

Aina Dzulqi Aulia, 2020, **Deteksi Cemaran Bakteri *Shigella* sp. sebagai Bioindikator pada perairan tambak udang (*Litopenaeus vannamei*) di Desa Petaonan Bangkalan Madura yang diberi Probiotik**, Skripsi ini di bawah bimbingan Drs. Agus Supriyanto, M.Kes. dan Tri Nurhariyati, S.Si, M.Kes., Departemen Biologi, Fakultas Sains dan Teknologi, Universitas Airlangga, Surabaya.

ABSTRAK

Penelitian ini bertujuan untuk mendeteksi adanya cemaran bakteri patogen *Shigella* sp. dari dua sampel air tambak yang telah diberi probiotik dan satu sampel air sumber melalui identifikasi karakteristik makroskopis, mikroskopis, dan uji biokimia bakteri. Penelitian ini termasuk ke dalam penelitian eksploratif dengan metode observasional. Sampel air diambil sebanyak dua kali pada tambak A yang memiliki luas 1300 m² dan tambak B yang memiliki luas 800 m², sedangkan sampel air sumber yang berasal dari sumur bor diambil sebanyak satu kali. Sampel pertama terdiri dari air tambak A, tambak B, dan air sumber diambil pada tanggal 17 Juni dan sampel kedua terdiri dari air tambak A dan tambak B diambil pada tanggal 29 Juni. Sampel air tambak diambil secara diagonal pada 5 titik yang berbeda terdiri dari empat titik yang letaknya di tepi kolam dan satu titik yang letaknya di tengah kolam. Sampel pada tepi kolam diambil dengan metode *direct surface sampling*. Sedangkan pada daerah tengah kolam diambil dengan metode *surface sampling extention arm*. Untuk mendeteksi adanya bakteri *Shigella* sp. dilakukan pengamatan karakteristik makroskopis pada media SSA, karakteristik mikroskopis dengan pewarnaan Gram, dan uji biokimia. Data hasil pengamatan yang diperoleh kemudian dianalisis secara deskriptif. Hasil pengamatan karakteristik makroskopis pada semua sampel air menunjukkan koloni yang tumbuh berbentuk sirkular, tepian rata, elevasi konveks, dan tidak berwarna. Koloni tersebut diduga sebagai *Shigella* sp. kemudian dimurnikan pada media NA miring dan diamati karakter mikroskopisnya. Hasil pengamatan mikroskopis menunjukkan bahwa semua isolat pada sampel pertama dan sampel kedua merupakan Gram negatif dan berbentuk batang. Sedangkan, hasil identifikasi uji biokimia menunjukkan bahwa pada semua sampel air positif bakteri *Shigella* sp. Hal ini menandakan bahwa air sumber dan air tambak udang vaname di desa Petaonan Bangkalan Madura mengandung cemaran bakteri patogen *Shigella* sp.

Kata kunci: *Shigella* sp., tambak udang, isolasi, identifikasi, probiotik

Aina Dzulqi Aulia, 2020, **Detection of *Shigella* sp. as a bioindicator in shrimp ponds (*Litopenaeus vannamei*) in Petaonan village Bangkalan Madura treated with Probiotics**, This script is guided by Drs. Agus Supriyanto, M.Kes. and Tri Nurhariyati, S.Si, M.Kes., Department of Biology, Faculty of Science and Technology, Airlangga University, Surabaya.

ABSTRACT

This study aims to detect the contamination of the pathogenic bacteria *Shigella* sp. from two pond water samples that have been given probiotics and one source water sample through identification of macroscopic, microscopic characteristics and biochemical tests of bacteria. This research is an exploratory research with observational methods. Water samples were taken twice from pond A which had an area of 1300 m² and pond B which had an area of 800 m², while the source water samples from boreholes were taken once. The first sample consisted of pond water A, pond B and source water was taken on June 17 and the second sample consisted of pond water A and pond B were taken on June 29. Pond water samples were taken diagonally at 5 different points consisting of four points located on the edge of the pond and one point located in the middle of the pond. Samples on the edge of the pool were taken by direct surface sampling method. Whereas in the middle of the pond was taken using the surface sampling extension arm method. To detect the presence of *Shigella* sp. Macroscopic characteristics were observed on SSA media, microscopic characteristics with Gram stain, and biochemical tests. Observation data obtained were then analyzed descriptively. The results of observing the macroscopic characteristics of all water samples showed that the colonies that grew were circular, flat, convex elevation, and colorless. The colony was thought to be *Shigella* sp. then purified on slanted NA medium and observed its microscopic character. The results of microscopic observations showed that all isolates in the first and second samples were Gram negative and rod-shaped. Meanwhile, the results of identification of biochemical tests showed that all water samples were positive for *Shigella* sp. This indicates that the source water and pond water of vaname shrimp in the village of Petaonan Bangkalan Madura contain contaminants from the pathogenic bacteria *Shigella* sp.

Keywords : *Shigella* sp., shrimp pond, isolation, identification, probiotics