Climate Change, Mangrove & Sustainable Management

ISBN: 978-93-88901-10-9

Title

A Study on The Isolation of Biofilm Producing Microorganisms and Characterization of Their Extracellular Polymeric Substances (EPS) From Sundarban Mangrove Area

Authors **Sudipta Paul Bhattacharya and Debolila Bhattacharjee**

Affiliation *Department of Microbiology, Lady Brabourne College, Kolkata

Email diptaangik@gmail.com

Mobile +91 8017373817

Abstract

A biofilm is a community of bacteria that are formed under stress conditions. The bacterial aggregate produce extracellular polymeric substances (EPS) forming a thick layer covering the bacteria, aiding the cell survive this adverse condition. EPS establish the functional and structural integrity of biofilms and are considered the fundamental component that determines the physiochemical properties of a biofilm. Naturalsamples were collected from mangrove areas of Sundarban and looked for their biofilm forming potential. Although isolates from all the six samples including soil, water and tree surface showed significant biofilm formation, Jetty 2 sample showed most dense biofilm formation even in high salt condition when allowed to grow on solid media. Due to good enough EPS production, Jetty 2 sample was sub-sampled into sample A to E and their EPS were characterized further biochemically. Sample B was found to contain maximum carbohydrate content whereas sample A & C had high protein content. The RNA content was found to be less than standard solution for all the samples. Presence of extracellular enzymes like protease,phosphatise and lipase were also tested. Although the enzyme protease was present in all samples, sample A showed significant amount of the enzyme phosphatase and lipase activity compared to other samples.

Poster