ABSTRAK

HUBUNGAN KEBERADAAN GEN RESISTANSI ANTIMIKROBA (*Antimicrobial Resistance Gene*) GOLONGAN TETRASIKLIN DAN FENOTIPE RESISTANSINYA PADA *Vibrio parahaemolyticus*

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Resistansi antibiotik dan penyebaran gen penyandi resistansi berpotensi menimbulkan bahaya terhadap kesehatan masyarakat dan keamanan pangan. Menurut *World Health Organization*, *Multiple Antibiotic Resistance* (MAR) pada bakteri menjadi perhatian utama dan resistansi dapat menjadi masalah serius yang mengancam sistem pengobatan modern. Penelitian ini bertujuan untuk memberikan informasi terkait perkembangan resistansi antibiotik golongan tetrasiklin terhadap *Vibrio parahaemolyticus* di beberapa wilayah Indonesia. Penelitian ini merupakan penelitian deskriptif dengan melakukan uji kerentanan antimikroba pada *Vibrio parahaemolyticus* terhadap antibiotik tetrasiklin dan oksitetrasiklin menggunakan metode uji cakram difusi dan uji konsentrasi hambat minimum. Uji cakram difusi dilakukan dengan meletakan *disk* antibiotik tetrasiklin dan oksitetrasiklin (30 μg) pada permukaan media *Mueller-Hinton Agar* (MHA) yang telah diinokulasi bakteri untuk melihat pembentukan zona hambat. Uji konsentrasi hambat minimum dilakukan pada konsenstrasi antibiotik 0,25-256 μg/mL menggunakan media *Cation Adjusted Mueller-Hinton Broth* (CAMHB) untuk mengamati konsentrasi hambat minimum antibiotik terhadap bakteri. Interpretasi nilai zona hambat dan nilai *minimum inhibitory concentration* mengacu pada CLSI M45, 2015 dan deteksi gen penyandi resistansi *tetA* dan *tetB* menggunakan *Polymerase Chain Reaction* (PCR). Hasil menunjukkan sebanyak 42 isolat *Vibrio parahaemolyticus* tergolong *susceptible* dengan hasil rata-rata zona hambat pada antibiotik tetrasiklin (24,9 mm) dan oksitetrasiklin (22,6 mm), nilai MIC_{50} (0,5 μg/mL) dan MIC_{90} (2 μg/mL) pada antibiotik tetrasiklin dan oksitetrasiklin serta tidak terdapat gen penyandi *tetA* dan *tetB.*

Kata Kunci: *Vibrio parahaemolyticus,* Antibiotik tetrasiklin, Antibiotik oksitetrasiklin, Resistansi Antibiotik dan Budidaya Perairan

ABSTRACT

ASSOCIATION BETWEEN TETRACYCLINE RESISTANCE GENES AND RESISTANCE PHENOTYPE IN *Vibrio parahaemolyticus*

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Antibiotic resistance and the spread of resistance genes have the potential to pose a threat to public health and food safety. According to the World Health Organization, Multiple Antibiotic Resistance (MAR) in bacteria is a major concern and resistance can be a serious problem that threatens the modern medical system. This study aims to provide information related to the development of tetracycline antibiotic resistance against *Vibrio parahaemolyticus* in several regions of Indonesia. This study is a descriptive study by conducting antimicrobial susceptibility tests on *Vibrio parahaemolyticus* to tetracycline and oxytetracycline antibiotics using the disk diffusion test method and the minimum inhibitory concentration test. The disk diffusion test was carried out by placing tetracycline and oxytetracycline antibiotic disks (30 μg) on the surface of Mueller-Hinton Agar (MHA) media that had been inoculated with bacteria to see the formation of inhibition zones. The minimum inhibitory concentration test was carried out at antibiotic concentrations of 0.25-256 μg/mL using Cation Adjusted Mueller-Hinton Broth (CAMHB) media to observe the minimum inhibitory concentration of antibiotics against bacteria. Interpretation of inhibition zone values and minimum inhibitory concentration values refer to CLSI M45, 2015 and detection of *tetA* and *tetB* resistance coding genes using Polymerase Chain Reaction (PCR). The results showed that 42 *Vibrio parahaemolyticus* isolates were classified as susceptible with an average inhibition zone result for tetracycline antibiotics (24.9 mm) and oxytetracycline (22.6 mm), MIC_{50} values (0.5 μg/mL) and MIC_{90} (2 μg/mL) for tetracycline and oxytetracycline antibiotics and no *tetA* and *tetB* coding genes.

Keywords: *Vibrio parahaemolyticus*, tetracycline, oxytetracycline, antibiotic resistance, aquaculture