

Book of Abstracts

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Isolation of beneficial bacteria for heterocyclic hydrocarbon compounds removal from mariculture environment

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Abstract

Despite the obvious merits of mariculture or cultivation of marine organisms for food, this activity is highly susceptible to environmental chemical pollutants. Components such as polycyclic aromatic hydrocarbons (PAHs) and heterocyclic hydrocarbons (HH) compounds are known to accumulate in marine organisms through bioconcentration, which leads to food safety risks for humans. The objective of this study is to isolate bacteria which can be utilized for heterocyclic hydrocarbon compounds removal from aquaculture environment. Seawater samples were collected from fisherman village Kampung Buntal, Sarawak and confirmation of the presence HH-degrading bacteria are conducted via enrichment cultures using artificial seawater ONR7a media supplemented with carbazole (CAR) as the sole carbon source. Bacterial isolation was conducted on double layered artificial seawater ONR7a agar, supplemented with HH compounds such as CAR, dibenzothiophene (DBT) and dibenzofuran (DBF). A total of four isolates have showed growth on CAR, DBT and DBF. Two most promising bacteria have been identified as *Capnocytophaga* sp. strain EC1 and *Idiomarina* sp. EC2. Gas chromatography–mass spectrometry (GC-MS) analyses were conducted to measure the degradation ability of these bacteria. After a period of 12 days, strain EC1 and EC2 were able to degrade 24.33% and 25.16% of CAR respectively.

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