

## INTISARI

### **Deteksi Resistensi Antibiotik pada Bakteri *Vibrio* spp. dari Budidaya Air Payau di Kabupaten Jembrana, Buleleng, Karangasem, Lamongan, Purworejo, dan Kebumen.**

Penelitian ini menyelidiki resistensi antibiotik pada bakteri *Vibrio* spp. yang diisolasi dari lingkungan budidaya udang dan ikan kerapu di Kabupaten Jembrana, Buleleng, Karangasem, Lamongan, Purworejo, dan Kebumen. Sebanyak 53 isolat bakteri diperoleh melalui metode isolasi dan karakterisasi awal. Metode Kirby Bauer Disk Diffusion digunakan untuk menilai resistensi antibiotik, dengan fokus pada prevalensi resistensi di antara isolat. Indeks multiple antibiotic resistance (MAR) dihitung untuk setiap isolat untuk melihat resistensi multiple antibiotik. Selanjutnya, isolat multiple resistant diuji dengan metode mikrodilusi untuk menentukan nilai MIC dan MBC. Gen resistensi pada isolat multiple resistant kemudian diuji menggunakan PCR konvensional. Temuan menunjukkan indeks MAR pada rentang 0,00 – 0,33 dengan 16 isolat multiple resistant. Antibiotik sulfadiazin menunjukkan resistensi paling tinggi (79,25%) dari isolat yang diuji. Hasil MBC/MIC menunjukkan rentang nilai 1 – 128. Gen resistensi yang terdeteksi pada isolat multiple resistant ini adalah *strB* (100%), *sul1* (81,25%), *tetA* (75%), *QnrS* (12,5%), dan *mphA* (6,25%). Hal ini menyoroti tingkat resistensi antibiotik yang mengkhawatirkan di antara *Vibrio* spp. dalam pengaturan akuakultur, yang dapat menimbulkan risiko bagi keberlanjutan akuakultur dan kesehatan masyarakat. Penelitian ini berkontribusi pada pemahaman dinamika resistensi antibiotik dalam akuakultur dan menekankan pentingnya pemantauan dan pengelolaan penggunaan antibiotik di lingkungan ini.

Kata kunci: resiko resistensi antibiotik, multiple antibiotic resistance, *Vibrio* spp., Disc Diffusion, *minimum inhibitory concentration*, *minimum bactericidal concentration*

## ABSTRACT

### **Detection of Antibiotic Resistance in *Vibrio* spp. Bacteria from Brackish Aquaculture in Jembrana, Buleleng, Karangasem, Lamongan, Purworejo, and Kebumen Districts.**

This study investigated antibiotic resistance in *Vibrio* spp. bacteria isolated from shrimp and grouper farming environments in Jembrana, Buleleng, Karangasem, Lamongan, Purworejo, and Kebumen districts. A total of 53 bacterial isolates were obtained through initial isolation and characterization methods. The Kirby Bauer Disk Diffusion method was used to assess antibiotic resistance, focusing on the prevalence of resistance among isolates. Multiple antibiotic resistance (MAR) index was calculated for each isolate to look at multiple antibiotic resistance. Furthermore, multiple resistant isolates were tested by microdilution method to determine MIC and MBC values. Resistance genes in multiple resistant isolates were then tested using conventional PCR. The findings showed a MAR index in the range of 0.00 - 0.33 with 16 multiple resistant isolates. Sulfadiazine antibiotic showed the highest resistance (79.25%) of the isolates tested. MBC/MIC results showed a range of values of 1 - 128. Resistance genes detected in these multiple resistant isolates were *strB* (100%), *sul1* (81.25%), *tetA* (75%), *QnrS* (12.5%), and *mphA* (6.25%). This highlights the alarming level of antibiotic resistance among *Vibrio* spp. in aquaculture settings, which may pose a risk to aquaculture sustainability and public health. This study contributes to the understanding of antibiotic resistance dynamics in aquaculture and emphasizes the importance of monitoring and managing the use of antimicrobials.

Keyword: antibiotic resistance risk, multiple antibiotic resistance, *Vibrio* spp., Disc Diffusion, minimum inhibitory concentration, minimum bactericidal concentration