ISOLATION AND HEAVY METAL RESISTANT TEST OF BIOFILM FORMING BACTERIA IN BUNGUS OCEAN FISHING PORT (PPS), PADANG CITY

BIOLOGY UNDERGRADUATE THESIS

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PADANG
2023

ABSTRAK

Pencemaran perairan oleh logam berat sebagian besar disebabkan oleh aktivitas masyarakat yang tinggi pada kawasan Pelabuhan Perikanan Samudra (PPS) Bungus, Kota Padang. Logam berat sangat berbahaya karena dapat berakumulasi pada makhluk hidup dan mengganggu keseimbangan ekosistem lingkungan. Penelitian tentang Isolasi dan Uji Resistensi Bakteri Pembentuk Biofilm dari Pelabuhan Perikanan Samudra (PPS) Bungus, Kota Padang telah dilakukan dari bulan April-Oktober 2022 di Laboratorium Riset Mikrobiologi, Jurusan Biologi, Fakultas Matematika dan Ilmu Pengetahuan Alam dan Laboratorium Dasar dan Sentral, Universitas Andalas. Metode yang digunakan dalam penelitian ini adalah Metode Eksperimen meliputi isolasi bakteri, uji resistensi logam bertingkat, uji biofilm, pengamatan makroskopis dan mikroskopis dan pengukuran pertumbuhan isolat. Penelitian ini bertujuan untuk menemukan bakteri pembentuk biofilm yang resisten terhadap logam berat pada konsentrasi 400 ppm serta mengetahui bagaimana profil pertumbuhan isolat bakteri. Hasil penelitian menunjukkan bahwa ditemukan 9 isolat pembentuk biofilm yang resisten terhadap logam berat 400 ppm yaitu 1 isolat bakteri resisten Cd, 1 isolat bakteri resisten Cr, 4 isolat bakteri resisten Cu dan 3 isolat bakteri resisten Pb serta pertumbuhan isolate yang berbeda satu sama lain yang dipengaruhi oleh mekanisme resistensi terhadap logam spesifik yang digunakan.

Kata Kunci : Biofilm, Isolasi, Profil Pertumbuhan, Resisten Logam.

ABSTRACT

Water pollution by heavy metals is mostly caused by high community activity in the Bungus Ocean Fishery Port (PPS) area, Padang City. Heavy metals are very dangerous because they can accumulate in living things and disrupt the balance of the environmental ecosystem. Research on the Isolation and Resistant Test of Biofilm-forming Bacteria from Bungus Samudra Fishery Port (PPS), Padang City has been conducted from April to October 2022 at the Microbiology Research Laboratory, Department of Biology, Faculty of Mathematics and Natural Sciences and Basic and Central Laboratory, Andalas University . The method used in this research is the experimental method which include isolation of bacteria, heavy metal resistant test, biofilm formation test, macroscopic and microscopic observation and measurement of growth profile of isolate. This study aims to find biofilm-forming bacteria that are resistant to heavy metals at a concentration of 400 ppm and to determine the growth profile of bacterial isolates. The results showed that 9 biofilm-forming isolates were found that were resistant to 400 ppm heavy metal, namely 1 Cd-resistant bacterial isolate, 1 Cr-resistant bacterial isolate, 4 Cu-resistant bacterial isolates and 3 Pb-resistant bacterial isolates and the growth of the isolates were different from each other which was influenced by by a resistance mechanism to the specific metal used.

Keywords: Biofilm, Growth Profile, Heavy Metal Resistant, Isolation.