

Isolation, characterization, and identification of potential Diuron-degrading bacteria from surface sediments of Port Klang, Malaysia

ABSTRACT

Diuron is an alternative biocide suggested to replace organotin in formulating antifouling paints to be applied on water-going vessels hull. However, it is potentially harmful to various non-targeted marine organisms due to its toxic properties. Present study aimed to isolate, screen and identify the potential of Diuron-degrading bacteria collected from the marine sediments of Port Klang, Malaysia. Preliminary screening was conducted by exposing isolated bacteria to 430 ng/L (background level), followed by 600 ng/L and 1000 ng/L of Diuron concentrations. Nine bacteria colonies survived the exposure of the above concentrations. However, only two strains can tolerate to survive up to 1000 µg/L, which were then characterised and identified using phenotypic tests and the standard 16S rRNA molecular identification. The strains were identified as *Comamonas jiangduensis* SZZ 10 and *Bacillus aerius* SZZ 19 (GenBank accession numbers: KU942479 and KU942480, respectively). Both strains have the potential of Diuron biodegradation for future use.

Keyword: Diuron; Antifouling; Biodegradation; Bacteria; Marine