

Short Description

SAFETY ASSESSMENT OF PALM KERNEL OIL, PALM KERNEL STEARIN AND PALM KERNEL OLEIN IN MARINE ENVIRONMENT

The many reported spills of bulk cargoes at sea have resulted in the public's grave concern over the safety of products to the marine organisms and habitat. Large volumes of palm kernel oils (PKOs) are shipped throughout the world. Malaysia exported around 850 649 t of PKOs in 2005. During shipment, they were subjected to various kinds of handling. There may well be spillage, in the worst case scenario, an accident with detrimental effect on the environment. All compounds, whether considered pollutants or not, can become pollutants if present in a sufficiently large volume, such as those happens in a major spillage.

The environmental toxicity of crude palm kernel oil (CPKO), crude palm kernel stearin (CPKST) and crude palm kernel olein (CPKOL) was assessed via the marine acute toxicity tests. Based on the study, three loading rates, i.e. 10,100 and 1000 mg litre⁻¹, were used to determine the acute toxicity of water accommodated fraction (WAF) of CPKO, CPKST and CPKOL to *Acartia tonsa* (a marine copepod) and *Skeletonema costatum* (a chain forming marine algae). For the toxicity tests, WAF methodology was used as these palm products are poorly water-soluble.

Measurement of the total carbon (TC) of the test medium before the start of the tests confirmed that there were low levels of solubilized material in the WAFs. The mean concentrations of TC in 1000 mg litre⁻¹ WAFs prepared from CPKO, CPKST and CPKOL were 4.5, 1.0 and 5.2 mg litre⁻¹, respectively.

All the palm products tested were not toxic to *A. tonsa*. CPKO and CPKOL were harmless to *S. costatum* at a loading rate of 10 mg litre⁻¹. They were slightly toxic at 100 mg litre⁻¹ and toxic at 1000 mg litre⁻¹. CPKST was harmless to *S. costatum* at a loading rate of 100 mg litre⁻¹ and only slightly toxic at 1000 mg litre⁻¹. CPKST was less toxic to *S. costatum* than CPKO and CPKOL due to its very low solubility in water as measured by TC analysis of the WAFs.

This short description describes the article by Razmah Ghazali; Mohd Jaaffar Ahmad; Tang Thin Sue; Mohtar Yusof and Salmiah Ahmad . (2006). **Safety assessment of palm kernel oil, palm kernel stearin and palm kernel olein in marine environment**. *J. Oil Palm Res.*18(3): 288-295.

To download the original article please click [download full paper](#).