

BAB 5

KESIMPULAN DAN SARAN

5.1 Kesimpulan

1. Pemberian senyawa asam 2-(3-(klorometil)benzoiloksi)benzoat dengan dosis (100mg /70kgBB, 500mg/70kgBB, 900mg/70kgBB, 1300mg /70kgBB, dan 1700mg/70kgBB) memberikan pengaruh signifikan terhadap kontrol negatif dan lebih cepat dari AAS pada uji anti inflamasi, yang berarti senyawa memiliki efek penurunan inflamasi pada telapak kaki tikus yang diinduksi *carrageenan*.
2. Pemberian senyawa asam 2-(4-(klorometil)benzoiloksi)benzoat dengan dosis (100mg /70kgBB, 500mg/70kgBB, 900mg/70kgBB, 1300mg /70kgBB, dan 1700mg/70kgBB) tidak memberikan pengaruh yang signifikan terhadap kontrol negatif pada uji anti inflamasi, yang berarti senyawa tidak memiliki efek penurunan inflamasi pada telapak kaki tikus yang diinduksi *carrageenan*.

5.2 Saran

1. Menguji kembali senyawa asam 2-(4-(klorometil)benzoiloksi)benzoat menggunakan metode lain seperti *Xylene-Evoked Ear Oedema Test* atau metode stabilisasi membran sel darah merah untuk memastikan apakah senyawa benar-benar tidak memiliki kemampuan dalam menurunkan inflamasi.

DAFTAR PUSTAKA

- Aldasoro, M., Mauricio, M.D., Serna, E., Cortina, B., Medina, P., Segarra, G., Novella, S. and Vila, J.M., 2007. Aspirin and COX-2 Inhibitor Nimesulide Potentiate Adrenergic Contractions of Human Gastroepiploic Artery, *The American Journal of Hypertension*, **20**: 514–519.
- Al-Swayeh, O.A., Clifford R.H., Soldato P. and Moore P.K., 2000. A comparison of the anti-inflammatory and anti-nociceptive activity of nitroaspirin and aspirin, *British Journal of Pharmacology*, **129**:343-350
- Burke, A., Smyth, E., Fitzgerald, G.A., 2006. Analgesic-antipyretic and anti-inflammatory agents, pharmacotherapy of gout. In: Brunton, L.L., Lazo, J.S., Parker, K.L., *Goodman & Gilman's the Pharmacological Basis of Therapeutics*, 11th ed. McGraw-hill, New york, p. 629-636.
- Carlo Patrono. MD; Colin Baigent. MD; Jack Hirsh. MD. FCCP; and Gerald Ruth. MD. 2008. Anti trombositis Drugs. *CHEST*; **1998**:133-233.
- Caroline, Foe, K., Yesery Esar, S., Soewandi, A., Wihadmadyatami, H., Widharna, R. M., ... Tjahjono, Y. (2019). Evaluation of analgesic and antiplatelet activity of 2-((3-(chloromethyl)benzoyl)oxy)benzoic acid. *Prostaglandins & Other Lipid Mediators*.
- Chen, L., Deng, H., Cui, H., Fang, J., Zuo, Z., Deng, J., Zhao, L. (2018). Inflammatory responses and inflammation-associated diseases in organs, p. 1-2

- Cuzzocrea S, Sautebin L, De Sarro G, Costantino G, Rombola L, Mazzon E, Lalenti A, De Sarro A, Ciliberto G, Di Rosa M, Caputi AP, Thiemermann CH, (1999), Role of IL-6 in the pleurisy and lung injury caused by carrageenan. *Journal of Immunology*, **163**:5094–5104.
- Diyo, A., 2014, 'Penentuan pKa dari Asam O-(3-Klorometil Benzoil) Salisilat dengan Metode Spektrofotometri', *Skripsi*, Sarjana Farmasi, Fakultas Farmasi Widya Mandala, Surabaya.
- Farmakope Indonesia, edisi V, 2013, Kementrian Kesehatan RI, Jakarta, p. 144.
- Guzic, T. J & Korbut, R., 2005. Inflammatory mediators and intracellular signaling. In: Nijkamp, F & Parnham, M.J. (Ed.), *Principles of Immunopharmacology*, Birkhauser Verlag, Berlin, **p. 93**.
- Hayden, M., Pignone, M., Phillips, C. and Mulrow, C. 2002, Aspirin for the primary prevention of cardiovascular events: a summary of the evidence for the US Preventive Services Task Force, *Annals of Internal Medicine*, **136**: 161-172.
- Huang, E. S., Strate, L. L., Ho, W. W., Lee, S. S., & Chan, A. T. (2011). Long-term use of aspirin and the risk of gastrointestinal bleeding. *American Journal of Medicine*, **124**:426–433.
- Leelaprakash, G. , Mohan Dass, S., 2011. Invitro Anti-Inflammatory Activity of Methanol Extract of *Enicostemma axillare*, *International Journal of Drug Development & Research*, p. 1-2
- Martak R.. Bambang S.. Siti S.. Caroline dan Irwan S.. 2009. Synthesis of 4-Chloromethylbenzoyl Salicylic Acid and Its Analgesic Activity on Mice (*Mus musculus*). Poster Presentation in Bandung International Conference on Medical Chemistry. School of pharmacy: Bandung.

