

## **BAB 5**

### **KESIMPULAN DAN SARAN**

#### **5.1 Kesimpulan**

Berdasarkan hasil penelitian yang telah dilakukan, maka kesimpulan yang dapat diambil adalah sebagai berikut:

1. Pemberian ekstrak bawang putih fermentasi (*black garlic*) 1,56 mg/20 gBB; 3,12 mg/20 gBB; dan 6,24 mg/20 gBB dapat menurunkan agregasi platelet pada mencit (*Mus musculus*) dengan metode uji waktu pendarahan yang ditandai dengan semakin lama waktu yang dibutuhkan untuk membentuk sumbat hemostasis.
2. Pemberian ekstrak bawang putih fermentasi (*black garlic*) 1,56 mg/20 gBB; 3,12 mg/20 gBB; dan 6,24 mg/20 gBB dapat menurunkan agregasi platelet pada mencit (*Mus musculus*) dengan metode pengukuran volume relatif darah yang ditandai dengan semakin tinggi rata-rata volume darah yang dihasilkan.
3. Bawang hitam memberikan perbedaan yang signifikan dibandingkan dengan aspirin pada dosis 1,56 mg/20 gBB pada uji waktu pendarahan dan dosis 6,24 mg/20 gBB jika dibandingkan dengan aspirin, sedangkan jika dibandingkan dengan kumarin memberikan perbedaan signifikan pada dosis 6,24 mg/20 gBB pada uji waktu pendarahan dan tidak menunjukkan adanya perbedaan signifikan pada uji volume pendarahan.

#### **5.2 Saran**

1. Pengujian aktivitas antiplatelet menggunakan bawang hitam dapat dilakukan penelitian lebih lanjut atau dilakukan dengan subjek berbeda untuk mengetahui aktivitas antiplatelet secara klinis.

2. Sediaan bawang hitam dapat diformulasi dalam sediaan lainnya untuk lebih mudah dikonsumsi masyarakat.

## DAFTAR PUSTAKA

- Agustina, L., Gan, E., Yuliati, N., & Sudjarwo, G. W. (2022). *In vitro* Antiplatelet Activities of Aqueous Extract of Garlic (*Allium sativum*) and black Garlic in Human Blood. *Research Journal of Pharmacy and Technology*, **15(4)**, 1579–1582.
- Ahmed, T., & Wang, C. K. (2021). Black Garlic and Its Bioactive Compounds on Human Health Diseases: A review. *Molecules*, **26(16)**, 1
- Bae, S. E., Cho, S. Y., Won, Y. D., Lee, S. H., & Park, H. J. (2014). Changes in S-allyl Cysteine Contents and Physicochemical Properties of Black Garlic During Heat Treatment. *Lwt*, **55(1)**, 397–402.
- Bayan, L., Koulivand, P. H., & Gorji, A. (2014). Garlic is Said to be A Wonderful Medicinal Plant because of its Antitumoral and Antioxidant Properties, as well as its Ability to Prevent Cardiovascular Diseases, Regulate Blood Pressure, Lower Blood Sugar, and Cholesterol Levels, and be Effective Against. *Avicenna Journal of Phytomedicine*, **4(1)**, 6.
- Bharat, P., R, D. A., & Cr, H. (2013). Detail Comparative Pharmacognostical Study of Single Bulb and Multi Bulb Lasuna (Garlic). *Universal Journal Of Pharmacy*, **2(2)**, 181–186.
- Butt, M. S., Sultan, M. T., Butt, M. S., & Iqbal, J. (2009). Garlic: Nature's Protection Against Physiological Threats. *Critical Reviews in Food Science and Nutrition*, **49(6)**, 538–551.
- Caroline, Foe, K., Yesery Esar, S., Soewandi, A., Wihadmadyatami, H., Widharna, R. M., Tamayanti, W. D., Kasih, E., & Tjahjono, Y. (2019). Evaluation of Analgesic and Antiplatelet Activity of 2-((3-(chloromethyl)benzoyl)oxy)benzoic acid. *Prostaglandins and Other Lipid Mediators*, **145**, 106364.
- Chinara, A., Purohit, P., & Mahapatra, B. (2019). No Association of Bleeding Time and Clotting Time with Four ABO Blood Groups in Healthy Young Adults: An observational study. *National Journal of Physiology, Pharmacy and Pharmacology*, **9(0)**, 1.
- Choi, I. S., Cha, H. S., & Lee, Y. S. (2014). Physicochemical and antioxidant Properties of Black Garlic. *Molecules*, **19(10)**, 16811–16823.

