OIL POLLUTION AND OIL BACTERIA DISTRIBUTION IN THE SOUTH CHINA SEA AND STRAITS OF MALACCA

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BY

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ABSTRAK

Taburan hidrokarbon petroleum di dalam air dan endapan di Port Dickson dan Kuala Terengganu telah dianggarkan pada bulan Mac'98 sehingga Disember'98. Tiga kali penyampelan telah dijalankan ke atas empat stesen di kedua-dua lokasi kajian masing-masing.

Keseluruhan min hidrokarbon petroleum di perairan Port Dickson dan Kuala Terengganu adalah di antara 20.52 – 190.57 ppb and 23.35 – 519.03 ppb. Untuk endapan pula, kandungan adalah di antara 8.85 – 171.53 mg/kg endapan kering dan 0.65 – 7.24 mg/kg endapan kering. Keputusan ini menunjukkan bahawa kandungan hidrokarbon minyak adalah lebih tinggi di perairan Terengganu berbanding Port Dickson. Bagi endapan pula, kandungan hidrokarbon minyak adalah lebih tinggi di Port Dickson. Ini mungkin disebabkan oleh pukulan ombak yang kuat pada monson hujan terhadap tepian pantai dan membawa pergi hidrokarbon minyak di dalam endapan.

Didapati tiada hubungan di antara bakteria pengurai hidrokarbon di kawasan marin dengan hidrokarbon. Ini menunjukkan bakteria pengurai hidrokarbon adalah tidak sesuai dijadikan sebagai indeks pencemaran hidrokarbon minyak di marin.

Peratus bakteria pengurai hidrokarbon terhadap jumlah heterotropik bakteria adalah diantara 0 – 3 %. Ini adalah nilai yang diperolehi oleh kebanyakkan penyelidik di kawasan temperat dan tropikal.

ABSTRACT

The distribution of petroleum hydrocarbons in water and sediment in Port Dickson and Kuala Terengganu were studied between March and December'98. Four sampling stations were established in each study areas, and they were visited three times.

The overall mean of hydrocarbon levels in Port Dickson and Kuala Terengganu coastal waters ranged between 20.52 – 190.57 ppb and 23.35 – 519.03 ppb respectively. As for the sediment, the ranges were between 8.85 – 171.53 mg/kg dry sediment and 0.65 – 7.24 mg/kg dry sediment respectively. The results indicated that there was a higher level of oil pollution in the Terengganu coastal water than that found in the Port Dickson coastal water. However, a reverse observation was detected in the sediment. This was probably due to the monsoon effect on the coastal waters of Terengganu which caused the resuspension of hydrocarbons in the sediment back to the water column.

There was no correlation between the hydrocarbon levels and the oil degrading bacteria population in water. A similar phenomenon was found in the sediment. This reveals that oil degrading bacteria level in seawater is not a good indicator for hydrocarbon pollution.

The percentage of oil degrading bacteria to total heterotrophic bacteria in water and sediment ranged between 0 – 3 %. A similar level was found by many researchers in the temperate and tropical seas.