

Aktivitas Antibakteri Ekstrak Fenol *Gracillaria verrucosa* terhadap Bakteri *Aeromonas salmonicida* secara in vitro

Moh. Awaludin Adam ^{1)*}, Hardoko ²⁾, Maftcuh ²⁾

¹⁾ Program Magister Fakultas Perikanan dan Ilmu Kelautan, Universitas Brawijaya, Malang

²⁾ Fakultas Perikanan dan Ilmu Kelautan, Universitas Brawijaya, Malang

Diterima 31 Januari 2013, direvisi 14 April 2013

ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh aktivitas antibakteri ekstrak fenol *Gracillaria verrucosa* terhadap pertumbuhan bakteri *Aeromonas salmonicida* serta berapa dosis dan lama ekstrak yang optimal. Metode yang digunakan adalah eksperimen dengan Rancangan Acak Lengkap (RAL). Konsentrasi ekstrak yang digunakan adalah 1 ppt, 1,5 ppt dan 2 ppt. Setiap perlakuan dilakukan 3 kali ulangan. Berdasarkan hasil uji Anova (*Analysis of Variance*) menunjukkan bahwa nilai rerata daya hambat pasca pemberian ekstrak fenol *Gracillaria verrucosa* adalah berbeda nyata ($p < 0,05$). Uji BNT (Beda Nyata Terkecil) menunjukkan bahwa ekstrak fenol *Gracillaria verrucosa* pada dosis 1.5 ppt mempunyai nilai rerata daya hambat tertinggi yaitu 15 mm, diikuti dosis 1 ppt dan 2 ppt dengan rerata masing-masing 10 mm dan 11 mm.

Kata kunci: aktivitas antibakteri, *Gracillaria verrucosa*, *Aeromonas salmonicida*.

ABSTRACT

The aim of research were to investigate the effect of antibacterial activity of phenolic extracts *Gracillaria verrucosa* on the growth of bacteria *Aeromonas salmonicida* and the number of doses and optimal time extract. The method used was an experiment with a completely randomized design (CRD). The concentration of the extract used were 1 ppt, 1.5 ppt and 2 ppt. Each treatment was done 3 replications. Based on the test results of ANOVA (*Analysis of Variance*) showed that the average value of the inhibition of post *Gracillaria verrucosa* phenol extract was significantly different ($p < 0.05$). LSD (Least Significant Difference) showed that *Gracillaria verrucosa* phenol extract at a dose of 1.5 ppt has the highest average value of the inhibition by 15 mm, followed by a dose of 1 ppt and 2 ppt with a mean of respectively 10 mm and 11 mm.

Key word: antibacterial activity, *Gracillaria verrucosa*, *Aeromonas salmonicida*.

DAFTAR PUSTAKA

- [1] Zonneveld, N., Huisman, E.A., dan Boon, J.H. (1991), *Prinsip-Prinsip Budidaya Ikan*, Alih bahasa, Penerbit PT. Gramedia Jakarta, Hal 159-160.
- [2] Septiama (2008), *Metode Standar Pemeriksaan HPIK Golongan Bakteri Aeromonas Salmonicida*, Pusat Karantina Ikan departemen Kelautan dan Perikanan, Jakarta.
- [3] Wirsan (2011), *Bakteri Aeromonas salmonicida Penyebab Penyakit Ikan*. Artikel.
- [4] Ellis, A.E. (1998), *Fish Vaccination*, Academia Press, London, 155 pp.
- [5] Cipriano, R.C., B.M. Novak, D.E. Flint, and D.C. Cutting (2001), Reappraisal of the federal fish health recommendation for disinfection eggs of Atlantic Salmon in iodophor, *Journal of Aquatic Animal Health*, **13**, 320-327.
- [6] Masada, C. L., LaPatra, S. E., Morton, A. W. & Strom, M. S. (2002), An *Aeromonas salmonicida* type IV pilin is required for virulence in rainbow trout, *Dis Aquat Org.*, **51**, 13-25.
- [7] Salyers A.A., Whitt D.D. (2002), *Bacterial Pathogenesis*, 2nd ed, Washington, ASM Press., p. 229 – 243.
- [8] Wiseman, P. W. and Petersen, N. O. (1999), Image correlation spectroscopy. II. Optimization for ultrasensitive detection of preexisting platelet-derived growth factor-beta receptor oligomers on intact cells. *Biophys. J.*, **76**, 963-977.
- [9] Maftuch, U. Yanuhar, Satuman, Sukoso, Sumarno (2004), Karakterisasi pili *Vibrio alginolyticus* dan *Vibrio parahaemolyticus* sebagai faktor virulensi bakteri patogen, *Prosiding Simposium Nasional Penyakit Ikan dan Udang*, Universitas Jenderal Soedirman Purwokerto.
- [10] Mtolera, M.S.P and Semesi A.K. (1996), *Antimicrobial Activity of Extract From Six Green Algae From Tanzania*, *Current Trends in Marine Research in East African Region*, <http://iodeweb1.vliz.be/odin/bitstream/1843/469/1/CTMBREAR-211.pdf>.
- [11] Chkhikvishvili, I. D and Z. M. Ramazanov (2000), Phenolic Substances of Brown Algae and Their Antioxidant Activity, *Applied Biochemistry and Microbiology*, Vol. 36 No. 3, 289-291.
- [12] Ballantine, D.L, William H.G, Sylvia M.V, Evelina. A, and Pablo G. ((1987), Antibiotic activity of Lipid-Soluble Extracts from Caribbean Marine Algae, *Hydrobiologia*, 151/152, 463-469.
- [13] Himaya, SWA, B.M Ryu, Z.J Qian, S. K. Kim (2010), *Sea cucumber, Stichopus japonicus ethyl acetate fraction modulates the lipopolysaccharide induced iNOS and COX-2 via MAPK signaling pathway in murine macrophages*, *Environmental Toxicology and Pharmacology*, 68–75.
- [14] Harborne, J. B. (1987), *Metode Fitokimia Penuntun Cara Modern Menganalisis Tumbuhan*, Cetakan Keempat, ITB, Bandung.
- [15] Toban, M.H. (2008), *Perubahan Jumlah Hemosit, Kandungan Anion Superoksida dan Aktivitas Enzim Protease Udang Windu (Penaeus monodon Fabricus) Pasca Pemberian Imunostimulan Gracilaria verrucosa*, Tesis, Fakultas Perikanan dan Ilmu Kelautan, Hal. 90.