- Departemen Kesehatan, R. (2000). *Parameter Standar Umum Ekstrak Tumbuhan Obat*. 1–77.
- Eikelboom, J.W., Hirsh, J., Spencer, F.A., Baglin, T.P., Weitz, J.I. (2012). Antiplatelet Drugs: Antithrombotic Therapy and Prevention of Thrombosis, 9th ed: American College of Chest Physicians Evidence-based Clinical Practice Guidelines, *Chest*, **141**(2).
- El Haouari, M., & Rosado, J. A. (2016). Medicinal Plants with Antiplatelet Activity. *Phytotherapy Research*, February, 1059–1071.
- Fakhar, H., & Hashemi Tayer, A. (2012). Effect of the Garlic Pill in comparison with Plavix on Platelet Aggregation and Bleeding Time. *Iranian Journal of Pediatric Hematology and Oncology*, **2**(4), 146–152.
- Jain, P. K., & Joshi, H. (2012). Coumarin: Chemical and pharmacological profile. *Journal of Applied Pharmaceutical Science*, **2**(6), 236–240.
- Jennings, L. K. (2009). Mechanisms of Platelet Activation: Need for New Strategies to Protect Against Platelet-Mediated Atherothrombosis. *Thrombosis and Haemostasis*, **102**(2), 248–257.
- Jiang, Z., Wang, L., Wu, W., & Wang, Y. (2013). Biological Activities and Physicochemical Properties of Maillard Reaction Products in Sugar-Bovine Casein Peptide Model Systems. *Food Chemistry*, **141**(4), 3837–3845.
- Katzung, B. G. (2018). *Basic & Clinical Pharmacology* (M. Weitz & P. Boyle (eds.)). McGraw-Hill Education.
- Kementerian Kesehatan RI.( 2017) *Farmakope Herbal Indonesia Edisi II*, Jakarta: Kementerian Kesehatan RI.
- Kimura, S., Tung, Y. C., Pan, M. H., Su, N. W., Lai, Y. J., & Cheng, K. C. (2017). Black garlic: A Critical Review of its Production, Bioactivity, And Application. *Journal of Food and Drug Analysis*, **25**(1), 62–70.
- Lu, P., Liao, T., Chen, Y., Hsu, Y., Kuo, C., Chan, C., Wang, L., Chern, C., & Tsai, F. (2022). *and Aggregation*. 1–12.
- Marieb, E. N., dan Hoehn, K. (2016). *Human Anatomy & Physiology*, 10<sup>th</sup> edition, Pearson Education: United States.

- McFadyen, J. D., Schaff, M., Peter, K. (2018). Current and Future Antiplatelet Therapies: Emphasis on Preserving Haemostasis, *Nature Reviews: Cardiology*, 1-11.
- Palta, S., Saroa, R., & Palta, A. (2014). Overview of the Coagulation System. *Indian Journal of Anaesthesia*, 58(5), 515–523.
- Paniccia, R., Priora, R., Liotta, A. A., & Abbate, R. (2015). Platelet Function tests: A Comparative Review. *Vascular Health and Risk Management*, 11, 133–148.
- Riset Kesehatan Dasar. 2018, Laporan Nasional RISKESDAS 2018. Kementerian Kesehatan RI, Badan Penelitian dan Pengembangan Kesehatan.
- Ryu, J. H., & Kang, D. (2017). Physicochemical Properties, Biological Activity, Health Benefits, and General Limitations of Aged Black Garlic: A review. *Molecules*, 22(6).
- Sembiring, N., & Iskandar, Y. (2019). A Review of Component and Pharmacology Activities of Black Garlic. *Majalah Obat Tradisional*, 24(3), 178–183.
- Sethi, N., Kaura, S., Dilbaghi, N., Parle, M., & Pal, M. (2014). Garlic: a Pungent Wonder From Nature. *International Research Journal of Pharmacy*, 5(7), 523–529.
- Strika, I., Bašić, A., & Halilović, N. (2017). Bulletin of the Chemists and Technologists of Bosnia and Herzegovina Antimicrobial effects of garlic ( Allium sativum L.). *Organic Scientist*, 47, 17–20.
- Tesfaye, A. (2021). Revealing the Therapeutic Uses of Garlic (*Allium sativum*) and Its. *The Scientific World Journal*, 1–7.
- Thachil, J. (2016). *Antiplatelet therapy – a summary for the general physicians Clin Medicine 2016*. 16(2), 152–160.
- Zaragozá, C., Zaragozá, F., Gayo-abeleira, I., & Villaescusa, L. (2021). Antiplatelet Activity of Coumarins: *In vitro* Assays on COX-1. *Molecules*, 26(10), 1–12.
- Ziegler, M., Wang, X., & Peter, K. (2019). Platelets in Cardiac Ischaemia/Reperfusion Injury: A Promising Therapeutic Target. *Cardiovascular Research*, 115(7), 1178–1188.