

Putri Ajeng Pratiwi. NPM 220351100048. Uji Aktivitas Antagonistik Isolat Bakteri Probiotik Ikan Berbeda Terhadap Bakteri Patogen Ikan Lele Mutiara (*Clarias gariepinus*). Dibawah Bimbingan Dr. Indah Wahyuni Abida, S.Pi, M.Si

ABSTRAK

Budidaya ikan lele mutiara (*Clarias gariepinus*) secara intensif, khususnya dengan sistem bioflok berpotensi meningkatkan akumulasi limbah organik yang dapat menurunkan kualitas air dan memicu perkembangan bakteri patogen. Penggunaan probiotik ikan menjadi salah satu alternatif ramah lingkungan untuk meningkatkan kesehatan ikan melalui mekanisme penghambatan pertumbuhan bakteri patogen. Penelitian ini bertujuan untuk mengisolasi dan mengkarakterisasi bakteri penyusun probiotik ikan berbeda, mengidentifikasi bakteri patogen pada organ ikan lele mutiara (*Clarias gariepinus*), serta menganalisis aktivitas antagonistik bakteri probiotik terhadap bakteri patogen. Probiotik yang digunakan meliputi Fisyh Pro, EM4, Mina Pro, dan Super NB, sedangkan bakteri patogen diisolasi dari organ insang, lambung, usus, dan anus ikan lele. Isolasi dan karakterisasi bakteri probiotik dilakukan pada media *Nutrient Agar* (NA), sedangkan isolasi bakteri patogen menggunakan media selektif *Aeromonas Agar* (AA), *Salmonella Shigella Agar* (SSA), dan *Eosin Metylen Blue Agar* (EMBA). Uji aktivitas antagonistik dilakukan menggunakan metode difusi pada media *Mueller Hinton agar* (MHA) dengan mengamati terbentuknya zona hambat. Hasil penelitian menunjukkan bahwa bakteri penyusun probiotik memiliki kemampuan berbeda dalam menghambat pertumbuhan bakteri patogen, yang ditunjukkan oleh variasi diameter zona hambat yang terbentuk. Perbedaan aktivitas antagonistik tersebut diduga dipengaruhi oleh jenis dan kemampuan masing-masing isolat bakteri probiotik dalam menghasilkan senyawa antimikroba. Penelitian ini diharapkan memberikan informasi dalam pemilihan probiotik ikan yang efektif untuk meningkatkan kesehatan dan keberlanjutan budidaya ikan lele.

Kata Kunci: Ikan lele mutiara (*Clarias gariepinus*), probiotik ikan, bakteri patogen, uji antagonistik, zona hambat.

Putri Ajeng Pratiwi. NPM 220351100048. Testing the Antagonistic Activity of Different Probiotic Fish Bacteria Isolates Against Pathogenic Bacteria in Pearl Catfish (*Clarias gariepinus*). Under the Guidance of **Mrs Dr. Indah Wahyuni Abida, S.Pi, M.Si**

ABSTRACT

Intensive pearl catfish mutiara (*Clarias gariepinus*), especially with the biofloc system, has the potential to increase the accumulation of organic waste, which can reduce water quality and trigger the growth of pathogenic bacteria. The use of fish probiotics is an environmentally friendly alternative to improve fish health through the mechanism of inhibiting the growth of pathogenic bacteria. This study aims to isolate and characterize different fish probiotic bacteria, identify pathogenic bacteria in catfish mutiara (*Clarias gariepinus*) organs, and analyze the antagonistic activity of probiotic bacteria against pathogenic bacteria. The probiotics used include Fisyh Pro, EM4, Mina Pro, and Super NB, while pathogenic bacteria were isolated from the gills, stomach, intestines, and anus of catfish. The isolation and characterization of probiotic bacteria were carried out on *Nutrient Agar* (NA) media, while the isolation of pathogenic bacteria used selective media, namely *Aeromonas Agar* (AA), *Salmonella Shigella Agar* (SSA), and *Eosin Methylene Blue Agar* (EMBA). The antagonistic activity test was carried out using the diffusion method on *Mueller Hinton agar* (MHA) media by observing the formation of an inhibition zone. The results showed that probiotic bacteria have different abilities to inhibit the growth of pathogenic bacteria, as indicated by variations in the diameter of the inhibition zones formed. These differences in antagonistic activity are thought to be influenced by the type and ability of each probiotic bacterial isolate to produce antimicrobial compounds. This study is expected to provide information on the selection of effective fish probiotics to improve the health and sustainability of catfish farming.

Keywords: Catfish mutiara (*Clarias gariepinus*), fish probiotics, pathogenic bacteria, antagonistic test, inhibition zone.