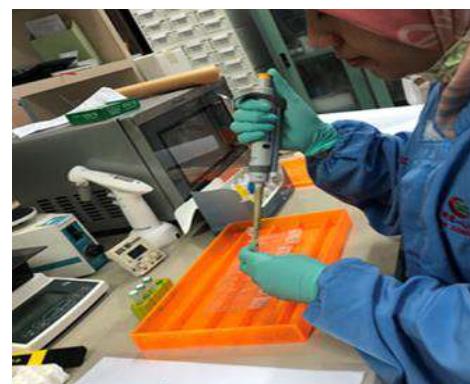
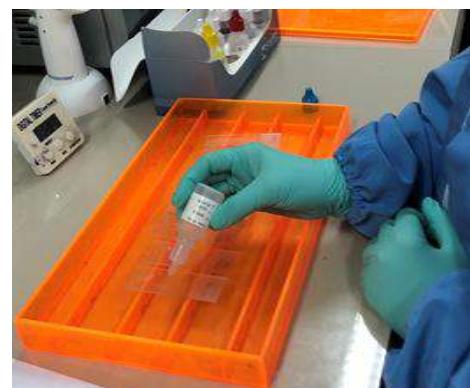


Optimization Software:
www.balesio.com

PEMERIKSAAN PATOLOGI SAMPEL PENELITIAN



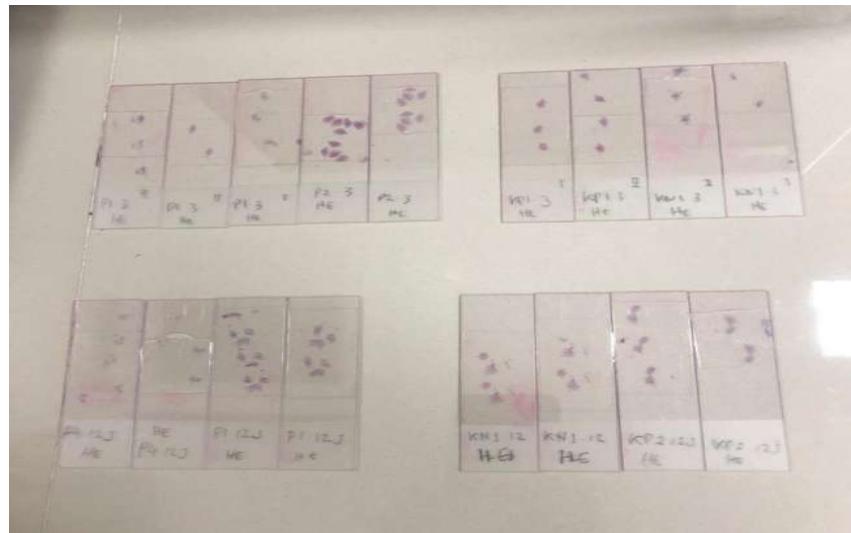
Blok parafin jaringan



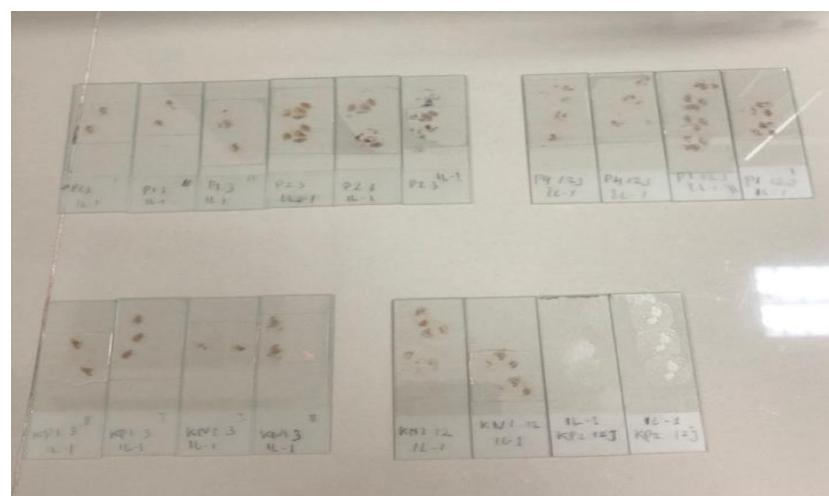
Proses pewarnaan slide menggunakan biomarker



