TEMPORAL DISTRIBUTION OF TAR-BALLS STRANDED ON THE BEACHES OF TERENGGANU

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Temporal distribution of tar-balls stranded on the beaches of Terengganu / Kuhan Chandru.

Lihat sebelah

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By

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LIST OF ABBREVIATIONS

DCM	-	Dichloromethane
%	-	Percentage
g	-	Gram
mg	-	Milli gram
ng	-	Nano gram
µg	-	Micro gram
mL	-	Milli litre
µL	-	Micro litre
gm^{-1}	-	Gram per metre stride
ppm	-	Parts per million
[C]	-	Concentration

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ABSTRACT

Tar-ball distribution on the beach is frequently used as a pollution indicator for the extent of oil spills. The South China Sea off the east coast of Peninsular Malaysia is an active site for offshore oil production; therefore Terengganu is vulnerable to tar-balls pollution. Three sampling stations were established for this study; Pengkalan Maras (Station 1), Kampung Pagar Besi (Station 2) and Kampung Panjang (Station 3). The tar-balls stranded on the beach were collected from August 2004 to January 2005. The parameters studied were the intensity, size distribution and tar-sand proportion of tar-balls. The quantitative and quantitative of hydrocarbons constitution of tar-balls are also studied. The results indicate that the tar ball intensity of all stations have exceeded the standard pollution level set by UNEP (1992). The intensity of tar-balls distribution at Station 1 ranged between 7.47 gm^{-1} and 142.48 gm^{-1}; at Station 2 ranged between 2.57 gm^{-1} and 84.91 gm^{-1}; and at Station 3 ranged 0.63 gm^{-1} and 398.49 gm^{-1}. Generally there was an indication of an increasing trend of tar-balls intensity on beach during the Northeast monsoon season. Majority of the tar-balls collected were small in size. Most of the tar-balls collected consisted of more sand than tar. This study reveals that Terengganu's beach is polluted with tar-balls.

ABSTRAK

Taburan bebola tar di atas pantai lazimnya digunakan sebagai petunjuk pencemaran bagi tumpahan minyak. Laut China Selatan di perairan Malaysia merupakan tempat yang aktif bagi aktiviti carigali minyak mentah, oleh itu Negeri Terengganu sangat mudah terdedah kepada pencemaran bebola tar. Tiga stesen penyampelan telah dipilih untuk kajian ini; Pengkalan Maras (Stesen 1), Kampung Pagar Besi (Stesen 2) dan Kampung Panjang (Stesen 3). Bebola tar di atas pantai dikutip dari bulan Ogos 2004 hingga ke bulan Januari 2005. Paramater yang digunakan dalam kajian ini adalah kepadatan, taburan saiz dan pecahan tar-pasir dalam bebola tar. Kajian tentang kualitif dan kuantitatif komposisi hydrocarbon juga telah dijalankan. Keputusan dari kajian ini mennyatakan bahawa kepadatan bebola tar bagi ketiga-tiga stesen telah melebihi piawai pencemaran yang ditetapkan oleh UNEP (1992). Kepadatan bebola tar di Stesen 1 adalah di antara 7.47 gm^{-1} dan 142.48 gm^{-1}; Stesen 2 diantara 2.57 gm^{-1} dan 84.91 gm^{-1}; dan Stesen 3 pula diantara 0.63 gm^{-1} dan 398.49 gm^{-1}. Secara amnya, terdapat indikasi corak penigkatan kepadatan bebola tar di atas pantai semasa musim monsun timur-utara. Kebanyakan bebola tar yang dikutip adalah kecil dari segi saiz. Kebanyakan bebola tar mengandungi lebih banyak pasir berbanding tar. Kajian ini mendedahkan bahawa, Negeri Terengganu dicemari oleh bebola tar.