- Martindale. 2005. *The Complete Drug Reference*. 36th ed., Pharmaceutical Press. London, p. 20.
- Morris, T., Stables, M., Hobbs, A., de Souza, P., Colville-Nash, P., Warner, T., Gilroy, D. W. (2009). Effects of Low-Dose Aspirin on Acute Inflammatory Responses in Humans. *The Journal of Immunology*, 183(3) : 2089–2096.
- Nantel, F., Denis, D., Gordon, R., Northey, A., Cirino, M., Metters, K. M., et al. (1999). Distribution and regulation of cyclooxygenase-2 in carrageenan-induced inflammation. *Br. J. Pharmacol.* **128**, 853–859.
- Necas, J., & Bartosikova, L. (2013). Carrageenan: A review. *Veterinari Medicina*, 58(4), 194–195.
- Permatasari, S. N., 2011, Uji Sitotoksik (*Brine Shrimp Lethality Test*) Senyawa Asam-*o*-(3-klorometilbenzoil)salisilat dan Asam-*o*-(4-klorometilbenzoil)salisilat Menggunakan Larva Udang *Artemia salina* Leach., Skripsi Sarjana Farmasi, Universitas Katolik Widya Mandala Surabaya.
- Pradipta, I. P. W., 2016, 'Efek Senyawa Asam 2-(3-(Klorometil)Benzoiloksi) Benzoat Terhadap Aktivitas Dan Indeks Organ Tikus Wistar Jantan Sebagai Pelengkap Uji Toksisitas Subkronis' *Skripsi*, Sarjana Farmasi, Fakultas Farmasi Widya Mandala, Surabaya, p.70
- Pratiwi, V. D., 2009, Sintesis Asam-3-klorometilbenzoil Salisilat dan Uji Aktivitas Analgesik pada Mencit (*Mus musculus*), Skripsi Sarjana Farmasi, Universitas Katolik Widya Mandala Surabaya.
- Punchard, N. A., Whelan, C. J., & Adcock, I. (2004). The Journal of Inflammation. *Journal of Inflammation*, p. 1-2

- Raniya, 2009, Sintesis Asam-4-klorometilbenzoil Salisilat dan Uji Aktivitas Analgesik pada Mencit (*Mus musculus*), Skripsi Sarjana Farmasi, Universitas Katolik Widya Mandala Surabaya.
- Ricciotti, E., FitzGerald, G.A., 2011. Prostaglandins and Inflammation. *Arterioscler Thromb Vasc Biol*, **31**:986-1000.
- Rotua, N. 2014, 'Uji Toksisitas Subkronik Senyawa Asam 2-(4-(KloroMetil)Benzoiloksi)Benzoat pada Profil Darah dan Urin Mencit (*Mus musculus*)', *Skripsi*, Sarjana Farmasi, Universitas Katolik Widya Mandala, Surabaya.
- Sesilia, 2008, Studi Hubungan Kadar Piroksikan(Densitometri) Dengan Aktivitas Antiinflamasi Terhadap Tikus Putih Jantan yang Diinduksi Karagen, Skripsi Sarjana Farmasi, Universitas Katolik Widya Mandala Surabaya.
- Siswandono dan Soekardjo, B., 2000, Kimia Medisinal, edisi 2., Airlangga University Press, Surabaya, p. 350
- Sutanto, A.S. 2013, 'Penentuan nilai pka dari senyawa asam 4-(klorometil)benzoil salisilat', *Skripsi*, Sarjana Farmasi, Universitas Katolik Widya Mandala, Surabaya.
- Sweetman, S.C., 2009. *Martindale: The Complete Drug Reference*, 36th ed. Pharmaceutical Press, London, p. 20-21.
- Swingle, K.F., 1974. Evaluation for antiinflammatory activity. In: Scherrer, R.A. (Ed.), *Antiinflammatory Agents Chemistry and Pharmacology*. Vol II, Academic press, New York, p. 40-42, 48.
- Tamayanti, W.D., Widharna, R.M., Caroline, C. dan Soekarjo, B. 2016, Uji Aktivitas Analgesik Asam 2-(3-(Klorometil)Benzoiloksi)Benzoat dan Asam 2-(4-(Klorometil)Benzoiloksi)Benzoat pada Tikus Wistar Jantan dengan Metode Plantar Test, *Ilmu Dasar*, **17**: 47-52.

- Vane J.R. R. M. B. 2003. "The mechanism of action of aspirin."
Thrombosis Research **110**:3.
- Warner, T.D., Nylander, S. & Whatling, C., 2011. Anti-trombosit therapy:cyclo- oxygenase inhibitionand the use of aspirin withparticular regard to dualanti-trombosit therapy. *British Journal of Clinical Pharmacology* **72**:4/619–633.
- Wallace, J.L. 1999, Distribution and Expression of Cyclooxygenase (COX) Isoenzymes, Their Physiological Roles, and the Categorization of Nonsteroidal Anti-Inflammatory Drugs (NSAIDs), *American Journal of Medicine*, **107**: 11S-17S.
- Wongrakpanich, S., Wongrakpanich, A., Melhado, K., & Rangaswami, J. (2018). A comprehensive review of non-steroidal anti-inflammatory drug use in the elderly. *Aging and Disease*, 9(1), 143–150.