Optimization Software:
www.balesio.com

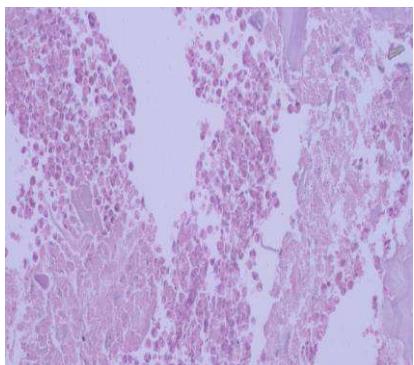
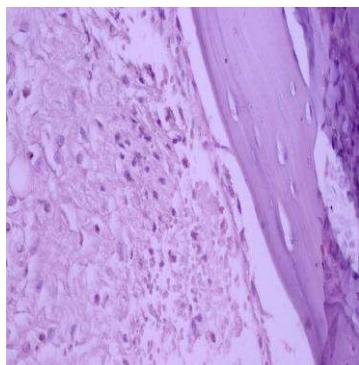
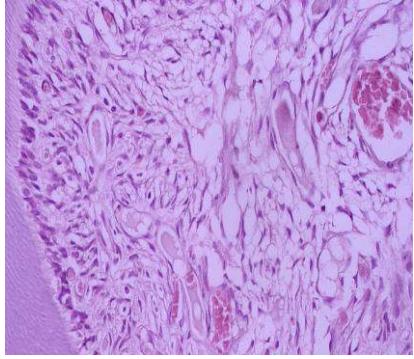
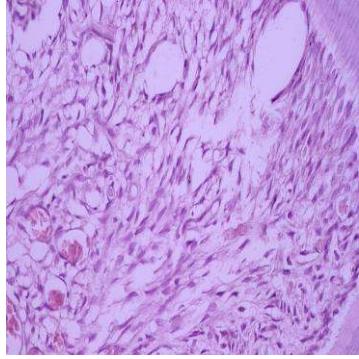
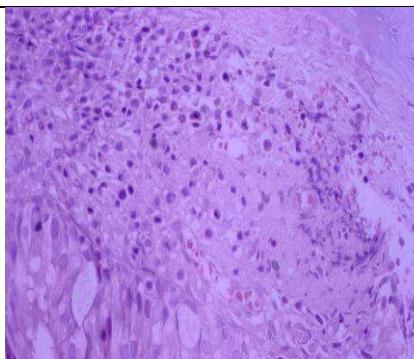
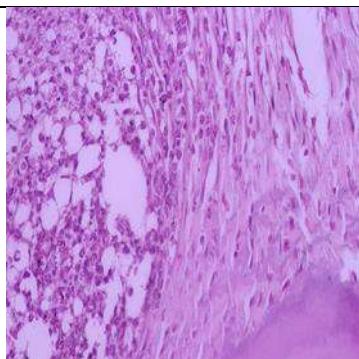


Pewarnaan HE untuk pemeriksaan leukosit PMN



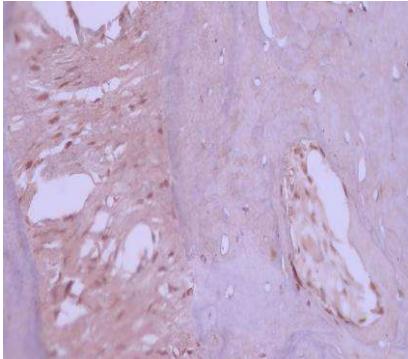
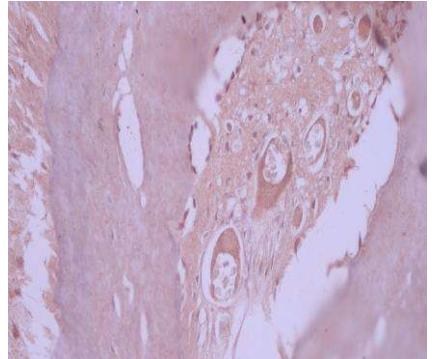
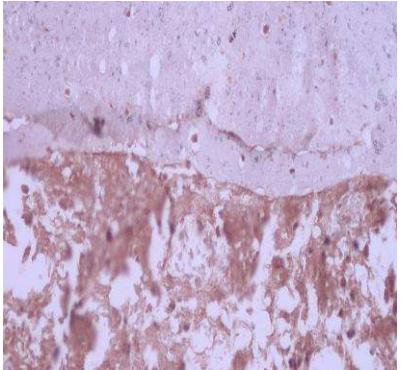
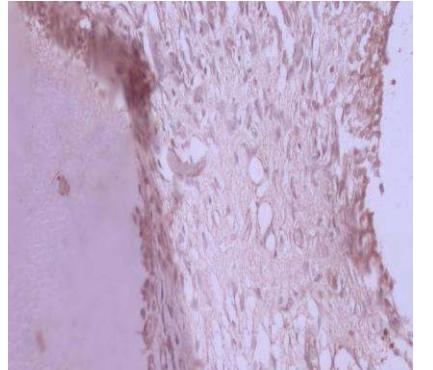
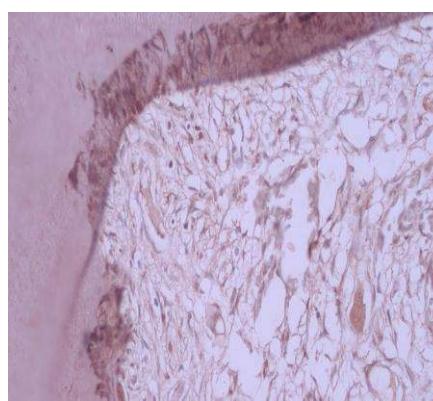
Pewarnaan IHC untuk pemeriksaan IL-1 α

Pemeriksaan Histologi Leukosit PMN

KELOMPOK	PENGAMATAN 12 JAM	PENGAMATAN 72 JAM
Kontrol Negatif LPS + RMGI		
Perlakuan LPS+ Ekstrak ikan haruan+ RMGI		
Kontrol Positif LPS + Ca(OH)2		



Pemeriksaan Histologi IL-1 α

KELOMPOK	PENGAMATAN 12 JAM	PENGAMATAN 72 JAM
Kontrol Negatif LPS + RMGI		
Perlakuan LPS+ Ekstrak ikan haruan+ RMGI		
Kontrol Positif LPS + Ca(OH)		





Optimization Software:
www.balesio.com